BOTUO

DSP/DSPEP Series

Owner's Manual

Shanghai Pinfl Electrical And Mechanical Technology Co.,Ltd

Please read this manual carefully before using the pump, especially following safety information.

Please store this manual in a fixed location.

CATALOGUE

1、Overview

DSP series high pressure plunger pump has beautiful appearance, compact structure, small volume and high efficiency.

DSP series high pressure plunger pump, pump head is cast copper, forging, stainless steel material, mainly used to transport clean fresh water (stainless steel material can transport clean seawater) and other media.

Widely used in high-pressure cleaning, rust removal, ships, seawater desalination, pharmaceutical and chemical industry, municipal garden, construction industry, petrochemical industry and other industries.

The difference between DSP and DSPEP is that DSPEP with water cooling device is more effective than the conventional pump to reduce the oil temperature in the pump, thus extending the service life of the pump.

2、Model Parameter

DSP Series

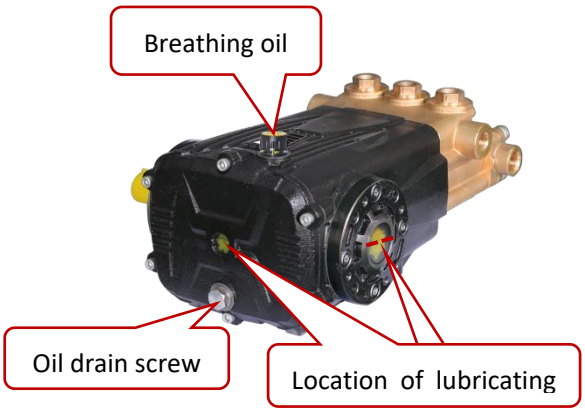
DSPEP Series

Model	Flow		Pressure			Power		speed	Plunger diameter	Crankshaft stroke	Volumetric efficiency
	L/min	gpm	bar	Psi	MPa	hp	KW	rpm	mm	mm	%
DSP2250 (Cast copper)	22	5.81	500	7250	50	30	22	1450	18	21	≥93%
DSP3050 (Cast copper)	28	7.39	500	7250	50	38	28	1450	20	21	≥93%
DSP2260 (Cast copper)	22	5.81	600	8700	60	34	26	1450	18	21	≥93%
DSPEP1680 (Stainless steel)	16	4.23	80	11600	80	34	25	1450	18	15	≥93%
DSPEP2280 (Stainless steel)	22	5.81	80	11600	80	47	35	1450	18	21	≥93%
DSPEP18100 (Stainless steel)	18	4.75	80	14500	80	48	36	1450	16	21	≥93%

3、Matters Need Attention

3.1 before any maintenance work, it must first be determined that the pump has been separated from the power source, or the power source has stopped working, to prevent any form of power (or energy) from entering the pump. Including electrical energy, mechanical energy, and liquid energy.

