

## Model NPE-F Frame-Mounted Unit Typical Engineering Specifications

### I. SCOPE

The contractor shall provide \_\_\_\_\_(quantity) horizontal frame-mounted, end suction centrifugal pump unit/s, Model NPE-F as manufactured by G&L Pumps 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. Suction (inches) NPT                 | _____ | _____ | _____ |
| Discharge (inches) NPT                  | _____ | _____ | _____ |
| 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 driver end and include the following design features.

#### A. PUMP END COMPONENTS

##### A.1. Casing

The pump casing shall be concentric volute, diffuser type, back pull-out design with NPT suction and discharge connections and shall be constructed of AISI TYPE 316 stainless steel material.

The pump discharge shall be center line oriented to allow simplified system design and installation.

The complete pump unit shall be supported by the power frame.

Pump casing vent/fill and drain shall be provided with stainless steel plugs.

##### A.2. Floating Suction O-ring

The pump shall be provided with an easily replaceable suction O-ring, pumpage lubricated and self-aligning to maintain maximum pump efficiency without adjustment of impeller clearances.

##### A.3. Impeller

The impeller shall be of enclosed design, constructed of AISI TYPE 316 stainless steel material, threaded shaft connection secured with lock nut.

##### A.4. Seal Housing

The seal housing shall be self-flushing design, constructed of AISI TYPE 316 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 power frame adapter by the pump casing to maintain component alignment and "O-ring" sealed to insure against leakage.

##### A.5. Mechanical Seal

The pump shaft seal shall be a John Crane Type 21 as standard, constructed of the following materials:

Seal Type	Stationary Face	Rotating Face	Elastomers	Metal Components
Standard	Ceramic	Carbon	Viton	316SS
Option				

#### A.6. Power Frame Adapter

Adapter shall be constructed of AISI Type 316 stainless steel and 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.

#### B. PUMP POWER FRAME ASSEMBLY

The pump shall be supported by means of a foot mounted, cast iron ASTM A 48 CL20 or equal power frame which carries all thrust and radial loads imposed by the pump with a minimum B-10 life of 20,000 hours.

Components of the power frame shall meet the following:

##### B.1. Bearings

Ball type "greased for life" double shielded thrust and radial bearings. The outboard bearing shall carry all pump thrust load, and shall be held in place on the pump shaft by means of a retaining ring.

##### B.2. Pump Shaft

The wetted pump shaft shall be constructed of AISI Type 316 stainless steel.

##### B.3. Bearing Assembly and Shaft Seals

Both inboard and outboard ball bearings shall be protected from entry of washdown water or grit by means of Buna-N lip seals.

##### 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 steel bedplate shall be provided to maintain support and alignment of the complete pump and motor assembly.

Bedplate shall be suitable for anchor bolt floor mounting and include provision for grouting.

#### V. DRIVE COUPLING

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

#### VII. ELECTRIC MOTOR

The motor shall be non-overloading NEMA standard design T-Frame, suitable for horizontal mounting and flexible connection to the pump as described above.

Motor rating shall be:

\_\_\_\_\_ HP, \_\_\_\_\_ RPM  
\_\_\_\_\_ phase, \_\_\_\_\_ Hz, \_\_\_\_\_ volts  
\_\_\_\_\_ enclosure

#### VIII. TESTING

A. 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.

#### IX. NPE-F SPECIFICATIONS

**Capacities to:** 75 GPM (283L/min) at 1750 RPM, 150 GPM (550L/min) at 3500 RPM

**Heads to:** 39 feet (11 m) at 1750 RPM, 150 feet (50 m) at 3500 RPM

**Working pressures to:** 125 PSIG (9 bars)

**Maximum temperatures to:** 212°F (100°C) with standard seal or 250°F (121°C) with optional high temperature seal.

**Direction of rotation:** Clockwise when viewed from motor end.

**Motor Specifications:** T-frame single and three phase. Open drip-proof, TEFC or explosion proof enclosures are available for 60 Hz, 3500 and 1750 RPM operation.

For three phase motors, overload protection must be provided in starter unit. Starter and heaters must be ordered separately.