OPERATOR'S MANUAL

1/2" Stainless Steel
Air-Operated Double Diaphragm Pump
DS04-SAT-XXXX-03

⇨ **OPERATION, INSTALLATION & MAINTENANCE**

⇨ **PARTS LIST**

▲STOP▲

READ THIS MANUAL CAREFULLY BEFORE INSTALLING, OPERATING, OR SERVICING THIS EQUIPMENT TO AVOID UNNECESSARY LOSS.

DYI SHENG INDUSTRY CO., LTD.

No.288, Ln. 58, Nanyang Rd., Fengyuan Dist., Taichung City 420087, Taiwan

TEL: +886-4-2524-1051 FAX: +886-4-2525-7046

E-mail: service@tdspump.com Website: https://www.tdspump.com/

INSTALLATION AND ASSEMBLY CONSIDERATIONS

- Connect the suction and discharge ports of the pump with hose or flexible pipe to avoid damage caused by vibration of the pump.
- Never step on the diaphragm pump or use other methods to apply weight to the pump body, or the pump body is suspended. Otherwise, there is a danger of personal injury or equipment failure.
- The suction head of inlet should be less than six meter (For water).
- When installing the pump, please consider absorb vibration and install it in an appropriate manner.
  〈1〉 Installation location—Horizontal installation to avoid installation in a slanted position.
  〈2〉 Installation orientation—When install the pump, please keep the fixing feet below.
  〈3〉 Installation method—When fixing the stand, please install a rubber gasket between to reduce the vibration and avoid the pump body, piping or connected machine to be damaged due to vibration.
- The direction of pipe (inlet and outlet) can be turned, but please pay attention to the O-ring when disassembling and installing it and locking pipe well to prevent leakage.
- The choice of piping should consider the appropriate pipe diameter, chemical resistance and pressure resistance, to avoid the possibility of liquid leakage and damage caused by wrong selection.
- When transportation, recommend to set the suction filter (the aperture can refer to the allowable particle size limit) and check the pipeline before use. Be sure that there must be no foreign objects entering the pipe, otherwise the pump will malfunction.
- Please consider the strength of the pipe. Avoid damage the pipe due to the pressure generated by the pump's conveying work.
- Please choose the caliber suitable of inlet tube, or larger caliber will cause the suction insufficient when you use the pump.
- Precautions for connection of high air pressure：
  〈1〉 Don’t use too small caliber of tube for air inlet, or the pumping efficiency may be affected.
  〈2〉 We suggest that you can install the air filter、regulator and lubricator (FRL) on air inlet of pump. They can supply the cleanly air and lubricating oil.
  〈3〉 The supply air pressure used shall not exceed the maximum operating pressure of 8.0 Kg/cm^2 (Bar).
  〈4〉 Please choose the lubricating oil for cold-resistant and high pressure resistant.

PRECAUTIONS DURING OPERATION

- Please check up the installation if it’s correct before start the pump. If the pump operated while the screw is loose, it will be a danger of personal injury and damage to the surrounding equipment.
- If the fluid is flammable chemical, we suggest linking the ground wire to avoid the fire accident or explosion and then make the damage to the people or others possibility.
- The pump should be placed on a stable site or firmly fixed on the work platform to avoid accidents caused by vibration.
- The piping at the suction end and the outlet end need to be fixed separately, and the connection between the pump and the piping should be locked without looseness.
- When starting the operation, the supplied air pressure should be gradually increased from the minimum starting pressure. After confirming that there is no abnormality in the operation of the pump, increase the pressure to the operating pressure value required.
- It is recommended not to idle or input excess air pressure for a long time to avoid shortening the service life of the parts. Adjust the appropriate air pressure input <recommended below 3.5 Kg/cm^2 (Bar)> to avoid excessive friction caused by friction between parts.
- It is recommended to adjust and fix the required air pressure input value when running. After confirming that the operation is normal, adjust the outlet switch valve to adjust the flow rate to the required value.
- When the pump is running and full of the fluid inside, if you close the outlet switch, and then pump will stop. This isn’t danger, but we still suggest don’t keep this state in a long time or don’t have the overseer beside. Avoid making the loss or the danger unnecessary because of the fluid to leak. When you want to stop the pump working, you should close the supply of air、open the outlet switch and release the pressure remaining inside the pump and pipe.
- If you want to transfer the fluid which has precipitation or easy to solidify, you should transfer the

solvent to wash the pump inside after stop working. To avoid the pump from being unable to be transported normally or parts deformation and damage due to sedimentation or agglomeration at the next startup.

