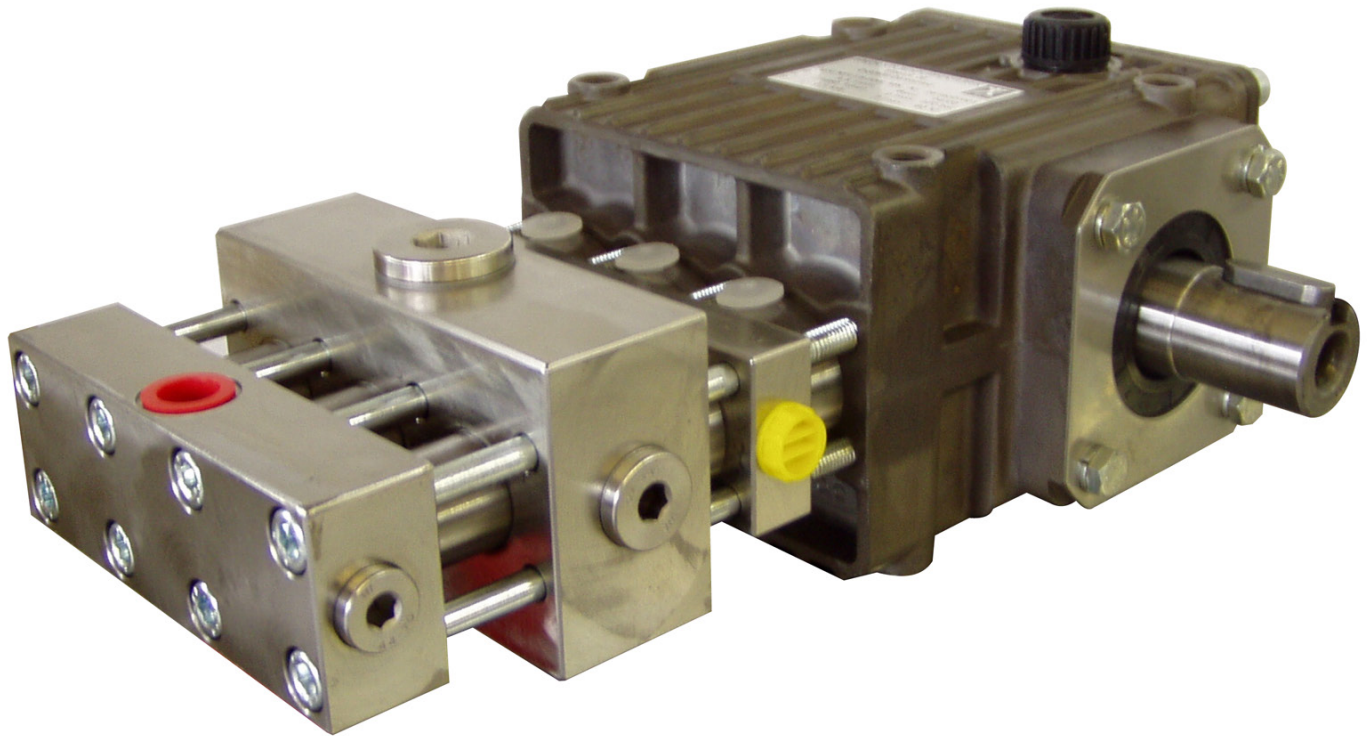


# Model P213-4121

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Triplex Plunger Pump  
Operating Instruction  
Repair and Service Manual



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**GIANT**  
Performance Under Pressure

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# INSTALLATION INSTRUCTIONS



Safety Rule: The pump is not to be used without a safety valve.

## Operation and Maintenance

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

The viscosity and the vapor point of the conveyed medium determine the required input pressure.

The valves of the pump open at a pressure of 5.8 PSI (0.4 bar). This resistance must also be considered when calculating the input pressure. The maximum input pressure is 145 PSI (10 bar).

