



Preferred Specifications

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HLU Simultaneous High/Low Rear Mount Fire Pumps

A. Pump

The pump 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, 1250 or 1500 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.

1. Pump Body

The pump body shall be corrosion-resistant, anodized aluminum or bronze 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 Manifold

The intake manifold shall offer one (1) inlet for 146 mm adapter and two (2) inlets for 101 mm adapters.

3. Impeller

The impellers shall be both wear-resistant anodized aluminum or bronze, 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, (low pressure) and bronze (high pressure), accurately balanced (dynamically), with wear ring that resist water bypass and loss of efficiency due to wear.

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 lubricated anti-friction ball bearings and bronze sleeve bearing for rigid and precise support. Bearings shall be protected from water and sediment by suitable housings and oil seals.

6. Mechanical Seal

The seal shall be self-adjusting and maintenance-free.

7. 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.

8. Discharge Manifold

The discharge manifold shall offer 6 (six) outlets for 65 mm adapter and 2 (two) outlets for 80 mm adapters. Shall have an option to install a blind flange or 1 to 2-1/2-inch tapped flanges to the outlets.

9. External High Pressure Relief Valve

The external high pressure relief valve shall be set to open at approximately 650 psi (45 bar) at the factory. When open, the valve shall flow about 100 gpm (379 l/min) and resets when the pressure reduces to approximately 580 psi (40 bar).

10. 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).

B. Pump Transmissions: Optional transmission are as follows:

1. K Series Transmission (HLUK)

K Series Transmission shall be constructed of aluminum and shall be rigidly attached to the pump body assembly and incorporate a helical, precision cut, crown shaven gears 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.

2. PA Series Transmission (HLUPA)

PA Series Transmission be made of aluminum. The pump transmission shall be rigidly attached to the pump body assembly and be of latest design incorporating a high strength, involute tooth form chain drive capable of operating at high speeds to provide smooth, quiet transfer of power.

3. Pedestal Mounted (HLUD)

Pedestal mounted HLU shall be driven by speed increaser or other OEM supplied drives.

C. Options

1. Priming Systems

- a. The Venturis air primer system shall be mounted on the pump transmission or apparatus frame and uses the on-board air supply to create a vacuum to prime the fire pump. The basic system shall consist of a Venturis Air Primer, priming valve and auto or manual prime control panel.
- b. VPO oil-free rotary vane priming pump shall be rigidly attached to the pump transmission or apparatus frame 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.

1. Lubrication Option

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

2. Optional 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.

3. Optional 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.

4. Optional 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

5. Optional Pump Anodes

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.

6. Optional Round the Pump (RTP) Foam Proportioner

The Waterous RTP Foam Proportioner shall consist of an educator, 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 then enters the pump through the pump intake and finally delivered to the discharge outlets.