3.2 The new pump must be used by replacing the red oil plug with the oil label or breathing plug.



3.3 Check if the lubricating oil in the pump has been filled to the red dot or half of the oil level gauge.

3.4 It is forbidden to replace or replace the pump under startup condition.

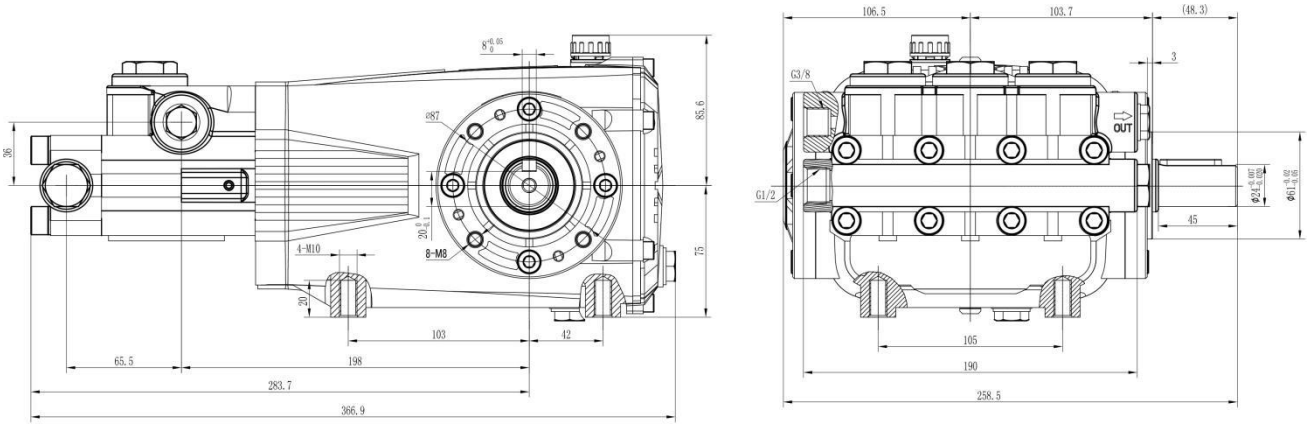
3.5 Air is not allowed into the pump during use. The pump must drain the air in the pump before it can be pressurized for use.

3.6 Continuous liquid supply must be maintained during operation to avoid causing damage to the seals in the machine.

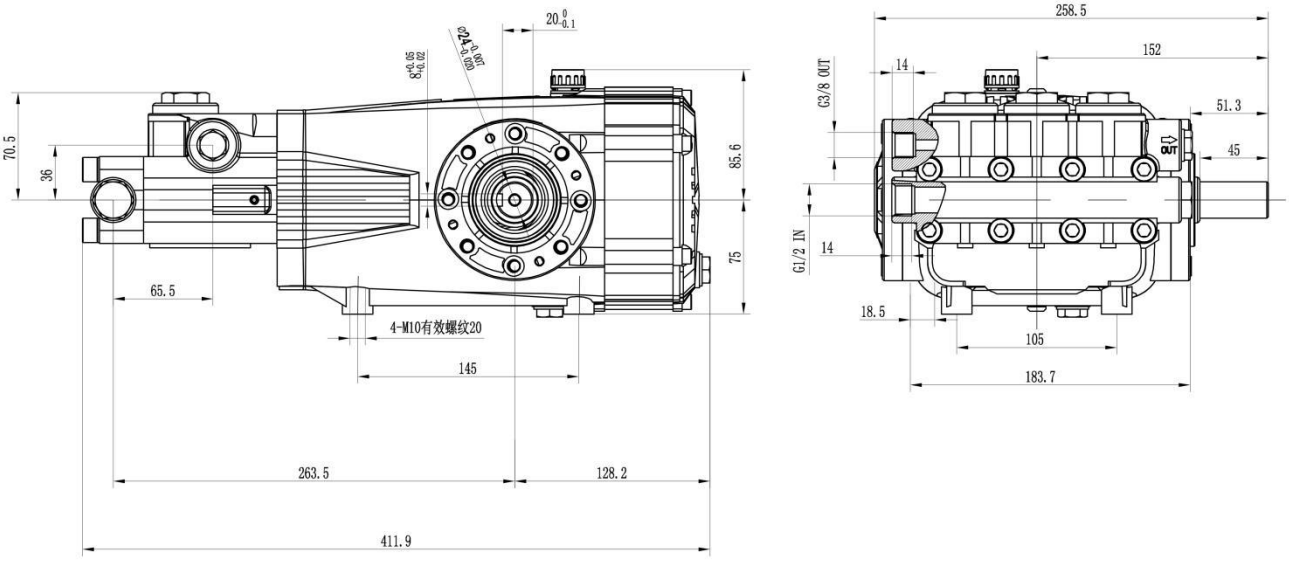
3.7 The pump is never allowed to start when there is no liquid in the pump