Oil: Use only 9.5 ounces (0.28 liters) of industrial gear oil SAE90 (Giant's part number 01154) or as per ISO VG e.g. Aral Degol BG 150 before starting.

Initial change after 50 operating hours and then every 500 operating hours or 1 year if used less.

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



## 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 maximum admissible operating pressure can not be exceeded by more than 10%.

When the pump is in operation, the drive shaft end and the coupling must be covered up by either a contact-protector or by a coupling bell. Pressure in discharge line and in pump must be at zero before any maintenance to the pump takes place. Close up suction line. Disconnect fuses to ensure that the driving motor does not get switched on accidentally.

Make sure that all parts on the pressure side of the unit are vented before starting the pump. In order to prevent air, or an air-water mixture being absorbed and to prevent cavitation occurring, the pump-NPSHR 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.**

**Before pumping 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 manufacture and/or operator to ensure that all pertinent safety regulations are adhered to.**

For additional information on how this pump functions, go to:

[https://www.giantpumps.com/wp-content/uploads/2019/06/P201\\_P202\\_P204\\_P213-Function-Description.pdf](https://www.giantpumps.com/wp-content/uploads/2019/06/P201_P202_P204_P213-Function-Description.pdf)

## Pump Specifications - P213-4121

	<b>U.S.</b>	<b>Metric</b>
Volume.....	0.87 GPM*	3.3 L/min*
Discharge Pressure.....	3190 PSI	220 Bar
Power Consumption.....	1.9 HP	1.4 kW
Crankshaft Speed.....		1450 RPM
Plunger Diameter.....	0.47"	12 mm
Plunger Stroke.....	0.28"	7.0 mm
Crankshaft Diameter.....	0.98"	24 mm
Key Width.....	0.31"	8 mm
Crankshaft Mounting.....		Either side
Crankshaft Rotation.....	Top of Pulley Towards Fluid End	
Temperature of Pumped Fluids.....	140 °F	60 °C
Inlet Ports.....		(2) 1/2" BSP
Discharge Ports.....		(2) 1/4" BSP
Weight.....	13.9 lbs.	10 kg
Crankcase Oil Capacity.....	9.5 Ounces	0.28 Liters

\* Theoretical displacement per revolution is approximately 0.080 ounce (2.38 cm<sup>3</sup>)

### HORSEPOWER RATINGS:

The rating shown are the power requirements for the pump. Gas engine power outputs must be approximately twice the pump power requirements shown above.

We recommend a 1.15 service factor be specified when selecting an electric motor as the power source. To compute specific pump horse power requirements, use the following formula:

