


**TSURUMI PUMP**
**C - SERIES (High Head)  
SEWAGE & WASTEWATER PUMPS**
**SAMPLE  
SPECIFICATIONS**
**1. SCOPE OF SUPPLY -**

Furnish and install TSURUMI Model \_\_\_\_\_ Submersible Pump(s). Each unit shall be capable of delivering \_\_\_\_\_ GPM (\_\_\_\_\_ m<sup>3</sup>/min) at \_\_\_\_\_ Feet (\_\_\_\_\_ m) TDH. The pump(s) shall be designed to pump waste water, sewage or effluent containing solids without damage during operation. The pump(s) shall be designed so that the shaft power required (BHP)/(kW) shall not exceed the motor rated output throughout the entire operating range of the pump performance curve. Pump unit(s) shall be designed so that cavitation will not occur at open discharge. The pump discharge size shall be \_\_\_\_\_ inch, (\_\_\_\_\_ mm).

**2. MATERIALS OF CONSTRUCTION -**

Construction of major parts of the pumping unit(s) including pump casing and discharge elbow shall be manufactured from gray cast iron, ASTM A48 CLASS 30B. Impeller shall be manufactured from high chrome cast iron. Unit(s) shall have a field adjustable and or replaceable, high chrome cast iron cutter plate. 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. All units shall be furnished with a discharge elbow with 150 lb. (10 kg/cm<sup>2</sup>) flat face flange and NPT companion flange. Impellers shall be of the single or two-vane, semi-open, solids handling design equipped with tungsten carbide vane tip and shall be slip fit to the shaft and key driven. The pump casing shall incorporate an air relief valve.

**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 oil seal located between the bottom seal faces and the fluid being pumped. Unit 2 Hp. and above 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 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 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 5 Hp. (3.7 kW), the bottom bearing shall be single row, double shielded, C3, deep groove type ball bearings. On units 7.5 Hp. (5.5 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 25B or 30B(20 Hp. and above). Motors shall be D.O.L. or Star-delta start (20 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 pump 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 power cable shall be field replaceable utilizing standard submersible pump cable. 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.