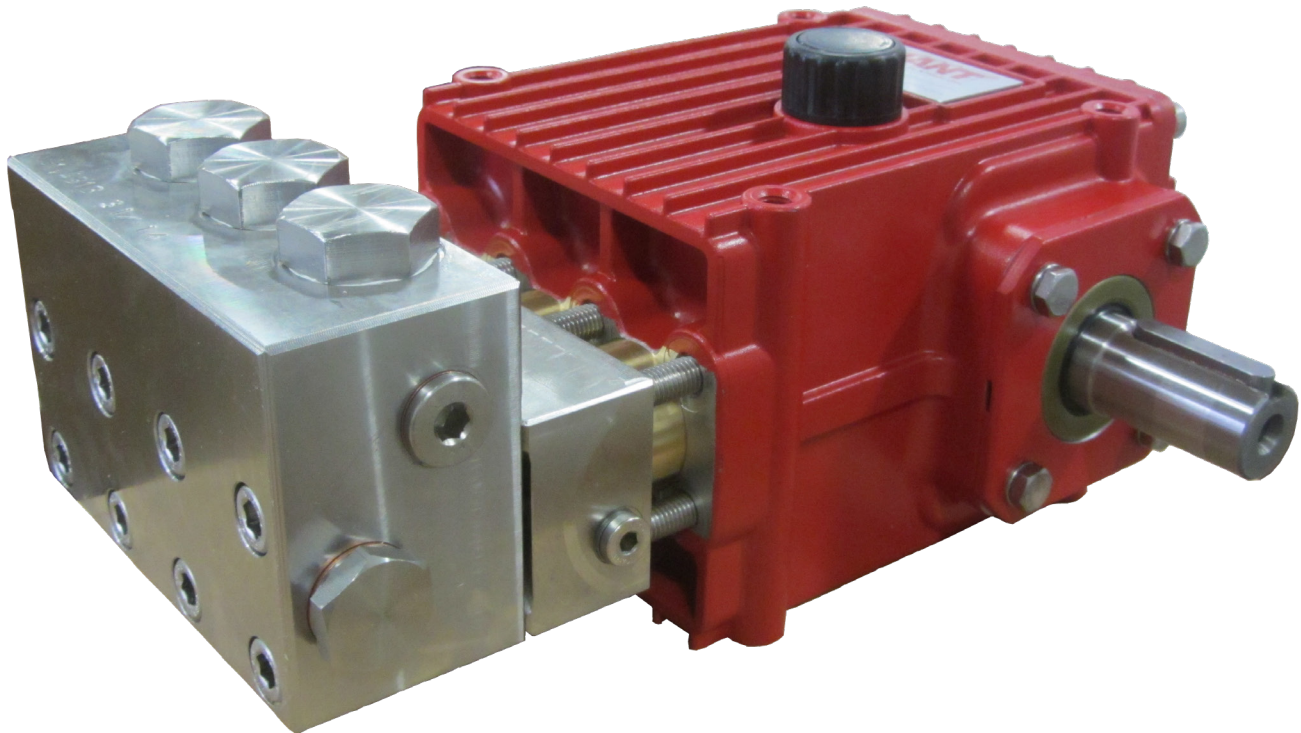


# Pump Models

## P465-4000/ P485-4000

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Triplex Ceramic  
Plunger Pump  
Operating Instructions/  
Repair and Service Manual



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**GIANT**  
Performance Under Pressure

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# P465-4000/P485-4000 Specifications

## U.S. Measurements

	Power Required	Pressure	Max. Speed	Max. Flow	Max. Temp.	Plunger ø	Plunger Stroke	Weight	NPSHR
Model	BHP	PSI	RPM	GPM	°F	in	in	lbs.	ft. of head
P465-4000	25.2	5800	1450	6.3	104	0.71	0.94	41.9	21.3
P485-4000	26.2	7250	1450	5.3	40	0.71	0.79	41.9	21.3

## Metric Measurements

	Power Required	Pressure	Max. Speed	Max. Flow	Max. Temp.	Plunger ø	Plunger Stroke	Weight	NPSHR
Model	kW	bar	RPM	l/min	°C	mm	mm	kg	mWs
P465-4000	18.8	400	1450	23.9	40	18	24	19.0	6.5
P485-4000	19.5	500	1450	19.9	40	18	20	19.0	6.5

Performance data for intermittent operation, data for continuous operation on request.

For information on intermittent operation and calculating of the performance data, see the Giant Industries Plunger Pumps assembly instructions.

