

INSTRUCTION MANUAL

DP20(E)

DP30(E)

DP40(E)

DP60(E)

DP15H(E)

DP20H(E)

DP30H(E)



DIESEL
WATER PUMP

INTRODUCTION

Thank you for purchasing the product.

Series water pump unit has the following features:

- ★ With super light diesel engine as power
- ★ With high pressure AL alloy as shell-body
- ★ High quality mechanical seal device
- ★ Self-priming structure

Series water pump unit is self-priming single-stage centrifugal water pump which being driven by air cooling,direct injection 4-stroke diesel. The shell-body adopt aluminum alloy die-casting,machinery type seal device,and the material of moving ring is ceramics,and the material of static ring is graphite , so this machine is compact in structure,light in weight,small in size and beautiful in appearance,convenience for operating,easy maintenance,and able to stand wear and tear. When start pump in the first time,it only needs to fill a little water into the pump,after start it can suck water by itself not need bottom valve. This pump is special convenience for mobile irrigation,movable operation,frequent start work and difficult irrigation place. It is used widely at agriculture,factory,mine,enterprise,construction site,communication, underground cable,maintenance for pipeline,gardens,and fishery ect. It is an ideal irrigation machine.

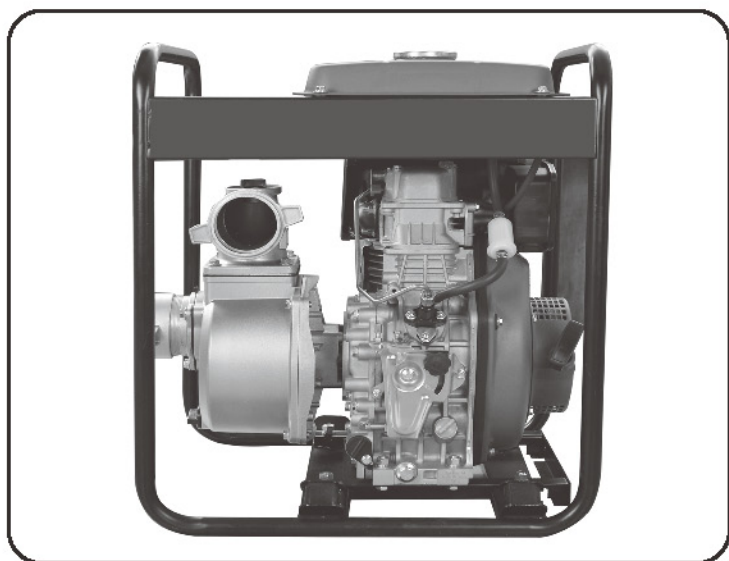
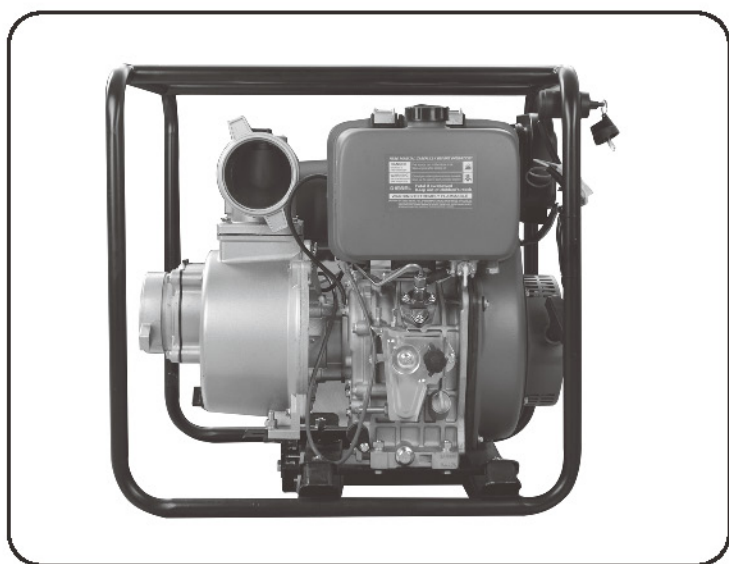
This operation manual should tell you how to operate and service your Series water pump unit. Please read this operating manual and diesel engine operating manual before using the pump so that to guarantee correct operation. Follow the operating requirement of operating manual to keep your water pump unit in best working condition so the using life of water pump unit will be longer.

