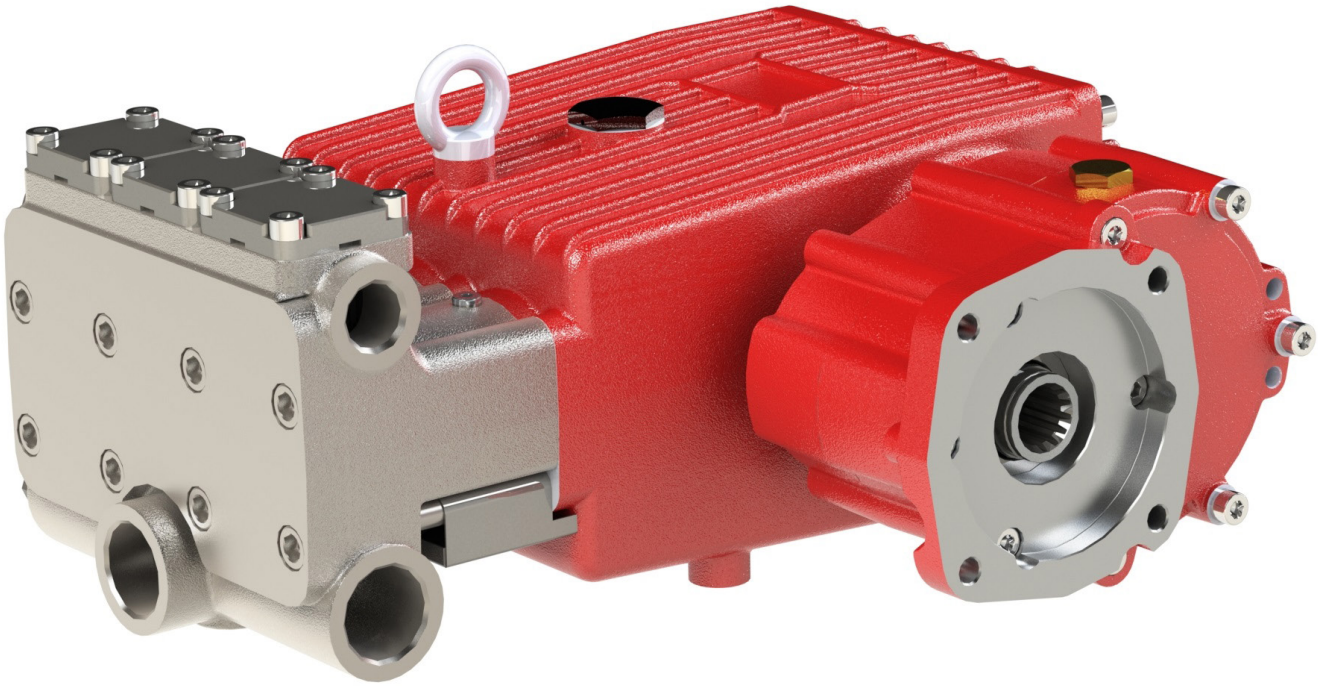
Model GP5132GBHS-5100

Triplex Ceramic Plunger Pump Operating Instructions / Manual



GIANT
Performance Under Pressure

Contents:

INSTALLATION INSTRUCTIONS

Figures for speed (rpm) and pressure apply to interval operation with cold water.
For continual operation, the speed of all pump models must be limited to 700 rpm and the maximum operating pressure reduced by 10%.

Required NPSH refers to water: Specific weight 1kg/dm^3, viscosity 1°E at maximum permissible revolutions.

Operation and Maintenance

Check oil level prior to starting and ensure trouble-free water supply. **Oil:** Use only 1.3 gallons (5.0 liters) of Industrial Gear Lube Oil (Giant p/n 01154) or ISO VG 220 (e.g. Aral Degol BG220) or SAE 90 gear oil.

Initial change after 50 operating hours and then every 500 operating hours.

Caution: When operating in damp places or with high temperature fluctuations or when condensate (frothy oil) occurs in the gear box, the oil should immediately be changed.

Keep NPSH under control.

Maximum input pressure 145 PSI (10 bar), maximum suction head -4.35 PSI (-0.3 bar).

⚠ Safety Rules

Pump operation without safety valve as well as any excess in temperature or speed limits automatically voids the warranty. The safety valve must be regulated in accordance with the guidelines for liquid spraying units so that the admissible operating pressure can not be exceeded by more than 10%.