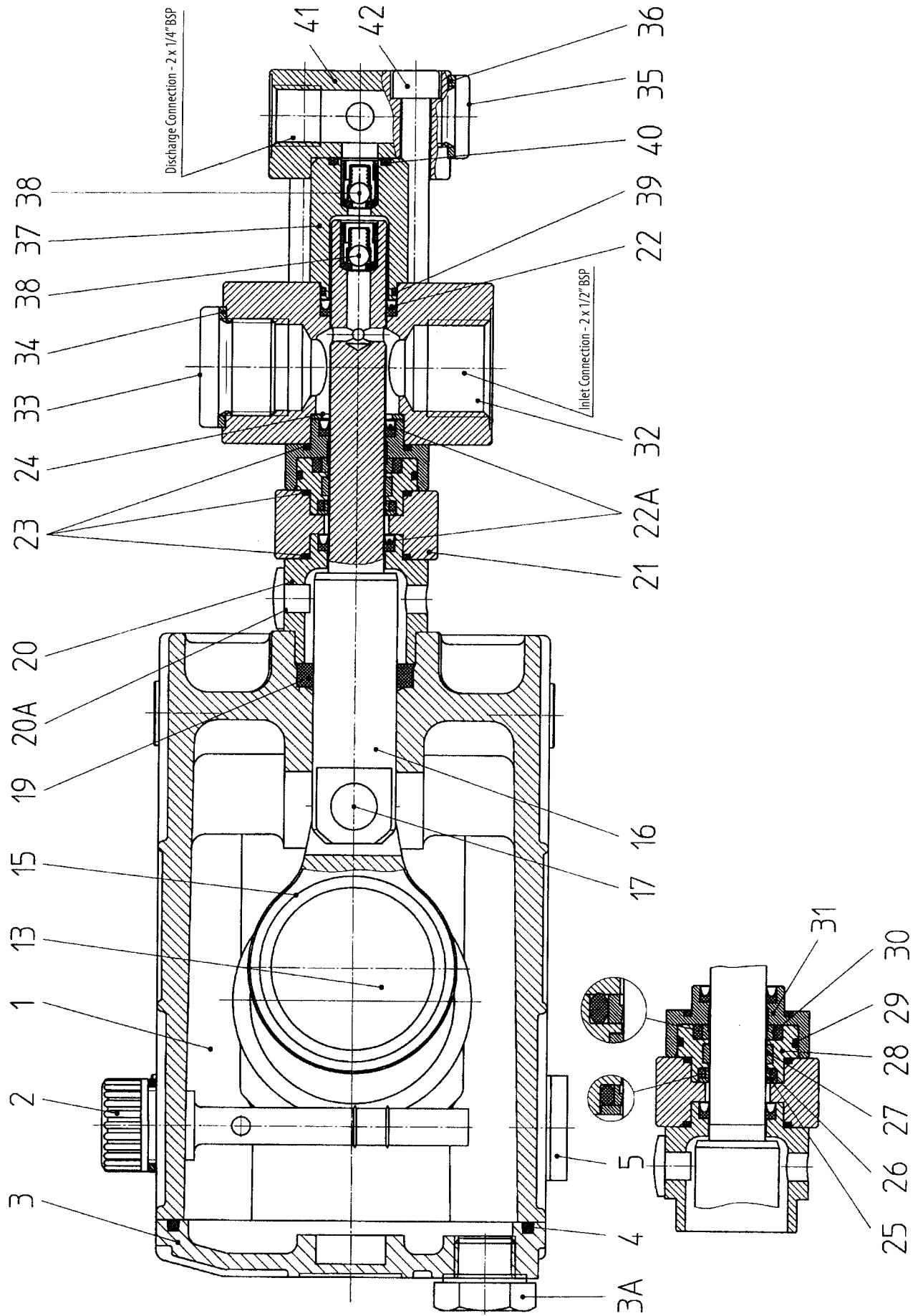
$$HP = (GPM \times PSI) / 1450$$

<b>Horsepower Requirements P213-4121</b>					
<b>RPM</b>	<b>GPM</b>	<b>500 PSI</b>	<b>1000 PSI</b>	<b>2000 PSI</b>	<b>3190 PSI</b>
725	0.44	0.15	0.30	0.61	0.97
900	0.54	0.19	0.37	0.75	1.19
1200	0.72	0.25	0.50	0.99	1.58
1450	0.87	0.30	0.60	1.20	1.91

**Important!** The 1/8" rinsing connection on both sides serves to place a separating agent (e.g. DOP) behind the medium seal on the suction side. This stops leakage (e.g. with Isocyanate) from crystallizing. When pumping different types of Freon, the pressure in the rinsing system should be approximately 7.25 PSI (0.5 bar) higher than on the suction side of the pumped medium.

To vent the pump easily on the discharge side, it is recommended to install a T-piece with a high-pressure cut-off tap as close as possible to the discharge port.

