

[INCH-POUND]
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COMMERCIAL ITEM DESCRIPTION

PUMPING UNITS, SEWAGE, DUPLEX, CENTRIFUGAL, AUTOMATIC WET-PIT TYPE

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

1. **SCOPE.** This commercial item description covers automatic, electric-motor-driven, duplex, centrifugal, wet-pit type, sewage pumps. Capacities for each pump of the duplex unit range from 50 to 1,500 gallons per minute (gpm) (3.15 to 94.62 liters/see); total dynamic heads range from 10 to 90 feet (3,048 to 27,432 mm). This commercial item description covers pumps intended for use in pumping raw sewage that carries solids from a sump tank or tank into a sewer at a higher level.

2. **CLASSIFICATION.** The unit shall be of two types with capacities as specified herein (see 7.2).

Type I - Column type

Type II - Submerged type

3. SALIENT CHARACTERISTICS.

3.1 Description.

3.1.1 Column type. The pumping unit shall consist of two individual, vertical, submerged-type, nonclogging sewage pumps supported from motor by extended discharge column and pump shaft. Each pump shall be furnished with a vertical electric motor, pump-mounting plate, pump support pipe, discharge pipe, lubrication system, and automatic controls and if specified (see 7.2), a sump tank. Options are included in this commercial item description to provide for indoor

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AMSC N/A

FSC 4530

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installation of the pumping units and for outside installation where water-tight enclosures for electrical equipment are required.

3.1.2 Submerged type. The pumping unit shall consist of two individual, vertical, submerged-type, nonclogging sewage pumps. Each pump shall be close coupled with a submersible pump motor, discharge pipe, two vertical guide rails, lubrication system, and automatic controls and if specified (see 7.2), a sump tank. Options are included in this commercial item description to provide for indoor installation of the pumping units and for outside installation where water-tight enclosures for electrical equipment are required.

3.2 Standard commercial Product. The sewage pump shall, as a minimum, be in accordance with the requirements of this commercial item description and shall be the manufacturer's standard commercial product. Additional or better features which are not specifically prohibited by this commercial item description but which are part of the manufacturer's standard commercial product, shall be included in the sewage pumps 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 Design. Pump units and accessories shall be designed to adequately operate and perform to the parameters listed herein.

3.4 Construction. The plan dimensions of the sump cover plate and the length of the pump from the sump cover plate to the bottom of the pump section inlet shall be specified (see 7.2) by the requirements of the procuring activity. These requirements may be indicated in the invitation for bids by any one of the following options:

- a. Depth and plan dimensions of Government-furnished sump, for which pump is intended, as specified (see 7.2).
- b. The manufacturer's standard sump tank is to be furnished with dimensions of pump and tank to be in accordance with manufacturer's recommendations for the specified operating characteristics of the pump.
- c. If a sump tank is to be furnished, dimensions of the tank are to be as specified (see 7.2), by the procuring activity.

In the event the length of pump is by (a) or (c), the dimensions of the pump from the sump cover plate to the bottom of the suction inlet shall be such as to provide a clearance of not less than one discharge pipe diameter nor more than 18 inches (457 mm) from the floor of the sump or sump tank.

3.4.1 Pump casing. The volute and discharge nozzle of the type I pump casing shall be cast in one piece and shall be designed to permit inspection and removal of the impeller.

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3.4.2 Impeller. Unless otherwise specified (see 7.2), the impeller shall be of the totally enclosed type.

3.4.3 Shaft. Pump shafts for type I units shall be high carbon or alloy steel, unless otherwise specified (see 7.2).

3.4.4 Discharge pipe. A discharge pipe running from the pump discharge outlet through the sump cover plate shall be furnished as an integral part of the pumping unit. The discharge pipe shall be gastight through the sump cover plate. Unless otherwise specified (see 7.2), the discharge end of the pipe shall terminate in a screwed or flanged connection in accordance with the manufacturer's standard practice.

3.4.5 Sump cover plate. If specified (see 7.2), a threaded outlet shall be provided to permit installation of a vent pipe.