Before any maintenance to the pump takes place, pressure in discharge line and in pump must be at zero. Close up suction line. Disconnect fuses to ensure that the driving motor does not get switched on accidently.

Before starting the pump. make sure that all parts on the pressure side of the unit are vented and refilled and the pressure is at zero.

In order to prevent air, or an air/water-mixture being absorbed and to prevent cavitation occuring, the pump-npshr, positive suction head and water temperature must be kept under control.

Cavitation and/or compression of gases lead to uncontrollable pressure-kicks which can ruin 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-agressive or abrasive media with a specific weight similar to water.

Before pumping other liquids - especially inflammable, explosive and toxic media - the pump manufacturer must under all circumstances 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 adhered to.

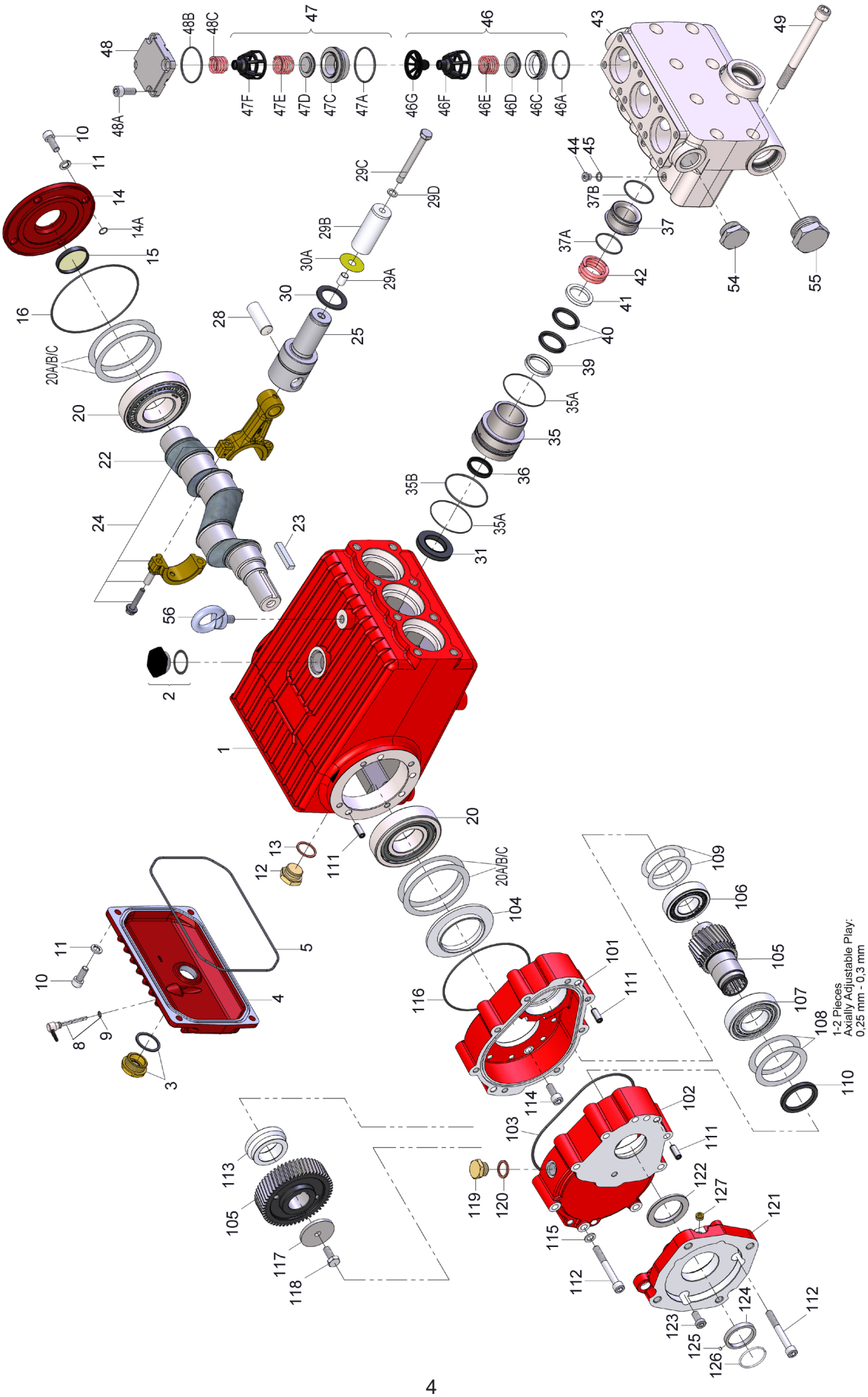
Specifications
Model GP5132GBHS-5100

	U.S.	Metric
Maximum Volume (Continuous)	27.7 GPM	104.9 LPM
Maximum Volume (Intermittent)	40.0 GPM	151.0 LPM
Maximum Discharge Pressure	3000 PSI	200 bar
Power Required	57.4 BHP	42.8 kW
Crankshaft Speed		1000 RPM
Maximum Inlet Pressure	-4.35 to145 PSI	-0.3 to 10 bar
Plunger Diameter	1.26”	32 mm
Crankshft Stroke	1.81”	46 mm
Crankshaft Bore		SAE-C Spline 14T 12/24DP
Crankshaft Mounting		Either side
Shaft Rotation		Hydraulic Gear towards back of pump
Temperature of Pumped Fluids	Up to 140 °F	60 °C
Inlet Ports		(3) 1-1/2” NPT
Discharge Ports		(2) 1” NPT
Weight	269 lbs.	122 kg
Crankcase Oil Capacity	1.3 Gal.	5.0 liters
Fluid End Material		316 Stainless Steel

Consult the factory for special requirements that must be met if the pump is to operate beyond one or more of the limits specified above.

GP5132GBHS-5100 Horsepower Requirements					
RPM	GPM	1000 PSI	1500 PSI	2000 PSI	3000 PSI
500	13.9	9.6	14.7	19.2	28.8
600	16.6	11.5	17.2	22.9	34.4
700	19.4	13.4	20.1	26.8	40.1
800	22.2	15.3	23.0	30.6	45.9
900	24.9	17.2	25.8	34.4	51.5
1000	27.7	19.1	28.7	38.2	57.3

EXPLODED VIEW - GP5132GBHS-5100



GP5132GBHS-5100 SPARE PARTS LIST

ITEM	PART	DESCRIPTION	QTY.
1	03248	Crankcase	1
2	13000	Oil Filler Plug Assembly	1
3	05943	Oil Sight Glass Assembly	1
4	13267	Crankcase Cover	1
5	13268	O-Ring	1
8	07105	Oil Dip Stick Assembly	1
9	01009	O-Ring, Dip Stick	1
10	07008	Inner Hexagon Screw	8
11	06725	Spring Washer	8