# Exploded View - P213-4121



## Spare Parts List - P213-4121

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>	<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
1	08300CA	Crankcase, Anodized	1	22	06717	Seal Ring, gray	3
2	08301	Oil Dipstick with O-Ring	1	22A	05858	Seal Ring, black	6
3	08302A	Crankcase Cover, Anodized	1	23	07770-0001	O-Ring, Viton	9
3A	07190	Drain Plug and Gasket	1	24	05859	Spacer Ring	3
4	08005	O-Ring	1	25	05860	Support Ring	3
5	08185	Oil Drain Plug with Gasket	1	26	05861-0010	Rod Seal	3
6	07188	Screw, Short Cover	4	27	05862	Guide Band	3
6A	07223-0100	Spring Washer	4	28	05863	Guide Sleeve	3
7	08303	Bearing Cover	2	29	08416-0001	O-Ring, Viton	3
8	08491	Sight Glass	1	30	05864-0010	Rod Seal	3
9	07193	O-Ring for Sight Glass	1	31	05865	Seal Retainer	3
10	07225	Screw with Lock Washer	8	32	05866	Inlet Casing	1
11	08331	Radial Shaft Seal	1	33	05867	Plug, 1/2" BSP	1
12A	04917	Ball Bearing	1	34	05868	Seal, 1/2" BSP	1
12B	01086	Ball Bearing	1	35	07423-0100	Plug, 1/2" BSP	2
13	04922	Crankshaft	1	36	05869	Seal, 1/2" BSP	2
14	06207	Fitting Key	1	37	05870	Valve Seat	3
15	08333	Connecting Rod	3	38	05454	Valve Assembly	6
16	05453	Plunger	3	39	05871-0001	O-Ring, Viton	3
17	08442	Wrist Pin	3	40	11507-0001	O-Ring, Viton	3
19	08356-0010	Oil Seal	3	41	05872	Discharge Casing	1
20	05855	Spacer ring	3	42	05873	Hexagon Socket Screw	8
20A	05856	Plug	3	44	06589	Socket Plug, 1/2" BSP	1
21	05857	Intermediate Casing	1	45	05874	Seal, 1/8" BSP	1

## Repair Kits - P213-4121

### Seal Repair Kit - #09711-0021

<u>Item #</u>	<u>Part #</u>	<u>Description</u>	<u>Qty.</u>
22	06717	Grooved Seal Ring	3
22A	05858	Grooved Ring	6
23	07770-0001	O-Ring, Viton	9
26	05861-0010	Rod Seal, Viton	3
27	05862	Guide Band	3
29	08416-0001	O-Ring, Viton	3
30	05864-0010	Rod Seal, Viton	3
39	05871-0001	O-Ring, Viton	3
40	11507-0001	O-Ring, Viton	3

### Oil Seal Repair Kit - #09144-0010

<u>Item #</u>	<u>Part #</u>	<u>Description</u>	<u>Qty.</u>
19	08356-0010	Oil Seal	3

# Repair Instructions - P213-4021

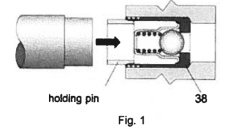
Additional repair instructions shown on Giant's website:

([https://www.giantpumps.com/wp-content/uploads/2019/06/P202-P204-4020\\_4021-repair-instructions.pdf](https://www.giantpumps.com/wp-content/uploads/2019/06/P202-P204-4020_4021-repair-instructions.pdf)).

## 1. Suction and Discharge Valves

Remove hexagon socket screws (42), pull off discharge casing (41) towards the front. Pull valve seat (37) out of suction casing (32). The complete valve (38) which was pressed into place must be removed by carefully drilling it out of the valve seat (37) or plunger (16) with a  $\varnothing 7.8$  drill. Examine o-rings (39,40) on valve seat and replace if necessary.

The new valve (38) must be inserted into the bore so that it is level. The holding pin must then be pressed in to be level with the help of a tool (hammer or insert tool-see fig. 1). When reassembling tighten hexagon socket screw (42) to 88-106 in-lbs. (10-12 Nm).



