Model 3756 M- and L-Group frame-mounted unit
Typical engineering specifications

I. Scope

The contractor shall provide _____ (quantity) horizontal frame mounted, end suction centrifugal pump unit (s), Model 3756 M- and L-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. Flange 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 ANSI Class 125 flat faced flanged suction and discharge connections above 2½" size and shall be constructed of Cast Iron, ASTM A48 CL30 material.
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 (zinc plated steel) pipe plug.

A.2. Wear ring

Replaceable casing and seal housing wear ring of _____ , (cast iron ASTM A48 CL20 or lead free bismuth bronze) shall be provided and held securely by means of interference fits.

A.3. Impeller

The pump impeller shall be of enclosed design, constructed of _____ , (cast iron ASTM A48 CL20 or lead free sil-brass 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/adapter

The seal housing and motor adapter shall be of 1-piece design, constructed of cast iron, ASTM A48 CL20. Registered mating fits to the pump casing and power frame shall maintain positive unit alignment and support. Sealing of casing pressure shall be maintained by an “o-ring” of BUNA-N, EPR or Viton material. Motor and casing connection shall be held securely by means of grade 5, high strength hex cap screws. A bottom drainage port shall be provided to allow condensation or seal leakage to drain and not be retained within the adapter.

A.5. Mechanical seal

The pump shaft seal shall be a John Crane Type 21 mechanical seal or equal constructed of the following materials. Packed box shaft sealing is also available.

Seal type	Stationary face	Rotating face	Elastomers	Metal components
Standard	Ceramic	Carbon	BUNA-N	18-8 SS
Option	Sil-carbide		EPR	
Option			Viton	
Option		Sil-carbide		

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.

B. Pump power frame assembly

The pump shall be supported by means of a foot mounted, cast iron ASTM A48 CL20 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 carbon 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 ASIM A48 CL20 cast iron.

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 type 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 enclosure, 1.15 service factor, high efficiency.

VIII. 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 three operating points (70% of BEP, BEP and 120% of BEP) will be measured at design speed to verify performance.

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