



**Model 3656 S-Group Close-Coupled Unit**  
Typical Engineering Specifications

**I. SCOPE**

The contractor shall provide \_\_\_\_\_ (quantity) horizontal close-coupled, end suction centrifugal pump unit/s, Model 3656 S-Group as manufactured by G&L, A GOULDS PUMPS COMPANY or equal.  
All pump units shall be of one manufacturer and provided complete including 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. 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. 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.

A pump casing drain shall be provided with a steel or brass pipe plug.

**B. 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.

**C. 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 cap screw and washer shall provide positive attachment of the impeller to the motor shaft.

**D. Seal Housing**

The seal housing shall be constructed of \_\_\_\_\_, (Cast Iron ASTM A48 CL20 or Bronze ASTM B584) material and shall hold the stationary seat of the mechanical shaft seal. The seal housing shall be held in place in a machined fit on the pump casing to maintain component alignment and "O-ring" sealed to insure against leakage.

**E. Mechanical Seal**

The pump shaft seal shall be a John Crane Type 21 mechanical seal or equal constructed of the following materials.

Seal Type	Stationary Face	Rotating Face	Elastomers	Metal Components
Standard	Ceramic	Carbon	BUNA-N	18-8 SS
Option				

**F. 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.

**G. Motor Mounting Adapter**

A 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. 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.

**IV. ELECTRIC MOTOR**

The drive motor shall be non-overloading of NEMA standard design with JM shaft extension and C-Face mounting suitable for close-coupled pump mounting.

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