4、Install The Size Diagram

4.1 DSP Series installation size

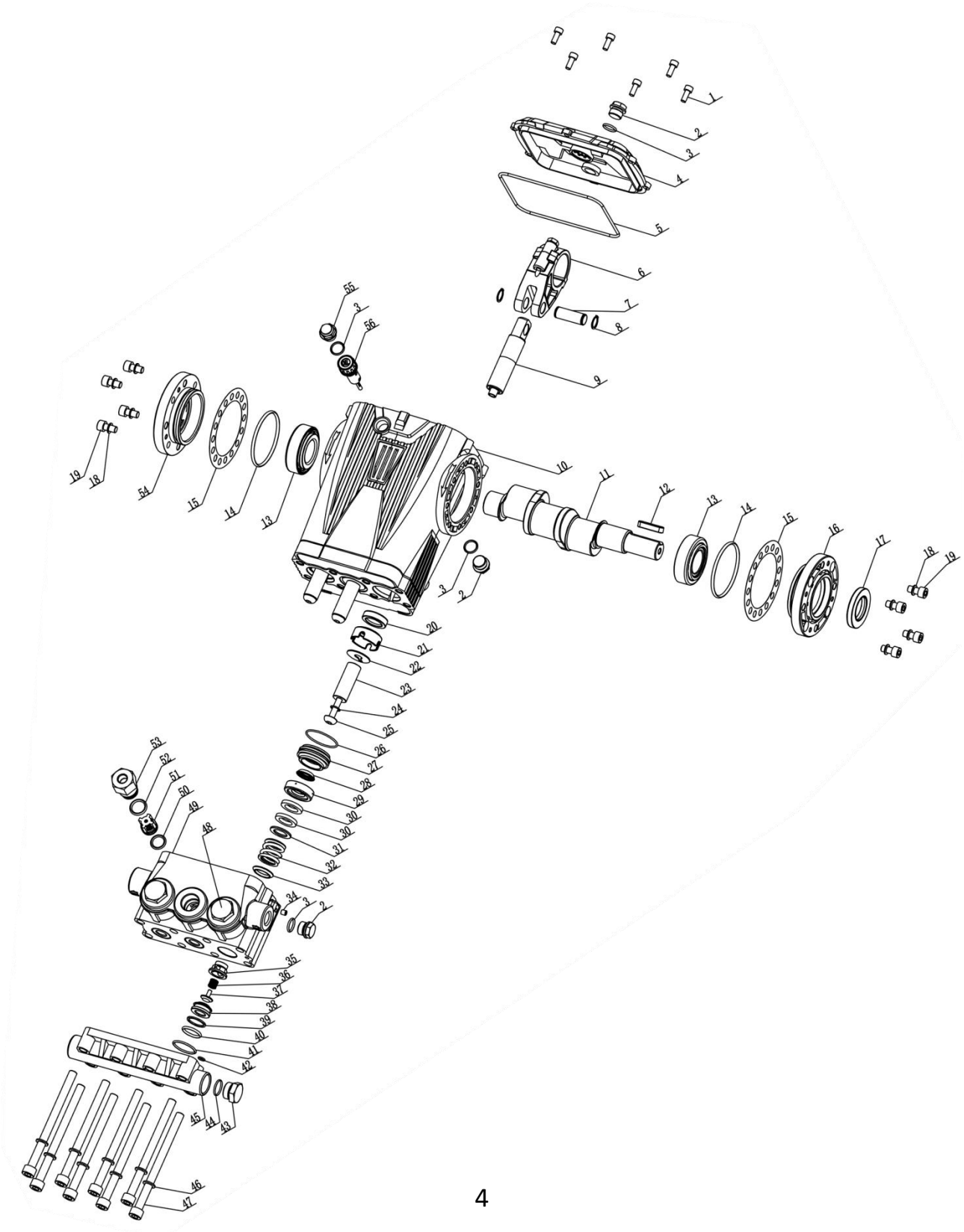


4.2 DSPEP Series installation size



5、Exploded Drawing And Spare Parts List

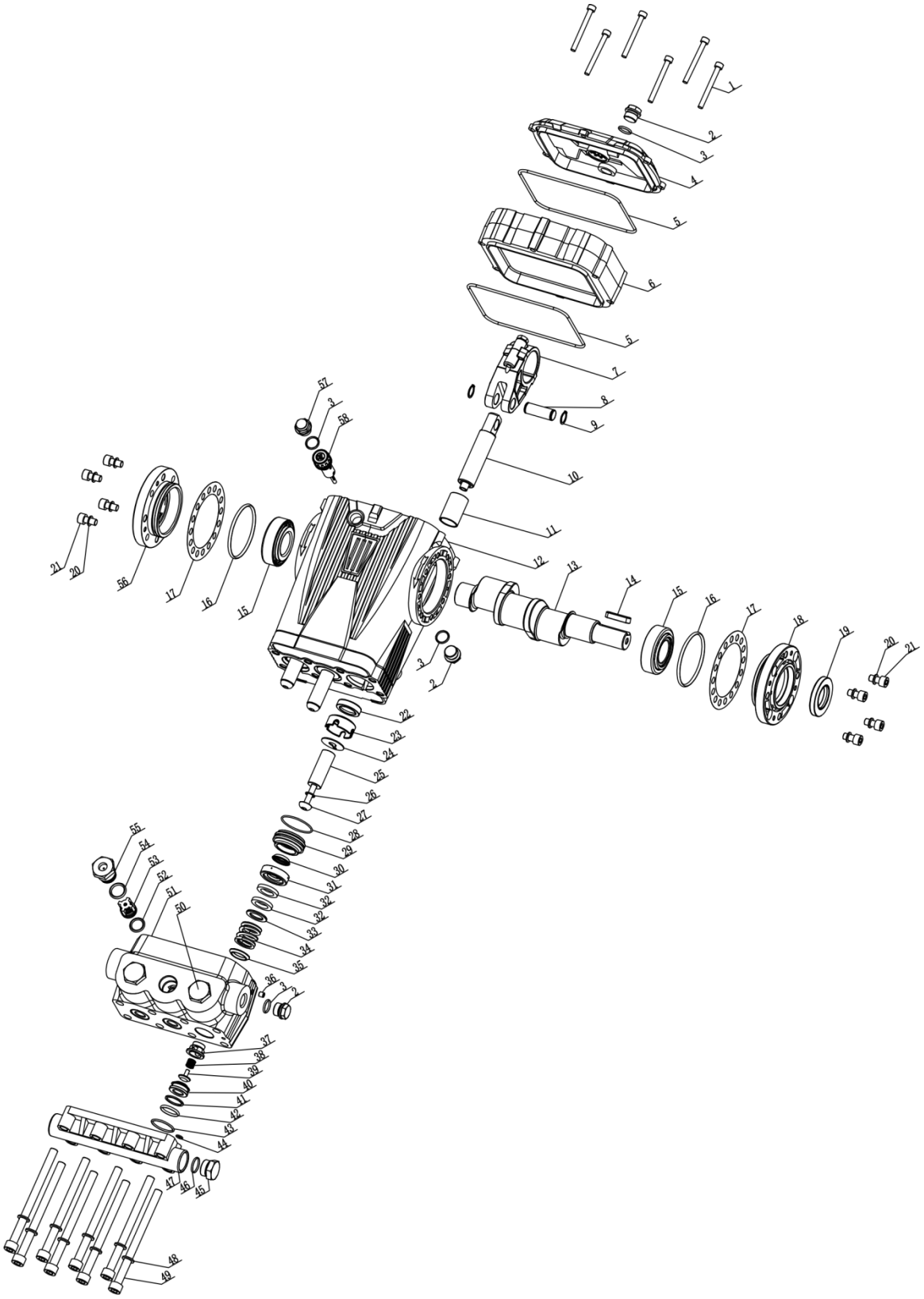
5.1、DSP Explosiveview



5.2、DSP Spare parts list

No.	Article No.	Description	Q'ty	No.	Article No.	Description	Q'ty
1	590201012	Hexagon socket head cap screw	6	29	501001130	DSP2150 support ring	3
2	500010001	BM-G3/8 plug	3	30	590104001	DSP2150 main water seal	6
3	590101019	O-ring	4	31	501001270	DSP2150 main water seal gasket	3
4	301031001	DS Rear Cover Assembly	1	32	501001260	DSP2150 main water seal spring	3
5	590101017	O-ring	1	33	501001250	DSP2150 Water Seal Spring Seat	3
6	501002050	DS connecting rod assembly	3	34	590207101	Hexagon socket flat end locking screw	1