12	07703	Drain Plug, 3/4” BSP	1
13	07704	Gasket, Drain Plug	1
14	03249	Bearing Cover	1
14A	03250	O-Ring	4
15	08439	Lid	1
16	08380	O-Ring	1
20	13206	Taper Roller Bearing	2
20A	13207	Shim, 0.1mm	1-5
20B	04723	Shim, 0.15mm	1-5
20C	04724	Shim, 0.2mm	1-5
22	03251	Crankshaft	1
23	03252	Fitting Key	1
24	13276	Connecting Rod Assembly	3
25	13279	Crosshead Assembly	3
28	13281	Crosshead Pin	3
29A	07125	Centering Sleeve	3
29B	13022	Plunger Pipe	3
29C	07131-0100	Tensioning Screw	3
29D	07161A-0100	Steel Seal Ring	3
30	13282	Oil Scraper	3
30A	05889	Washer for Drip Shield	3
31	13284	Radial Shaft Seal	3
35	03047	Seal Sleeve	3
35A	08183	O-Ring	6
35B	13286	O-Ring	3
36	13025	Grooved Ring	3
37	13361-0100	Seal Case	3
37A	07700	O-Ring	3
37B	07653	O-Ring	3
39	03724	Pressure Ring	3
40	13027	V-Sleeve	6
41	13028	Sleeve Support Ring	3
42	07173	Tension Spring	3
43	13300-5000	Valve Casing	1
44	06589	Hexagon Socket Plug, 1/8” BSP	1
45	07204-0100	Steel Seal Ring, 1/2”	1
46	13302-0100	Suction Valve Assembly	3
46A	06577	O-Ring	3
46C	13304-0100	Suction Valve Seat	3
46D	13306-0100	Valve Plate	3
46E	13307	Valve Spring	3
46F	13308	Spring Tension Cap	3
46G	13309	Spacer Pipe	3
47	13311-0100	Discharge Valve Assembly	3
47A	13289-0001	O-Ring	3
47C	13313	Discharge Valve Seat	3
47D	13306-0100	Valve Plate	3
47E	13307	Valve Spring	3
47F	13308	Spring Tension Cap	3
48	13316-0100	Plug	3
48A	07008	Inner Hexagon Screw	12
48B	07740	O-Ring	3
48C	07232	Pressure Spring	3
49	13339	Inner Hexagon Screw	8
54	13044-0100	Plug, 1” BSP	1
55	13322-0100	Plug, 1-1/2” BSP	2
56	07623	Eye Bolt	1
100	03719	Gearbox Assembly	1
101	03257	Bottom Casing for Gear	1
102	03195	Top Casing for Gear	1
103	03196	O-Ring	1
104	03253	Centering Ring	1
105	03315	Gearwheel Set, 1.75:1	1
105	03329	Gearwheel Set, 2.0:1	1
105	03290	Gearwheel Set, 2.75:1	1
106	03199	Cylinder Roller Bearing	1
107	03200	Cylinder Roller Bearing	1
108	03201	Shim, 0.1 mm	1-3
109	07249	Shim, 0.1 mm	1-3
110	05058	Radial Shaft Seal	1
111	04744	Cylindrical Pin	4
112	03202	Hexagon Socket Screw	8
113	03255	Spacer Ring for Gear	1
114	07008	Hexagon Socket Screw	4
115	08041	Washer	8
116	08380	O-Ring	1
117	13362	Disc for Crankshaft	1
118	13358	Hexagon Screw	1
119	07109	Plug, 1/2” BSP	2
120	06272	Copper Seal Ring, 1/2”	2
121	03291	Flange for Gearbox	1
122	03292	Centering Ring	1
123	03293	Hexagon Socket Screw	1
124	03294	Ring for Speed Sensor	1
125	03295	Magnet for Speed Sensor	1
126	03296	Clip Ring	1
127	03297	Plug	1