### NPSHR / Inlet pressure

Required NPSH refers to water at 70 °F (20°C) at maximum permissible pump speed.

Maximum inlet pressure: 29 PSI (2 bar)

### Level of noise emission

Emission sound pressure level: ≤ 82 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<sub>Amb.</sub> < 86 °F

Ambient temperature: 5 °C < T<sub>Amb.</sub> < 30°C

### Oil filling

- Filling quantity: **30.4 fl. oz. (0.9 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 **500 operating hours**, but at the latest after **12 months**

## Installation/ Putting into Operation

### To Turn Drive Shaft to the Other Side

Remove the valve casing (26), seal casing (21) together with the seal adaptors (20).

Turn the drive 180° around.

Interchange plug (5B) and oil dipstick (2).

Turn the gear cover (3) 180° around.

Mount the valve casing together with the seal casing and seal adaptors (20).

Making sure that the bores in the seal adaptors face downwards.

### Direction of pump rotation

When looking at crankshaft with valve casing mounted on left-hand side, counterclockwise direction of rotation.

When looking at crankshaft with valve casing mounted on right-hand side, clockwise direction of rotation.

### Suction line filter

Recommended mesh size: 150 µm.

### Operation

For informations, see Assembly Instructions Giant Industries.

P465 HORSEPOWER REQUIREMENTS				
RPM	GPM	4000 PSI	5000 PSI	5800 PSI
1000	4.3	12.0	15.0	17.4
1100	4.8	13.2	16.4	19.1
1200	5.2	14.4	18.0	20.8
1300	5.6	15.6	19.4	22.6
1450	6.3	17.4	21.7	25.2

P485 HORSEPOWER REQUIREMENTS					
RPM	GPM	4000 PSI	5000 PSI	6000 PSI	7250 PSI
1000	3.6	10.0	12.5	15.0	18.1
1100	4.0	11.0	13.7	16.5	19.9
1200	4.3	12.0	15.0	18.0	21.7
1300	4.7	13.0	16.2	19.4	23.5
1450	5.3	14.5	18.1	21.7	26.3

# Repair Instructions - P470A/P490A

## 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:

- Pull-out tool size 1
- Mounting tool (TOOL-15)

## Suction and Discharge Valves

Remove plugs (32) with a socket wrench (size 32). Using a pair of flat pliers, remove the exposed discharge valve (27A) and dismantle to examine it. Remove hexagon socket screws (34) and remove valve casing (26) by pulling it off to the front.



If the seal casing (21) does not separate from the valve casing (26), press both casings apart by placing two flat screwdrivers in the side notches on the seal casing.  
Be careful not to damage casing surfaces.

Remove suction valve (27A) with a flat pliers and dismantle.

Examine spring tension caps (30), valve spring (29), valve plate (28), valve seat (27) and O-rings (31, 33). Replace worn parts.

Take care to reassemble in correct sequence. Tighten the plug (32) to 125 ft.-lbs (170 Nm).

## Seals and Plunger pipe

Remove the seal cases (25) out of the seal casing (21) or lever them out using two screwdrivers.

Examine O-rings (25A) and support rings (25B). Remove seal adaptor (20) from the seal casing. Check O-rings (20A), grooved rings (18) and grooved seal pack (23) with the guide rings (24) for damage.

Lubricate new seals and O-rings thinly with silicone grease or mineral oil and insert carefully.



Mounting tool (TOOL-15) is available for fitting the seals into the seal casing and seal adaptors.  
If mounting tools are not available carefully insert the grooved seal pack (23) little by little into the bore of the valve casing by using the flat side of a screwdriver. Making sure that the seal lip faces into the seal casing (21).

Press grooved seal (18) flat side first into the seal retainer (20).

Under no circumstances must the seal surface in the valve casing or the seal lip of the grooved seal be damaged.

Check surfaces of plunger (16B).

Damaged surfaces cause accelerated seal wear. Deposits of all kinds must be removed from the plungers.

Plunger surfaces are not to be damaged during this procedure.

If there are lime deposits in the pump, care must be taken that the drip-return bores in parts (21) and (26) ensure trouble-free drip-return.

If the plunger pipe (16B) is worn, screw out tension screw (16D) and remove together with plunger pipe. Check and clean plunger surface (16A), check oil scraper (16H) and mount new plunger pipe.

Cover thread of tension screw (16D) with a thin film of thread-locker and tighten carefully to the required torque.



Under no circumstances should thread-locker get between the plunger pipe (16B) and the centring neck on the plunger (16A).