7	501002110	DS plunger pin	3	35	501001230	DSP2150 inlet one-way valve cover	3
8	590206001	External Circlips	6	36	501001210	DSP2150 inlet one-way valve spring	3
9	501002101	AD plunger rod	3	37	501001220	DSP2150 inlet one-way valve plate	3
10	501002017	DS-1 crankcase (locating pin)	1	38	501001240	DSP2150 water inlet one-way valve seat	3
11	501002220	DS crankshaft 21-N24	1	39	590103008	Open retaining ring	3
12	500011002	Flat key	1	40	590101052	O-ring	3
13	590303004	Tapered roller bearing	2	41	590101065	O-ring	3
14	590101102	O-ring	2	42	590101100	O-ring	1
15	501002080	DS clearance adjustment gasket	2	43	500010022	BM-G1/2 plug	1
16	501002030	DS extended end flange	1	44	590101035	O-ring	1
17	590108003	TC skeleton oil seal	1	45	501001200	DSP2150 valve cover	1
18	590204103	Double sided tooth pad	8	46	590204101	Double sided tooth pad	8
19	590201006	Hexagon socket head cap screw	8	47	590201033	Hexagon socket head cap screw	8
20	590107004	TC4 skeleton oil seal	3	48	501001160	DS18 one-way valve screw	2
21	501002091	DS support frame	3	49	501001020	DSP2150 pump head	1
22	501002120	DS water baffle	3	50	590101026	O-ring	3
23	501002161	DS18 ceramic tube	3	51	301191001	DSP2150 High Pressure Check Valve Assembly	3
24	590101221	O-ring	3	52	590101033	O-ring	3
25	501002061	DS ceramic pipe locking bolt	3	53	501001300	DS18 one-way valve screw with hole	1
26	590101079	O-ring	3	54	301041001	DS Side Cover Assembly	1
27	501001090	DSP2150 rear guide ring	3	55	101702010	Oil plug	1
28	590105002	Auxiliary water seal	3	56	301150101	BM oil pointer component	1