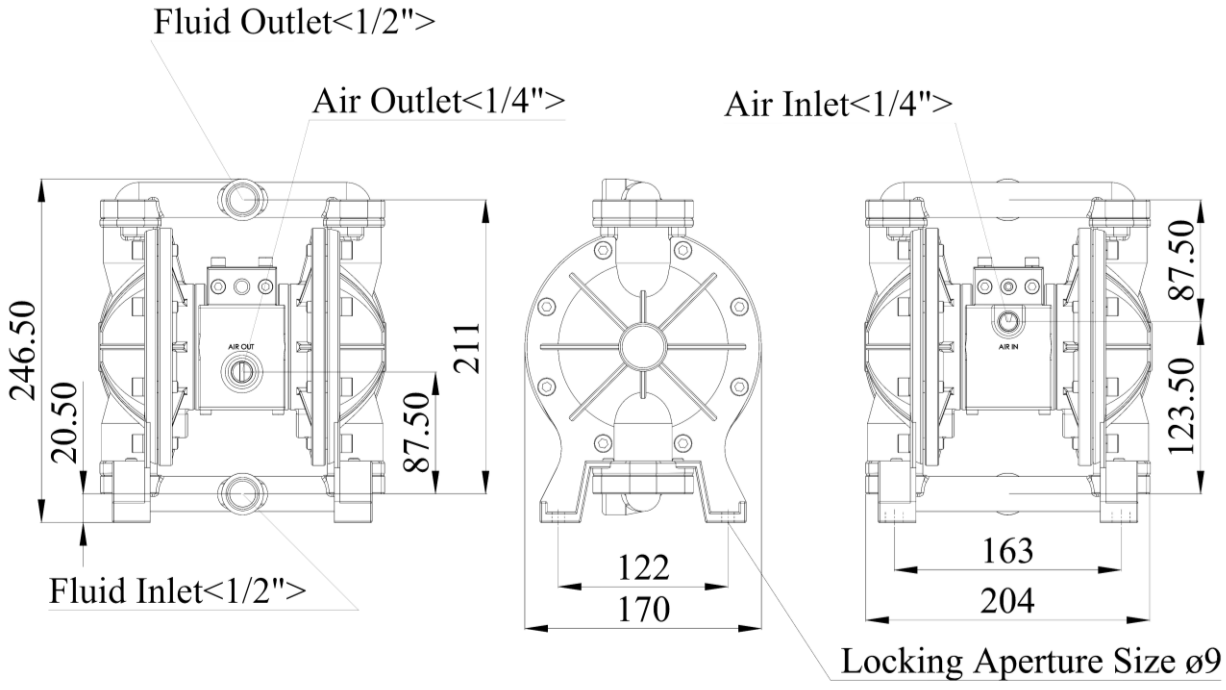
PRECAUTIONS DURING MAINTENANCE

- When the pump is in operation, it is absolutely impossible to perform maintenance, inspection and disassembly to avoid personal accidents caused by leakage or splashing.
- Before the maintenance, the supply of the air pressure source should be turned off, and the pressure inside the pump body and the pipeline should be completely released before inspection and disassembly.
- Please use the component produce from DYISHENG to service. Or it will be damage to other parts or reduce the efficiency.
- When locking the screws, refer to the specifications of the lock torque specifications of different specifications. If the screws are not locked or excessively applied, there may be problems such as leakage or cracking, which may cause an accident during the pump operation.
- Damages, accidents, and malfunctions caused by any of the above conditions are not covered by the company's warranty service.

PERIODIC INSPECTION

- Check the air filter at the air pressure input regularly to drain the accumulated waste water and impurities. If too much wastewater is introduced into the pump body, the wastewater and lubricating oil will emulsify and affect the lubrication of the parts, or block the pores, thereby affecting the operation performance of the pump or causing malfunction.
- O-rings, diaphragms, balls and ball seats are consumables. It is recommended to replace them in case of wear or over a certain period of use.
- The service life standard value of the diaphragm is 10 million reciprocating actions. The number of movements is not a guaranteed value. If the conveying fluid contains metal powder, chips, wear-resistant particles, etc., which will damage the impurities of the diaphragm, the life will be shortened.
- If the O.D. (About Ø17.46mm) of the ball less than 95% or deformation occurs. The tightness between the ball and the seat will be deteriorated. It should be replaced in time to avoid affecting the conveying efficiency.
- The ball seat and cover should be replaced if they are found to be worn or deformed. It is also recommended to replace them with the ball at the same time.

