

# ENGINEERED PRODUCTS

## 3NC SERIES - 3" FLANGE MODEL



### WRITTEN SPECIFICATIONS

**Scope:** Furnish and install \_\_\_\_\_ model 3NC submersible non-clog sewage pumps as manufactured by Franklin Electric. Pumps shall be capable of delivering the following performance points:

\_\_\_\_\_ GPM @ \_\_\_\_\_ TDH

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Pump shall have a \_\_\_\_\_ TDH shut-off head capability at a minimum and shall be \_\_\_\_\_ hp, \_\_\_\_\_ phase, \_\_\_\_\_ volts, \_\_\_\_\_ amps, and \_\_\_\_\_ Hz. Pumps shall be manufactured by a company who has been regularly engaged in the manufacture and assembly of wastewater pumps for a minimum of five (5) years. Specific pump item number to be \_\_\_\_\_ and specific pump model number to be \_\_\_\_\_.

**Discharge Flange:** Pump(s) shall have 3" 125# ANSI discharge flange. Flange connection shall support the full weight of the submersible pump without the need for any supports under the pump which may cause solids to build up and starve the inlet of the pump.

**Solids Handling Capability:** Pump shall be capable of handling non-abrasive 2-1/2" spherical solids.

**Motor:** Motor to be designed for continuous operation when fully submerged (104 °F maximum). Motor to have Class F temperature rated insulation system minimum. It is fully submerged in high-grade dielectric oil for excellent heat dissipation and permanent lubrication of the bearing and sealing systems. Stator to be completely sealed from the environment by use of circular cross section fluoroelastomer (FKM) O-rings accurately fitted into machined grooves which shall provide designed compression of metal to metal fits. NBR O-rings shall not be considered equivalent due to their lower temperature ratings.

**Motor Housing:** The motor housing shall be cast from ASTM A48 class 25 equivalent gray cast iron of sufficient thickness to withstand 1.5 times the shut-off pressure generated by the largest impeller available for this model in accordance with the Hydraulic Institute standards.

**Mechanical Shaft Seals:** Shaft seal to be a tandem silicon carbide vs. silicon carbide lower seal and silicon carbide vs. silicon carbide upper seal operating in an oil bath for lubrication. Hardware to be 300 series stainless steel and elastomers to be a NBR material that is safety agency approved.

**Impeller:** Impeller to be constructed of high quality ASTM A536 80-55-06 equivalent grade ductile iron utilizing a two vane semi-open, balanced, non-clogging design with pump-out vanes to protect the mechanical seal and assist with thrust loading. Gray cast iron A48 Class 30 rated shall not be considered equal and shall not be allowed.

**Seal Sensor Probe:** Seal-fail indicating probe shall be integrated into the seal-fail detection chamber utilizing a single probe. It shall send a signal to the pump control panel if a fault has occurred indicating the pump should be removed for service. This feature requires seal-fail circuitry to be integrated into the control panel.

**Bearing System:** Single-row upper and double-row lower ball-type, anti-friction bearings shall support the heavy-duty rotor shaft and handle all radial and axial loads imposed by the impeller while limiting shaft deflection at the mechanical seal faces. The bearings shall be designed for a B-10 life expectancy of 30,000 hour minimum. Sleeve bearings shall not be considered equal and shall not be allowed.

**Pump Wiring Harness:** Pump wiring harness shall be sealed as it enters the motor housing through a dual-moisture intrusion system. This system shall be comprised of a safety agency listed epoxy working in conjunction with an oil- and chemical-resistant grommet. Integral to this system, the individual conductors shall have the insulation removed and epoxy shall be allowed to form a leak-proof seal against oil wicking around the individual copper strands during the potting process. Cable shall be 4/C 8 AWG oil- and water-resistant Type SOOW or SE00W rated for 600 V at a temperature of -40 °C to 90 °C. All other cables of lesser specification shall not be considered equal.

**Thermal and Seal-Fail Wiring Harness:** Thermal cut-out and seal-fail wiring harness shall be sealed as it enters the motor housing through a dual-moisture intrusion system. This system shall be comprised of a safety agency listed epoxy working in conjunction with an oil- and chemical-resistant grommet. Integral to this system, the individual conductors shall have the insulation removed and epoxy shall be allowed to form a leak-proof seal against oil wicking around the individual copper strands during the potting process. Cable shall be 4/C 16 AWG oil- and water-resistant Type SOOW or SE00W rated for 600 V at a temperature of -50 °C to 105 °C. All other cables of lesser specification shall not be considered equal.

