Preferred Specifications

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HL400 Single Stage Rear Mount Centrifugal Fire Pumps

A. Pump

The pump shall be of two-stage construction and shall comply with all applicable requirements of the latest standards for automotive fire apparatus of the National Fire Protection Association, NFPA No. 1901 and 1906, and shall have a rated capacity of 1000 GPM. The Pump shall be free from objectionable pulsation and vibration under all normal operating conditions. It shall be available in clockwise or counterclockwise rotation (not available on bronze models).

1. Pump Body

The pump body shall be corrosion-resistant, anodized aluminum or bronze(gunmetal) and must be vertically split in two sections for easy removal of the entire impeller shaft assembly. Pump body halves shall be bolted together on a single vertical face to minimize leakage and facilitate reassembly.

2. Intake Connection

The intake connection shall be one of the following options:

- 5” Victaulic Connection
- 6” BSP
- 150 mm Storz
- 4” BSP Dual Intake

3. Impeller

The impellers shall be both wear-resistant anodized aluminum, flame-plated hubs (low pressure) and bronze (high pressure), accurately balanced (mechanically and hydraulically), labyrinth type, wear rings that resist water bypass and loss of efficiency due to wear.

a. Optional Flame Plating

The impellers shall have flame plated hubs to assure maximum pump life and efficiency despite the presence of abrasive particles, such as fine sand, in the water being pumped.

4. Wear Ring

The wear ring shall be bronze and shall be easily replaceable to restore original pump efficiency and eliminate the need for replacing the entire pump casing due to wear.

5. Impeller Shaft

The impeller shaft shall be stainless steel, accurately ground to size. The impeller shaft shall be supported at each end by oil or grease lubricated anti-friction ball bearings for rigid and precise support. Bearings shall be protected from water and sediment by suitable seal housings, flinger rings, and oil seals. No sleeve type bearings shall be used.

6. Seal Housings

The seal housings shall be equipped with self-adjusting, maintenance-free, mechanical shaft seals.

7. Pump Transmission

The optional transmission shall close-grained, gray iron (K Series Transmission). The pump transmission shall be rigidly attached to the pump body assembly and incorporate a helical, precision cut, crown shave for proper load distribution and quiet operation. The pump transmission shall be mounted either vertically or horizontally. The shift engagement shall be engaged and disengaged by the apparatus PTO.

8. Priming System

The priming system shall include an oil-free rotary vane priming pump rigidly attached to the pump transmission and activated by a vacuum-activated priming (VAP) valve with a single push-button switch. Valve actuation may be accomplished while the main pump is in operation, if necessary to assure a complete prime.

a. Lubrication Option

A lubrication option shall allow the use of Prime Safe lubricant. A priming tank is required when the lubrication option is selected.

9. Interstage Crossover Valve

The valve shall incorporate both a built-in high pressure relief valve and a removable strainer for the high pressure stage inlet.

10. Manifold Drain Valve Assembly

The manifold drain valve assembly shall consist of a stainless steel plunger in a bronze body with multiple ports. The valve shall be designed so that the pump discharge pressure prevents it from opening accidentally. The drain valve control shall be panel mounted, cable or rod operated and identified PUMP DRAIN.

11. Tank to Pump Valve

The tank to pump valve shall be a full-flow, 3-1/2 inch diameter ball valve that is attached directly to the pump. The valve shall be operated by a 90° spring detent remote control handle or by an optional 12 or 24 volt electric rotary actuator.

12. Discharge Valves

The discharge valve shall be bronze-fitted, ball-type, with a self-adjusting seal for wear. All discharge valves shall be capable of being locked or unlocked at the valve from the control panel at any position between OPEN or CLOSED, and shall operate freely up to maximum pump discharge pressure. Valve seal shall be between the pump and the valve stem mechanism to minimize air leaks and facilitate draining. One valve shall be furnished for each 250 GPM of rated capacity. Means shall be provided for attaching (1) a pressure gauge which will indicate the pressure in the line immediately outboard of the valve, and (2) a drain of at least 3/4 inch NPT for simultaneously draining the valve and line outboard the valve. They shall be available in the following sizes:

- 2-1/2”
- 3-1/2”
- 1/4 –turn remote locking
- Rack and sector push-pull
- Electric

13. Overheat Protection Manager (OPM)

The Waterous Overheat Protection Manager (OPM) shall act as a safety device by releasing hot water from the discharge area of the pump to the ground. The OPM shall consist of a valve that opens when the water in the pump reaches 140° F (60° C) and a warning light on the pump panel that is triggered by a thermal switch when the water in the pump reaches 180° F (82° C).

14. Pump Intake Strainers and Anodes

The pump intake strainers shall be removable, die cast zinc screens that are designed to provide cathodic protection for the pump, thus reducing corrosion in the pump. Anodes are normally mounted on the pump intake piping, but they may also be installed in the discharge piping if no intake mounting locations were available. Physical mounting of the anode may be via an NPT tap or bolt-on flange.

15. Round the Pump (RTP) Foam Proportioner (optional)

The Waterous RTP Foam Proportioner shall consist of an eductor, foam proportioning valve and an ON/OFF control valve. When activated, a portion of the pump discharge flow is directed to the educator, causing a pressure drop in the educator, which draws foam concentrate through the proportioning valve. The foam mixes with the water flowing through the educator. The foam solution the enters the pump through the pump intake and finally delivered to the discharge outlets.