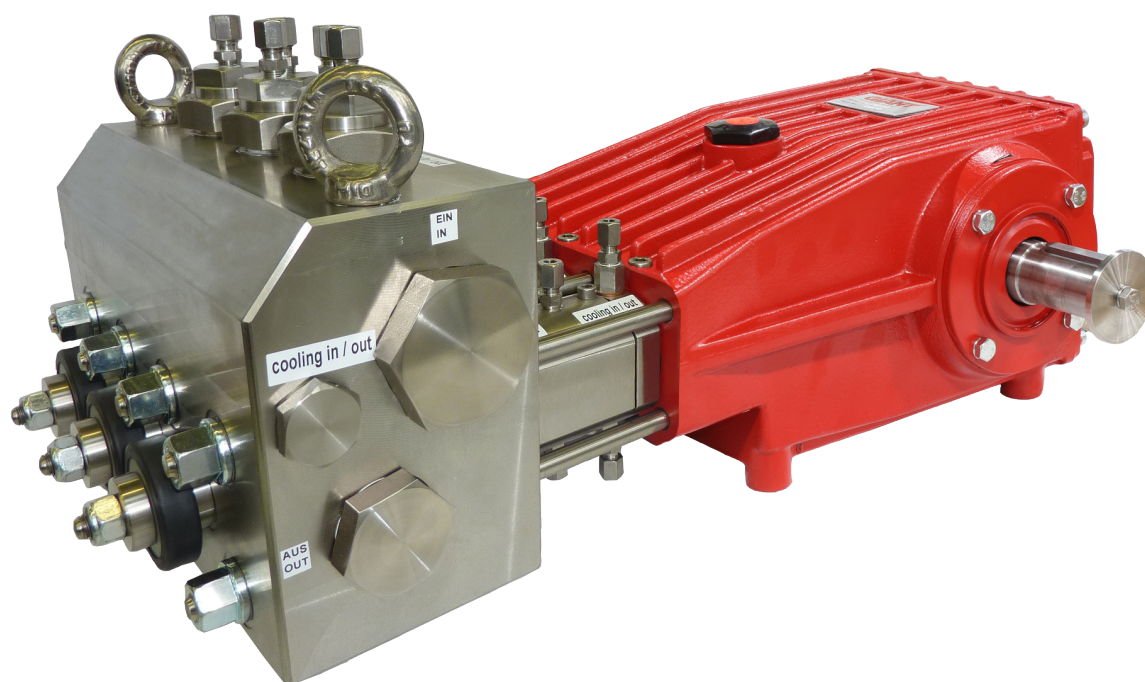


Model CLP124

**Triplex Ceramic
Plunger Pump
Operating Instructions/
Repair and Service
Manual**

CO₂ Circulation pump



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INSTALLATION INSTRUCTIONS

Operation and Maintenance

Ensure trouble-free CO₂ supply.

The gear box is lubricated with grease. Do not fill with oil.

Maximum admissible pressure for the drip return is 60 bar.

Leave at least 12.6" (320 mm) of space in front of the valve casing or behind the Pump for service work.

Safety Rules

The operating instructions must be read and adhered to before performing any work on the pump or complete assembled unit. No responsibility will be carried by us for damage to materials or persons caused by improper handling of our pumps.

A safety valve is to be installed so that the admissible operating pressure cannot be exceeded by more than 10%.

The pump has a protective device which prevents a sudden outflow of the medium due to mechanical component failure. A greater degree of security is attained by fitting a safety shut-off valve on the suction side to avoid such outflow.

Pump operation without a safety valve as well as any excess in temperature or speed limits automatically voids the warranty.

When the pump is in operation, the shaft end must be covered by shaft guard (21) and the driven shaft side and coupling by a protective cover.

Fit shaft guard (21) using shaft guard holder (21A) and screws (17).

Pressure in the discharge line and in the pump must be at zero before any maintenance work to the pump and unit takes place. Close off the suction line.

Take necessary precautions to ensure that the driving motor cannot get switched on accidentally (by disconnecting the fuses, for example).

Make sure that the pump and all parts on the pressure side of the unit are vented and refilled, with pressure at zero, before starting the pump.

