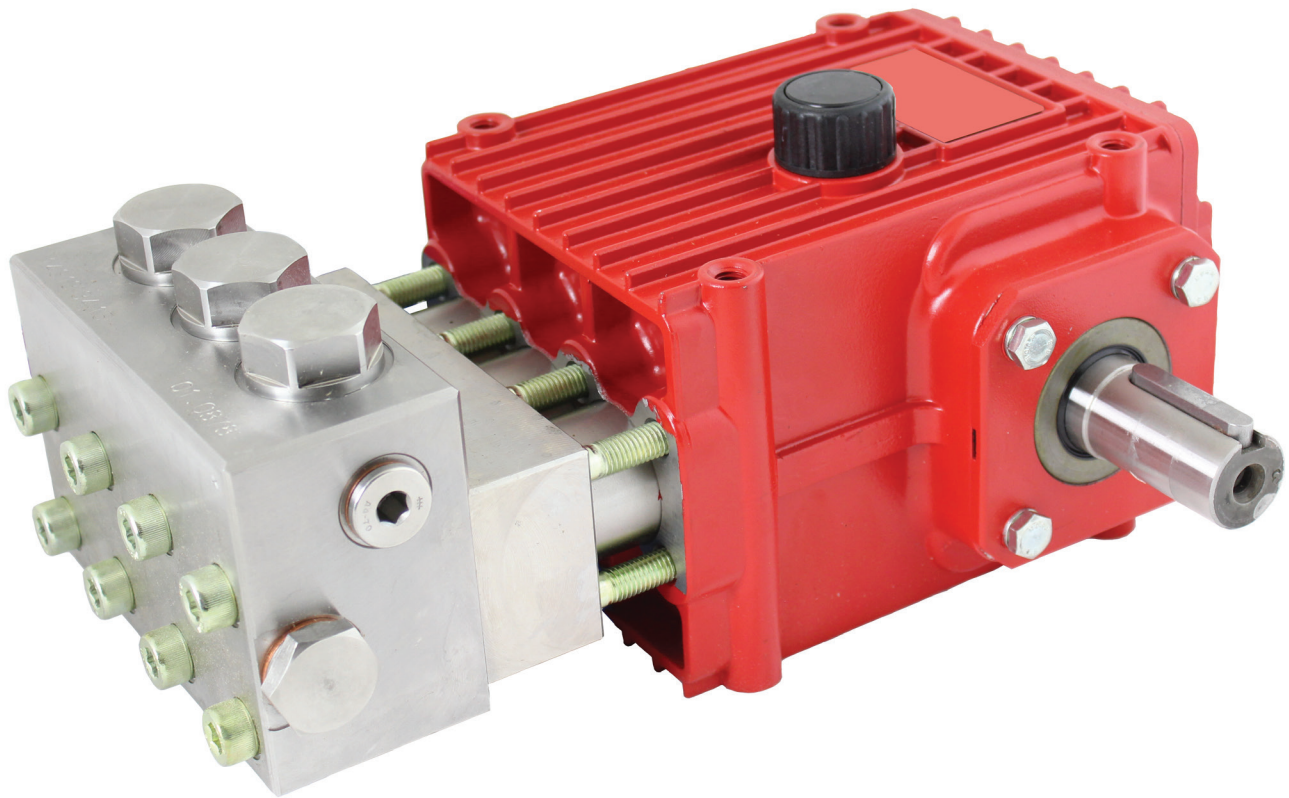


# Model CP460-4053

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Triplex Ceramic  
Plunger Pump  
Operating Instructions/  
Repair and Service Manual



Updated 09/23

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# CP460-4053 Pump Specifications

