

# **Air Double Diaphragm Pump**

**operation manual**

**K-18 (18L/min)**

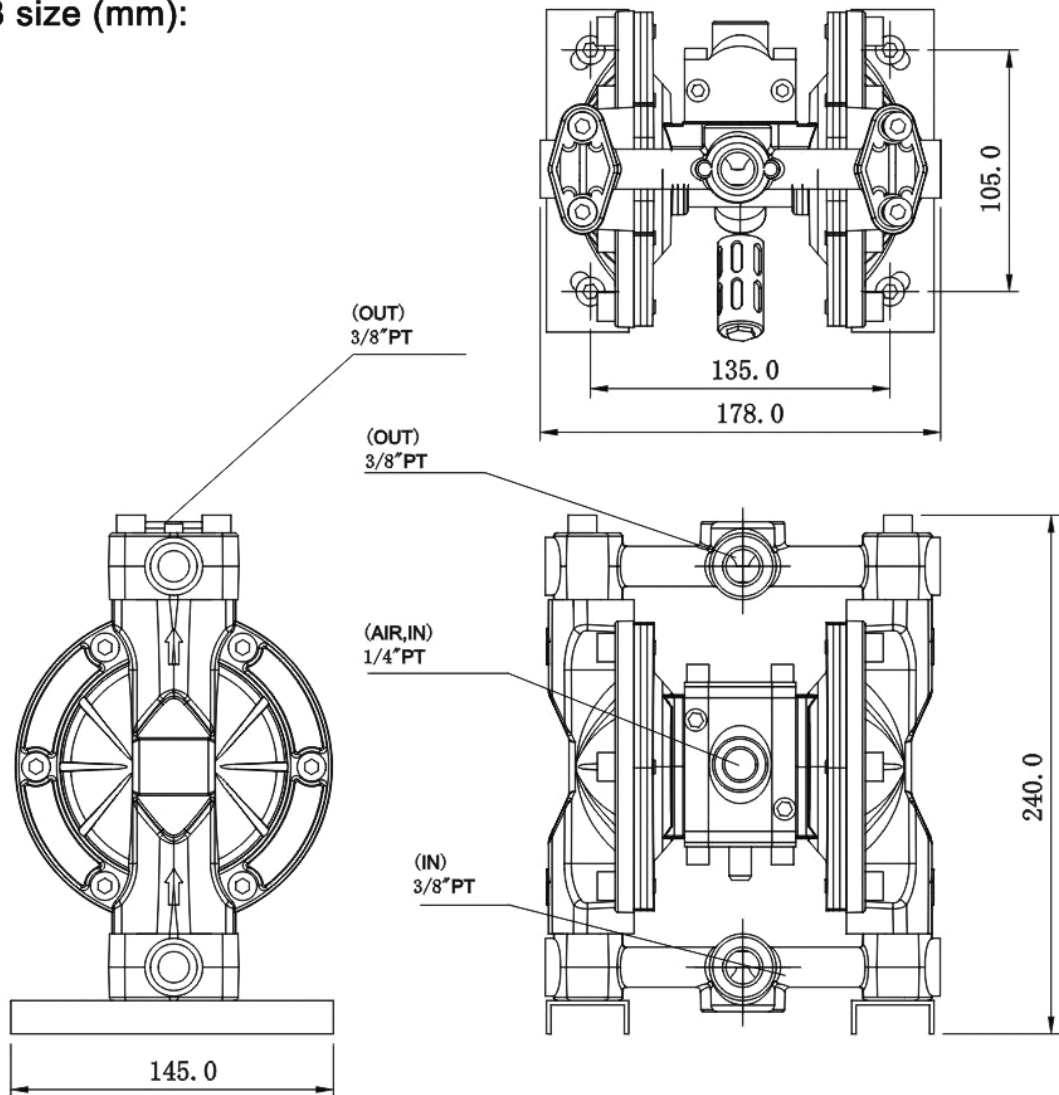


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## TECHNICAL DATA

Liquid input method:	Atmospheric pressure or additional pressure
Temperature Condition:	Depend on the material of diaphragm
Max Flow Rate:	18 L/min
Air Pressure Range:	1~7kgf/cm <sup>2</sup>
Max.Solid Diameter:	2mm
Noise level:	< 70dB

### K-18 size (mm):



**INSTALL INDICATION:** Always connect the liquid outlet hose first, then connect the pump to air pressure source.

※ The unit is pressurized internally with air pressure during operation. So always disconnect air pressure supply before disassembling.

