

**CORNELL PUMP COMPANY****Immersible Motors****GENERAL**

Cornell's totally enclosed blower cooled immersible squirrel cage induction motors conform to the latest applicable requirements of NEMA, ANSI, IEEE and NEC.

Motors are designed for continuous duty for three phase, 60 Hz, 200, 230, 230/460 or 575 volt operation. NEMA design B.

Ratings are based on a 104° F (40° C) ambient, 3,280 foot (1000 meter) altitude or lower operation with a maximum winding temperature rise of 185° F (85° C) by resistance at a 1.0 service factor.

Motors are furnished with Class F insulation. They are capable of operating at 1.15 service factor but should be selected for operation within their full load rating without applying the service factor.

Motors are Reliance XE Premium Efficiency design, using low loss silicon lamination steel.

Motors can be equipped with space heaters; either by thermostats in series or thermistors.

MECHANICAL**Bearings and Lubrication**

Bearings are either double shielded or of open construction, deep groove Conrad type, and have a Class 3 internal fit conforming to AFBMA std 20.



Bearings are selected to provide **L10 life of 100,000 hours minimum** for flexible direct coupled applications.

Bearing temperature rise should not exceed 140° F (60° C) for 3600 RPM motors and 122° F (50° C) for 1800 RPM and slower motors. Temperature rise is measured by RTD or thermocouple at the bearing outer race.

Bearing AFBMA identification is on the motor nameplate.

Motors are constructed with a re-greasable lubrication system.

Motors are greased with a premium moisture resistant polyurea thickened grease containing rust inhibitors suitable for operation in temperatures ranging from -13° F (-25° C) to +248° F (+120° C).

Enclosure

Motor enclosures, including frame, end brackets, fan shroud and conduit box, and cover are of cast iron type ASTM A48 class 25 or better.

The motor's main conduit box is of cast iron construction, rotatable in 90° increments with a bolted, sealed cover. Motor leads are potted into the motor frame to prevent any moisture leakage into the frame. Thirty feet of power cable are provided and the power leads enter the conduit box through either a sealable water tight gland or a potted hub that is bolted and gasketed to the conduit box while still allowing the power cable to be removed. Conduit box and covers are designed to **prevent moisture leakage up to 30 feet submergence for a period of 2 weeks.**

Connection diagrams are affixed to the inside of the conduit box or on the nameplate.

Motors are equipped with humidity/moisture detectors, 1 internal to the motor and 1 in the main conduit box. Humidity/moisture detector leads may use the main conduit box or a separate conduit box. If a separate conduit box is used, leads are sealed.

Motors are blower cooled. When the motor is submerged, the blower is disabled so that the main motor

will not overload. The blower fan is corrosion resistant, non-sparking bi-directional. The main motor shaft does not protrude through the opposite drive end bracket and there is no running fit so entrance of water into the motor is prevented. If the motor is submerged, the blower motor and/or fan may require servicing once returned to an unflooded state.

The motor's rotor construction is of cast aluminum or fabricated copper and their alloys. Rotors are dynamically balanced to 1/3 of NEMA standards and are keyed to the shaft and rotating assemblies. Balance weights if required are secured to the rotor resistance ring or fan blades by rivets.
Do Not Use machine screws and nuts.

These motors are designed to prevent infiltration of water along the shaft by utilizing a tandem lip seal arrangement with pressurized grease. Pressurized grease and lip seals are **capable of withstanding submergence of 30 ft. for a period of 2 weeks.** As an added precaution, the pumps are designed to prevent liquid from coming in contact with the lower lip seals.
All mounting hardware is hex head, high strength, SAE Grade 5, and plated for protection.
Do Not Use screwdriver slot fasteners on any frames.

A corrosion resistant stainless steel nameplate is affixed to the motor frame with stainless steel or brass drive pins. Nameplate information includes all required NEMA data and AFBMA numbers.

All mating frame fits have rabbet joints with O-rings to ensure a watertight design.

All motor parts, including frame, bracket, fan cover and terminal box receive a minimum of two coats severe duty, high grade epoxy paint. All motor parts in frame size 449 and smaller are primed with an epoxy primer. These parts include the stator/frame assembly, rotor assembly, end brackets, fan cover, conduit box, and conduit box cover. The completed motor assembly successfully withstands salt spray tests for corrosion per ASTM B-117 for 96 hours.

ELECTRICAL

Motors operate successfully under power supply variations per NEMA MG1-1993-14.30.

Motors are NEMA Design B with torque and starting currents in accordance with NEMA-MG1-1993-12.35 and 12.38 except in special applications where Design C torque is required.

Motors have copper windings.

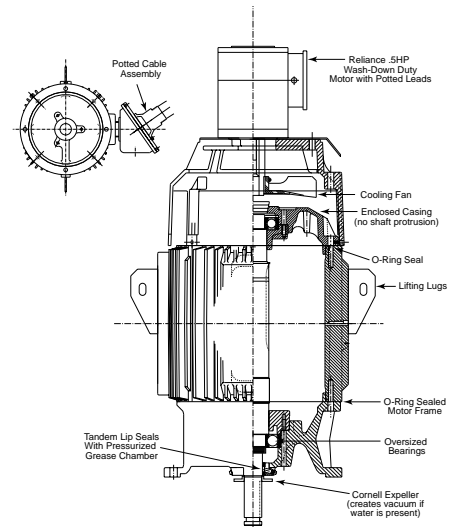
Motor insulation is class F minimum on all motors. Insulation systems are evaluated in accordance with IEEE 117 classification tests.

Motor leads are non-wicking type, Class F temperature rating or better and permanently numbered for identification.

Each completed and assembled motor receives a routine factory test per NEMA standards.

NOISE

The no-load sound pressure level, based on the A-weighted scale at 3 feet (.914 meters) when measured in accordance with IEEE std 85 is 85 dBA or less.



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