

## General

Midship or rear mounted multi-stage fire pumps. Main castings in aluminium.

Performance – rated at 1500LPM @ 10BAR and 250LPM @ 40BAR.

## Special note:

When preparing the specifications for your new fire apparatus, assure that the use of a GODIVA pump by incorporating these pump specifications as written. No competitive pump can match GODIVA construction or performance.

## Pump construction

1. The pump shall be of a size and design to mount on the chassis of a commercial or custom truck, and have the low-pressure capacity of 1500LPM at 10 BARS at a lift of 3 meters. The high-pressure capacity shall be 400 LPM at 40 BARS.
2. The entire pump shall be manufactured and dynamometer tested at the pump manufacturer's factory. The pump manufacturer must have ISO9001 quality control certification.
3. The pump shall be driven by the truck chassis engine through a PTO. The engine and PTO shall provide sufficient horsepower and RPM to enable the pump to meet and exceed the specified performance.
4. The entire pump, both suction and discharge passages shall be hydrostatically tested (EN1028 to 17.5BAR, NFPA to 500psi). The pump shall be fully tested at the pump manufacturer's factory and be free from hydraulic pulsation and vibration. The pump shall be capable of a dynamic discharge of 22.5BAR.
5. The high-pressure pump body, impeller and cover plate shall be of EN10088-3:1.4436 approved stainless steel. The low-pressure volute shall be corrosion resistant aluminium alloy, all other castings, shall be of BS approved aluminium alloy. Pumps utilizing castings made of other materials are not acceptable.
6. The pump body shall be vertically split, for easy removal of the low and high pressure impellers, wear rings and mechanical seal assembly, from the pump without disturbing the mounting of the pump in the chassis. It must also be possible to remove all these items without disturbing the volute, manifolds and associated pipe work.
7. The pump shall have no more than two impellers and be capable of simultaneous multi-pressure operation. Both impellers shall be mounted on the same rotational axis, multi-shaft designs are not acceptable.
8. The pump low-pressure impeller shall be made of BSEN1706 AC-42000(T6) approved aluminum alloy and hard anodized to resist wear and be a mixed flow design, accurately machined and statically balanced. The impeller shall be of sufficient size and design to provide reserve capacity.
9. The high-pressure impeller shall be of a regenerative type design accurately machined from 316 S16 stainless steel. Designs with multiple high-pressure impellers are not acceptable.
10. The low-pressure impeller clearance rings shall be of Acetal Homopolymer plastic and easily renewable.
11. Both impellers shall be keyed to their support shaft and locked in place by a Nord-Lock locking system.
12. The pump shaft is to be rigidly supported by rolling element bearings for minimum deflection and end float. Shaft end float shall be controlled by the bearings and shall not be adjustable. The shaft shall be made from EN10088-3:1.4057 approved stainless steel.
13. The water seal shall be a self-adjusting mechanical type, incorporating a stationary spring-loaded hard carbon ring running against a rotating silicon carbide seat. The seal shall be pre-loaded during pump assembly and shall require no maintenance or adjustments during its life. The spring must be located on the dry side of the seal. Packing glands or grease seals are not acceptable.
14. The pump shall have an internal pressure relief system to ensure the high pressure cannot exceed 54.5 bar over normal operating speed ranges.

15. The pump shall include a thermal relief system to ensure that pump water temperature cannot exceed 48°C. A high temperature version, that ensures the pump water cannot exceed 80°C, shall also be available.
16. Upon shut down the high pressure stage shall automatically drain into the low pressure stage from where the whole unit can be drained via a single point.
17. A filter shall be installed before the high-pressure stage that shall be easily accessible for cleaning from the suction tube end of the unit. The filter shall be capable of retaining particles > Ø 0.75mm.
18. The valve handle controlling the high-pressure stage shall be easily accessible from the suction tube end of the unit.
19. When high pressure is not required low-pressure water must be automatically available at the high-pressure discharge outlets.
20. Priming is by a reciprocating piston primer which is actuated, via a pressure sensor and an electromagnetic clutch, and must automatically re-engage when pressure is lost. The primer mechanism is dry running and low maintenance. The primer must engage at low speeds and be protected from engagement at high speed by an auto cutout that activates at 3000RPM. Manual operation is possible.
21. The pump shall be fitted with an electronic tachometer sensor.
22. Total weight will be less than 76 Kg (based on standard option – no manifold, delivery valves or suction adaptor).

#### **Drive unit construction**

- a) The combined gearbox/bearing housing as well as the pump shall be constructed at the pump manufacturer's factory.
- b) The gearbox/bearing housing is designed to function without lubrication change for up to five years (assuming manufacturer's specified gear oil is used).
- c) The gearbox/bearing housing is available with three different ratios to suit a wide range of appliance installations.
- d) Pump gearbox/bearing housing shall be of sufficient size to withstand the torque of the engine during fire fighting operations.
- e) The bearings and shaft shall be oil lubricated, by the gear rotation, to ensure that the pump can be operated at any angle up to 15° in any direction.
- f) The pump shaft shall be sealed with oil seals to keep road dirt and water out of the gearbox/bearing housing.
- g) The gearbox/bearing housing will be fitted with a cooling water system as standard.
- i) The gearbox will be rotatable to achieve three different positions – left, right and down.