3.4.6 Coupling. The coupling shall be of adequate type and size to efficiently transfer load from motor to shaft.

3.4.7 Paint schedule. Surface preparation and painting shall be as recommended by manufacturer.

3.4.8 Automatic discharge connection (type II only). Each pump shall be furnished with a submersible discharge connection system to permit removal and installation of the pump without the necessity of an operator entering the wet well. The design must insure an automatic and firm connection of the pump to the discharge piping when lowered into place.

3.5 Performance.

3.5.1 Capacity. Each pump of the duplex pumping unit shall deliver, at rated speed, not less than the specified (see 7.2) gpm against the specified (see 7.2) dynamic heads, while the liquid level is not more than 1 foot above the datum elevation of the pump. Each pump will handle solids to 3 inches (76 mm), or as specified (see 7.2). Definitions will be to the Hydraulic Institute Standards.

3.6 Components and accessories.

3.6.1 Electric motors. Electric motors for type I shall be of the vertical type and shall be rated and constructed in accordance with the applicable provisions of NEMA MG 1. Motors shall be furnished with drip-proof or NEMA type II, weather-protected enclosures as specified (see 7.2). Voltage, phase, and frequency ratings shall be as specified (see 7.2). Electrical motors for type II shall conform to NEMA design Class B, and incorporate Class F insulation materials to withstand a continuous operating temperature of 311 degrees Fahrenheit ($^{\circ}\text{F}$)(155 degrees Celsius ($^{\circ}\text{C}$)). The pump and motor shall be capable of handling liquids with a maximum temperature of 104 $^{\circ}\text{F}$ (40 $^{\circ}\text{C}$). The motor shall be protected from thermal and moisture damage.

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3.6.2 Electrical controls. Enclosures for control switches shall conform to the requirements of NEMA ICS 1 and shall be NEMA type 1, general purpose, NEMA 3R outdoor general purpose, or NEMA type 4 or 4X, water-tight, as specified (see 7.2).

3.6.2.1 Liquid-level control. The pumping unit shall be furnished with the electrical and mechanical devices required to maintain the level in the sump. The controls shall include an alternating circuit that switches pumps between lead and lag.

3.6.2.2 Water-level alarm. When specified (see 7.2), a water level alarm switch complete with an actuating-mechanism shall be provided for operation on an electrical circuit other than the motor circuit. The switch shall be designed to operate an alarm bell or warning light whenever a predetermined water level (high or low) is reached in the sump because of pump failure, fluid inflow that exceeds the combined capacity of both pumps, or if sump level drops to a low level that may allow the pump to run dry causing it to bum up. The alarm circuit shall be latching, requiring a reset by an operator.

3.6.3 Sump tank. When specified (see 7.2), a sump tank shall be furnished with the pumping unit. The sump tank shall be constructed using precast concrete, fiberglass, or other specified non-corrosive material (see 7.2). Unless otherwise specified (see 7.2), the dimensions and materials of the tank shall be as recommended by the manufacturer for use with the pumps furnished under this commercial item description. A standard opening for connection to the sewage inflow pipe shall be furnished in the specified size and location with respect to the top of the tank (see 7.2).

4. REGULATORY REQUIREMENTS.

4.1 Materials. 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 (FAR). Unless otherwise specified herein, all equipment, material, and articles incorporated in the work covered by this commercial item description 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. Unless otherwise specified, none of the above shall be interpreted to mean that the use of used or rebuilt products are allowed under this commercial item description.

4.2 Metric Products. Products manufactured to metric dimensions will be considered on an equal basis with those manufactured using inch-pound units, provided they fall within specified tolerances using conversion tables contained in the latest version of Federal Standard No. 376, and all other requirements of this commercial item description including form, fit and function are met. If a product is manufactured to metric dimensions and those dimensions exceed the tolerances specified in the inch-pound units, a request should be made to the contracting officer to determine if the product is acceptable. The contracting officer has the option of accepting or rejecting the product.

