

"QUALITY PUMPS SINCE 1939"

SECTION: Z2.10.220

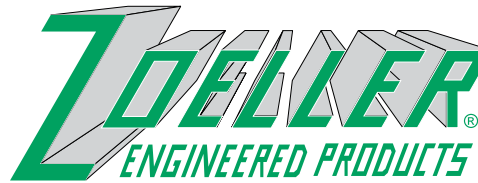
ZM1743

0406

Supersedes

1205

Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.



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## 61 HD SERIES SUBMERSIBLE PUMP GUIDE SPECIFICATIONS Standard Solids Handling Pumps 1-7½ BHP / 1750 RPM



Covered by US  
Patent Number  
6,364,620

### 1.01

GENERAL: Contractor shall furnish all labor, material, equipment and incidentals required to provide \_\_\_\_\_ (QTY.) solids handling submersible centrifugal sewage pump (s) as specified herein.

### 2.01

OPERATING CONDITIONS: Each pump shall be rated at \_\_\_\_\_ HP, \_\_\_\_\_ Volts, \_\_\_\_\_ Phase, 60 Hz, 1750 RPM. The unit shall produce \_\_\_\_\_ GPM at \_\_\_\_\_ feet of TDH.

The pump shall be non-overloading throughout the length of the curve and be capable of operating continuously unsubmerged without damaging the pump. The reserve service factor shall be a minimum of 1.20. The submitted performance curve shall show in addition to the head and capacity performance, the efficiency and the motor rating curve. The curve data shall be per the SWPA (Submersible Wastewater Pump Association) approved curve format.

The pump housing configuration shall have a

- \_\_\_\_\_ 3" N.P.T. vertical discharge w/ 2.5" solids capacity.
- \_\_\_\_\_ 3" flanged horizontal discharge w/ 2.5" solids capacity.
- \_\_\_\_\_ 4" flanged horizontal discharge w/ 2.5" solids capacity.
- \_\_\_\_\_ 4" flanged horizontal discharge w/ 3" solids capacity.
- \_\_\_\_\_ 4" flanged horizontal discharge for Dry Pit installation (1-3 BHP only).

### 3.01

CONSTRUCTION: Each pump shall be of the close coupled Model \_\_\_\_\_ submersible type as manufactured by the Zoeller Engineered Products of Louisville, Ky. ( 800-928-7867 ). The castings shall be constructed of epoxy coated class 30 cast iron. The motor housing shall be finned and oil-filled to dissipate heat and enable the unit to operate for continuous duty unsubmerged without damage to the motor. All external-mating parts shall be machined and sealed with a buna-n square ring. All fasteners exposed to the liquid shall be 300 series stainless steel. The motor shall be protected on the topside with sealed junction chamber, which in the event of cord damage will prevent moisture wicking into the motor housing. The motor shall be protected on the lower side with a tandem mechanical seal arrangement with each seal having a separate spring assembly. The upper and lower ball bearings shall be capable of handling all thrust loads. The pump housing shall be of the concentric design thereby equalizing the pressure forces inside the housing, which will extend the service life of the seals and bearings. The top cap shall have cast in lifting lugs.

\_\_\_\_\_ Provide pump with sensor option. This includes the patented moisture detection system, protecting the motor against moisture entering into the upper junction chamber or lower seal cavity. It also includes the thermal sensors inside the motor housing, providing temperature protection.

\_\_\_\_\_ An optional high temperature design for pumping liquids with temperatures up to 175°F.

### 4.01

ELECTRICAL POWER CORD: The pump shall be supplied with 25' (\_\_\_\_\_ 50' or \_\_\_\_\_ 75' optional) of multiconductor power cord. It shall be SO type cord capable of continued exposure to the pumped liquid. Power cord shall be sized for the rated full load amp loading of the pump in accordance with the National Electrical Code. Power cable shall enter into the junction chamber through a compression type-sealing gland. Water sealing and strain relief is separated. Each individual conductor shall be sealed against wicking should the cable become damaged. The entire junction chamber shall be sealed off from the motor housing. The junction chamber shall contain a set of moisture detection probes, activating an alert signal in the case of liquid entry.