If you have any question or suggestion concerning this manual,please contact with our corporation or dealer. The content of description for this manual may differ with practical product along with improvement and enhance for products of our corporation so user must pay attention to.

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Appearance photochrome of diesel water pump unit



CHAPTER 1 MAIN TECHNICAL PARAMETERS AND SPECIFICATIONS

I MAIN TECHNICAL SPECIFICATIONS

Water Pump Mode		DP20 DP20E	DP30 DP30E	DP40 DP40E	DP60 DP60E	DP15H(E)	DP20H(E)	DP30H(E)
Water Pump	Total head (m)	15	17	19	15	40	42	45
	Suction height (m)	7	7	7	7	6	6	6
	Max flow (m³/h)	22	35	40	125	10	12	18
	Suction caliber (mm)	50	80	100	150	40	40	50
	Discharge caliber (mm)	50	80	100	150	40	40	50
Engine	Engine	D173F D173FE	D178F D178FE	D186FA D186FAE	D192F D192FE	D173F D173FE	D178F D178FE	D186FA D186FAE
	Displacement (ml)	247	296	418	499	247	296	418
	Rated speed (RPM)	3600	3600	3600	3600	3600	3600	3600
	Output power (kW)	3.6	4.0	6.6	8.6	3.6	4.0	6.6
	Fuel tank volume (L)	2.5	3.5	5.5	5.5	2.5	5.5	5.5
	Starting system	Recoil or electric						
Whole	Weight (kg)	41	49	59	115	41	49	59
	Dimension (mm)	520×450× 650	560×450× 655	640×470× 700	760×540× 820	520×450× 650	560×450× 655	640×470× 700

CHAPTER 2.MAIN STRUCTURE AND USE METHOD

I Structure

Self-priming pump consists of diesel engine and water pump which driven by a same driving axle. The pump is fixed on a frame through shock absorber device,so it is compact in structure and convenience for use of movement.For structure of self-priming pump,see Fig2-1.

The pump consists of pump body , pump cover , flow guidance,impeller and seal part etc.The pump body and pump cover are made from high quality diecasting of aluminum alloy. The flow guidance and impeller are made from high strength cast iron,shaft sealing is machinery type sealing.The suction and discharge pipe connector are made from engineering plastic so it can be connected with rubber pipe.

The inlet of pump is higher than the inlet of impeller so that it can start which only need fill water into the body of the pump. The inlet of pump is fixed with a one-way valve to prevent liquid from being drained into water pool from the pump body which action by siphon after stop the machine.It must guarantee store enough liquid in the pump body for next start.

The rotary direction is anticlockwise as viewed from inlet direction of impeller.

II Main point of use

- ★ The coupling of suction pipe to the pump must be tight,reliable and no leakage.
- ★ A filter net must be added into the inlet of suction pipe as a protection,so as to avoid impurity be sucked into the pump and stick or damage the impeller.
- ★ Prime the pump until the water overflow.
- ★ Do not run it at high speed,unless you prime it.
- ★ Drain off the pump for storage.

III Proceduer of use

1.Adding water

When start the pump for the first time,it only need to add a few water into the pump and self-priming after start,so not necessary bottom valve.

2.Start the engine

Please see manual of diesel engine.

