

Demersible Chopper Pumps

General

Furnish and install in accordance with plans; (Single)(Duplex) automatic Deming Series 7366 Demersible chopper pump(s) each with a capacity of ___ GPM at a total head of ___ feet (including vertical lift from sump, friction in discharge piping and velocity head). The Demersible chopper pump(s) shall be model 7366-3___ (3" discharge) or 7366-4___ (4" discharge) or 7366-6___ (6" discharge) or 7366-8___ (8" discharge) or 7366-X___ (10" discharge). The unit(s) shall be suitable for installation in sump having a depth of ___ feet. Each pump shall be capable of pumping solids laden waste water and unscreened sewage consisting of fibrous and stringy materials at heavy consistencies. The pumps shall be able to chop/macerate solids without clogging with chopped solid size not less than 1 inch, and the chopping mechanism shall be an integral part of the pump. The pump(s) shall be capable of handling liquids up to 104 deg F continuous and 160 deg F intermittent.

Pump Motor

The chopper pump's submersible motor shall be sized to operate pump without exceeding the nameplates rating. The pump motor shall be (1750)(1150)(870) RPM, ___ HP (maximum), 3 phase, 60 hertz and (208)(230)(460)(575) volts.

The motor shall have two mechanical seals installed in tandem with an oil chamber between the pump and motor. Seal materials of construction shall be Silicon Carbide/ Silicon Carbide for the pump-end seal and Carbon/ Ceramic for the motor-end seal. Motor shall have built-in thermal overload protection with automatic reset. The inner seal chamber shall have a moisture sensing probe with leads for connection to a relay with test button. Motors shall be dielectric oil filled for optimal thermal management and maximum bearing life. Air-filled motors with grease lubricated bearings shall not be acceptable. The motor windings shall utilize spike resistant Class H varnish and magnet wire. The motor shall meet the NEMA Design B standard and be inverter duty rated per NEMA MG1.

Motor shall be CSA Listed to the CSA harmonized standard, certifications to include rating on Class I Division 1 Group C&D Explosion-Proof with a T4 temperature rating.

Pump Construction

Pump case, motor case, seal plate and adapter shall be ASTM A-48 Class 30 cast iron. Discharge flange shall be standard 125#, and slotted to accommodate (3")(4")(6")(8")(10") ANSI or ISO flanges. The volute shall be provided with an external replaceable bronze wear ring at the inlet.

The impeller shall be ASTM A-536 ductile iron (ASTM A-532 class III Type A White Iron for abrasive applications) with a keyed, tapered shaft bore. The impeller shall be enclosed (mono)(dual)(tri) vane, solids handling type, with pump out

vanes, designed to pump industrial solids laden wastewater. Shaft shall be constructed of 416 stainless steel and feature a tapered impeller end to automatically center and self-seat the impeller for vibration free operation. All exposed hardware including the oversized lifting bail shall be 300 series stainless steel.

The chopping mechanism shall consist of a bladed stationary plate and a rotating blade. Both blades shall only be constructed of 440C stainless steel, heat treated to 53-60 HRC. The rotating blade shall be press-fitted on to the impeller and secured. The bladed stationary plate shall be fixed to the volute. The bladed stationary plate shall be adjusted to maintain a clearance of 0.001" to 0.008" between the stationary blade and rotating blade. The bladed impeller assembly shall be dynamically balanced to ISO G6.3 specifications. The bladed stationary plate shall be sealed internally against the volute with an O-ring. To upgrade from a submersible solids handling non clog pump into a chopper pump, the pump manufacturer shall be able to provide the bladed stationary plate, the rotating blade and all other necessary components.

The pump shall be equipped with (30)(50)(75)(100) ft. of a CSA-qualified submersible quick connect power cable constructed in accordance with type W guidelines and shall include the moisture and temperature sensor leads. The pump shall have dual or tri voltage motors, that will provide the ability to change voltage by just changing the power cable. For #2 and #3 frame pumps, the cable entry system shall consist of a voltage-selectable expanding elastomeric plug held in place by a cast stainless steel plate indicating voltage and max amps. For #4 and #5 frame pumps, cord connection shall be a pump mounted plug and a rigid cord socket contained by a cast iron housing bolted to the motor with epoxy-potted cable connections and sealed by compressed O-rings.

PUMP TEST:

The pump manufacturer shall perform a standard three point performance test at the minimum. If certified testing is required, the manufacturer shall offer to perform tests in accordance with Grades B, E and U of Hydraulic Institute standards. Additionally,

1. A check of the motor voltage and frequency shall be made as shown on the name plate.
2. A motor and cable insulation test for moisture content or insulation defects shall be made per CSA criteria.
3. A performance curve from the production line test showing head versus flow shall be included in the Installation and Operation Manual shipped with each pump.
4. A written report shall be available showing the aforementioned tests have been performed in accordance with the specifications.