

# ENGINEERED PRODUCTS

## INLINE 1100 PUMP



### ENGINEERING SPECIFICATIONS

**1.01 SINGLE SOURCE RESPONSIBILITY:** The booster pump system shall come as a prepackaged unit with pump and VFD control. The unit shall be assembled by a single source.

**1.02 CERTIFICATIONS:** The pumps used in the assembly must be certified to CSA 108 and UL 778 standards. The control panel shall be UL 508A labeled.

**1.03 SERIAL NUMBER:** Each pump shall be given a unique serial number for tracking purposes and the number must be provided on a label supplied with the unit. The serial number must enable the supplier to identify the date code for assembly.

**2.01 SCOPE:** The contractor shall furnish \_\_\_\_\_ (quantity) model Inline 1100 individual pump. All systems shall be of one pump manufacturer where the system is constructed such that the equipment features a single device incorporating pump, motor, and variable-frequency drive (VFD) for constant pressure output where the operational speed ranges between 30 and 60 Hz.

#### 2.02 OPERATING CONDITIONS:

Equipment item number:

Equipment model number:

Required flow capacity (gpm):

Required total dynamic head (feet):

Required constant pressure (psi):

Minimum allowable flow (gpm):

#### 2.03 PUMP PERFORMANCE/SPECIFICATION:

A. Pump, motor, VFD control to provide at least 60 psi incremental boost to 10 gpm, 50 psi incremental boost to 25 gpm, and 20 psi incremental boost to 40 gpm.

B. Pump Power Rating: 1.2 hp (0.9 kw)

#### 3.01 PUMP/MOTOR CONSTRUCTION:

A. Outer Shell: Deep drawn 300 series stainless steel, 1.5 mm wall thickness, laser welded

B. Suction/Discharge: 1.25" NPT threaded 304 stainless steel casting, with integrated face seals and flange connections to allow for quick assembly to an oval connection

C. O-Rings: NBR – Nitrile Buna Rubber rated to 104 °F (40 °C)

D. Floating Seal Ring: PTFE

E. Pump Mechanical Seal: Carbide / Ceramic / Buna Rubber bellow seal

F. Internal Motor Seal: Silicon / Carbide / Buna Rubber bellow seal

G. Pump Hydraulic Parts: 316 stainless steel and laser welded

H. Fasteners: 316 stainless steel

I. Motor Construction Type: Integrated dry, air-cooled, immersed chamber

J. Motor Insulation: Class F – IP68 rated for full submersion

K. Motor Bearings: Ball bearing type rated to 104 °F (40 °C)

L. Discharge End: 6202 double sealed

M. Suction End: 6303 double sealed



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### ENGINEERING SPECIFICATIONS CONTINUED

- N. Motor Shaft and Coupling: 304 stainless steel
- O. Motor Lead/Washers and Cable Gland: 14 Ga SJ00W/Nitrile & CuZu Nickel plated brass
- P. Oil Chamber Motor Isolation Chamber: Medical grade white oil – Marcol 82
- Q. Heat Sink Cooling for VFD: Die cast aluminum
- R. VFD Enclosure: Polycarbonate (Flame Retardant, UL 94 V-0)
- S. Drive Gaskets: Close cell foam nitrile rubber
- T. Drive Fasteners: 304 stainless steel
- U. Mounting Base: 300 series stainless steel

**4.01 VARIABLE FREQUENCY DRIVE SPECIFICATION:** NEMA 4 (IP56) rated enclosure, heat-sink cooled, with no external fan. Control should accept 230V single-phase, 60 Hz input power, and supply three-phase output power at variable voltages and frequencies dependent on the application's pump flow and pressure requirements. Pump control should allow for external shut-off from a condition of over-heat generated by excessive fluid temperatures more than 140 °F. VFD to provision additional shut-off installed in a series connection to the over-temperature system based on application specific control devices. VFD to be controlled directly through digital on/off signal logic methodology to provide increased or decreased power output based on immediate usage demands. The VFD must be equipped to sense and interrupt the pump operation in case of:

- Motor overload
- Under voltage
- Locked pump
- Open motor circuit
- Short circuit
- Overheated drive
- Over temperature
- Insufficient water supply



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