SECTION 22 11 23 - DOMESTIC WATER BOOSTER PUMP

**PART 1: GENERAL**

* 1. WORK INCLUDED
1. Furnish and install equipment, specialties and accessories to provide water booster system Installation as shown on drawings and hereunder specified.

 B. Size and capacity as specified in plumbing equipment schedule.

1.02 RELATED WORK

 A. General Conditions: Divisions 1

 B. Plumbing General Provisions: Section 22 05 01

 C. Basic Piping Requirements: Section 22 05 29

1.03 RELATED WORK SPECIFIED ELSEWHERE

 Electrical: Division 26

**PART 2: PRODUCTS**

2.01 DOMESTIC WATER BOOSTER PUMP

A. Furnish and install one VC Systems “**LITE Series**”, 1VC-LITE-XXX variable speed domestic water booster system. The system shall be rated for a total capacity of XXX GPM at a system pressure of XXX PSIG when supplied with a minimum suction supply pressure of 30 PSIG and designed for a maximum suction supply pressure of 65 PSIG. The system shall be UL Listed as a packaged pumping system, and shall bear the UL Listed Mark.

B. Pump and Motors: Pumps shall be VC Model V, ductile iron, 304 S/S fitted, end suction centrifugal pumps with 304 stainless steel impeller and stainless steel trim & sleeve. Motor shall be a Baldor or equal C frame, ODP, High Efficiency motor for 3500 RPM and suitable for “Inverter Duty”. Motors shall be supplied with a 1.15 service factor. Pumps shall be selected for non-overloading service through the entire curve. The impeller shall be warranted for no less than 5 years from corrosion and defects. Pumps shall be NSF/ANSI 61 Certified.

B. Pump and Motors: Pumps shall be VC Model G, ductile iron, 304 S/S fitted, vertical multistage centrifugal pumps with 304 stainless steel impeller and stainless steel trim & sleeve. Motor shall be a Baldor or equal TC frame, ODP, Premium Efficiency motor for 3500 RPM at 208 volts/60hz/3 phase, and suitable for “Inverter Duty”. Motors shall be supplied with cast iron bearing housings and with a 1.15 service factor. Pumps shall be selected for non-overloading service through the entire curve. Pumps shall be NSF/ANSI 61 Certified.

1. Pump No. 1: Model XXX-XX, XXX GPM at XXX TDH with XHP, 3450 RPM ODP motor.

C. VARIABLE FREQUENCY DRIVE: (ABB ACH550) Furnish a VFD for each motor, suitable for use with the Baldor or equal motor. The drives shall be a microprocessor controlled PWM output drive for variable torque duty and supplied for the maximum full load amps produced by the motor. The drive shall be Series ACH550, UL Listed, and in a NEMA 1 self-contained enclosure. Each drive shall be furnished with a removable, digital keypad, to allow the operator flexibility and control. The keypad shall have a 32 character, English alpha-numeric display. The keypad shall allow the operator to individually control each motor manually from digital keypad, without entering the control panel. Drive must be supplied with input line reactors. The programming shall include the following features:

1. No Flow Shut Down
2. High System Alarm
3. Low Suction Alarm

D. FABRICATION: The pumping system shall be provided as a complete packaged system mounted on a minimum 2” fabricated channel base suitable for mounting directly on vibration isolation without distortion. The system shall be piped, wired and supplied with control tubing to allow field installation with only two system connections, one electrical connection, and one run of tubing to drain for the thermal system. The entire package shall be painted with industrial grade primer and enamel. The system shall be prefabricated and include the following items:

1. Suction Isolation Valve
2. Discharge Isolation Valve
3. Discharge Check Valve
4. Thermal Relief Valve
5. Dual Transducers, Suction & Discharge
6. Single Sphere Flex Connectors

E. TESTING AND START UP: The entire system shall be cleaned and shop coated with industrial shop enamel and run tested prior to shipment. Systems providing hydrostatic pressure test and electrical circuit check will not be acceptable. The control settings shall be set in accordance with specified set points and verified at field start up. The package shall be UL listed as a system for its intended use as required by OSHA and National Electric Code (NEC) Article 90-7.

F. TESTING AND START UP: The entire system shall be cleaned and shop coated with industrial shop enamel and run tested prior to shipment. Systems providing hydrostatic pressure test and electrical circuit check will not be acceptable. The control settings shall be set in accordance with specified set points and verified at field start up. The package shall be UL listed as a system for its intended use as required by OSHA and National Electric Code (NEC) Article 90-7.

G. Warranty: the pumping system shall be warranted from manufacturing defects and defects in materials and workmanship for a period of 12 months from startup, or 18 months from shipment.

H. Alternates to basis of design must meet all specifications above to be considered equal. Contractor shall be responsible ensuring submitted products to the engineer meet the above specification and any deviations be noted clearly in submittal.

**PART 3: EXECUTION**

3.01 INSTALLATION-COLD WATER BOOSTER SYSTEM

 Contractor to provide and install, where shown on the drawings and specified, a water pressure booster system. The system shall be installed with flexible connectors and vibration isolators if max working pressure is under 200 PSI. Vibration isolation and flex connectors shall be supplied by booster system manufacturer. Minimum clearance is 18” around the system and NEC clearance in front of the control panel door.