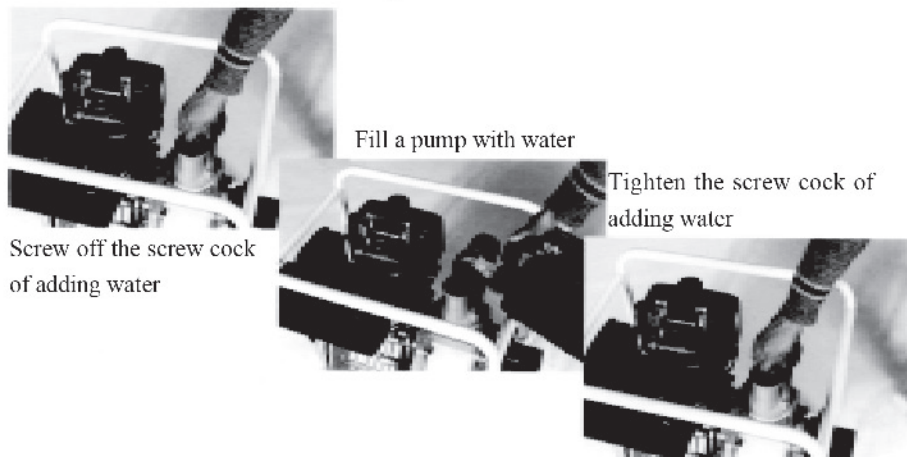


Fig2-1

IV Use and maintenance

1.According to normal stipulation, the vacuum of pump by suction be expressed with allowable NPSH(net positive suction head).When the pump work at the area of lower than 250m altitude.It can estimate suction head of pump which 10m minus allowable NPSH is it.Follow increasing with altitude,the atmosphere should be decreased,so the suction head of pump also be decreased.The value of decrease can be estimated which 10m minus local atmosphere value is it (m water column).

2.Pipeline is better with short pipe and straight pipe,so it can decrease unnecessary loss of pipeline. The pipeline must be supported to avoid from vibrating and damaging the pump by oppressive. Before operation it must check connection part between pump and pipeline whether there is loose phenomenon and special pay attention to leakage of inlet pipeline.

3.The filter net must keep a certain distance between river surface,river bottom and river bank,the net must dip into water not less than 0.3m to avoid suction air and to keep a distance which is not less than 0.2m from river bottom,river bank to avoid suction stone or weeds.

4.If the gap between impeller and the surface of flow guidance is over 1mm, so that it can be continuous to be used after adding an adjustment shim on the shaft shoulder. see Fig 2-2.

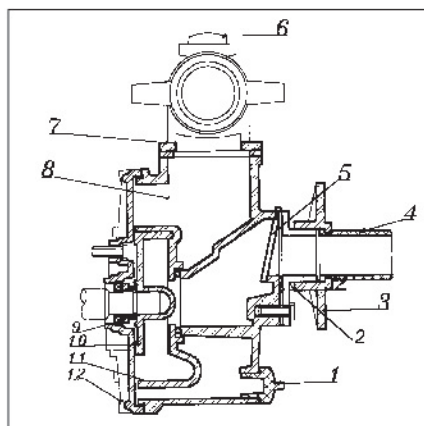


Fig 2-2 Structure diagram of self-priming pump.

- 1.Drain screw cock. 2.Connector of inlet pipe 3.Tighten nut of inlet pipe 4.Connector
5.Door valve 6.Screw cock of adding water 7.Elbow of outlet 8.case of pump
9.Machinery seal 10.Impeller 11.Flow guidance 12.Pump cover

5.When change machinery seal,be sure to apply adhesive to the connection between steel part “#7” and pump cover. When fixed it, do not hit by force to prevent wear slice fracture. Please see Fig 2-3.

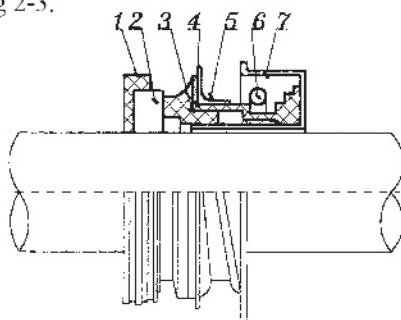


Fig 2-3 Structure diagram of machinery seal.

