

# Specifications - Model GP8176

## 1. Performance

	U.S.	(Metric)
Flow .....	132 GPM .....	(500 LPM)
Discharge Pressure .....	1500 PSI .....	(100 bar)
Power Consumption .....	129 BHP .....	96 kW
Maximum Speed.....		520 RPM
Inlet Pressure.....	29 PSI .....	(2.0 bar)
Plunger Diameter.....	2.99".....	76 mm
Plunger Stroke.....	2.83".....	72 mm
Pinion Shaft Diameter.....	1.77".....	45 mm
Key Width .....		14 mm x 9 mm x 70 mm
Crankshaft Mounting.....		Either side
Shaft Rotation .....		See Page 2
Temperature of Pumped Fluids.....	86° F .....	(30° C)*
Inlet Ports.....		(2) 3" BSP
Discharge Ports .....		(2) 1-1/4" BSP
Weight.....	794 lbs. ....	(360 kg)
Fluid End Material.....		Nickel Plated Spheroidal Cast Iron
Crankcase Oil Capacity .....	3.3 Gal. ....	(12.5 liters)
NPSHR .....	26.2 ft.-head.....	8.0 mWs

\*higher water temperatures possible with separate crankcase cooling system; contact Giant.

<u>Gear Ratio</u> .....	<u>Input Speed</u>
2.6:1.....	1500 RPM
3.1:1.....	1800 RPM
3.8:1.....	2200 RPM
4.5:1.....	2600 RPM

1) Figures given for maximum pressure and maximum speed (rpm) apply to intermittent operation with cold water.

### Definition of intermittent operation:

Operation at full performance for not more than altogether 20 minutes an hour, with the pump running without pressure or turned off inbetween. For example, this can be full load operation for 5 minutes four times an hour with 10 minute breaks inbetween or continuous full load operation for 20 minutes followed by a 40 minute break.

2) Higher water temperatures are possible with a separate external crankcase cooling system. The manufacturer is to be contacted in this case.

3) The maximum pressure is to be reduced by 10% where continuous operation with a cooler (with or without gear) is involved.

### NPSHR / Inlet pressure

Required NPSH refers to water at 68 °F (20 °C) at maximum permissible pump speed.



The inlet pressure on the suction side must not exceed 29 PSI (2 bar) if the integrated gear oil cooling system (standard version) is connected. If a **separate** cooling circuit (maximum 29 PSI [2 bar]) is installed, it is then possible to have an **input pressure** of up to maximum 29 PSI (2 bar) on the suction side. Make sure that suction pulsation is sufficiently dampened - water column resonance must be avoided.

### Level of noise emission

Emission sound pressure level: ≤ 70 dB(A)

### 2. Fields of application

The fields of application of these pump types correspond to the specifications in the assembly instructions GIANT INDUSTRIES.

### Ambient conditions

Ambient temperature:  
41 °F (5 °C) < T<sub>Amb.</sub> < 86 °F (30 °C)

#### 4. Oil filling

- Filling quantity: **4.2 gal (16.0 L)**
- Quality: Industrial gear oil **ISO VG 220** or automotive gear oil **SAE 90 GL4 - Giant's p/n 01154**
- Intervals: first oil change after **50 operating hours** then every **1000 operating hours**, but at the latest **12 months**



If the pump is mounted on a vehicle (possible inclined position during operation) and/or if the pump speed is between 300 rpm and 500 rpm, the required oil quantity increases by 1 liter.

#### 5. Installation/ Putting into Operation

##### 5.1 Shaft protector

When the pump is in operation, the driven shaft side and coupling by a bell housing and the plunger area by cover (30).

Do not step onto the protective plate (30) or put heavy objects on it.

##### 5.2 Direction of pump rotation

The GP8176 has a black arrow on the reduction gear which shows the preferred direction of rotation.

The pumps can be delivered either with the gear on the left side or right side which eases the planning of assembling units with regard to rotational direction.

The indicated direction ensures that oil is correctly distributed on and into the crosshead guides via optimal connecting rod motion thus providing best possible lubrication particularly with regard to continuous operation.

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.

##### 5.3 Suction line filter

Recommended mesh size 150 µm.

##### 5.4 Gear oil cooling



The pumps can be run without gear oil cooling in continuous operation **up to a power rating of 95.2 HP (70 kW)** or with major intermittent operation at full performance.

If the power required **exceeds 95.2 HP (70 kW)** in continuous operation, the pump must be run with the integrated oil cooling system. 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 1.8 GPM (7.0 l/min.) at 520 pump rpm. The cooling water is sucked in by one of the pumping chambers and pumped away.



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.

##### 5.5 Valve Casing



The torque tension on the valve casing nuts (49A) is to be checked after approximately 200 operating hours.

Please see page 6 for the torque values.

The pump must be at zero pressure when checking the torque tension.

#### 6. Operation

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



The pump and cooling system must be emptied if there is a danger of frost. Note that travel wind, for example, can cause water in pumps fitted on open vehicles to freeze even if the outside temperature is

above freezing point.

Empty the pump through the second unused suction and discharge connection using compressed air, for example.

Bottom plugs (59) on the suction channel can be opened as well.

The pump can also be run "dry" for 1-2 minutes to aid emptying.

Empty the cooling system by removing screw joints (K11) on the pump head (50) and by blowing the hoses (K12) with compressed air on the (K11/K7) side. Anti-freeze is recommended to guard against frost where a separate cooling circuit is used.



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 (=constant dripping).