

SPECIAL SPECIFICATION

SECTION 15440S

PLUMBING PUMPS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Plumbing pumps.
- B. Pressure booster system.

1.02 RELATED SECTIONS

- A. Section 15060S - Hangers and Supports.
- B. Section 15070S - Vibration **Limits and Control**.
- C. Section 15083S – Pipe and Equipment Insulation.
- D. Section 15170S - Motors.
- E. Section 15950S - Testing, Adjusting and Balancing.

1.03 REFERENCES

- A. ASHRAE 90A - Water Heater Energy Efficiencies.
- B. ASME Section 8D - Pressure Vessels.
- C. NFPA 70 - National Electrical Code.

1.04 SUBMITTALS

- A. Product Data: Indicate pump type, capacity, power requirements, and affected adjacent construction.
- B. Certified Pump Curves: Show pump performance characteristics with pump and system operating point plotted. Include NPSH curve when applicable.

C. Provide operation and maintenance manuals for plumbing equipment.

1.05 QUALITY ASSURANCE

A. Provide pumps with manufacturer's name, model number, and rating/capacity identified.

B. Ensure products and installation of specified products are in accordance with recommendations and requirements of:

1. National Sanitation Foundation (NSF).
2. American Society of Mechanical Engineers (ASME).
3. National Board of Boiler and Pressure Vessel Inspectors (NBBPVI).
4. National Electrical Manufacturers' Association (NEMA).
5. Underwriters Laboratories (UL).

PART 2 - PRODUCTS

2.01 IN-LINE CIRCULATOR PUMPS

A. Manufacturers:

1. Bell & Gossett.
2. Thrush.
3. Grundfos.

B. Casing: Bronze, rated for 125 pounds per square inch-gage working pressure.

C. Impeller: Bronze.

D. Shaft: Alloy steel with integral thrust collar and two oil lubricated bronze sleeve bearings.

E. Seal: Carbon rotating against a stationary ceramic seat.

F. Drive: Flexible coupling.

2.02 PRESSURE BOOSTER SYSTEMS

A. Manufacturers:

1. Paco.

2. SyncroFlo.

- B. Provide a packaged triplex pump pressure boosting system completely factory assembled, tested, and adjusted; ship to site as integral unit consisting of pumps, valves, and galvanized piping, with control panel assembled on fabricated steel base with structural steel framework.
- C. Locate controls and instruments in a UL labeled EMA 1 general purpose enclosure with main disconnect interlocked with door, fused circuit for each motor, magnetic starters with three overloads, control circuit transformer with fuse protection, selector switch for each pump, low limit pressure switch, low pressure alarm light, running lights, current sensing devices, minimum run timers, manual alternation, and suction and discharge pressure gages.
- D. Operate lead pump continuously with lag pumps operating on system demand. If lead pump fails to operate automatically, start next pump in sequence.
- E. Provide time delay relay to prevent short cycling of lag pumps on fluctuating demands.
- F. Provide thermal bleed circuit with solenoid valve to prevent overheating during low demand.
- G. Provide low pressure control to stop pump operation if incoming water pressure drops to atmospheric.
- H. Provide each pump with switch to permit manual or automatic operation.
- I. On each pump outlet, provide combination pressure reducing and check valve to maintain constant system pressure. Provide gate or butterfly valves on suction and discharge of each pump. If system discharge pressure reducing valve is specified, provide check valves on each pump discharge.
- J. Provide time clock for automatic day-night changeover. Operate system continuously during day cycle with pressure to fixtures maintained by pressure reducing valves. Operate pumps intermittently during night cycle on pressure switch located near pressure tank operating pump for pre-determined adjustable time period.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.

3.02 FIELD QUALITY CONTROL

- A. Ensure pumps operate at specified system fluid temperatures without vapor binding and cavitation, are nonoverloading in parallel or individual operation, and operate within 25 percent of midpoint of published maximum efficiency curve.

END OF SECTION