The absorption and pumping of air or CO₂ in gas form as well as cavitation must be avoided.

Cavitation and/or compression of gases lead to uncontrollable pressure-kicks which can ruin the pump and pump unit parts and also be dangerous for the operator or anyone standing nearby.

CLP124 Lubrication Information/ Torque Specification/Tool List			
Item #	Part #	Description	Torque
24C	CP04810	Connecting Rod Assembly	141 in.-lbs. (16 Nm)
29	CP04820	Plunger Kit	29.5 ft.-lbs. (40 Nm)
46L	CP04823	Valveset	47.2 ft.-lbs. (64 Nm)
49A	CP13430	Hexagon Nut with Rim	59 ft.-lbs. (80 Nm)

Exploded View - CLP124

CO2 cooling Channel/ CO2 leakage to the Vessel

This is a CO2 cooling channel. This channel can be used with CO2 only. Each plunger has one channel. This is also the outlet for the CO2 leakage coming from the high pressure seal. At this cooling channel you go in at the top of the Storage Vessel. It is important that the pipe to the Vessel is going straight upward. The pipe which is going to the Storage Vessel should not have any isolation because we need the head from the ambient to produce the flow.

Cooling Channel Number I:

Each plug is one cooling channel. If you have CO2 Gas inside the valve casing you can cool it down and it will get liquid. This is usual before starting the Pump. This cooling channel is on the highest point of the pump.

Cooling Channel Number II:

This cooling channel is made to keep the Valve Casing cool when the pump is running. The CO2 which is going out under pressure has a higher temperature as the CO2 on the inlet side. This keeps the CO2 suction flow cool.

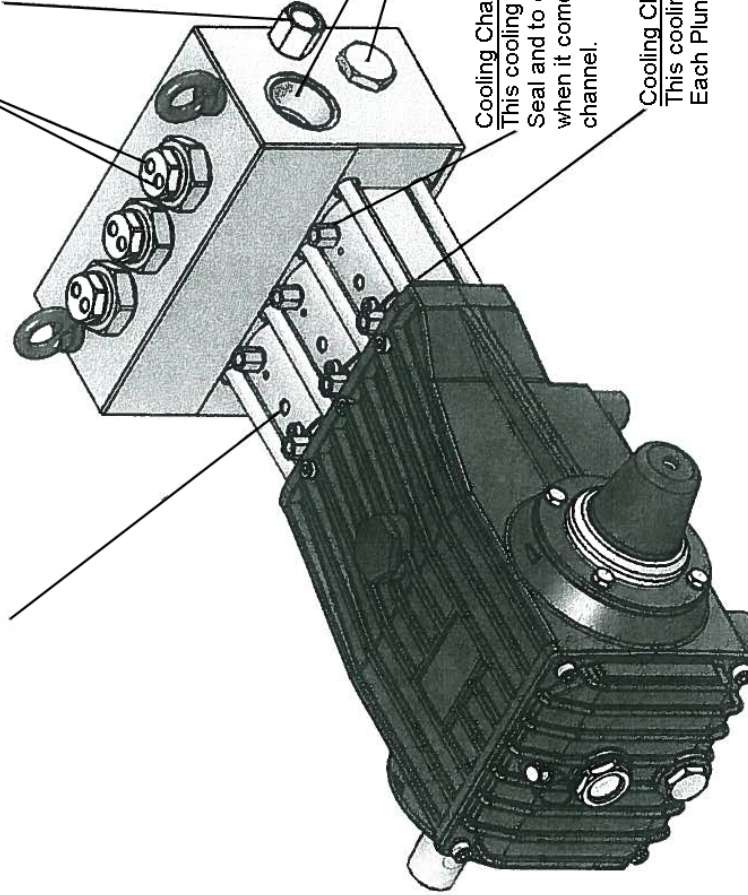
CO2 inlet on both sides
CO2 outlet on both sides

Cooling Channel Number III:

This cooling channel is made to cool down the high pressure Seal and to cool the Plunger working room. CO2 is getting warm when it comes under pressure. Each Plunger has one cooling channel.