## **Installation**

- 1、 Install and use it respectively as much possible.
- 2、 Reduce the service capacity of piping accessories.
- 3、 Keep the prescribed bore of suction pipe.
- 4、 If fitting up a Rigid piping, it should be assembled with a short flexible hose.
- 5、 While installation, note the packing piece to see whether there is leakage or not.
- 6、 While installing pipe, be sure that suction pipe and air pipe should contain clearly.
- 7、 Inlet pipe must install filter to prevent that big solid entering in to result breakdown.

## **operation**

- 1、 The operation altitude for priming is below 20feet (6.09meters), If deliver high viscosity liquid, the distance between suction inlet and liquid surface should be diminished.
- 2、 The output flow can be controlled by air switch.
- 3、 To star or stop the pump can be controlled by the discharge controller.

## **Air supply**

- 1、 Do not connect the unit to air supply in excess of 8kg/cm<sup>2</sup>.
- 2、 Do use the prescribed compressed air pressure.
- 3、 The air inlet can't be smaller than the air inlet valve, otherwise, the air pressure might be insufficient and work volume will be influence.
- 4、 It is better for air supply pipe to install air filter and surge suppressor.

## **Air Exhaust**

- 1、 This equipment can be submerged if the exhaust pipe is above the liquid level.
- 2、 Piping used for the exhaust should not be smaller than the 3/8(0.95cm) pipe size. Reduced pipe size can restrict the exhaust air and cause reduced pump performance.
- 3、 When the material being pumped is a hazardous or toxic material, the exhaust should be piped to an appropriate area for safe disposition.
- 4、 When the material being pumped is at a level above the pump, the exhaust should be piped to a higher level than I/O equipments.

## **IMPORTANCE**

This unit is pressurized internally with air pressure during operation. So always disconnect air pressure supply before disassembling.

## **DISASSEMBLY OF PUMP**

### 1、 Check Valves:

For best priming and most efficient pumping, performance, it is important to maintain check valves and valve seats in good condition for proper sealing. The inspection of valves is usually reduced performance caused or cycling without pumping for inspection and replacement of valves, remove the eight hexagon nuts before fixing the device and then change ball valves and valve seats.