## 1. Performance

	<u>U.S.</u>	<u>Metric</u>
Volume.....	2.0 GPM*	7.5 L/min*
Discharge Pressure .....	7250 PSI.....	500 Bar
Maximum Inlet Pressure.....	870 PSI.....	60 Bar
Stroke .....	0.98" .....	24 mm
Maximum Speed.....		750 RPM
Plunger Diameter.....	0.55" .....	14 mm
Temperature of Pumped Fluids .....	-40 °F to 32 °F .....	-40 °C to 0 °C
Inlet Ports .....		(2) x 1/2" BSP
Discharge Ports .....		(2) x 3/8" BSP
Shaft Rotation.....		Top of pulley towards fluid end
Crankshaft Diameter.....	1.10" .....	28 mm
Key Width .....	0.31" .....	8 mm
Shaft Mounting .....		Either side <sup>1</sup>
Weight .....	38.3 lbs.....	17.4 KG
Crankcase Capacity .....	30.4 fl.oz.....	0.9 Liter

\*Based on 90% volumetric efficiency. Inlet conditions will dictate actual performance.

## 1.2 Horsepower Information

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

We recommend that a 1.15 service factor be specified when selecting an electric motor as the power source. To compute specific pump horsepower requirements, use the following formula: **(GPM X PSI) / 1450 = HP**

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 Pumps assembly instructions.

### NPSHR / Inlet pressure

Required NPSH refers to water at 60 °F (20 °C) at maximum permissible pump speed.  
Maximum inlet pressure: 29 PSI (2 bar)

### Level of noise emission

Emission sound pressure level: ≤ 85 dB(A)

CP460-4053 Horsepower Requirements						
RPM	GPM	3000 PSI	4000 PSI	5000 PSI	6000 PSI	7250 PSI
150	0.40	0.8	1.1	1.4	1.7	2.0
250	0.67	1.4	1.9	2.3	2.8	3.4
350	0.93	1.9	2.6	3.2	3.9	4.7
450	1.2	2.5	3.3	4.1	5.0	6.0
550	1.5	3.1	4.1	5.2	6.2	7.5
650	1.7	3.5	4.7	5.9	7.0	8.5
750	2.0	4.1	5.5	6.9	8.3	10.0

# CP460-4023 Pump Installation

## 2. Fields of application

The fields of application of these pump types correspond to the specifications in the assembly instructions Giant Pumps.

## 3. Ambient conditions

Ambient temperature:  $41\text{ }^{\circ}\text{F} < T_{\text{Amb.}} < 86\text{ }^{\circ}\text{F}$   
Ambient temperature:  $5\text{ }^{\circ}\text{C} < T_{\text{Amb.}} < 30\text{ }^{\circ}\text{C}$

## 4. Oil filling

- Filling quantity: **30.4 fl. oz. (0.9 l)**
- Quality: Synthetic motor oil **SAE 0W-40 (Giant's p/n 01157)**
- Intervals: first oil change after **50 operating hours** then every **500 operating hours**, but at the latest after **12 months**



The crankcase must be filled with synthetic motor oil of the class SAE 0 W 40 when pumping CO2 under 0 °C

## 5. Installation/ Putting into Operation

### 5.1 To Turn Drive Shaft to the Other Side

If it should be on the other side, the valve casing (26) and seal casing (20A) have to be removed, turned 180° round and then put on again.

Also turn seal adaptors (20) 180° round so that the leakage holes are underneath.

Oil dipstick (2) and oil drain plug (5B) have to be interchanged and the crankcase cover turned 180°.

### 5.2 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.

### 5.3 Suction line filter

Recommended mesh size 150 µm.

### 5.3 Supplementary notes



Valve housing (26) and seal housing (20A) are provided with G1/8 (IG/f) cooling connections.