Cooling Channel Number IV:

This cooling channel is made to cool down the low pressure Seal. Each Plunger has one cooling channel.



How to use the channels:

You have to look that the difference of temperatures is always right to take away the heat.

For example:

If you have a high pressure Storage Vessel 55bar you can use cooling channel I-IV with Water cooled down to 32°F (0°C) up to 50°F (10°C). This is a standard using of the channels.

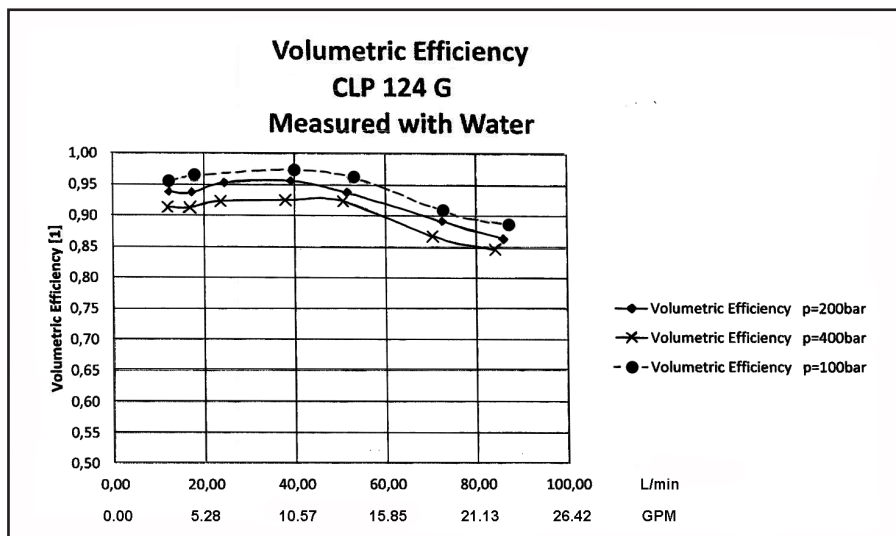
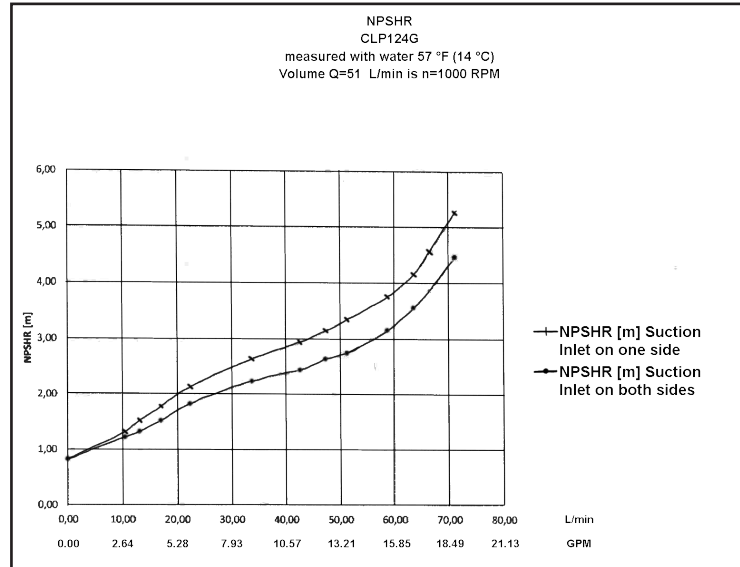
Next example:

If you have a low pressure Storage Vessel 290 PSI (20bar) you cannot cool with Water because the CO2 is too cold for this. In this situation you can use cooling channel III and IV in the same way like the CO2 cooling channel.

