SECTION 232123 - HYDRONIC PUMPS

PART 1-GENERAL

1.1 SECTION INCLUDES

A. Base-mount end-suction pumps.

B. In-line circulators

1.2 QUALITY ASSURANCE

A. The standard for construction shall be ASME B31.9.

1.3 SYSTEM DESCRIPTION

A. Impellers shall be sized for a maximum diameter not to exceed 85 percent of the selected pump's largest diameter.

B. Each pump shall be selected for non-overloading operation throughout its curve.

C. Each pump shall be provided with high efficiency motors.

D. All three- phase motors shall be protected with phase loss protection. Protection shall be provided by the electrical system, by built in protection, or by protection built into a variable speed drive.

1.4 SUBMITTALS

A. Submit shop drawings and product data per applicable Division I Specification.

B. Shop drawings shall include pump performance curves.

1.5 WARRANTY

A. Contractor shall warranty entire systems and equipment for a period of one (1) year.

PART 2-PRODUCTS

2.1 BASE-MOUNT END-SUCTION PUMPS

A. Manufacturers

1. Taco
2. Bell & Gossett
3. Aurora
4. Grundfos

5. Armstrong

B. Each pump will be single stage, base-mounted, end-suction design with cast iron casing, cast-bronze impeller, and bronze fitted construction.

C. Casing: Cast iron, with suction and discharge gage port, casing wear ring, seal flush connection, drain plug, flanged suction and discharge.

D. Impeller: Bronze, fully enclosed, keyed directly to motor shaft or extension.

E. Shaft: Carbon steel with stainless steel impeller cap screw or nut and bronze sleeve.

F. Seal: Carbon rotating against a stationary ceramic seat, 225 degrees F maximum continuous operating temperature.

G. Performance: Pumps shall be size and capacity scheduled on drawings.

H. The pump and motor shall be mounted on a common baseplate of heavy structural steel.

2.2 IN-LINE CIRCULATORS

A. Manufacturers

1. Taco

2. Bell & Gossett

3. Aurora

4. Grundfos

5. Armstrong

B Each pump will be vertical, centrifugal, single stage, design with cast iron casings and bronze impellers.

C. Casing: Cast iron, with flanged pump connection.

D. Impeller: Cast bronze, keyed to shaft.

E. Bearings: Permanently lubricated bearing cartridge.

F. Shaft: Alloy steel with cupro-nickel sleeve, integral thrust collar.

G. Seal: Carbon rotating against a stationary, ceramic seat, 250 degrees F maximum continuous operating temperature.

H. Drive: Flexible coupling.

I. Performance: Pumps shall be size and capacity scheduled or listed on drawings.

J. Direct-mounted motor with lifting and supporting lugs.

PART 3-EXECUTION

3.1 PREPARATION

A. Verify that electric power is available and of the correct characteristics.

3.2 INSTALLATION

A. Install all pumps in accordance with manufacturers requirements.

B. Provide access space around pumps for service. Provide no less than minimum as recommended by manufacturer.

C. Decrease from line size with long radius reducing elbows or reducers at pumps. Support piping adjacent to pump such that no weight is carried on pump casings. For close coupled or base mounted pumps, provide supports under elbows on pump suction and discharge line sizes 4 inches and over.

D. Provide line sized shut-off valve and pump suction fitting (as sized on drawings) on pump suction, and triple duty valve (as sized on drawings) on pump discharge.

E. Provide air cock and drain connection on horizontal pump casings.

F. Provide drains for bases and seals, piped to and discharging into floor drains.

G. Check, align, and certify alignment of base mounted pumps prior to start-up.

H. Install base mounted end suction pumps on concrete housekeeping base, with anchor bolts, set and level, and grout in place.

I. Lubricate pumps before start-up.

J. Provide flexible braided connections for pump inlet and outlet. Three flexible type grooved joint couplings may be used in lieu of flexible connectors at equipment connections in applicable piping systems. The couplings shall be placed in close proximity to the vibration source. Basis of Design: Victaulic Company. Victaulic Series 380/381/382 Vibration Isolation Pump Drops (VIPD) may be used around pump assemblies where applicable.

3.3 TRAINING

A. Startup and training to be provided by a factory-trained service technician for a total of four (4) hours. These hours of training are to be "bankable hours" used within one full warranty year.

B. All training and start-up shall be videotaped with a professional videographer and present two (2) copies of the training on DVD format to the Construction Manager within one (1) week of the training session. This DVD will be provided to the owner.

END OF SECTION 232123