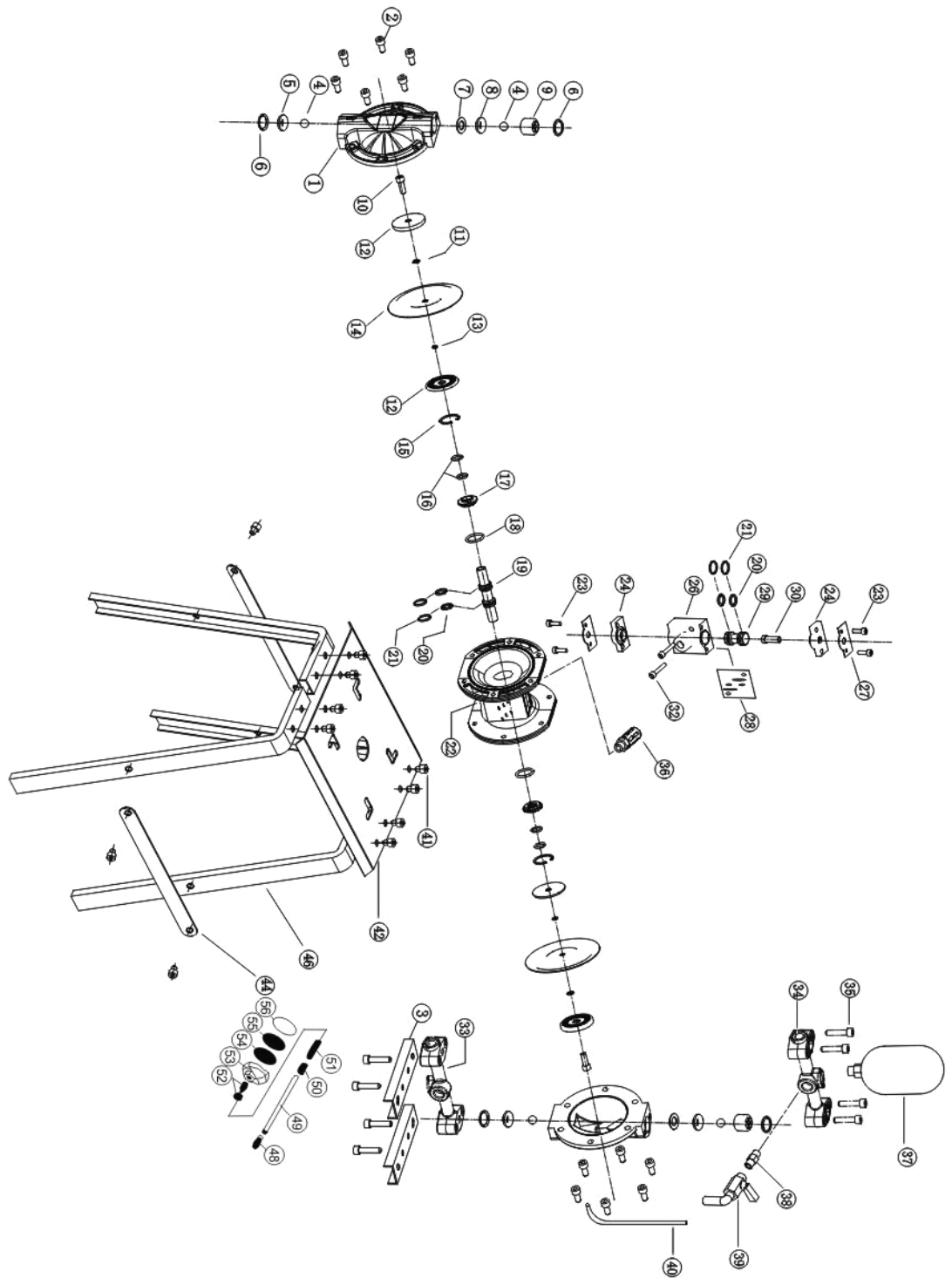
### 2、 Rubber Diaphragm:

Do inspection and replacement of rubber diaphragm as long as air is discharge from liquid or through air exhaust port. Inspect to see whether the screws of manifold secure the chamber to the manifold assembly correctly or not. At disassembly, remove rubber diaphragm by turning a hexagon screw head fixed on transmission shaft in a clamping device from the other side, but make sure to protect the surface of transmission shaft so as not to scratch or mar it in any way.

### 3、 Pilot valve:

The function of this valve is to lead the operation of air thimble valve. And it can be disassemble after removing the air thimble valves body from the pump.

# AIR PUMP SPARE PARTS: Mode: K-18



NO	Name	Num	NO	Name	Num
1	Housing Of Pumb	2	29	Piston Of Air Valve	1
2	Hexagn Srew	16	30	Washer	1
3		2			
4	Ball	4	32	Hexagon Srew	2
5	Down Valve Seat	2	33	Discharge	1
6	Sealing O-Ring	4	34	Feeding Pipes	1
7	Sealing O-Ring	2	35	Hexagon Srew	8
8	Upper Valve Seat	2	36	Slfencer	1
9	Upper Valve	2	37	Pressure Storage	1
10	Hexagon(SUS)	2	38	Adapter	1
11	Septum out O-Ring	2	39	Switch	1
12	Exfernal Pad Of Diaphragm	4	40	Flexible Tube	1
13	O-Ring	2	41	Hexagon Screw	4
14	Diaphragm	2	42	Scittle ply	1
15	Snap Ring	2			
16	O-Ring	2	44	Aided Bar Of Horse	2
17	Copper Bush	2			
18	O-Ring	2	46	脚架	2
19	Shaft Of Diaphragm	1			
20	O-Ring	4	48	Adapter of flexible	1
21	O-Ring	4	49	Flexible Tube	1
22	Body Of Cylinder Base	1	50	Adapter of protective tube	1
23	Hexagon Srew	4	51	Spring of protective tube	1
24	Housing Of Air Valve	2	52	Sucker Adapter	1
			53	Sucker Disk	1
26	Body Of Sequential	1	54	Filtering Screen	1
27	Spacer	2	55	Fine Filtering Screen	1
28	Bakelite	1	56	Filtering Screen retaining	1