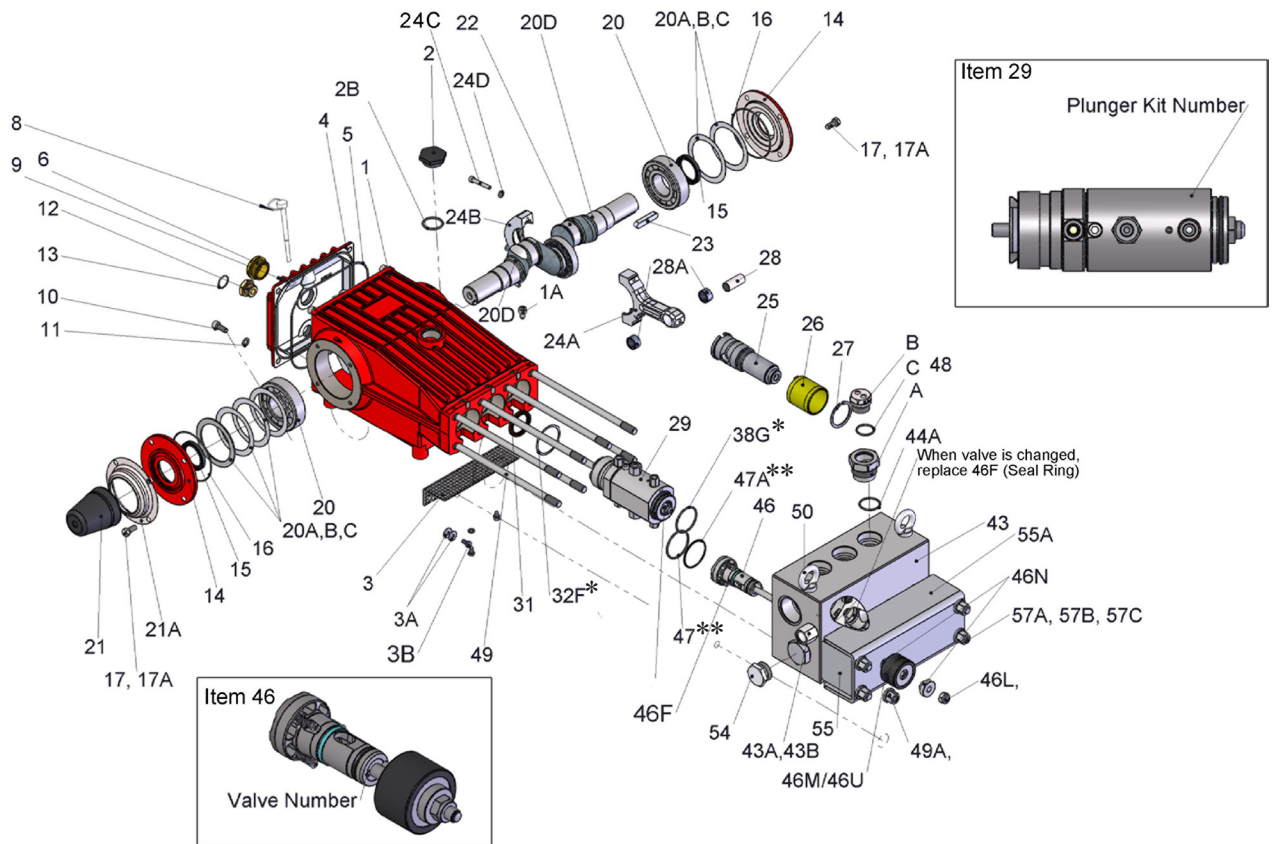
Specifications

Model CLP124

	U.S	Metric
Volume	13.5 GPM	51 LPM
Maximum Discharge Pressure	4350 PSI	300 BAR
Maximum Inlet Pressure	4350 PSI	300 BAR
Maximum Power Consumption.....	40 BHP	30 kW
Minimum Power Consumption.....	4 BHP	3 kW
Maximum Speed	1000 RPM	
Plunger Diameter	0.94"	24 mm
Stroke	1.57"	40 mm
Inlet Port	(2) x 1-1/2" BSP	
Discharge Port	(2) x 1" BSP	
Crankshaft Mounting	Either Side	
Shaft Rotation	Top of Pulley Towards Fluid End	
Weight	183 lbs.	83 kg
Crankshaft Diameter	1.38"	35mm



