SECTION 23 21 23 - HYDRONIC PUMPS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. In-line circulators.
2. Close coupled pumps.

1.2 REFERENCES

A. National Electrical Manufacturers Association:

1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

B. Underwriters Laboratories Inc.:

1. UL 778 - Motor Operated Water Pumps.

1.3 PERFORMANCE REQUIREMENTS

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

1.4 SUBMITTALS

A. Product Data: Submit certified pump curves showing performance characteristics with pump and system operating point plotted. Include NPSH curve when applicable. Include electrical characteristics and connection requirements. Submit also: manufacturer model number, dimensions, service sizes, and finishes.

PART 2 - PRODUCTS

2.1 IN-LINE CIRCULATORS

A. Manufacturers:

1. **Bell & Gossett.**
2. **Armstrong.**
3. **Taco.**

B. Type: Horizontal shaft, single stage, direct connected, with resiliently mounted motor for in-line mounting, oil lubricated, for 125 psig maximum working pressure.

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

D. Impeller: Stamped brass or cast bronze, keyed to shaft.

E. Bearings: Two, oil lubricated bronze sleeves.

F. Shaft: Alloy or stainless steel with copper or bronze sleeve, integral thrust collar.

G. Seal: Carbon rotating against stationary ceramic seat.

H. Drive: Flexible coupling.

2.2 CLOSE COUPLED PUMPS

A. Manufacturers:
   1. **Bell & Gossett.**
   2. **Armstrong.**
   3. **Taco.**

B. Type: Horizontal shaft, single stage, close coupled, radial split casing, for 175 psig maximum working pressure.

C. Casing: Cast iron, with suction and discharge gage ports, renewable bronze casing wearing rings, seal flush connection, drain plug, flanged suction and discharge.

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

E. Shaft: Stainless steel.

PART 3 - EXECUTION

3.1 INSTALLATION

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

B. Install long radius reducing elbows or reducers between pump and piping. Support piping adjacent to pump so no weight is carried on pump casings. For close coupled or base mounted pumps, install supports under elbows on pump suction and discharge line sizes 4 inches and over.

C. Decrease from line size with long radius reducing elbows or reducers. Support piping adjacent to pump so no weight is carried on pump casings. Provide supports under elbows on pump suction and discharge line sizes 4 inches and larger.

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

E. Provide drains for bases and seals.

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

G. Provide 1 year warranty.

H. Provide O & M Manuals to LAWA.

END OF SECTION 23 21 23