- 1.Sealed ring 2.Ceramics moving ring 3.Graphite static ring 4.Corrugated pipe 5.Washer 6.Spring 7.Steel part

6.When the pump is used in winter, to screw off the drain cock under the pump and draw off water thoroughly after stop the machine to prevent from being broken by ice of freeze.

V Installation of connective soft pipe

Set the rubber soft pipe on the connector of inlet pipe. Pay attention to, it must be seted over the thread,and then tighten it with clipper joint.

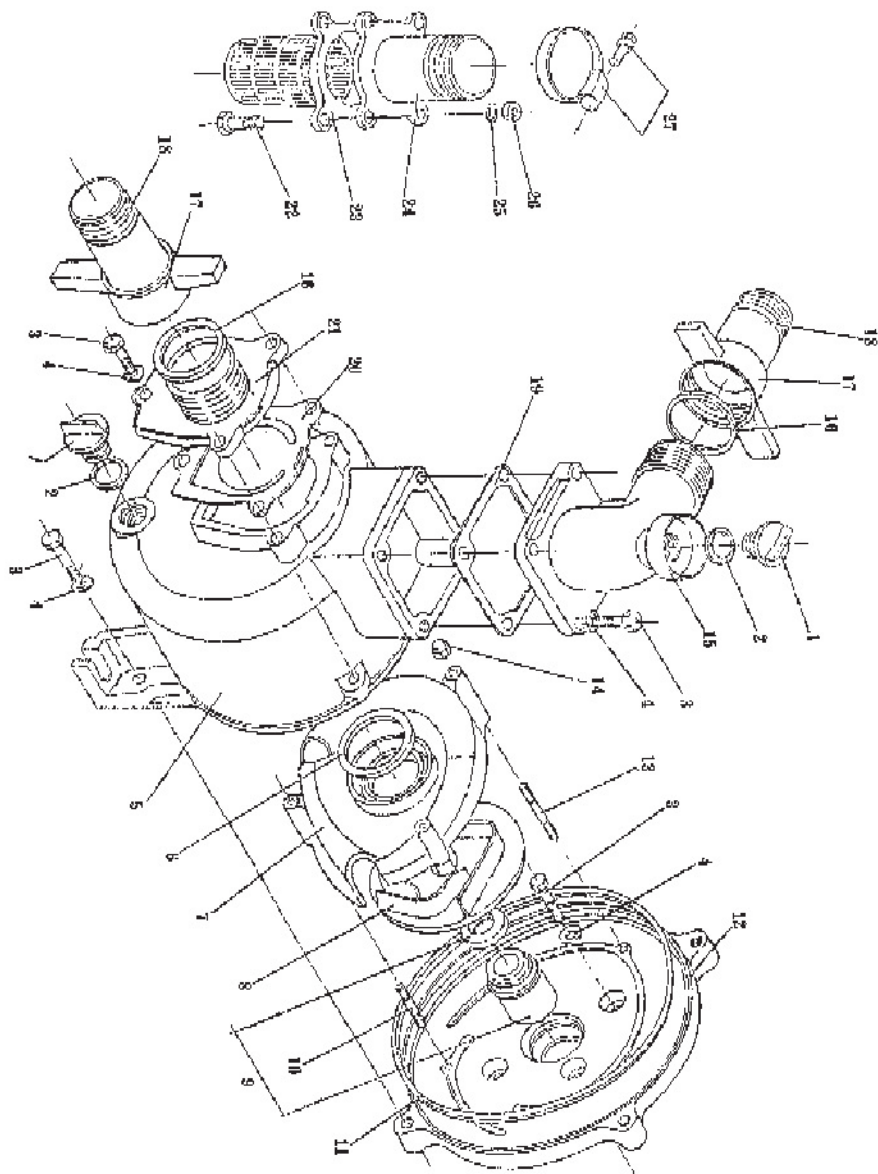
CHAPTER 3.ANALYSIS OF MALFUNCTION AND REMEDY

MAI- FUNCTION	CAUSE	REMEDY
The pump can not do pump	Fill water is not enough	Refill water into the pump.
	Inlet pipe leakage	Check inlet pipe and connector of pipe,change pipe or tighten the screw of clipper joint.
	Speed of pump is too low	Check speed and find cause for remedy.
	The filter net is obstructed	Check and clean up.
	It is over the capacity of pump which will be used lift or total lift	Check the position of installation and remedy according to the cause.
	Seal wear and leakage	Change machinery seal part.
The flow of water is not enough	The filter net,pipeline or impeller is obstructed	Clean up the obstruction.
	Speed is low	Increase speed.
	Impeller or seal is wore seriously and the gap is too large	Adjust the gap or change impeller and machinery seal part.
	Inlet pipe leakage	Check inlet pipe and connector of pipe,change pipe or tighten the screw of clipper joint.
	impelle damage and leakage seriously	Change impeller into a new one.