CLP124 SPARE PARTS LIST - FLUID END



ITEM	PART	DESCRIPTION	QTY	ITEM	PART	DESCRIPTION	QTY
1	CP04807	Crankcase	1	23	CP13243	Fitting Key	1
1A	CP04808	Fixing Screw	3	24	CP04810	Connecting Rod Assembly	3
2	CP13000	Oil filler Plug Assembly	1	25	CP04815	Crosshead w/Plunger	3
2B	CP07102	O-Ring	1	26	CP04816	Crosshead Sleeve	3
3	CP04802	Metal Cover	1	27	CP04817	Clip Ring	3
3A	CP04803	Washer	4	28	CP04818	Crosshead Pin	3
3B	CP04809	Hexagon Screw	2	28A	CP04819	Needle Bush	6
4	CP06085	Crankcase Cover	1	29	CP04820	Plunger Kit	1
5	CP07104	O-ring	1	31	CP07624	Radial Shaft Seal	3
6	CP05943	Oil Sight Glass Asembly	1	43	CP04821	Valve Casing	1
8	CP06086	Oil Dipstick	1	43A	CP04822	Restrictor	1
9	CP01009	O-Ring	1	43B	CP06272	Copper Seal Ring	1
10	CP07114-0100	Hexagon Socket Screw	4	44A	CP07150-0003	O-Ring	3
11	CP04811	Safety Washer	4	46	CP04823	Valveset	1
12	CP07109	Plug, 1/2" BSP	1	47	CP04824	O-Ring	3
13	CP06015	O-Ring	1	47A	CP04825	Support Ring	3
14	CP07111	Bearing Cover	2	48	CP04826	Cooler Plug Assembly	3
15	CP07112	Radial Shaft Seal	2	49	CP04827	Stud Screw	8
16	CP07113	O-Ring	2	49A	CP13430	Hexagon Nut with Rim	8
17	CP07114-0100	Hexagon Socket Screw	8	49B	CP07416	Ball (not shown)	8
17A	CP04811	Safety Washer	8	50	CP04828	Eye Bolt	2
20	CP04812	Roller Bearing	2	54	CP04829	Plug, 1" BSP	1
20A	CP07117	Fitting Disc	1	54A	CP13372-0300	Copper Seal Ring	1
20B	CP13001	Fitting Disc	2	55	CP04830	Support Strip	
20C	CP04091	Fitting Disc	3			for cathode plate	2
20D	CP04813	Spacer Ring	2	55A	CP04831	Cath Plate	1
21	CP05376	Shaft Guard	1	57A	CP07416	Ball	4
21A	CP05377	Shaft Guard Holder	1	57B	CP04832	Stud Bolt	4
22	CP04814	Crankshaft Assembly	1	57C	CP13430	Hexagon Nut with Rim	4

*Part of the complet plunger kit; not sold separately

**Part of the Valveset; not sold separately

Repair Instructions

To Change Valves

Remove nuts (49A). Take off the valve casing (43) or push the drive end back. Screw off nut (46L). Remove disc (46N), guard ring (46M). Using a plastic hammer, disassemble valve (46) by tapping the valve retainer pin (46O) on the front. Change O-ring (47) and Support Ring (47A) in the valve casing (43). Take the old sealing Ring (46F) out of the Valve Casing (43). Fit the new valve (46) in reverse order.

To Change Plunger Set

Unscrew the 8 nuts (49A) and pull the valve casing off to the front or push the drive end back. Position every plunger to the top dead centre. Unscrew the plunger pipe at the hexagon turning at least ten times. Take off holding screw (1A). Pull the plunger set (29) out of the guides in the crankcase. Take Tolerance disc (32F) out of the middle bore, and put in a new Tolerance disc. Fit the new plunger set in reverse order. The contact surfaces on the plunger (25) and in the drive (1) must be clean. Coat thread (M10) on the Plunger with Anti Seize.

Important! Deformation of the plunger pipe due to eccentric tightening of the tension screw or dirt or damage on the front surface can cause accelerated wear or the plunger pipe to fracture. Tighten the valve casing fixing nuts (49A) crosswise and evenly.

Important! If the cover plate (3) has been removed, coat the thread of its screw (3B) with glue when refitting.