Tensioning of the plunger pipe due to eccentric tightening of the tensioning screw or due to dirt or damage to the contact surface can lead to breakage of the plunger pipe.

When remounting the valve casing, tighten the screws (34) to 30 ft.-lbs. (40 Nm).

**If required, supplementary Assembly Instructions can be requested from Giant Industries, Inc.**

## Malfunctions / Remedy

For informations, see Assembly Instructions Giant Industries.

## Materials Used

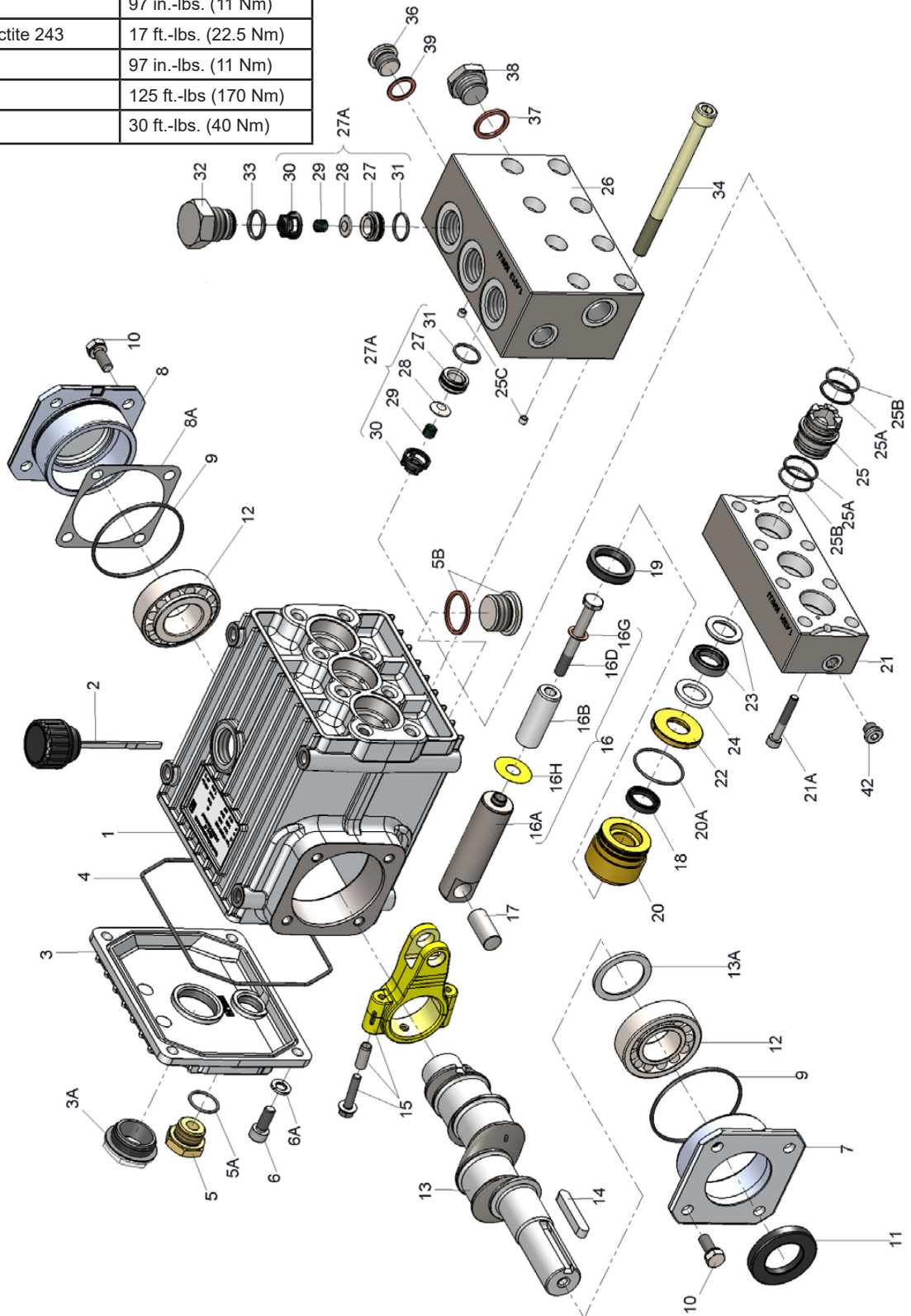
Valve Casing: AISI CA 9-NM  
Plunger: Solid Ceramic  
Valves: High-Grade Stainless Steel  
Seals: Nitrile with fabric reinforcing  
O-Rings: Nitrile

## Paint

The pump drive is painted RAL 7004 as standard.

