# Model 3756 S-Group frame-mounted unit
## Typical engineering specifications

**I. Scope**

The contractor shall provide _____ horizontal frame-mounted, end suction centrifugal pump unit/s, Model 3756 S-Group as manufactured by Goulds Water Technology or equal.

All pump units shall be of one manufacturer and provided complete including bedplate, coupling, coupling guard and electric motor drive.

**II. Conditions of service**

| | | | |
|---|---|---|---|
| A. Equipment item number | _____ | _____ | _____ |
| B. Pipe inside diameter | | | |
| Suction (inches) NPT | _____ | _____ | _____ |
| Discharge (inches) NPT | _____ | _____ | _____ |
| C. Primary 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 spiral volute type, back pull-out design with NPT threaded suction and discharge connections up to 2½" size and shall be constructed of (cast iron ASTM A48 CL20 or bronze ASTM B584).
The pump discharge nozzle shall be tangentially oriented.
The complete pump unit shall be supported by the power frame.
A pump casing drain shall be provided with a (steel or brass) pipe plug.

**A.2. Wear ring**

A replaceable suction wear ring of, _____ (cast iron ASTM A48 CL20 or bronze ASTM B584) 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, _____ (cast iron ASTM A48 CL20 or bronze ASTM B584) 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, _____ (cast iron ASTM A48 CL20 or bronze ASTM B584) and shall hold the stationary seat of the mechanical shaft seal. The seal housing shall be secured in place in machined fits on the power frame and casing, adapter and power frame connections shall be secured by means of grade 5, high strength hex head cap screws.

**A.5. Mechanical seal**

The pump shaft seal shall be a John Crane Type 21 mechanical seal, or equal constructed of the following material:

| Seal type | Stationary face | Rotating face | Elastomers | Metal components |
|---|---|---|---|---|
| Standard | Ceramic | Carbon | BUNA-N | 18-8 SS |
| Option | | | | |

**A.6. Shaft sleeve**

The pump shaft sleeve shall be constructed of AISI TYPE 303 stainless steel and shall be of the hook type design, locked in place by the impeller without necessity of other mechanical locking devices.

**A.7. Power frame adapter**

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

The power frame adapter shall be an integral 1-piece design with the seal housing when all cast iron or bronze fitted construction is specified.

**B. Pump power frame assembly**

The pump shall be supported by means of a foot mounted, cast iron ASTM A48 CL20 or equal power frame which carries all thrust and radial loads imposed by the pump with a minimum B-10 life of 50,000 hours at an operating speed of 1750 FL RPM.

Components of the power frame shall meet the following specifications:

**B.1. Bearings**

Ball type, grease lubricated thrust and radial bearings with provision for periodic regreasing.

The outboard bearing shall carry all pump thrust load and shall be locked in place on the pump shaft by means of a bearing locknut and locking washer.

**B.2. Pump shaft**

The pump shaft shall be constructed of ASTM A108 steel with bearing shoulder fits.

**B.3. Bearing assembly and shaft seals**

Both inboard and outboard ball bearings shall be protected from entry of pumpage, washdown water or grit by means of BUNA-N lip seals. In addition the inboard bearing end shall be further protected from contaminants by means of a BUNA-N rubber deflector ring.

**B.4. Bearing cover**

The shaft and bearing assembly shall be locked in position by an outboard bearing cover constructed of ASTM A48 CL20 cast iron or equal.

**IV. Bedplate**

A rigid, channel type carbon steel bedplate shall be provided which maintains support and alignment of the complete pump and drive motor assembly. The unit bedplate shall be suitable for anchor bolt floor mounting and include provision for grouting in place by the installing contractor.

**V. Drive coupling**

A spacer type coupling allowing utilization of back pullout maintenance feature shall be provided for pump to drive motor connection.

The coupling shall be key driven T.B. Woods type "SC" or equal.

**VI. Coupling guard**

All rotating components of the drive assembly shall be protected by means of a formed metal coupling guard designed to OSHA specifications and bolted in place on the unit bedplate.

**VII. Electric motor**

The pump drive motor shall be non-overloading of NEMA standard design T-frame suitable for horizontal mounting and coupling connection to the pump unit as described above. The motor rating shall be:

_____HP,_____RPM, _____ phase,_____Hz, _____ volts

Totally enclosed, fan cooled or open drip-proof, 1.15 service factor, high efficiency.

**V. Testing**

A. Each pump casing shall be hydrostatically tested by the manufacturer in accordance with Hydraulic Institute Standards at 250 PSIG.

B. 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.

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