To Dismantle Gear

Remove the 8 nuts (49A) and pull the valve casing off to the front or push the drive end back. Disassemble the plunger set (29). Screw off gear cover (4) and bearing cover (14).

Remove conrod screws (24) and push the front conrod parts as far as possible into the crosshead guide. Cut the roller bearing cages open and remove the roller parts. Turn the crankshaft lightly and carefully hit it out to one side using a rubber hammer.

Important! Do not bend conrod shanks. Check the running surfaces on the roller bearings, crosshead and seal surfaces (shaft, plungers).

To Reassemble

After removing the inner ring from casing bearing (20), thread new cages onto the crankshaft and click new roller parts into place. Thread on the outer rings. Press on the inner ring from casing bearing (20). Thread in the crankshaft and screw the conrods together.

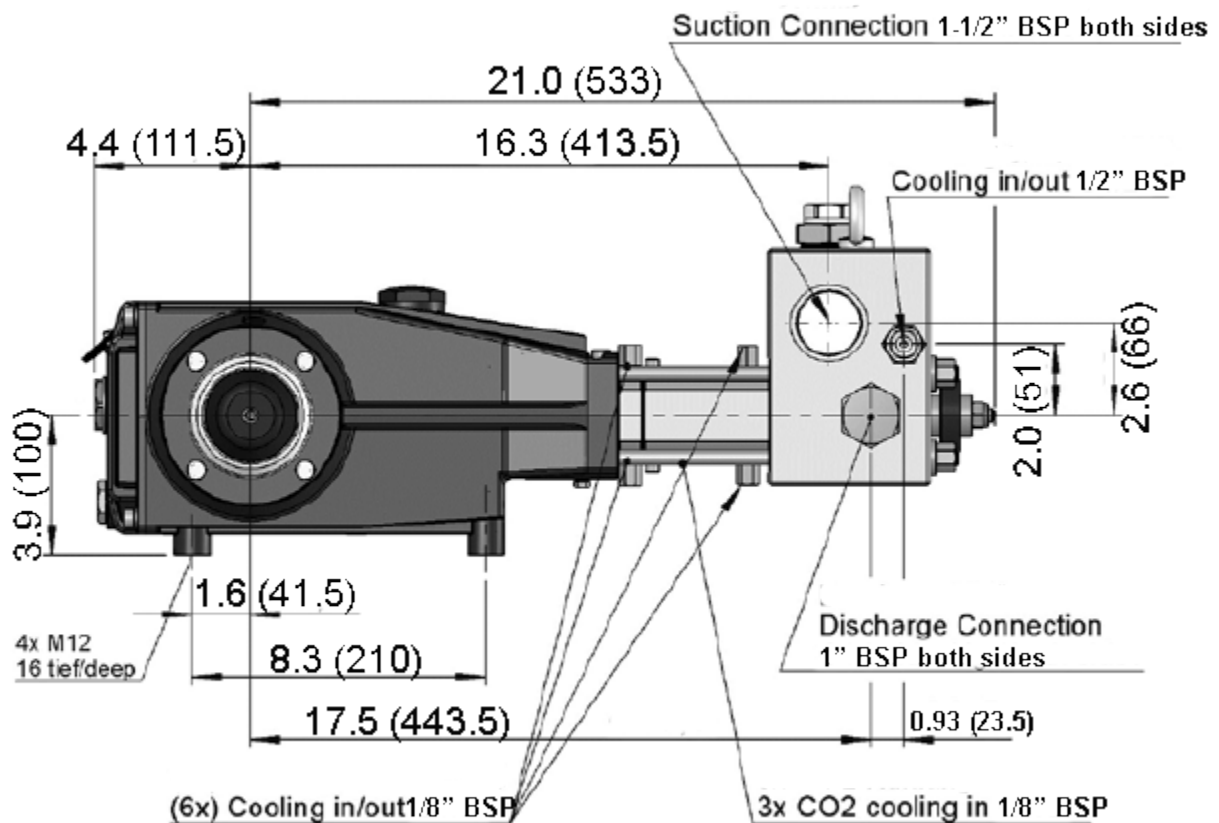
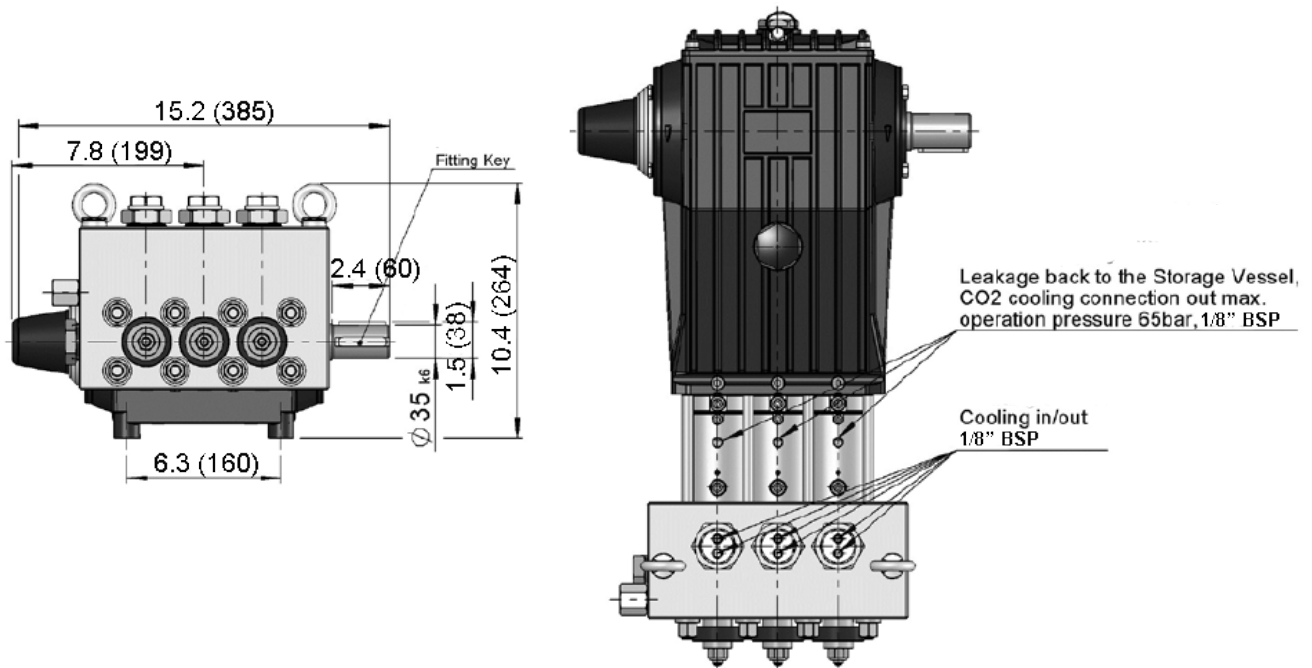
Using a soft tool, press in the casing bearing outer rings until these lie flat with the outer edge of the bearing hole. Lubricate all bearings with grease. Then screw on the bearing cover together with the radial shaft seal and O-ring. Push in the bearing outer ring together with the bearing cover. Fit shim 20D on both sides. Fit shims (20A,B,C) symmetrically.

Adjust axial bearing clearance to at least 0.2 mm and maximum 0.3 mm. All bearing points lubricate with grease. After assembly the shaft should have a clearance of between 0.2 mm and 0.3 mm. Tighten conrod screws. Conrod must be movable on the crank pin. Rotate Crankshaft after assembling 2 turns by Hand.

Pump Mounting Selection Guide

Bushings 06496 - 35mm H Bushing
Pulley & Sheaves 07165 - 12.75" Cast Iron - 4 gr. - AB Section
Rails 07357 - Plated Steel Channel Rails (L=11.75"xW1.88"xH=3.00")

CLP124 DIMENSIONS- MM (INCHES)



LIMITED WARRANTY

Eco₂Blast 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 Eco₂Blast 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 Eco₂Blast 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 Eco₂Blast.
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 Eco₂Blast.

Liability under this warranty is on all non-wear parts and limited to the replacement or repair of those products returned freight prepaid to Eco₂Blast 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 Eco₂Blast 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.

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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