### 5.01

MOTOR: The oil-filled motor shall a Class F insulated NEMA B design rated for continuous duty. At maximum load, the winding temperature will not exceed 250 degrees F unsubmerged. Since air-filled motors are not capable of dissipating heat, they shall not be considered equal.

\_\_\_ An optional Inverter Duty motor for applications using VFD controls.

#### 6.01

BEARINGS AND SHAFT: Upper and lower ball bearings made of high carbon chromium steel shall be provided to prevent shaft deflection by withstanding all thrust and radial loads. The motor shaft shall be made of 416 SS and have a minimum diameter of 1.125".

#### 7.01

SEALS: Pump shall have a dual mechanical seal configuration with the seals mounted in tandem. Each seal assembly having carbon rotary and ceramic stationary faces with buna-n elastomer and 316 SS spring. It shall be equal to a Crane Type 21 configuration. Double seals with a common intermediate spring shall not be considered equal.

Optional seal faces shall be

\_\_\_ Silicon carbide / carbon \_\_\_ Lower / \_\_\_ Upper.

\_\_\_ Silicon carbide / silicon carbide \_\_\_ Lower / \_\_\_ Upper.

#### 8.01

IMPELLER: The impeller shall be a fully balanced semi-open design not requiring wear ring for maintaining efficiency. The impeller shall be made of ductile iron. It shall be capable of passing a solid sphere equal to the solids capacity specified in section 2.01. It shall have pump out vanes located on the back shroud to keep debris away from the seal area. It is to be keyed and bolted to the shaft. Attempts to improve efficiency by painting impeller shall not be acceptable.

Optional impeller design shall be

\_\_\_ Bronze semi-open.

\_\_\_ Ductile iron vortex.

\_\_\_ Impeller trim \_\_\_\_\_ GPM @ \_\_\_\_\_ feet of TDH.

#### 9.01

PAINTING: The pump shall have a corrosion resistant baked on epoxy powder coating on all exterior surfaces.

\_\_\_ Optional coating shall be double epoxy finish protecting all castings coming in contact with the liquid.

#### 10.01

SERVICEABILITY: Components required for the repair of the pump shall be readily available within 24 hours. Components such as mechanical seals and bearings shall not be of a proprietary design and be available from local industrial supply houses. Special tools shall not be required to service the pump. A network of service stations shall be available nationwide in those cases where service requirements are beyond the scope of in-house service mechanics.

#### 11.01

SUPPORT: The pump shall have cast in support legs enabling it to be a freestanding unit. The legs will be high enough to allow the solids capacity listed in 2.01 to pass below the housing.

For those situations where a freestanding unit is not desired, the following support components are available.

\_\_\_ Rail system with pump suspended from a base elbow by means of a sealed pump plate attached to the pump. Rail and guide brackets shall be SS. Rail pipes to be provided by others.

\_\_\_ SS intermediate stabilizer.

\_\_\_ 4" x 6" Cast iron dry pit elbow with clean-out fitting for locating pump outside of basin (1-3 BHP only).

#### 12.01

TESTING: Each pump shall have a 20 - 30 minute operational test before shipment. The test shall be conducted with the pump submerged in a tank thereby duplicating its actual performance. A computer-generated report shall be available following this test. The report will show pump performance, amp draws, efficiencies and power consumption at various performance points for each pump supplied at various heads.

\_\_\_ An optional certified test based on the Hydraulic Institute's standard or SWPA Test Standard for submersible pumps.

\_\_\_ Start-up services at the job site by an authorized representative of Zoeller Engineered Products shall be required. Start-up report form ZM1074 should be completed in the presence of the installers and returned to the Project Engineer or Zoeller Engineered Products.

#### 13.01

WARRANTY: The five year pro-rated warranty for permanent municipal wastewater lift stations shall be in writing in a published service bulletin. Labor charges from an authorized service station for repairs will be included in this warranty agreement during the first 12 months of operation.