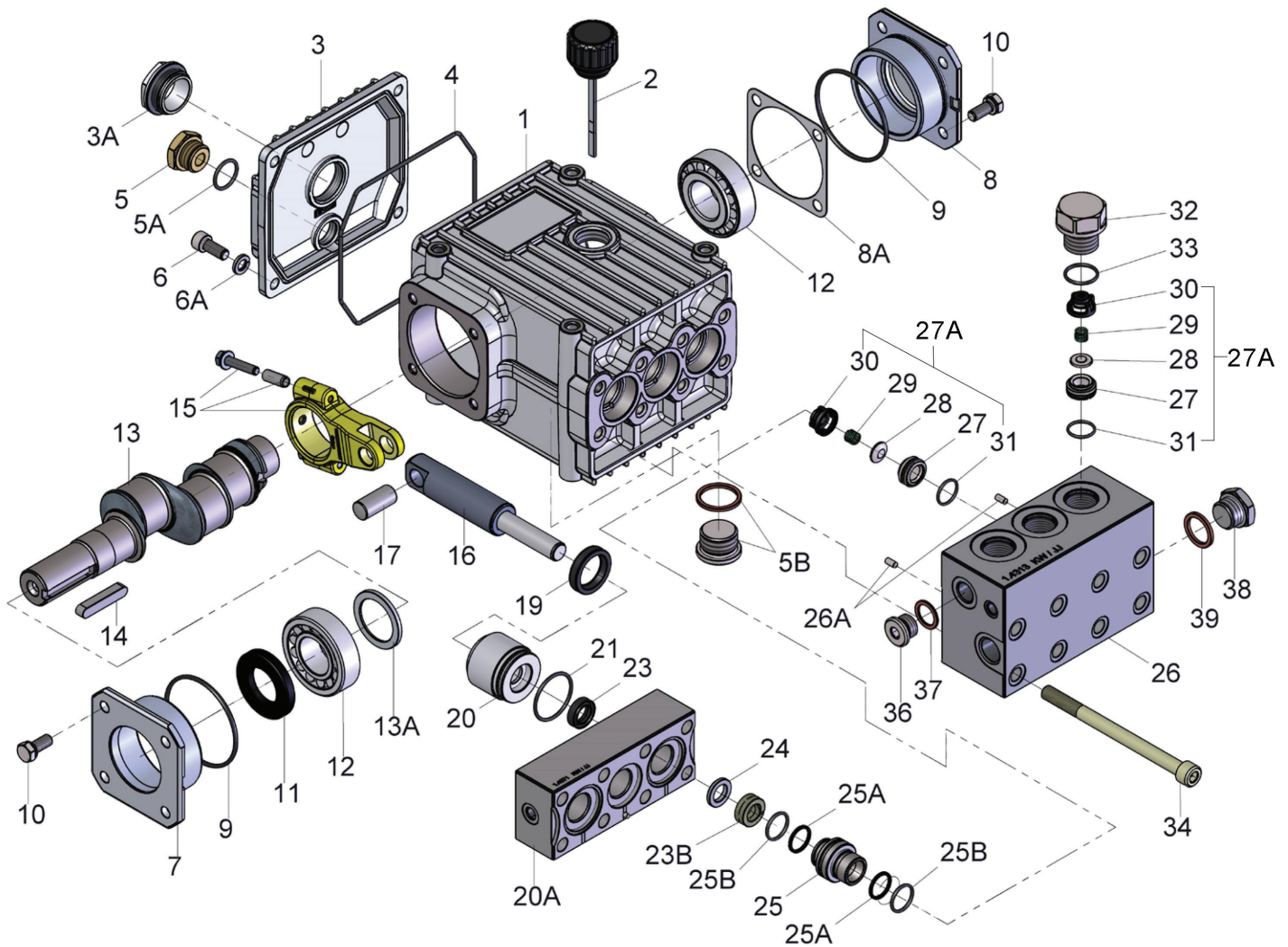
For cooling water with temperatures below 46.4 °F (8°C), antifreeze of 0.8 to 1.3 GPM (3 to 5 l/min) must be added to the cooling flow.

## 6. Operation

For information, see assembly instructions Giant Pumps.