	The total lift is too high	Check cause and adjust.
	There is air in the pump or inlet pipe and seal leakage	Screw off air drain screw cock,and eliminate the air. Check the pipeline or change machinery seal part.
	Speed of engine is not stability	Adjust the speed of engine.

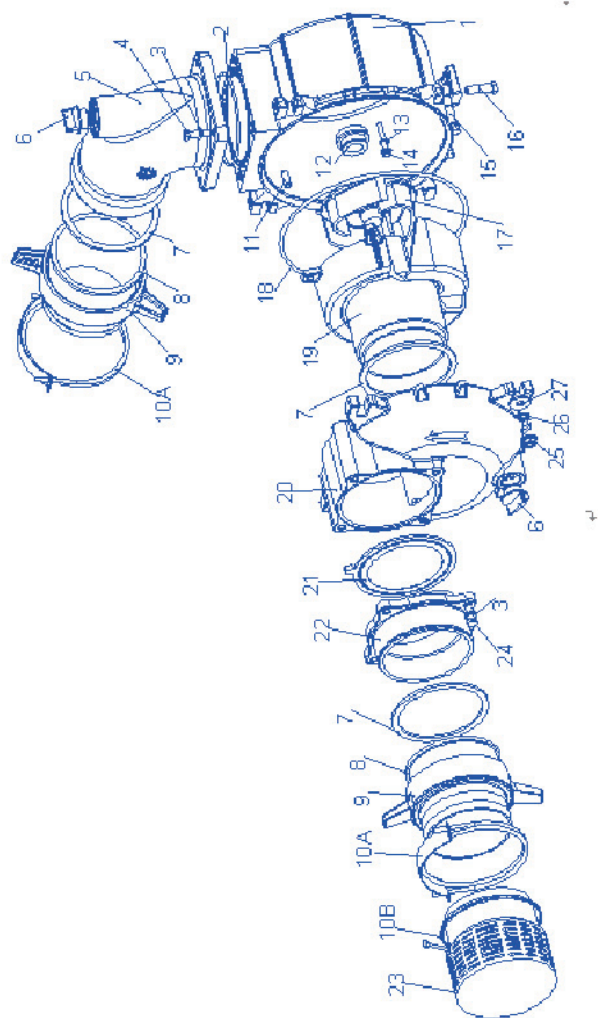
MALFUNCTION	CAUSE	REMEDY
Power consumption of pump is too large	There is a rub between impeller and flow guidance	Listen to the sound carefully, whether the impeller is clashed with the case and then to adjust.
	The impeller is obstructed by weeds or foreign matters	Check and clean up.
No flow suddenly	The connector of inlet pipe is loosed or leakage	Check inlet pipeline and remedy
	Suction head is over stipulation	Check suction head and low the position of pump.
Cause vibration or noise	Suction head is too high and cause cavitation	Check suction head and lower the position of pump.
	Out put of water is too large	Decrease the output of water
	Inlet pipe is obstructed by foreign body so the resistance is too large	Check intel pipe and filter net to clean up.
	Rotary part is loosed	Listen carefully and inspect the part which cause the noise and stop the machine to adjust,
	Installing for pump unit is not stability	Stop the machine for checking and adjusting.
	There is air lay up in the pump or pipeline.	Screw off air drain screw cock and eliminate the air.
	Impeller damage	Stop the machine for checking and change the impeller with a new one.