EXTERIOR SIZE — **DS04-SAT-XXXX-03**

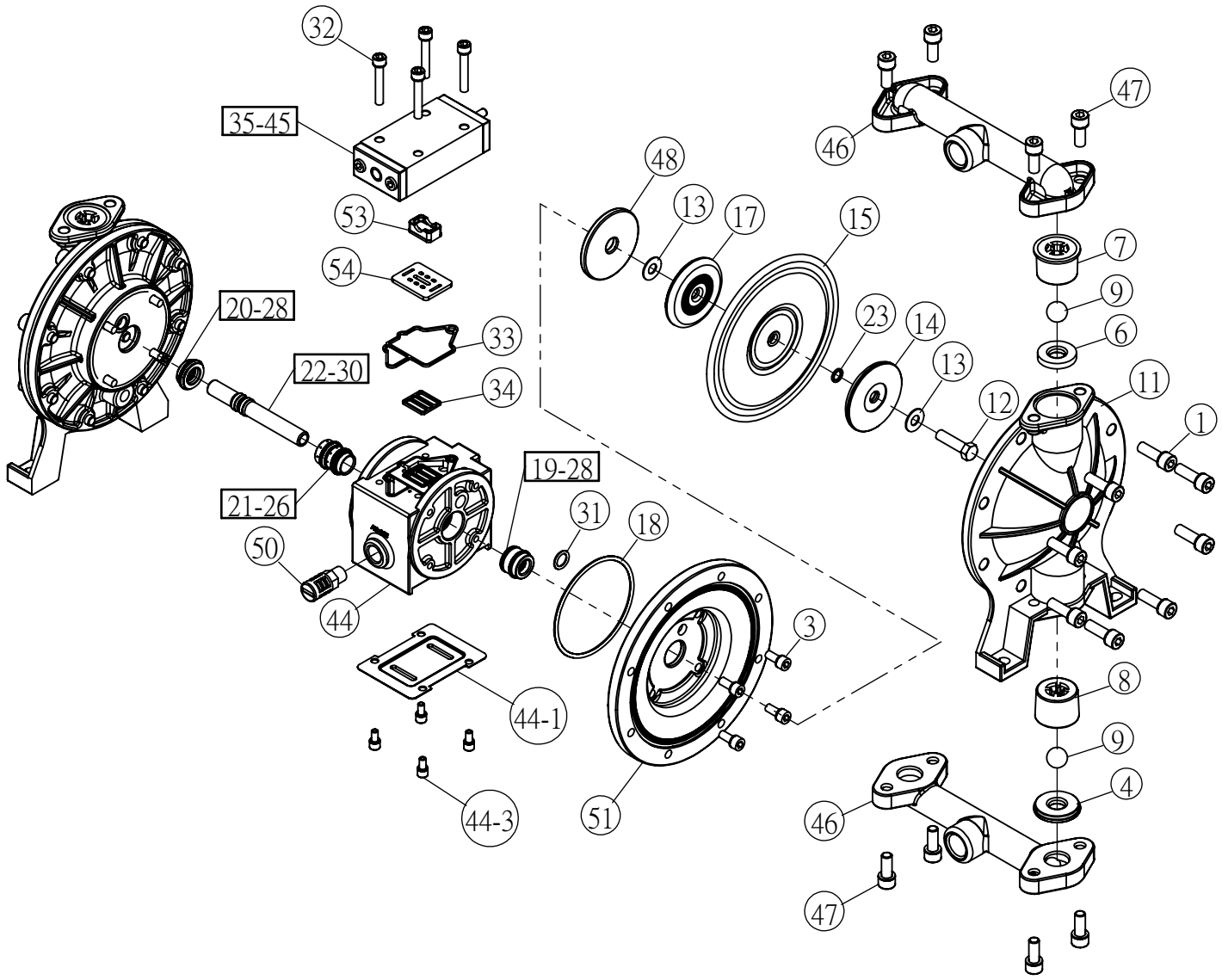


Unit : mm

DS04-SAT-0050-03

Exploded View

No.	Component Name	Amount	ComponentNo.
1	HexagonScrew	16	PC000018SW
3	HexagonScrew	8	PC000004SW
&4	DownBallSeat(O)	2	PD000067
&6	UpBallSeat(O)	2	PD000069
&7	UpBallCover(O)	2	PD000048
&8	DownBallCover(O)	2	PD000047
&9	Ball(S316)	4	PA000001
11	Housing of Pump	2	PA000048
12	SteelHexagonScrew	2	PC000176
13	Steel Washer	4	PC000057
&14	Pad of Diaphragm	2	PA000060
&15	Diaphram(O)	2	PD000039
&17	Pad of Diaphragm	2	PA000059
#18	Oring	2	PD000011
19-28	ShaftCover-A Set	1	A16-19-28
20-28	ShaftCover-B Set	1	DS03-20-28
21-26	AxisSwitch Set	1	DS03-21-26
22-30	ShaftOfDiaphragm Set	1	DS03-22-30
#23	Oring	2	PB000001
#31	Oring	2	PD000006
32	HexagonScrew	4	PC000005SW
#33	Abnormal Oring	1	PD000162
#34	Abnormal Oring	1	PD000161
35-45	Air-Valve Set	1	DS03-35-45
44	BodyOfCylinderBase	1	PA000143N
44-1	CoverOfCylinderBase	1	PA000359
44-3	HexagonScrew	4	PC000114SW
46	Pipe	2	PA000361
47	HexagonScrew	8	PC000015SW
48	BufferPad	2	PD000056
50	Silencer	1	PB000045
51	AirPressureRoomOfPump	2	PA000215NU
&53	SlitheryMassValve	1	PB000334
&54	IncludePly	1	PB000072