# Exploded View - CP460-4053

**Note: Do not use mineral oil on seals and o-rings.  
Use silicone grease only.**



## CP460-4053 REPAIR KITS

### Plunger Packing Kits

**Part # CP09499A-0023**

Item	Part #	Description	Qty.
21	CP07266-0003	O-Ring	3
23	CP04762	Grooved Seal Packing	3
23B	CP03582	Coiled Seal Ring	3
24	CP03583	Pressure Ring	3
25A	CP04764	Support Ring	6
25B	CP06818	O-Ring	6

### Valve Assembly Kits

**Part # CP09498-0003**

Item	Part #	Description	Qty.
27A	CP05543	Valve Assembly	6
33	CP05545-0003	O-Ring	3

### Oil Seal Kit

**Part # CP09641**

Item	Part #	Description	Qty.
19	CP05444	Oil Seal	3

# CP460-4053 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	CP08377	Crankcase	1	20A	CP04761	Seal Case	1
2	CP08378	Oil Fill Plug with Gasket	1	21	CP07266-0003	O-Ring	3
3	CP06479	Crankcase Cover	1	23	CP04762	Grooved Seal Packing	3
3A	CP07186	Oil Sight Glass w/Gasket	1	23B	CP03582	Coiled Seal Ring	3
4	CP08380	O-Ring	1	24	CP03583	Guide Ring	3
5	CP07109	Oil Drain Plug	1	25	CP03584	Seal Case	3
5A	CP06015	O-Ring	1	25A	CP04764	Support Ring	6
5B	CP08092	Plug with Gasket	1	25B	CP06818	O-Ring	6
6	CP01010	Screw	4	26	CP04874	Valve Casing	1
6A	CP01011-0400	Spring Washer	4	26A	CP04767	Set Screw	2
7	CP04739	Bearing Cover, Open	1	27A	CP05543-0003	Valve Assembly	6
8	CP05291	Bearing Cover, Closed	1			(Includes items 27-31)	
8A	CP05292	Shim	1-6	27	CP05541	Valve Seat	6
9	CP01016	O-Ring	2	28	CP05542	Valve Plate	6
10	CP07114	Screw with Washer	8	29	CP07906	Valve Spring	6
11	CP07459	Radial Shaft Seal	1	30	CP07907	Spring Tension Cap	6
12	CP05350	Bearing	2	31	CP07770-0003	O-Ring	6
13	CP04741	Crankshaft	1	32	CP08406-0100	Plug	3
13A	CP04742	Spacer Ring	1	33	CP05545-0003	O-Ring	3
14	CP08091	Fitting Key	1	34	CP06494	Cap Screw	8
15	CP08390	Connecting Rod Assy.	3	36	CP04369	Plug, 3/8" BSP	1
16	CP06480	Plunger Assembly	3	37	CP08486	Copper Washer	1
17	CP06790	Crosshead Pin	3	38	CP07109-0400	Plug, 1/2" BSP	1
19	CP05444	Radial Shaft Seal	3	39	CP06272	Copper Washer	1
20	CP05938	Seal Adapter	3				

## CP460-4053 PUMP TORQUE SPECIFICATIONS

<b>Position</b>	<b>Item #</b>	<b>Thread Size</b>	<b>Description</b>	<b>Lubrication Info</b>	<b>Torque Amount</b>
3A	CP07186	1" BSP	Oil Sight Glass w/Gasket	Loctite 5910	106 in.-lbs. (12 Nm)
5	CP07109	1/2" BSP	Oil Drain Plug		59 ft.-lbs. (80 Nm)
5B	CP08092	3/4" BSP	Plug with Gasket		59 ft.-lbs. (80 Nm)
6	CP01010	M8	Screw		110 in.-lbs. (12.5 Nm)
10	CP07114	M8	Screw with Washer		132 in.-lbs. (15 Nm)
15	CP08390	M6	Screw with Washer		97 in.-lbs. (11 Nm)
32	CP08406-0100	M24x1.5	Plug	Pro Pack 550	110 ft.-lbs. (150 Nm)
34	CP06494	M10	Cap Screw		30 ft.-lbs. (40 Nm)



# REPAIR INSTRUCTIONS - CP460-4053

## 8. Maintenance and Servicing

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

### 8.1 Special tools required

The following special tools are required for assembly:

- Fitting Sleeve (TOOL-20)
- Blind hole seal puller/slide hammer

### 8.2 Suction and Discharge Valves

#### Suction Valves:

Remove screws (34) and pull the valve casing (26) off to the front.