CHAPTER 4. PARTS DRAWING OF SELF-PRIMING PUMP

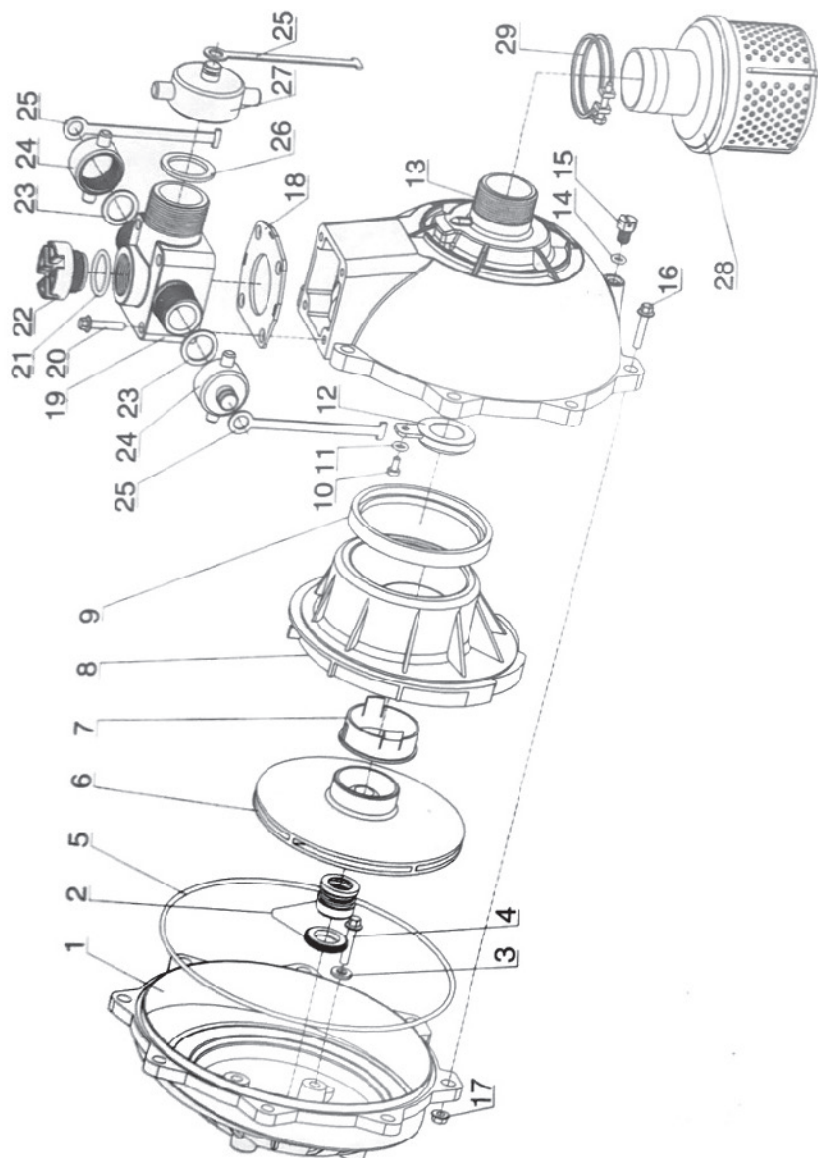
DP20(E)、DP30(E)、DP40(E)