("#"SPARE SEAL)

("&"Consumptive Parts Possible)

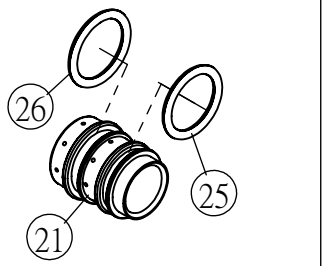
2024/10

DS04-SAT-0050-03
Exploded View

("&"Consumptive Parts Possible)

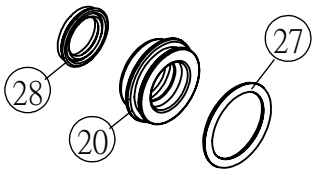
("#"SPARE SEAL)

21-26	AxisSwitch Set	1	DS03-21-26

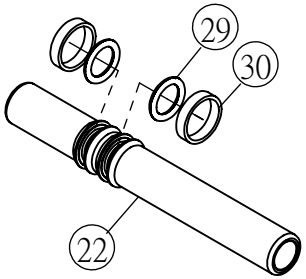


No.	Component Name	Amount	ComponentNo.
19	ShaftCover-A	1	PB000170
20	ShaftCover-B	1	PB000173N
21	AxisSwitch	1	PA000358
&22	ShaftOfDiaphragm	1	PA000357
#25	Oring	2	PD000023
#26	Oring	1	PD000050
#27	Oring	1	PD000054
#28	U-type Oring	2	PDAP0012
#29	Oring	2	PD000057
#30	Teflon Oring	2	PB000224

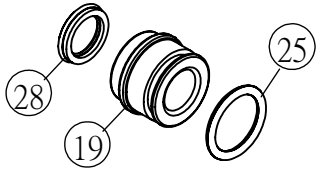
20-28	ShaftCover-B Set	1	DS03-20-28



22-30	ShaftOfDiaphragm Set	1	DS03-22-30

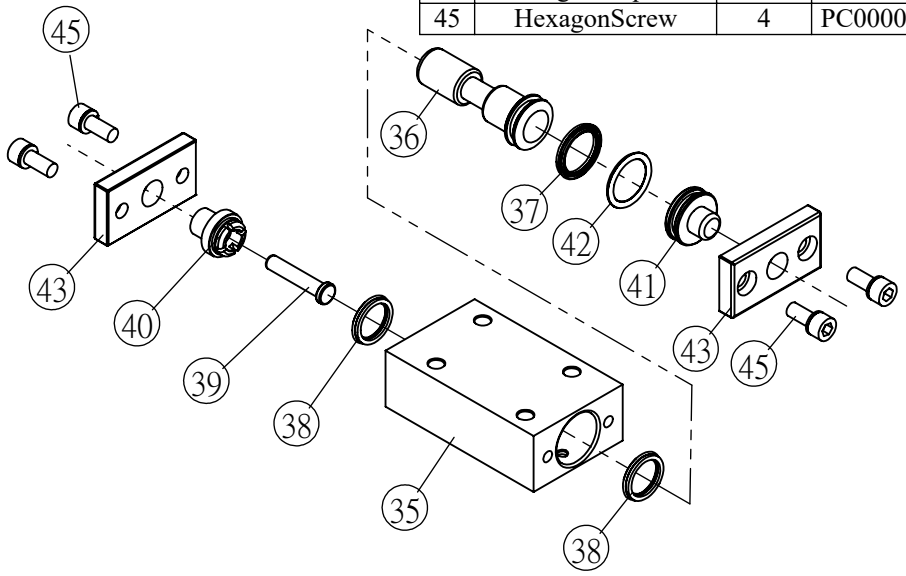


19-28	ShaftCover-A Set	1	A16-19-28



35-45	Air-Valve Set	1	DS03-35-45

No.	Component Name	Amount	ComponentNo.
&35	BodyOfSequential	1	PA000102N
&36	PistonOfAirValve	1	PA000141
#37	U-type Oring	1	PDAP0023
#38	U-type Oring	2	PDR00016
&39	StartingCopperLatch	1	PA000112
40	CoverOfSequential-A	1	PD000080
41	CoverOfSequential-B	1	PB000021
#42	Oring	1	PD000035
43	HousingOfSequential	2	PA000117
45	HexagonScrew	4	PC000004SW



2024/10