Take out seal case (25) out of the valve casing (26). Remove the exposed suction valve with a pair of flat nose pliers and valve seat (27) with an extractor tool size 01.

Disassemble parts and examine valve plate (28), valve seat (27) and O-ring (31).

Replace worn parts.

Tighten screws (34) to the required torque.

#### Discharge Valves:

Remove valve plugs (32) with socket wrench size 32.

Remove the exposed discharge valve with a pair of flat nose pliers and the valve seat (27) with an extractor tool size 01.

Disassemble parts and examine valve plate (28), valve seat (27), O-rings (31, 33).

Replace worn parts.

Take care to reassemble in correct sequence.

Tighten the plugs (32) to the required torque.

### 8.3 Seals

Remove oil drain plug (5) and drain oil.

Remove screws (34) and pull off the valve casing (26) to the front, past the plungers.



If the seal casing (20A) 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 (20A).

Be careful not to damage casing surfaces.

Remove seal cases (25) situated either in the valve casing (26) or seal casing (20A).

Separate the seal casing (20A) from seal retainers (20).

Using an extractor tool size 1, remove double coiled ring (23B) and guide ring (24) from the seal casing (20A).

Examine O-rings (25B) and support rings (25A) attached to seal cases (25).

Then remove seal retainers (20) from crankcase.

Pull grooved ring (23) out of the seal retainer (20). Check O-ring (21).

Wet new seals thinly with silicone grease or mineral oil, o-rings with vaseline and insert carefully with a mounting tool (TOOL-20).



Seal casing (20A) has a notched pin to ensure correct fitting.

Reassemble parts in the proper sequence. The grooved seal (23) on the high-pressure side is to be carefully fitted into the seal casing (20A) using a  $\varnothing$  22 mm plastic rod. Under no circumstances must the surface in the seal casing or the grooved seal lip be damaged.

Check surfaces on the plunger (16).

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



The plunger surfaces are not to be damaged.

If there are lime deposits in the pump, care must be taken that the drip-return bore in parts (20A) and (26) ensure trouble-free drip-return.

If the plunger (16) is worn, the complete plunger must be changed.