## **TROUBLE SHOOTING PROBLEM: Pump can't drive**

### POSSIBLE CAUSES:

- 1、 Plugged in piping after outlet from pump.
- 2、 Mortar precipitating and hardening.
- 3、 Diaphragm ruptured.
- 4、 Failure of Actuator.
- 5、 Switch of pilot valve ruined.
- 6、 Sequence Valve not moving due to improper lubrication.
- 7、 Sequence not moving due to freeze caused by excessive low temperature.
- 8、 Air pressure too small or air quantity insufficient.
- 9、 It can't move due to the hard solid abstracted with top against diaphragm.
- 10、 Air hold of pilot valve blocked or O-ring failed.
- 11、 Muffler not exhausting air, caused by throttle.
- 12、 Air supply polluted. If not cleaning it after piped, sequence valve will be polluted and can't move.

### **PROBLEM:** Pump can run but not have suction or have improper suction

- 1、 Throttle or leak caused by rupture in piping before suction inlet of pump.
- 2、 Front side of suction pipe not having strainer net and abstracting bigger solid to choke between valve and valve seat.
- 3、 Diaphragm rupture.
- 4、 Pipe throttled after outlet from pump.
- 5、 Improper running of sequence valve.
- 6、 Outlet pipe too far or too high, Beyond and exceeding pump pressure.
- 7、 Air pressure or air flow insufficient that can't generate normal suction.
- 8、 Outlet liquid intermittent gravely due to diaphragm ruptured or check valve choked by solid.
- 9、 Muffler spurting mortar due to diaphragm ruptured or anchor plate of diaphragm loosened.
- 10、 Pump can't run or have improper. Suction caused by idle period too long or mortar inside hardening.

## MAINTENANCE AFTER USE

ATTENTION: before disassemble and maintain the pump, be sure that there isn't any pressure inside the machine body. This procedure is important to insure complete draining in freezing weather.

- 1、 In order to prevent the materials from hardening during idle periods, these materials should be flushed from the pump, Don't leave the liquid fuel in the pipe for a long time to avoid flow jam.
- 2、 To change the liquid fuel, raise the inlet fuel pipe, open the fuel circulation switch (P6-39) and wait until the liquid fuel inside the machine body to come out fully. Put the pipe head into the cleanse solvent tank (solvent about 1 liter) to absorb solvent. Once the interior is fully cleaned, put the inlet fuel pipe head into the prepared liquid fuel tank to absorb the liquid fuel. Close the fuel circulation switch to continue operation.
- 3、 To use with the outlet fuel adjuster, the inlet gas pressure must be higher than the outlet fuel pressure. The adjuster should be adjusted according to the fuel's concentration and outlet quantity.
- 4、 Circulation fuel switch shall be open only when cleaning the pump or changing the fuel. It should not be open at normal operation.

Temperature Range:

S.T.T	29°C~140°C
UPE	+5°C~+60°C
Teflon.PTFE	+4.4°C~+130°C

## WARNING

- 1、 Take care about the temperature rang of baby wetted before making decision of pumps.
- 2、 The temperature range would be changed because the characteristics of the liquid used. Note the liquid's PH and the temperature range changed.
- 3、 Take the eye's protection to prevent getting hurt by the accident liquid burst forth when the diaphragm burst.
- 4、 Prevent to produce the static because the liquid may be fired.
- 5、 The air pressure power must be lower than 125 psig (8.6 Bary, 8 kgf/cm<sup>2</sup>).
- 6、 Before disassembling and maintaining the pump, be sure to check there isn't any pressure or liquid inside the machine boby (See P10).
- 7、 Before installing or changing the Teflon diaphragm, it is important to make sure that the piston for air valve (P6-36) is installed stably.
- 8、 When you use the chemical liquid, first please check the characters of the liquid wouldn't damage the pump boby.
- 9、 It's better to add the lubricant oil special for the pneumatic tools into the air inlet periodically.



# 安装示意图

Pneumatic diaphragm pump  
the installation drawing

## 气动隔膜泵安装图

Num	Name	Qty
1	Stainless steel bottle	1
2	Pneumatic diaphragm pump	1
3	Regulators	1
4	Fixed at iron	1
5	Nuts	4
6	Connecting rod	2
7	Screw	8
8	Feet	2
9	Export joint	1

