GP7645GBHS/GP7650GBHS/GP7655GBHS PUMP SPECIFICATIONS

Performance

	Power Required	Pressure	Max. Speed	Max. Flow	Max. Temp.	Plunger ø	Plunger Stroke	Weight	NPSHR
Model	**BHP (kW)**	**PSI (bar)**	**RPM**	**GPM (l/min)**	**°F (°C)**	**in (mm)**	**in (mm)**	**lbs. (kg)**	**ft. of head (mWs)**
GP7645	110 (82.5)	3000 (200)	800	55.5 (210)	86 (30)	1.77 (45)	2.28 (58)	476 (216)	(9.1)
GP7650	121 (90.0)	2540 (175)	800	70 (264)	86 (30)	1.97 (50)	2.28 (58)	476 (216)	(9.3)
GP7655	118 (88.0)	2000 (140)	800	84.5 (320)	86 (30)	2.17 (55)	2.28 (58)	476 (216)	(9.8)

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 suction side input pressure must not exceed 29 PSI (2 bar) if the integrated gear oil cooling system is connected.
The max. system pressure for a separately fitted oil cooling system must likewise not exceed 29 PSI (2 bar).

If the integrated gear oil cooling system is not used, the max. admissible input pressure on the pump suction side is 29 PSI (2 bar). In this case, transmitted pulsation from the pump to the suction line must be sufficiently damped.

Level of noise emission
Emission sound pressure level: ≤ 94 dB(A)

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 < $T_{Amb.}$ < 86 °F
Ambient temperature: 5 °C < $T_{Amb.}$ < 30°C

Oil filling
- Filling quantities
  - Pump **with** gear **and** oil cooler **2.1 gal (8,0 l)**
  - Pump **without** gear **with** oil cooler **1.6 gal (6,0 l)**
  - Pump **with** gear **without** oil cooler **2.4 gal (9,2 l)**
  - Pump **without** gear **without** oil cooler **1.9 gal (7,2l)**
- 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 after **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 **0.26 gal** (**1 liter)**.

Installation/ Putting into Operation
Shaft protector
When the pump is in operation, the open shaft end must be covered up by shaft protector (21), the driven shaft side and coupling by a contact-protector and the plunger room by cover (30).

Direction of pump rotation
An arrow on the pump crankcase indicates the recommended direction of rotation for the drive shaft. The indicated direction ensures that oil is correctly distributed on and into the crosshead guides via optimal conrod motion thus providing best possible lubrication particularly with regard to continuous operation.
Reduction gears can be fitted on the left or right side and at different angles to accommodate the recommended rotational direction thus facilitating planning and fitting of pump units.

Suction line filter
Recommended mesh size 150 µm.

Gear oil cooling
The GP7600 pump series comes with a gear oil cooling system.

The pumps can be run without gear oil cooling in continuous operation **up to** a power rating of **80.5 HP (60 kW)** or with major intermittent operation at full performance.
If operational power exceeds **80.5 HP (60 kW)** or for pumps fitted with a flanged reduction gear, this oil cooling system is recommended.

The cooling system works independently using the conveyed water during pump operation. A part of the water drawn by the plunger goes through a pipe and to a cooler plate in the drive casing. The flow amount in the cooling system therefore depends on the plunger diameter and the pump rpm. The amount of conveyed cooling water ensures satisfactory oil cooling under observation of max. admissible pump rpm limits.
The temperature of the pumped water should not exceed
86 °F (30°C).

If higher medium temperatures or liquids other than water are involved or aggressive media such as seawater, demineralised water etc the integrated gear oil cooling system must be decoupled and a separate cooling circuit set up.
The separate cooler must have a cooling efficiency of 1500 watt.
If there is a danger of frost, an appropriate amount of antifreeze must be mixed into the cooling circuit.

Operation

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 (12) 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 and by blowing the hoses with compressed air on the (K11/K7) side.
Anti-freeze is recommended to guard against frost where a separate cooling circuit is used.

Maintenance and Servicing

For the type of threadlocker used and the required tightening torques, observe the table in the exploded view.

Special tools required

The following special tools are required for assembly:
- Extraction tool (code no. 15.0038)
- Pull-out tool size 5
- Snap-ring tongs

Suction and Discharge Valves

Screw off plugs (58).
Take out tension spring (57).
Remove the complete valve (51, 52) and valve holder (55) using either a valve tool or an M16 hexagon screw.

To dismantle valves:

Screw valve seat (51E, 52E) out of spring tension cap (51A, 52A).
Check sealing surfaces and replace worn parts.
Check O-rings and support rings.
Tighten plugs (58) to the required torque.

If worn, the discharge valve seat (52E) can be turned 180° round and refitted.

Seals and Plunger

Loosen nuts (49A) and remove pump head.
Separate plunger connection (36A) from crosshead (25) by means of an open-end wrench (size 36).
Pull seal sleeves (39) out of their fittings in the crankcase.
Take seal case (38) out of seal sleeve (39) and remove tension spring (45) (GP7645).
Take seal unit (40,41,42,43 – GP7655) or (41,42,43 – GP7645/GP7650) out of the seal sleeve.
Examine plunger pipe (36B) and seals (39A, 42) and O-rings (38A, 38B) or (41 – GP7655).
Worn parts to be replaced.
When replacing plunger pipe (36B), tighten tension screws (36C) to the required torque.
Replace worn parts; grease seals with Silicone before installing.

Always remove the valve casing first before taking the 3 plungers (36) off the crossheads (25).
Otherwise the plunger (36) could hit against the spring tension cap (51A) and valve holder (55) when turning the pump.

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).
Seal life can be increased if the pretensioning allows for a little leakage.
This assists lubrication and keeps the seals cool.
It is therefore not necessary to replace seals before the leakage becomes too heavy and causes output and operating pressure to drop.
When reassembling, tighten plunger screws (36A) to the required torque.

Mounting Valve Casing:

Examine the O-rings (38A, 38B) on seal cases (38).
Clean the seal sleeve contact surfaces in the crankcase and the sealing surfaces in the valve casing.
Carefully push the valve casing onto the seal case O-rings and centring studs (50A).
Tighten nuts (49A) to the required torque.