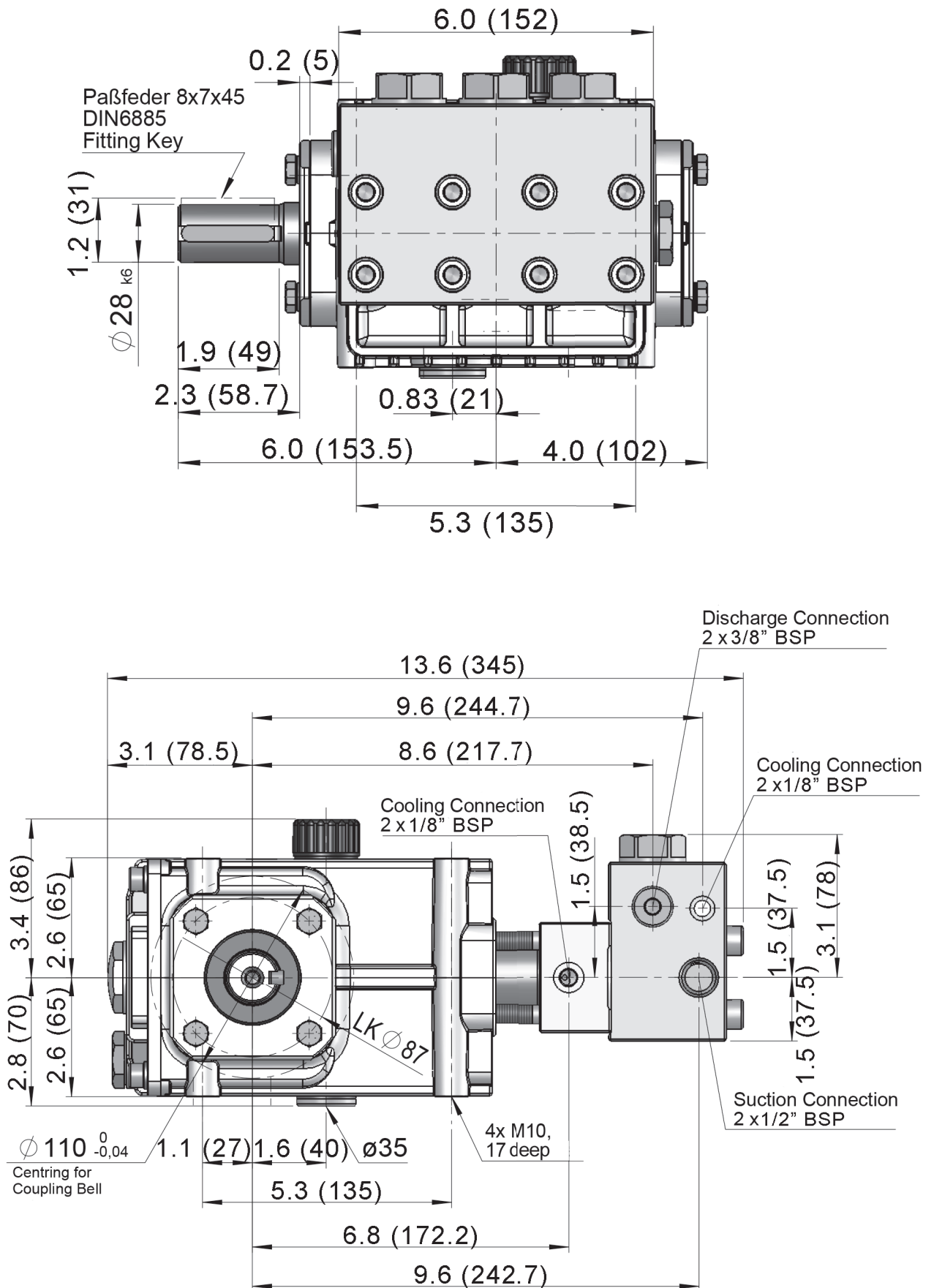
The ceramic pipe alone cannot be changed due to reasons of precision.

For replacement please contact manufacturer.

When assembling, tighten the screws (34) to the required torque.

**If required, supplementary assembly instructions can be requested from the manufacturer Giant Industries, Inc.**

## Model CP460-4053 Dimensions in(mm)



## LIMITED WARRANTY

Eco<sub>2</sub>Blast pumps and accessories are warranted by the manufacturer to be free from defects in workmanship and material as follows:

1. For portable pressure washers and car wash applications, the discharge manifolds will never fail, period. If they ever fail, we will replace them free of charge. Our other pump parts, used in portable pressure washers and in car wash applications, are warranted for five years from the date of shipment for all pumps used in NON-SALINE, clean water applications.
2. One (1) year from the date of shipment for all other Eco<sub>2</sub>Blast industrial and consumer pumps.
3. Six (6) months from the date of shipment for all rebuilt pumps.
4. Ninety (90) days from the date of shipment for all Eco<sub>2</sub>Blast 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 Eco<sub>2</sub>Blast.
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 Eco<sub>2</sub>Blast.

Liability under this warranty is on all non-wear parts and limited to the replacement or repair of those products returned freight prepaid to Eco<sub>2</sub>Blast 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 Eco<sub>2</sub>Blast of all products under warranty consideration. Call (260)728-4433 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.

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For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)



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