HP700 Pump Engine

DETAILED SPECIFICATIONS

SPECIAL NOTE:
When preparing the specifications for your new fire apparatus, assure the use of a Hale pump by incorporating these pump specifications as written. No competitive pump can match Hale's construction or performance.

Pump Assembly

1. The pump shall be of a size and design to the IVECO S23ENTC diesel engine and have the capacity of 500 gallons per minute (U.S. gpm) NFPA 1901 rated performance. Additionally, with sufficient water supply flows of 700gpm shall be achievable.

2. The entire pump end shall be manufactured and tested at the pump manufacturer's factory.

3. The entire pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 500 PSI. The pump shall be fully tested at the pump manufacturer's factory to the performance spots as outlined by the latest NFPA Standard 1901. Pump shall be free from objectionable pulsation and vibration.

4. The pump body and related parts shall be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 PSI. All moving parts in contact with water shall be of high quality bronze or stainless steel. Pump utilizing castings made of lower tensile strength cast iron not acceptable.

5. Pump body shall be vertically split, on a single plane, for easy removal of the impeller, including clearance rings.

6. Pump shaft to be rigidly supported by two bearings for minimum deflection. The bearings shall be heavy-duty, deep groove ball bearings in the gearbox and they shall be splash lubricated.

7. The pump shaft shall have only one mechanical seal. The mechanical seal shall be spring loaded, maintenance free and self-adjusting. (No exceptions.)

8. Pump impeller shall be hard, fine grain bronze of the mixed flow design; accurately machined, hand-ground and individually balanced. The vanes of the impeller intake eye shall be hand-ground and polished to a sharp edge, and be of sufficient size and design to provide ample reserve capacity utilizing minimum horsepower.

9. Impeller clearance rings shall be bronze, easily renewable without replacing impellers or pump volute body.

10. The pump shaft shall be electric furnace heat-treated and corrosion resistant with a positive impeller lock. Pump shaft must be sealed with double lip oil seal to keep road dirt and water out of gearbox.

Pump specifications

Gearbox

1. The gearbox shall be manufactured and tested at the pump manufacturer's factory and close coupled to the pump assembly.

2. Pump gearbox shall be of sufficient size to withstand the torque of the engine in pump operating conditions. The gearbox shall be designed of ample capacity for lubrication reserve and to maintain the proper operating temperature. Pump gear box shall be close coupled to the engine bell housing.

3. The gearbox drive shaft shall be of heat-treated chromium steel and shall withstand the torque of the engine in pump operating conditions. Drive shaft shall be splined to match the engine connecting drive disc. Drive disc shall be dampened.

4. All gears shall be of highest quality electric furnace chrome nickel steel. Bores shall be ground to size and teeth integrated, crown-shaved and hardened, to give an extremely accurate gear for long life, smooth, quiet running and higher load carrying capability. An accurately cut helical design shall be provided. (No exceptions.)

5. The pump ratio shall be selected to give maximum performance with the engine.

Priming Pump

1. The priming pump shall be a positive displacement, oil-less rotary vane electric motor driven pump conforming to the requirements of NFPA 1901. The pump body shall be manufactured of heat treated anodized aluminum for wear and corrosion resistance.
2. The pump shall be capable of producing a minimum 24 Hg vacuum at 2000 feet above sea level.
3. The electric motor shall be a 12 VDC totally enclosed unit.
4. The priming pump shall not require lubrication.
5. The priming pump shall be operated by a single push-pull control valve mounted on the pump operator panel. The control valve shall be of all bronze construction.

Drive Disc

1. An elastomeric drive disc to connect to the engine flywheel shall be provided.

Mounting Platform

1. The pump/ engine shall be isolation mounted to a sub frame structure for system mounting.

Engine

1. The engine shall be a 4 cycle turbo charged and after cooled diesel, IVECO S23ENTC. (No exceptions)
2. The engine power rating shall be 114HP at 3900RPM, with a displacement of 2.3 liters.
3. Cooling system shall be integrated into the package along with a dry air cleaner.
4. The electrical system shall be 12 volt with a 110amp alternator and an electric starter included
5. A Class1 Enfo4 engine readout shall be provided.