

SECTION 15540
HVAC PUMPS

PART 1 GENERAL

1.1 SECTION INCLUDES:

- A. In-line circulators.
- B. Vertical in-line pumps.
- C. Base mounted pumps.
- D. Side-stream filters.
- E. Suction diffuser.

1.2 REFERENCES

- A. ANSI/UL 778 - Motor Operated Water Pumps.

1.3 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in manufacture, assembly, and field performance of pumps with minimum five years experience.
- B. Alignment: Base mounted pumps shall be aligned by qualified millwright and alignment certified.

1.4 SUBMITTALS

- A. Submit product data under provisions of Section 01300.
- B. Submit certified pump curves showing performance characteristics with pump and system operating point plotted. Include NPSH curve when applicable.
- C. Submit manufacturer's installation instructions under provisions of Section 01300.

1.5 OPERATION AND MAINTENANCE DATA

- A. Submit operation and maintenance data under provisions of Section 01700.
- B. Include installation instructions, assembly views, lubrication instructions, and replacement parts list.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site under provisions of Section 01600.
- B. Store and protect products under provisions of Section 01600.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Crane Deming
- B. Bell & Gosset
- C. Peerless
- D. Aurora
- E. TACO
- F. S.A. Armstrong

- G. Engineer and Owner approved equal.

2.2 GENERAL CONSTRUCTION REQUIREMENTS

- A. Balance: Rotating parts, statically and dynamically.
- B. Construction: To permit servicing without breaking piping or motor connections.
- C. Pump Motors: Operate at 1800 maximum rpm.
- D. Pump Connections: Flanged.

2.3 IN-LINE CIRCULATORS FRACTIONAL HORSEPOWER

- A. Type: Horizontal shaft, single stage, direct connected, with resiliently mounted motor for in-line mounting, oil lubricated, for 125 psig maximum working pressure.
- B. Casing: Cast iron.
- C. Impeller: Cadmium plated steel, Brass or Bronze, keyed to shaft.
- D. Bearings: Two, oil lubricated bronze sleeves.
- E. Shaft: Stainless steel with copper or stainless steel sleeve, integral thrust collar.
- F. Seal: Carbon rotating against a stationary ceramic seat, viton fitted, 225°F maximum continuous operating temperature.
- G. Drive: Flexible coupling.

2.4 VERTICAL IN-LINE PUMPS

- A. Type: Vertical shaft, single stage, close coupled, radially or horizontally split casing, for in-line mounting, for 175 psig maximum working pressure.
- B. Casing: Cast iron or cast steel, with suction and discharge gage port, casing wear ring, seal flush connection, drain plug, flanged suction and discharge.
- C. Impeller: Bronze, fully enclosed, keyed directly to motor shaft or extension.
- D. Shaft: Stainless steel.
- E. Seal: Carbon rotating against a stationary ceramic seat, viton fitted, 225°F maximum continuous operating temperature.

2.5 BASE MOUNTED PUMPS

- A. Type: End suction, horizontal shaft, single stage, long coupling drive; 175 psig maximum working pressure, end suction, back pullout.
- B. Casing: Cast iron, with suction and discharge gage ports, seal flush connection, drain plug, flanged suction and discharge.
- C. Impeller: Bronze or stainless steel, fully enclosed, keyed to shaft.
- D. Bearings: Grease lubricated roller or ball bearings.
- E. Shaft: Stainless steel with copper, bronze, or stainless steel shaft sleeve.
- F. Seal: Carbon rotating against a stationary ceramic seat, viton fitted, 225°F maximum continuous operating temperature.
- G. Drive: Flexible coupling with coupling guard, woods type.
- H. Baseplate: Cast iron or fabricated steel with integral drain rim.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install pumps in accordance with manufacturer's instructions.
- B. Provide access space around pumps for service. Provide no less than minimum as recommended by manufacturer.
- C. Ensure pumps operate at specified system fluid temperatures without vapor binding and cavitation, are non-overloading in parallel or individual operation, and operate within 5% of midpoint of published maximum efficiency curve.
- D. Decrease from line size with long radius reducing elbows or reducers. Support piping adjacent to pump so that pump casings do not carry any weight. For close coupled or base mounted pumps, provide supports under elbows on pump suction and discharge line sizes 4" and over. Refer to Section 15240, Vibration Isolation.
- E. Provide line sized shut-off valve and strainer on pump suction, and line sized shut-off valve on pump discharge.
- F. Provide air cock and drain connection on horizontal pump casings.
- G. Provide drains for bases and seals, piped to and discharging into floor drains.
- H. Lubricate pumps before start-up.
- I. Install base mounted pumps on concrete base, with anchor bolts, set and level, and grout in place.
- J. Qualified millwright shall check, align, and certify base mounted pumps prior to start-up.
- K. If pump does not meet designed performance within 5% then upgrade pump at no cost to Owner.
- L. All base mounted pumps shall have vibration isolation provided at pipe connections.
- M. All base mounted pumps shall be installed with motors facing the center of the room or compound.

END OF SECTION