GP5132GBHS-5100 REPAIR KITS

Plunger Packing Kit #09879

Item	Part#	Description	Qty.
35A	08183	O-Ring	6
35B	13286	O-Ring	3
36	13025	Grooved Ring	3
37A	07700	O-Ring	3
37B	07653	O-Ring	3
40	13027	V-Sleeve	6

Oil Seal Kit #09230

Item	Part #	Description	Qty.
31	13284	Oil Seal	3

Valve Assembly Kits

Inlet Valve Kit #09231-0100

Item	Part #	Description	Qty.
46A	06577	O-Ring	3
46C	13304-0100	Valve Seat	3
46D	13306-0100	Valve Plate	3
46E	13307	Valve Spring	3
46F	13308	Spring Tension Cap	3

Discharge Valve Kit # 09232-0100

Item	Part #	Description	Qty.
47A	13289-0100	O-Ring	3
47C	13313	Valve Seat	3
47D	13306-0100	Valve Plate	3
47E	13307	Valve Spring	3
47F	13308	Spring Tension Cap	3

GP5132GBHS-5100 Pump Torque Specifications and Lubrication Information		
Position	**Lubrication**	**Torque Amount**
1	Molycote Cu-Paste	
3	Loctite 572	22 ft.-lbs (30 Nm)
10		33 ft.-lbs. (45 Nm)
12		74 ft.-lbs. (100 Nm)
24		22 ft.-lbs. (30 Nm)
29C	Loctite 243	22 ft.-lbs. (30 Nm)
31	Loctite 403	
48A		35 ft.-lbs. (47 Nm)
49		89 ft.-lbs. (120 Nm)

GP5132GBHS-5100 Repair Instructions

To Check Valves
Remove inner hexagon screw (48A) and remove plugs (48) with a screwdriver. Check O-rings on plugs (48B). Pull out tension spring (48C). Remove the spring tension disc (47F) from discharge valve lying underneath by screwing in the M10-screw. Take out spring (47E) and plate (47D). Pull out valve seat (47C) by means of an valve puller. Check sealing areas of plate and valve seat for damage and replace worn parts. Check O-ring (47A). Screw spacer pipe (46G) out of spring tension cap (46F) in the suction valve lying underneath. Remove suction valve by screwing in an M10-screw. Check O-ring (46A). If valve seat (46C) remains in the valve casing (43) then carry forth as described for discharge valve. When reassembling, use new O-rings if possible and oil them before installing.
Tighten inner hexagon screws (48A) to 35 ft.-lbs. (47 Nm).