## 2. Grooved Seal

Remove hexagon socket screws (42), pull off discharge casing (41), valve seat (37), suction casing (32) and intermediate casing (21) towards the front. Pull valve seat (37) out of suction casing (32). Remove intermediate casing (21) from guide sleeve (28), then pull out seal adaptor (31) from suction casing (32). Pry seal rings (22/22A) as well as rod seals (30) out of the guide sleeve (28), the spacer ring (20), the guide sleeve (31) and suction casing (32).

**Important!** Examine surfaces of plungers (16). Damaged surfaces lead to rapid seal wear. If the plunger(s) (16) is (are) worn, the complete plunger must be replaced -see 3b.

**Important!** New seals must be installed with utmost care. Even minute scratches on the inner/outer seal surface can cause leakage. Carefully note the sequence and position of seal rings. Place the cases holding the seals onto the plungers.

When reassembling tighten hexagon socket screw (42) to 88-106 in-lbs. (10-12 Nm).

## 3. Gear and Plunger

If oil leaks where the plunger (16) protrudes out of the gear, gear seals (19) and plungers have to be examined and replaced if necessary.

### a) Oil Seal

Remove plug (3A) and drain oil. Pull off discharge casing (41), valve seat (37), suction casing (32), guide sleeve (28) and intermediate casing (21) towards the front. Take spacer ring (20) off plunger, remove plunger as described under 3b and pry out gear seal (19) with a screwdriver. Note the exact sequence of assembly.

### b) Plungers

Remove plug (3A) and drain oil. Remove gear cover (3). To dismantle crankshaft (13), use an insert tool to remove bearing cover (7). Carefully move the crankshaft axialwise using a rubber hammer or insert tool at the same time threading it carefully through the connecting rods (15), taking care not to force the crankshaft or bend the connecting rods. Remove and dismantle connecting rods and plungers. Replace worn parts. Put crankshaft in again through the connecting rods and press in bearings (12A,12B) on each side. Then install radial shaft seal (11), oil sight glass (8 not shown) and bearing cover (7).

## 4. To Change Crankshaft Side

The crankshaft end is on the left side of the pump when viewed from behind. Should the crankshaft have to be on the right side, proceed as follows:

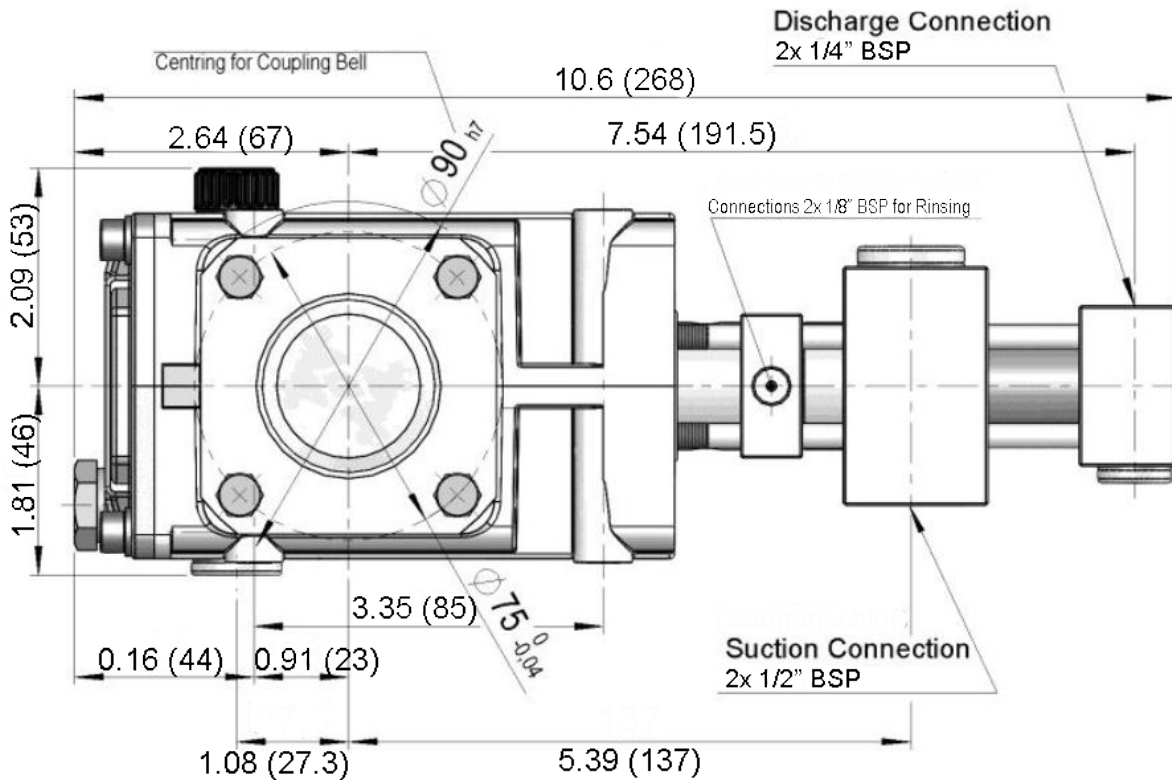
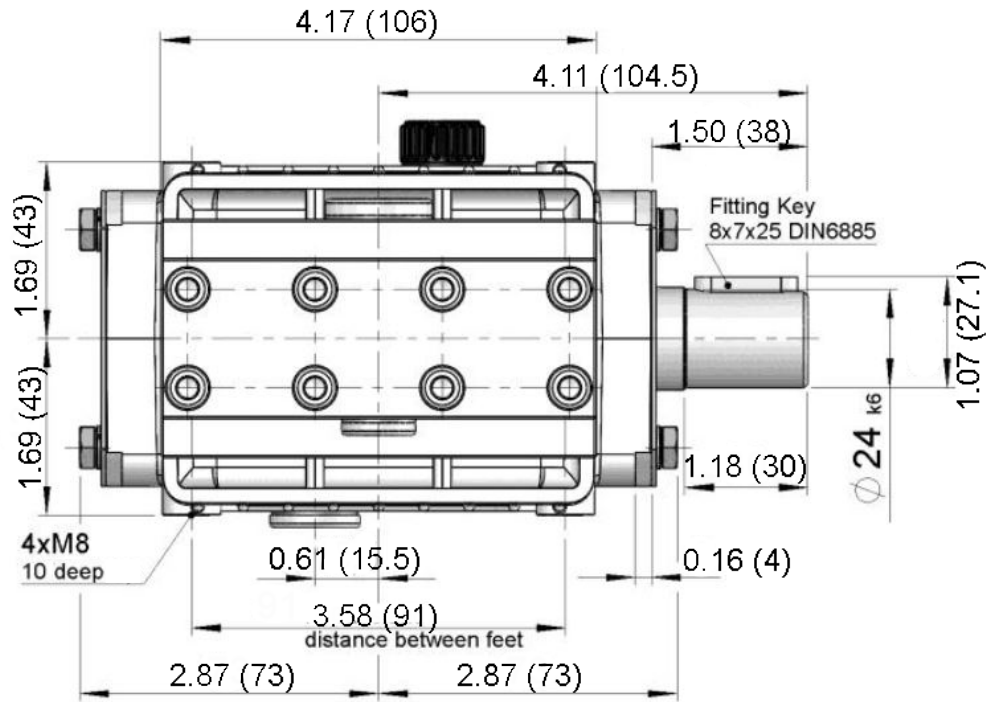
Switch stopper plugs (33/35) and seals (34/36) into the opposite connection. The suction line should always run to the pump from below and the discharge line from above to ensure the pump is optimally vented.

The leakage holes in the spacer rings (20) must be open and facing downward so that leakage liquid can drain.

Close upper holes with plastic plugs (20A).

Interchange plug (5) and oil filler plug (2) and turn gear cover (3) 180° around.

## Dimensions - Inches (mm) - P213-4121



## 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](http://www.P65Warnings.ca.gov)



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