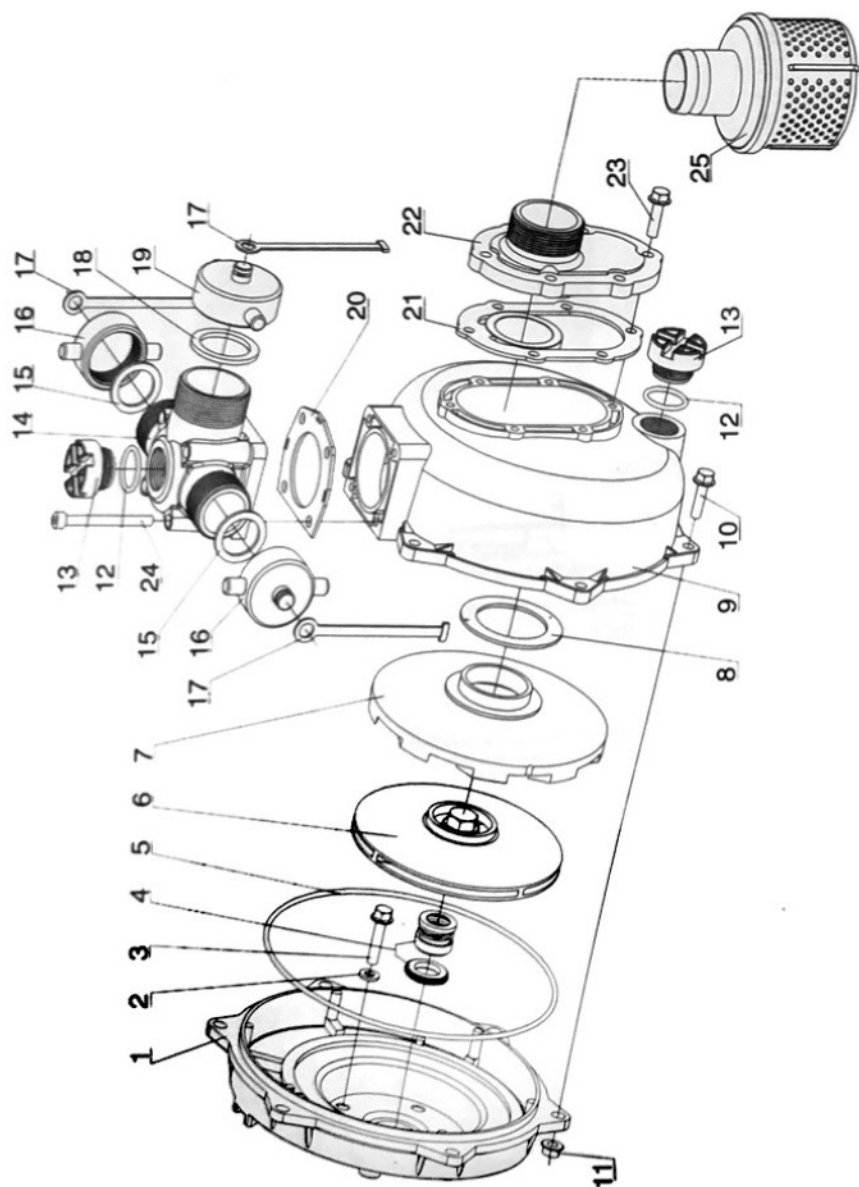
DP60(E)



DP15H(E)、DP20H(E)



DP30H(E)