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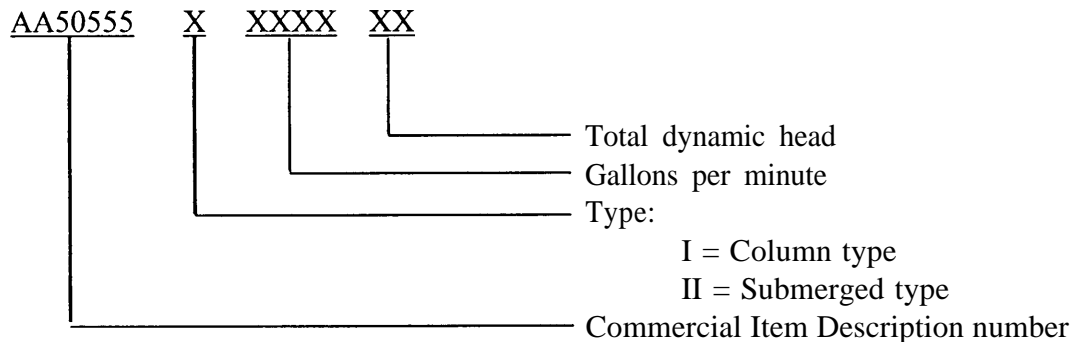
5. QUALITY ASSURANCE PROVISIONS.

5.1 Product conformance. The products provided shall meet the salient characteristics of this commercial item description, 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. The government reserves the right to require proof of such conformance.

6. PACKAGING. Preservation, packing, and marking shall be as specified in the contractor order (see 7.2).

7. NOTES.

7.1 Part Identification Number (PIN). The following part identification numbering procedure is for government purposes and does not constitute a requirement for the contractor. The PIN used for units acquired to this description will be assigned as follows:



7.2 Ordering data. Acquisition documents should specify the following:

- a . Title, number, and date of this commercial item description.
- b . Type of pumping unit (see 2).
- c . When sump tank is to be furnished (see 3.1.1, 3.1.2, and 3.8.3).
- d . Depth and plan dimensions of sump (see 3.6).
- e . When impeller is to be other than totally enclosed type (see 3.6.2).
- f . When other materials are required (see 3.6.3).
- g . When either a flanged or screwed discharge connection is required (see 3.6.4).
- h . When a threaded outlet is required (see 3.6.5).
- i . Capacity of each pump of duplex unit in gpm and discharge head in feet of intended installation. Also location point of reference on sump used to determine discharge head (see 3.7.1).
- j . Size of solids to be handled (see 3.7. 1).
- k . Type of motor enclosure (see 3.8.1).
- l . Voltage, phase, and frequency ratings (see 3.8. 1).
- m . Type of enclosure for control switches (see 3.8.2).
- n . When a water-level alarm switch is required (see 3.8.2.2).
- o . When dimensions and materials of the tank shall be other than the manufacturers standard practice (see 3.8.3).

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- p. Location and size of sewage connection when sump tank is furnished (see 3.8.3).
- q. Level of preservation, packing and marking required (see 6).

7.3 Source of documents.

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

7.3.2 NEMA Standards are available from the National Electrical Manufacturers Association (NEMA), 2101 L Street, N. W., Washington, D.C. 20037.

7.3.3 The Federal Acquisition Regulation (FAR) may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

7.3.4 Hydraulic Institute Standards may be obtained from the Hydraulic Institute, 712 Lakewood Center North, 14600 Detroit Avenue, Cleveland, Ohio 44107.

7.4 National Stock Numbers (NSNs). The following is a list of NSNs assigned which correspond to this commercial item description. The list may not be indicative of all possible NSNs associated with the commercial item description.

none found

7.5 Capacity. The motor must not overload the entire range of the pump curve. This must be achieved without utilizing the motor's service factor.

7.6 Sump dimensions. Most contractors can furnish standard pumps for sump depths up to 10 feet (3,048 mm). Standard sump tanks are available with diameters from 30 inches (762 mm) to 48 inches (1,219 mm) in 6-inch (152 mm) increments.

7.7 Key word listing.

Pump, vertical

MILITARY INTEREST:

Custodians

Army - AT

Navy - YD1

Air Force -99

Review Activities

Air Force -84

DLA - CS

Navy - MC, CG

Army - CE

CIVIL AGENCY COORDINATING ACTIVITY:

GSA-FSS

Preparing Activity

Navy - YD1

(Project 4630-0002)