



**TRN - SERIES**  
SELF ASPIRATING SUBMERSIBLE AERATOR

**SAMPLE  
SPECIFICATIONS**

**1. SCOPE OF SUPPLY -**

Furnish and install TSURUMI Model \_\_\_\_\_ Submersible Self Aspirating aerator(s). Each unit shall be capable of delivering \_\_\_\_\_ lbs. of Oxygen per horsepower ( \_\_\_\_\_ kg per kW) in clean water at an operating depth of \_\_\_\_ ft. submergence, when installed in accordance with manufacturer's directions. The aerator(s) shall be designed to operate in waste water, sewage or effluent containing solids while entraining aspirated air on a continuous operation basis without damage during operation or de-rating. The aerator(s) shall be capable of operation at a minimum liquid depth of \_\_\_\_ feet and a maximum liquid depth of up to \_\_\_\_ feet. The unit(s) shall be designed so that the shaft output power of \_\_\_\_ HP (\_\_\_\_ kW) shall not be exceeded. Sound pressure levels at a distance of \_\_\_\_ feet shall be less than \_\_\_\_ dB A per ISO 9614-2 or equivalent testing standards. Each unit shall include manufacturer's installation instructions, operation instructions, maintenance information and replacement and spare parts information.

**2. MATERIALS OF CONSTRUCTION -**

Construction of major parts of the aeration unit(s) including oil casing and guide vane shall be manufactured from gray cast iron, ASTM A48 CLASS 35. Internal and external surfaces coming into contact with the pumpage shall be protected by a fused polymer coating. All exposed fasteners shall be stainless steel. Impellers shall be of the semi-open, solids handling design equipped with back pump out vanes and shall be slip fit to the shaft and key driven.

**3. MECHANICAL SEAL -**

All units shall be furnished with a dual inside mechanical shaft seal located completely out of the pumpage, running in a separate oil filled chamber and further protected by an exclusionary air seal to prevent excessive pressure on the mechanical seal during operation. Unit shall be fitted with a device that shall provide positive lubrication of top mechanical seal, (down to one third of the standard oil level). The device shall not consume any additional electrical power. Mechanical seals shall be rated to preclude the incursion of water up to 42.6 PSI. (98.4 Ft.). Units shall have silicon carbide mechanical seal faces. Mechanical seal hardware shall be stainless steel. Units designed to exceed 42.6 PSI at shut off head shall incorporate seal pressure relief ports.

**4. MOTOR -**

The pump motor(s) shall be \_\_\_\_\_ HP, \_\_\_\_\_ kW, \_\_\_\_\_ V., 60 Hz, \_\_\_\_\_ Phase and shall be NEMA MG-1, Design Type B equivalent. Motor(s) shall be rated at \_\_\_\_\_ full load amps. Motor(s) shall have a 1.15 service factor and shall be rated for 20 starts per hour. Motor(s) shall be air filled, copper wound, class E, B, or F insulated with built in thermal protection for each winding. Motor shaft shall be 420 or 403 stainless steel and shall be supported by two permanently lubricated, high temperature ball bearings, with a B-10 life rating at best efficiency point of 60,000 hours. On units up to 10 Hp. (7.5 kW), the bottom bearing shall be single row, double shielded, C3, deep groove type ball bearings. On units 15 Hp. (11 kW) and above, the bottom bearing shall be two row, double shielded, C3, deep groove type ball bearings. The top bearing on all units shall be single row, double shielded, C3, deep groove type ball bearings. Motor housing and bearing housing shall be gray cast iron, ASTM A48 CLASS 30. Motors shall be D.O.L. or Star-delta start (15 Hp. and above), and shall be suitable for across the line start or variable speed applications, utilizing a properly sized variable frequency drive.

**5. POWER CABLE AND CABLE ENTRANCE -**

The pump power cable shall be suitable for submersible applications. Units up to 5 HP shall be supplied with a cable entrance that incorporates built in strain relief, a one piece, three way mechanical compression seal with a fatigue reducing cable boot. On units 7.5 HP and above, the cable entrance shall incorporate built in strain relief, and combination three way mechanical compression sealing with a fatigue reducing/thermal expansion rubber boot. The cable entrance assembly on all units shall contain an anti-wicking block to eliminate water incursion into the motor due to capillary wicking should the power cable be accidentally damaged.