To Check Seals and Plunger Pipe
Loosen the inner hexagon screws (49) and pull off valve casing (43) to the front. Pull seal sleeves (35) out of guides in crankcase (1) and over the plunger pipe (29B). Pull support ring (41), sleeves (40) and pressure ring (39) out of seal sleeve (35).
Check plunger surfaces, sleeves (40) and grooved rings (36). Replace worn parts.
If the plunger pipe is worn out, loosen tension screw (29C) and pull off plunger pipe to the front. Clean contact surfaces of plunger (25) thoroughly. Then place new plunger pipe carefully through the oiled seals into the seal case (37). Check o-rings (35A/35B) on seal sleeves and seal case (37A/37B) and replace worn o-rings. Then push seal sleeve together with plunger pipe into the crankcase guide. Turn gear carefully until plunger (25) comes up against the plunger pipe. Put a new pre-crushed steel ring (29D) onto the tension screw (29C). Cover the thread of tension screw and the gasket with glue and tighten to 22 ft.-lbs. (30 Nm).

Important! Care must be taken that no glue gets between the plunger pipe (29B) and the centering sleeve (29A). The plunger pipe should not be strained by eccentric tightening of the tension screw or through damage to front of surface of plunger, otherwise it will probably break. Tighten the inner screws (49) for the valve casing evenly to 89 ft.-lbs. (120 Nm).

To Dismantle Gear
As described above, remove valve casing (43) and plunger pipe (29B), drain the oil. Remove the gear cover (4) and bearing cover (14). Loosen connecting rod screws (24A) and push the front of the connecting rod (24) forward as far as possible into the crosshead guide.

IMPORTANT! Connecting rods (24) are marked for identification. Do not twist connecting rod halves. Connecting rod is to be reinstalled in the same position on shaft journals.

IMPORTANT! Do not bend the connecting rod (24) shanks. Check crankshaft (22) and connecting rod (24) surfaces, radial shaft seals (15) and taper roller bearings (20).
To remove the oil seals (31) use a wooden rod and sharply hit down on the oil seals from the crankcase (1).
Note: when replacing the oil seals, apply a small amount of locktight to the outside edges of each oil seal before reinserting them into the crankcase.

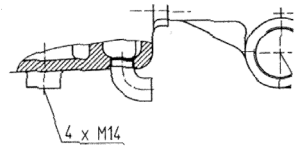
To Dismantle Reduction Gear
Remove screws (112). Remove top casing (102); it may be necessary to use a rubber mallet. Remove screw (118) and disc (117). Pull gear wheel (105) off of the crankshaft (22). Remove screws (114), bottom casing (101) and centering ring (104).
Turning the crankshaft (22) slightly, hit it out carefully to the side with a rubber hammer.

To Reassemble
Using a soft tool, press in the outer bearing ring until the outer edge lines up with the outer edge of the bearing hole. Remove bearing cover (14) together with radial shaft seal (15) and o-ring (16). Fit crankshaft (22) through bearing hole on the opposite side. Press in outer bearing and tighten it inwards with the bearing cover, keeping the crankshaft in vertical position and turning slowly so that the taper rollers of the bearings touch the edge of the outer bearing ring. Adjust axial bearing clearance to at least 0.1mm and maximum 0.15mm by placing fitting discs (20A, 20B and 20C) under the bearing cover.

