I. SCOPE
The contractor shall provide _______ (quantity) horizontal close-coupled, end suction centrifugal pump unit/s, Model e-SH-C as manufactured by Goulds Water Technology or equal.
All pump units shall be of one manufacturer and provided complete including electric motor.

II. CONDITIONS OF SERVICE

A. Equipment item number

B. Flange Inside Diameter
   Suction (inches) RF
   Discharge (inches) RF

C. Design Service Condition
   Capacity (GPM)
   Total Head (feet)
   Efficiency (%)

D. Minimum Total Head at Shutoff (feet)

E. Maximum Impeller Diameter (inches)

F. Operating Speed (RPM)

G. Maximum Motor HP

III. PUMP CONSTRUCTION

Each pump shall be designed for clockwise rotation viewed from driven end and include the following design features.

A. PUMP END COMPONENTS

A.1. Casing
   The pump casing shall be concentric volute type, back pull-out design with ANSI class 150 flanged suction and discharge connections and shall be constructed of AISI TYPE 316L stainless steel material.
   The pump discharge nozzle shall be center line oriented to allow simplified system design and installation.
   The complete pump unit shall be supported by the motor.
   Pump casing drain shall be provided with stainless steel plugs.

A.2. Wear Ring
   A replaceable labyrinth type suction wear ring of AISI TYPE 316L stainless steel shall be provided and held securely by means of an interference fit in the casing suction.

A.3. Impeller
   The pump impeller shall be of enclosed design, constructed of AISI TYPE 316L stainless steel material, and key driven. A stainless steel bolt and washer shall provide positive attachment of the impeller to the motor shaft.
A.4. Seal Housing
The seal housing shall be constructed of AISI TYPE 316L stainless steel material and shall hold the stationary seat of the mechanical shaft seal. The seal housing shall be clamped in place over a machined fit on the motor adapter by the pump casing to maintain component alignment and is “O-ring” sealed to insure against leakage.

A.5. Mechanical Seal
The pump shaft seal shall be a John Crane Type 21 mechanical seal, or equal, constructed of the following materials:

<table>
<thead>
<tr>
<th>Seal Type</th>
<th>Stationary Face</th>
<th>Rotating Face</th>
<th>Elastomers</th>
<th>Metal Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>Silicon Carbide</td>
<td>Carbon</td>
<td>Viton</td>
<td>18-8 SS</td>
</tr>
<tr>
<td>Option</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A.6. Shaft Sleeve
The pump shaft sleeve shall be constructed of AISI TYPE 316L stainless steel and shall be of the hook type design. Locked in place by the impeller without necessity of other mechanical locking devices. The sleeve design must allow the motor shaft to remain dry during pump operation.

A.7. Motor Mounting Adapter
The rigid motor adapter of ASTM A48 CL20 cast iron construction shall support the pump liquid end and maintain pump to motor alignment. A bottom port shall be provided to allow condensation or seal leakage to drain and not be retained within the adapter.

IV. ELECTRIC MOTOR
The motor shall be non-overloading NEMA standard design with JM shaft extension suitable for close-coupled pump mounting. The motor rating shall be:

_______ HP, _____ RPM, _______ phase, _________ Hz,_______ volts,_________ enclosure
1.15 Service Factor, High Efficiency.

V. TESTING
Production performance testing will be conducted by the manufacturer on each pump unit. Head at shut off and a minimum of 2 operating points will be measured at design speed to verify performance.