# Exploded View - P465-4000 / P485-4000

P465/P485-4000 TORQUE SPECIFICATIONS			
Item	Thread	Lubrication Info	Torque Amount
3A	1" BSP	Loctite 5980	106 in.-lbs. (12 Nm)
5	1/2" BSP		59 ft.-lbs. (80 Nm)
5B	3/4" BSP		59 ft.-lbs. (80 Nm)
6	M8		110 in.-lbs. (12.5 Nm)
10	M8		132 in.-lbs. (15 Nm)
15	M6		97 in.-lbs. (11 Nm)
16D	M8	Loctite 243	17 ft.-lbs. (22.5 Nm)
21A	M6		97 in.-lbs. (11 Nm)
32	M25x1.5		125 ft.-lbs. (170 Nm)
34	M10		30 ft.-lbs. (40 Nm)





## P465-4000 / P485-4000 PARTS LIST

<u>ITEM</u>	<u>PART</u>	<u>DESCRIPTION</u>	<u>QTY.</u>	<u>ITEM</u>	<u>PART</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
1	08377	Crankcase	1	18	08477	Grooved Seal	3
2	08378	Oil Fill Plug with Gasket	1	19	05444	Oil Seal	3
3	06479	Crankcase Cover	1	20	05534	Seal Adapter	3
3A	07186	Oil Sight Glass w/Gasket	1	20A	07266	O-Ring	3
4	08380	O-Ring	1	21	05535-0400	Seal Casing	1
5	07109-0400	Oil Drain Plug	1	21A	04335	Hexagon Socket Screw	2
5A	06015	Gasket for Oil Drain Plug	1	22	05536	Drip Return Ring	3
5B	08092	Plug with Gasket	1	23	05517	Grooved Seal Packing	3
6	01010-0100	Screw	4	24	05537	Support Ring	3
6A	01011-0400	Spring Washer	4	25	05547	Seal Case	3
7	04739	Bearing Cover Open	1	25A	05538	Support Ring for O-Ring	6
8	05291	Bearing Cover Closed	1	25B	07489	O-Ring	6
8A	05292	Shim	1-6	25C	05539	Border Seal Ring	2
9	01016	O-Ring	2	26	05516-4000	Valve Casing	1
10	07114-0100	Screw with Washer	8	27A	05543	Valve Assembly	6
11	07459	Radial Shaft Seal	1	27	05541	Valve Seat	6
12	05350	Bearing	2	28	05542	Valve Plate	6
13	04741	Crankshaft (P465)	1	29	07906	Valve Spring	6
13	04740	Crankshaft (P485)	1	30	07907	Valve Spring Retainer	6
13A	04742	Spacer Ring	1	31	07770	O-Ring	6
14	08091	Fitting Key	1	32	05544-0400	Plug	3
15	08390	Connecting Rod Assembly	3	33	05545	O-Ring	3
16	05531	Plunger Assembly	3	34	05546-0400	Cap Screw	8
16A	05352	Plunger	3	36	06273-0400	Plug, 3/8" BSP	1
16B	05532	Plunger Pipe	3	37	08486	Copper Seal	1
16D	05533	Tension Screw	3	38	07109-0400	Plug, 1/2" BSP	1
16G	07676	Copper Gasket	3	39	06272	Copper Seal	1
16H	06431	Oil Scraper	3	42	06589	Plug, 1/8" BSP	2
17	06790	Crosshead Pin	3				

## P465-4000 / P485-4000 REPAIR KITS

### Plunger Packing Kits

#### Part # 09640-0400

<u>Item</u>	<u>Part #</u>	<u>Description</u>	<u>Qty.</u>
18	08477	Grooved Seal	3
20A	07266	O-Ring	3
23	05517	Grooved Seal Packing	3
24	05537	Support Ring	3
25A	05538	Support Ring for O-ring	3
25B	07489	O-Ring	3

### Valve Assembly Kit

#### Part # 09647

<u>Item</u>	<u>Part #</u>	<u>Description</u>	<u>Qty.</u>
27	05541	Valve Seat	3
28	05542	Valve Plate	3
29	07906	Valve Spring	3
30	07907	Valve Spring Retainer	3
31	07770	O-Ring	3
33	05545	O-Ring	3

### Oil Seal Kit

#### Part # 09641

<u>Item</u>	<u>Part #</u>	<u>Description</u>	<u>Qty.</u>
19	05444	Oil Seal	3

