

mody

ELECTRIC SUBMERSIBLE SEWAGE PUMP

MSP SERIES

SPECIFICATIONS

Solid Handling: up to 4"/100mm

Impeller Types: Vortex or channel

Max. Temp. of Pumped Fluid: 104°F/40°C

Max. Starts/Stop Per Hour: 15

Max. Submergence: 66'/20m



MOTOR: NEMA B design, die cast aluminum squirrel cage rotor, induction motor rated for continuous duty with 1.15 service factor. High Efficiency in compliance with “NEMA Energy Efficient Class”. Moisture resistant Class “H” (180°C temperature rating) insulated stator windings, watertight air-filled IP68 enclosure. UL listed components, rated for VFD operation. Siemens design with 2, 4 and 6-pole speed options. Klixon temperature sensors embedded in stator windings for thermal overload protection. Moisture detection probes in main motor cavity, top-end power cable terminal chamber and seal oil reservoir. Optional maintenance free, integral closed loop cooling system available for dry pit or partial submerged continuous duty. Cooling system is separate from pumped liquid. No external cooling source required.

POWER SUPPLY: 208/230/460/575 volts +/-10%, 3-phase, 60-hz AC Supply.

SHAFT: The pump shaft is integral with the motor. The shaft material is AISI 431 stainless steel for corrosion resistance and strength, and conservative in design to accommodate maximum torque requirements at normal start-up condition or any operating point in the system. The shaft has a polished finish with accurately machined shoulders to accommodate bearings, seals and impeller.

BALL BEARINGS: The rotating element is carried by two ball bearings. The lower bearing is a double angular contact ball bearing, C3 with H7 fit, capable of carrying high thrust and radial loads. The upper bearing is a deep groove single row ball bearing, C3 with H7 fit. The bearings are filled with high temperature grease containing special anti-corrosive additive, maintenance free for life. Bearings are conservative in size and properly spaced to transfer all radial and axial loads to the pump housing and minimize shaft deflection. B10 bearing life is greater than 50,000 hours.

POWER CABLE: 33'/10m in length, sized according to IEC, NEC or CSA standards, water/oil resistant EPR insulated, copper conductor flexible cable and additional control cable for moisture sensor and thermals, capable of continuous submerged operation underwater at temperatures to 90°C and to a depth of 66 feet. Additional cable lengths optional.

CABLE ENTRY / JUNCTION CHAMBER SEAL: The cable entry design does not require specific torque requirements to insure a watertight seal. The cable entry consists of a cylindrical elastomer grommet, flanked by stainless steel washers. A cable cap incorporating a strain relief mounts to the cable entry boss compressing the grommet ID to the cable while the grommet OD seals against the bore of the cable entry.

The junction chamber is isolated and sealed from the motor by means of sealing glands and O-rings. Electrical connections between the power cables and motor leads are made via a post type terminal board.

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SHAFT SEALS: Cartridge double mechanical shaft seal system to facilitate easy seal changes in the field without special tools. Seal faces are silicon carbide against silicon carbide for long life and resistance to heat and abrasion. Seals operate maintenance free in a reservoir of food grade oil that hydro-dynamically lubricates the seal faces at a constant rate, providing superior heat transfer and maximum cooling. The reservoir is designed to prevent overfilling and to provide lubricant expansion capacity. The oil tap drain has a positive anti-leak seal and is easily accessible from the outside of the pump. The seal system does not rely upon the pumped media for lubrication and will not be damaged when the pump is run dry.

SEAL FAILURE EARLY WARNING SYSTEM: A moisture detection probe is provided in the seal oil chamber for detecting the presence of moisture. A relay device (by others) mounted in the pump control panel or in a separate enclosure sends a low voltage, low amperage signal to the probe. If moisture is present (determined by decreased resistance signals), the relay device energizes a warning light or shutdown circuit in the control panel, protecting the motor from damage.

IMPELLER: Enclosed or vortex, specifically designed for non-clog operation, dynamically balanced and trimmed to meet specified hydraulic operating conditions. The impeller is designed with integral back vanes to prevent solids build-up in the mechanical seal area and to control axial thrust loads on bearings during operation. The impeller slip fits onto the motor shaft with a drive key and is fastened to the shaft by a stainless steel lock screw which is mechanically prevented from loosening by a ratcheting washer assembly that is positively engaged. Channel and vortex impellers are interchangeable with one another in the field without modification to the pump or the need for special tools.

ADJUSTABLE WEAR RING SYSTEM: A replaceable wear ring is securely fitted the pump casing by no less than 3 stainless steel set screws. The wear ring is capable of axial adjustment to reduce hydraulic losses between itself and the enclosed type impeller when wear affects pump efficiency and “Ragging”. This adjustment does not require special tools.

FAST LOCK LATCH BOLTS: The pump includes fast lock / quick release mechanisms with 304 stainless steel latch bolts to allow easy removal of the motor unit from the pump volute without disturbing system piping and the need for special tools. With this feature, a volute hand-hole cover for cleanout access is not required.

LIFTING HANDLE: The pump is supplied with a high quality, high strength stainless steel lifting handle. The handle has a wide opening for easy pump handling and simplified retrieval from any installation.

PUMP VOLUTE: The pump volute is a centerline discharge design, with optional inlet and discharge sizes as specified by technical documentation. Passages are smooth and sized to pass large diameter solids.

MATERIALS OF CONSTRUCTION

Description	Material
Stator Casing:	Cast iron ASTM A-48, Class 35
Pump Volute/Casing:	Cast iron ASTM A-48, Class 35
Casing Wear Ring:	Cast iron ASTM A-48, Class 35
Lifting Handle:	AISI 316 stainless steel
Impeller:	Ductile iron ASTM A-395, Grade 60-40-18
Shaft:	AISI 431 stainless steel
Shaft Sleeve:	AISI 431 stainless steel
Hardware:	AISI 304 stainless steel
Mechanical Seal:	Fast change cartridge, double with silicon carbide vs. silicon carbide faces
O-Rings:	Nitrile rubber

SURFACE TREATMENT: Primer with Epoxy and subsequently coated with black air dry enamel.