5.3、DSPEP Explosiveview



5.4、DSPEPP Spare parts list

No.	Article No.	Description	Q'ty	No.	Article No.	Description	Q'ty
1	590201012	Hexagon socket round head screw	6	30	590105002	Auxiliary water seal	3
2	500010001	BM-G3/8 plug	3	31	501001121	DSPEP18 support ring	3
3	590101019	O-ring	4	32	590104001	DSP2150 main water seal	6
4	301031005	DSEP Rear Cover Assembly	1	33	501001270	DSP2150 main water seal gasket	3
5	590101017	O-ring	2	34	501001364	DSPEP2280 main water seal spring	3
6	501002470	DSEP water-cooled rear cover	1	35	501001250	DSP2150 Water Seal Spring Seat	3
7	501002540	DS connecting rod assembly (copper)	3	36	590207105	Hexagon socket flat end locking screw	1
8	501002110	DS plunger pin	3	37	501001230	DS2150 inlet one-way valve cover	3
9	590206001	External Circlips	6	38	501001210	DSP2150 inlet one-way valve spring	3
10	501002100	DS plunger rod	3	39	501001220	DSP2150 inlet one-way valve plate	3
11	501002070	DS oil-free bearing	3	40	501001240	DSP2150 water inlet one-way valve seat	3
12	501002360	DSEP crankcase	1	41	590103008	Open retaining ring	3
13	501002221	DS crankshaft 21-N24	1	42	590101052	O-ring	3
14	500011003	Flat key	1	43	590101065	O-ring	3
15	590303004	Tapered roller bearing	2	44	590101100	O-ring	1
16	590101102	O-ring	2	45	500010002	BM-G1/2 plug	1
17	501002080	DS clearance adjustment gasket	2	46	590101035	O-ring	1
18	501002390	DSEP extended end flange	1	47	501001480	DSEP2280 valve cover	1
19	590108003	TC skeleton oil seal	1	48	590204101	Double sided tooth pad	8
20	590204103	Double sided tooth pad	8	49	590201033	Hexagon socket round head screw	8
21	590201006	Hexagon socket round head screw	8	50	501001470	DSPEP2280 one-way valve screw	2
22	590107004	TC4 skeleton oil seal	3	51	501001435	DSPEP2280 pump head	1
23	501002091	DS support frame	3	52	590101033	O-ring	3
24	501002120	DS water baffle	3	53	301191011	DSPEP2280 high-pressure one-way valve assembly	3
25	501002161	DS18 ceramic tube	3	54	590101026	O-ring	3
26	590101221	O-ring	3	55	501001490	DSPEP2280 one-way valve screw with hole	1
27	5101002060	DS ceramic pipe locking bolt	3	56	301041005	DSEP Side Cover Assembly	1
28	590101079	O-ring	3	57	101702010	Oil plug	1
29	501001090	DSP2150 rear guide ring	3	58	301150101	BM oil pointer component	1

6、Repair And Maintenance

Good maintenance is the prerequisite for ensuring the normal operation of the system and extending the service life.

Pump tank adopts oil model: L-CKD 220 or SAE85W-90, and the oil level is not lower than 1 / 2 of the oil label red line or visual window. Pay attention to the temperature of the tank during the operation. It is normal that the oil temperature is below 75℃. After 50 hours of normal operation, the new machine needs to change the oil for the first time, and the oil is changed for every 500 hours of operation. Special attention: Once the oil in the tank is found to be emulsified (changed to milky white), the oil must be replaced again.

When used in winter, attention should be paid to the protection against freezing. Check whether the pipeline and the pump are freezing in winter. After the operation, the liquid in the pump should be drained and some anti-freezing measures should be taken.

7、Fault and its troubleshooting method

Trouble	Reason	Solution
Pressure Non-Adjustable	Nozzle wears, or orifice bigger, blocked	Replace nozzle or clean it
Pulsation (hp hose vibrating, pressure non-stable)	1、Air inside the pump 2、2、Blocked by contaminants 3、3、Run Dry for long time, Seals Broken 4、Checking valve broken/ blocked	1、Check inlet water hose, screw tight, exhaust the air 2、Check pipeline, clean the contaminant 3、Replace water seal 4、Clean or replace the checking valve
Hot Crankcase （over 75℃）	1、Over-fill or less lubricant, emulsion 2、Wrong oil code 3、Contaminants inside, broken bushing,crankshaft bur	1、Check oil level or replace lubricant 2、Use right code(L-CKD 220) 3、Clean, replace crankshaft
Water or Oil Leak	1、 Plunger rod wear 2、 Oil seal broken 3、 Plunger broken 4、 Water seal broken	1、 Change plunger rod 2、 Change oil seal 3、 Replace plunger 4、 Replace water seal
Outlet water is hot,cylinder heated	Nozzle blocked	Clean nozzle