II Detailed list of part for 2" 3" 4"self-priming pump

No.	name	qty	remarks
1	screw	2	
2	scal ring 35502470	2	
3	bolt M6×25/M8 ×25	12	
4	washer 8/10	12	
5	case of water pump	1	
6	gasker	1	
7	diversion device	1	
8	impeller	1	
9	machinery scal	1	
10	bolt M6 × 55	3	
11	scal ring	1	
12	cover of water pump	1	
13	bolt M6	1	
14	bolt M6	3	
15	elbow	1	
16	gasket	2	
17	nut	2	
18	connector	2	
19	gasket	1	
20	clap door	1	
21	connecting pipe	1	
22	bolt M6 × 25/M8 × 30	4	
23	filter net	1	
24	connecting pipe	1	
25	gasket 6/8	4	
26	nut M6/M8	4	
27	throat clip	3	

CHAPTER4. PARTS DRAWING OF SELF-PRIMING PUMP

1. Detailed list of parts for 6" self-priming pump

No.	Name	qty	remarks
1	Water pump cover	1	
2	Outlet sealing ring	1	
3	Iron flat washer	8	
4	Bolt M10×40	4	
5	The water outlet joint	1	
6	Threaded plug pump	2	
7	Pipe joint sealing gasket	3	
8	Pipe joint	2	
9	Pipe joint connecting nut	2	
10 (A B)	Clamp	3	
11	Spring pin	1	
12	Mechanical seal / ceramic	1	
13	Aluminum flat washer $\phi 8 \times \phi 16 \times 1.5$	4	
14	Bolt M8×55	4	
15	Articulated M12×65	4	
16	Bolt M12×45	4	
17	Impeller	1	
18	Pump sealing ring	1	
19	Eddy shell	1	
20	Water pump body	1	
21	Inlet sealing gasket	1	
22	Inlet joint	1	
23	Screen combination	1	
24	Bolt M10×30	4	
25	Nut M12	4	
26	Play mat 12	4	
27	Big washer 12	4	

III Detailed list of part for 1.5" high-pressure self-priming pump

Item NO.	Description	Quantity	
1	Pump cover	1	
2	Mechanical seal	1	
3	Sealed washer	4	
4	Hexangular bolt	4	
5	O ring	1	
6	Impeller	1	
7	Diffuser's sealed bush	1	
8	Diffuser	1	
9	Diffuser's sealed interleaver	1	
10	Bolt	1	
11	Washer	1	
12	Check valve	1	
13	Pump body	1	
14	O ring	1	
15	Hexangular cuprum plug	1	
16	Hexangular bolt	8	
17	Hexangular nut	8	
18	Outlet's sealed interleaver	1	
19	Outlet flange	1	
20	Hexangular bolt	4	
21	O ring	1	
22	Plastic plug	1	
23	1" Sealed washer	2	
24	1" Spanner	2	
25	Outlet joining	3	
26	1.5" Sealed washer	1	
27	1.5" Spanner	1	
28	Strainer	1	
29	Clamp	1	

IV Detailed list of part for 2" high-pressure self-priming pump

Item NO.	Description	Quantity	
1	Pump cover	1	
2	Sealed washer	4	
3	Hexangular bolt	4	
4	Mechanical seal	1	
5	O ring	1	
6	Impeller	1	
7	Diffuser	1	
8	Diffuser's sealed interleaver	1	
9	Pump body	1	
10	Hexangular bolt	6	
11	Hexangular nut	6	
12	O ring	2	
13	Plastic plug	2	
14	Outlet flange	1	
15	1.5" Washer	2	
16	1.5" Spanner	2	
17	Outlet joining	3	
18	2" Washer	1	
19	2" Spanner	1	
20	Washer	1	
21	Check valve	1	
22	Inlet flange	1	
23	Hexangular bolt	6	
24	Hexangular bolt	4	
25	Strainer	1	

APPENDIX 1 An edition for soliciting comments to user

Type Item		Date of manufacture	
		Serial number of manufacture	
Name of user		Profession	
Detail address of user			
Detail name of purchase place			
Condition of packing and unpacking			
Condition of use			
Condition of parts wear			
Malfunction or problem			
Improvement opinion or request for pump unit			

Date:

