

# INSTALLATION INSTRUCTIONS

The stated figures are for maximum pressure and maximum speed (rpm) and apply for interval operation with cold water. Required NPSH refers to water (specific weight 1kg/dm<sup>3</sup>, viscosity 1°E) at maximum permissible pump revolutions. Fluid medium: Clean water filtered to 50µm.

## Operation and Maintenance

Check oil level prior to starting and ensure trouble-free water supply.

**IMPORTANT!** If there is a danger of frost, the water in the pump and in the pump fittings (particularly the unloader valve) must be emptied. The second discharge port can also be used and the pump run "dry" for 1-2 minutes for this purpose. Oil: Use only 3.3 gallons (12.5 liters) of Giant Oil (p/n 01154) or ISO VG 220 GL4 (e.g. Aral Degol BG220) or SAE 90 GL4 gear oil. Initial change after 50 operating hours and then every 1000 operating hours or after one year of operation.

**IMPORTANT!** when operating in damp places or with high temperature fluctuations. Oil must be changed immediately should condensate (frothy oil) occur in the gear box.

**NPSH values must be observed**

## Cooling the Gear Oil

**IMPORTANT!** When using the integrated cooling system for cooling the gear oil, the water inlet pressure must not exceed 29 PSI (2 bar).

If a separate cooling circuit is installed, it is then possible to have an inlet pressure up to a maximum of 145 PSI (10 bar) on the inlet side.

Make sure that suction pulsation is sufficiently dampened – water column resonance must be avoided.

**IMPORTANT!** The pumps can be run without gear oil cooling in continuous operation **up to a power rating of 107 hp (80 kW)** or with major intermittent operation at full performance (see below regarding the definition for intermittent operation). If operational power exceeds **107 hp (80 kW)** or if continuous operation is the case, the pump must be run with the integrated oil cooling system.

**Definition of intermittent operation:** operation at full performance for not more than 20 minutes in any given hour. In between the pump is running without pressure or turned off. For example, this can be full load operation for 5 minutes four times an hour with 10 minute breaks in between or continuous full load operation for 20 minutes followed by a 40 minute break.

The maximum temperature of the water being pumped and which is also fed through the cooling system must not exceed 86 °F (30 °C). The water amount which is fed into the cooling system depends on the pump speed and is approximately 1.85 gpm (7.0 l/min.) at 580 pump rpm. The cooling water is sucked in by one of the pumping chambers and pumped away.

**IMPORTANT!** If higher medium temperatures or liquids other than water are involved or aggressive media such as seawater, demineralised water etc., the pump must be fitted with a separate cooling circuit. The separate cooler must have a cooling efficiency of 1700 watt. If there is a danger of frost, an appropriate amount of antifreeze must be mixed into the cooling circuit.

When starting up for work, the pump must run first at zero pressure for approximately 1 minute.

**IMPORTANT!** The GP8000 series has a black arrow on the crankcase which shows the preferred direction of rotation. The preferred direction of rotation ensures oil is splashed onto the crosshead guides in the correct manner via the motion of the connecting rods – which is a particular advantage where

continuous operation is involved.

The pump can also be run against the recommended direction of rotation if operated periodically or at reduced pressure. If so, the pump must be run in in this direction to smoothen the bearing areas. This is done by initially operating the pump at zero pressure for 30 minutes; thereafter the pressure is to be slowly increased over a period of an hour to the desired maximum operating pressure. Check the oil temperature during this process.

**IMPORTANT!** If there is a danger of frost, the pump and cooling system must be emptied. Note that travel wind can cause water in pumps fitted on open vehicles to freeze even if the outside temperature is above freezing point.

To empty the cooling circuit, remove the L-joints (K11) on the pump head (50). Blow out the circuit liquid at the joint connection (K11/K7) using compressed air.

The torque tension on the valve casing nuts (49A) is to be checked after approximately 200 operating hours. Please see page 8 for torque specifications.

When checking the torque tension, the pump must be at zero pressure.

**IMPORTANT!** The service life of the seals is maximized if a minimal amount of leakage is present. A few drops of water can drip from each plunger every minute. Leakage has to be examined every day; the plunger seals must be changed should leakage become excessive i.e. constant dripping.



## Safety Rules

**The operating instructions must be read and adhered to before performing any work on the pump or complete assembled unit. No responsibility will be carried by us for damage to materials or persons caused by improper handling of our pumps.**

Access to the pump is not allowed for unauthorized personnel. A safety valve is to be installed in accordance with the guidelines for liquid spraying units so that the admissible operating pressure cannot be exceeded by more than 10%. Pump operation without a safety valve as well as any excess in temperature or speed limits automatically voids the warranty.

When the pump is in operation, the driven shaft side and its coupling must be covered by a protective guard. The plunger area must also be covered by the protective plate (30).

Do not step onto the protective plate (30) or put weight on it. Pressure in the discharge line and pump must be at zero before carrying out any maintenance work to the pump or unit. Close off suction line. Disconnect fuses to ensure that the driving motor cannot be accidentally switched on. Make sure that the pump, the cooling system and all parts on the pressure side of the unit are vented and refilled, with pressure at zero, before starting the pump.

In order to prevent air or an air/water-mixture being absorbed and cavitation occurring, the pump npshr (net positive suction head required) and water temperature must be respected.

**Cavitation and/or compression of gases lead to uncontrollable pressure-kicks which can ruin the pump and unit parts and also be dangerous to the operator or anyone standing nearby.**

Giant plunger pumps are suitable for pumping clean water and other non-aggressive or non-abrasive media with a specific weight similar to water.

**Before pumping other liquids - especially inflammable, explosive and toxic media - the pump manufacturer must be consulted with regard to the resistance of the pump material. It is the responsibility of the equipment manufacturer and/or operator to ensure that all pertinent safety regulations are followed.**