

Detailed Specification

Darley Model 2ZSM 5500-6000

A Darley model 2ZSM 5500-6000 GPM single stage dual impeller shaft driven centrifugal end suction fire pump shall be provided and installed.

The pump shall be midship and designed to operate through an integral transmission. The pump shall be driven by a driveline from the chassis transmission. The engine, transmission and driveline components shall provide sufficient horsepower and RPM to enable the pump to meet and exceed its rated performance.

The pump casing shall be manufactured from Class 40 Cast Iron with a minimum tensile strength of 40,000 PSI. The casing shall be vertically split allowing for access to the impeller and impeller drive shaft without removing the pump from the vehicle in the event maintenance is ever required.

The pump shall contain an isolated cored heating jacket feature that, if selected, can be connected into the vehicle cooling system to protect the pump from freezing in cold climates, and to help reject engine heat from engine coolant, providing longer life for the engine.

The pump shall contain a swept 'T' dual suction head with no stream shapers, or diffusers. The dual suction head shall include all pressure ports required for UL certification testing, and a dual chamber for heater core.

The assembled pump and transmission shall be mounted in a fashion in which the pump can be disconnected from the suction plumbing and drive train, and removed directly from the bottom of the vehicle.

Pump Shaft

The pump shaft shall be precision ground 17-4 stainless steel. The shaft shall be splined to receive shaped impeller hubs, for greater resistance to wear, torsional vibration, and torque imposed by engine, as well as ease of maintenance and repair.

Impeller

The impeller shall be a high strength bronze alloy of mixed flow design, splined to the pump shaft for precision fit, durability, and ease of maintenance. Impeller shall be vacuum cast designed for maximum lift and highest capacity. The seal rings shall be renewable, double labyrinth, wrap around bronze type.

Impeller shaft oil seals shall be constructed to be free from steel components except for the internal lip spring. The impeller shaft oil seals shall carry a lifetime warranty against damage from corrosion from water and other fire-fighting fluids.

Both Impeller shaft mechanical seal primary rings shall be constructed of Silicone Carbide material with a mating ring material of Carbon. Due to the superior performance and resistance to failure in the event of "running dry," tungsten carbide or ni-resist face materials shall not meet the requirements of the specification. No Exceptions shall be made to this portion of the specification.

Chassis Transmission Driven 3 Gear Transmission

The transmission case shall be heavy duty 356T6 cast aluminum. Transmission case shall be vacuum resin impregnated to seal casting microstructure. A magnetic drain plug shall be provided. Transmission case shall include a readily accessible lubricant fill port with combination plug/dipstick for checking and maintaining oil level. Transmission case shall be equipped with a removable access plate for quick inspection of gears, shafts, and bearings inside the transmission.

The pump drive shaft shall be precision ground, heat treated alloy steel, with a minimum 2 ½" -10 spline. Gears shall be helical design and shall be precision ground for quiet operation and extended life. The gears shall be manufactured from alloy steel, carburized, and heat treated for surface hardness and strength.

The bearings provided shall be heavy duty, deep groove, radial and spherical roller type bearings. Sleeve bearings on any portion of the pump or transmission shall be prohibited due to wear, deflection, and alignment concerns. The bearings shall be protected at all openings from road dirt and water splash with oil seals and water slingers.

The pump transmission shall include an integrated, positive displacement lubrication system providing pressurized lubrication to transmission gears and bearings. The pressurized lubricant system shall include a closed loop, heat exchanger providing low operating temperatures thus extending lubricant life and change intervals. The lubrication circuit shall include a 100 mesh, stainless steel, oil pickup screen.

The transmission shall include a secondary, splash lubrication system which will provide continued bearing and gear lubrication in the event of primary lubrication system malfunction.

Driveline Installation

The chassis drivelines shall be sized for intended application and torque requirements. The installation shall comply with driveline manufacturer's guidelines as well as with the pump manufacturer's guidelines. Improper installation will void the warranties provided from the pump manufacturer.

Manuals

One manual covering the fire pump transmission and selected options of the fire pump shall be provided with the apparatus in either printed copies or on CD.

Corporate Darley Office

325 Spring Lake Drive
Itasca, Illinois 60143-2072
Toll Free Phone: 800-323-0244
Phone: 630-735-3500
Fax: (708) 345-8993

Pump Manufacturing

1051 Palmer St.
Chippewa Falls, WI 54729
Toll Free Phone: 800-634-7812
Phone: 715-726-2650
Fax: (715) 726-2656

Apparatus Division

920 Kurth Rd.
Chippewa Falls, WI 54729
Toll Free Phone: 800-527-0068
Phone: 715-726-2645
Fax: (715) 726-2648