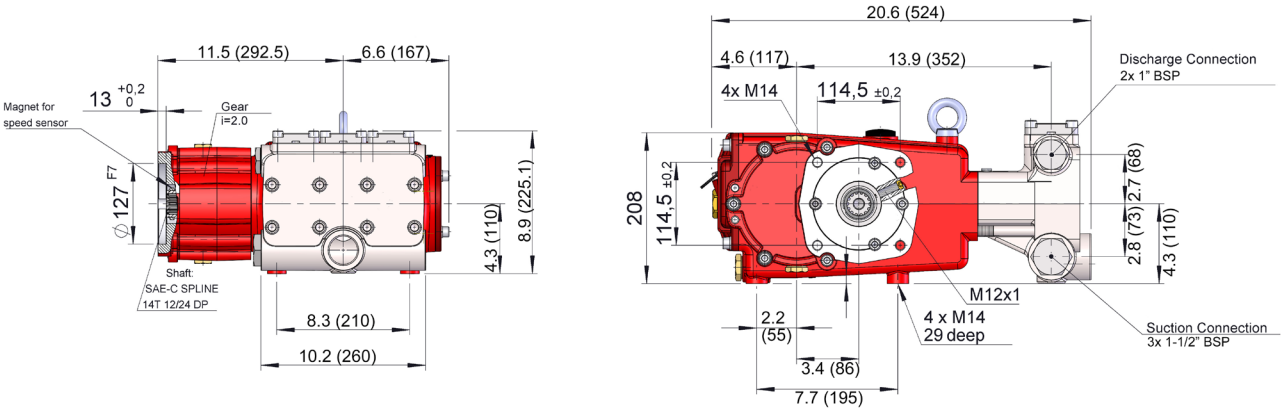
IMPORTANT! After assembly has been completed, the crankshaft should turn easily with very little clearance.
Tighten connecting rod screws (24) to 22 ft.-lbs. (30 Nm). Reassemble the fluid end (see instructions above).
If cylinder roller bearing (107) was removed, heat them up (before pressing onto the pinion shaft). Slightly press the gearwheel (105) onto the crankshaft (22) so that remaining portion of the gearwheel set can be positioned in the correct manner. Carefully, tap the gearwheel and the pinion (simultaneously) onto the crankshaft and into the bearing seat. Reassemble remaining gearbox parts making sure not to damage the radial shaft seal (110) or the o-ring (103).

IMPORTANT! Before putting the pump into operation, turn the reduction gear (by hand) at least four times in each direction (to ensure proper alignment). Reassemble shaft cover (14) and crankcase cover (4) and properly torque screws (10).

IMPORTANT! The 1/2” BSP connection in the crankcase serves the purpose of draining leakage water. The connection should not be closed (see the drawing to the right).



DIMENSIONS - INCHES (MM)



GIANT INDUSTRIES LIMITED WARRANTY

Giant Industries, Inc. pumps and accessories are warranted by the manufacturer to be free from defects in workmanship and material as follows:

1. Five (5) years from the date of shipment for all pumps used in portable pressure washers with NON-SALINE, clean water applications.
2. Two (2) years from the date of shipment for Giant pumps used in car wash applications.
3. One (1) year from the date of shipment for all other Giant industrial and consumer pumps.
4. Six (6) months from the date of shipment for all rebuilt pumps
5. Ninety (90) days from the date of shipment for all Giant accessories.

This warranty is limited to repair or replacement of pumps and accessories of which the manufacturer's evaluation shows were defective at the time of shipment by the manufacturer. The following items are NOT covered or will void the warranty:

1. Defects caused by negligence or fault of the buyer or third party.
2. Normal wear and tear to standard wear parts.
3. Use of repair parts other than those manufactured or authorized by Giant.
4. Improper use of the product as a component part.
5. Changes or modifications made by the customer or third party.
6. The operation of pumps and or accessories exceeding the specifications set forth in the Operations Manuals provided by Giant Industries, Inc.

Liability under this warranty is on all non-wear parts and limited to the replacement or repair of those products returned freight prepaid to Giant Industries which are deemed to be defective due to workmanship or failure of material. A Returned Goods Authorization (R.G.A.) number and completed warranty evaluation form is required prior to the return to Giant Industries of all products under warranty consideration. Call (419)-531-4600 or fax (419)-531-6836 to obtain an R.G.A. number.

Repair or replacement of defective products as provided is the sole and exclusive remedy provided hereunder and the MANUFACTURER SHALL NOT BE LIABLE FOR FURTHER LOSS, DAMAGES, OR EXPENSES, INCLUDING INCIDENTAL AND CONSEQUENTIAL DAMAGES DIRECTLY OR INDIRECTLY ARISING FROM THE SALE OR USE OF THIS PRODUCT.

THE LIMITED WARRANTY SET FORTH HEREIN IS IN LIEU OF ALL OTHER WARRANTIES OR REPRESENTATION, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND ALL SUCH WARRANTIES ARE HEREBY DISCLAIMED AND EXCLUDED BY THE MANUFACTURER.

WARNING: This product might contain a chemical known to the State of California to cause cancer, and birth defects or other reproductive harm.
For more information go to www.P65Warnings.ca.gov

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Performance Under Pressure