RV25/40/50

AIR OPERATED DIAPHRAGM PUMP

INSTRUCTION MANUAL

-BUILT FOR AFRICAN CONDITIONS-

BUY STRONG QUALITY DIAPHRAGM PUMPS FOR SAFE FLUID TRANSFER

• Thanks for purchasing our products
• Please read the directions carefully

Driven by SHANGHAI JIANGLANG TECHNOLOGY CO.LTD

Our experience over 50 years functioning within African Industries, including Petro-chemical, food production, bulk chemical handling and chemical dosing as well as mining, transportation and the cosmetic markets, has provided the knowledge to adapt proven outstanding technologies for African Industries.

We never want to just be a supplier of another air operated diaphragm brand, we aim to excel as a supplier, with immediate or very short term deliveries, outstanding efficiency and affordability of spares availability, excellent operational support and training in order to be your preferred fluid handling partner.

Why insist on the African Brand Nqoba Air Operated Double Diaphragm pumps?

Availability
NQOBA AODD Pumps are normally available ex stock in South Africa or within a very short delivery periods. (2 to 3 weeks from confirmed orders)

Efficiency
NQOBA AODD Pumps are extremely efficient with materials of construction selected for long life and continuous operation even in extreme environments.

Spares availability
NQOBA AODD Pumps have full spares backup ex stock for fast delivery to reduce downtime.

Spare basket pricing
NQOBA AODD Pump spare basket costs are extremely low which translates into an exceptional cost of operation ratio compared to most opposition brands.

Technical Support
NQOBA AODD Pumps are supported with online and whatsapp video assistance in order to help operators install / maintain and repair units quickly.

REPAIR WITHOUT REMOVING FROM PIPE SYSTEM
NQOBA AODD Pumps are designed with the air motor components easily accessible without the need to strip the entire pump. This easy access often means a fast maintenance operation without the need to remove the pump from the pipework/hose system and without having to completely strip the pump.

Detailed assembly and repair instruction
NQOBA AODD Pumps have clear and concise assembly and repair instruction via youtube available through QR codes on the pump units.

Working principle

The series air—operated diaphragm pumps are based on the following working principle: two flexible diaphragms are fitted into two symmetrical chambers of the diaphragm pump severally and connected as a whole part by a link rod. The compressed air enters the central body through the in—suck terminal and impels the diaphragms in two chambers to drive the whole part move synchronously.

At the same time, the air in the other chamber is expelled from the back side of the diaphragm. When piston reaches the end of the stroke, the air—distributing valve guide compressed air into the other chamber automatically and drive diaphragm pump to rotate reversely, so that the synchronous reciprocating movement is realized.

Our air—operated diaphragm pumps are distinguished obviously by the structure of the air—distributing valve from other diaphragm pumps. This air—distributing valve replaces the traditional O—ring and cylindrical structure with a three—direction pilot—operated structure, eliminating consequently the dead center of valve and shutdown phenomenon of pumps.

It provides an accurate and reliable reversing signal to avoid downtime and realize faster reversing, so that pumps have greater flow and the transportation is more stable, with lower pulse.

Air—operated diaphragm pump has a simple designs and highly reliable reversing valve. It can ensure non—stop operation and therefore reduces the expensive downtime cost. All components of the valve can be replaced without disassemble. Aluminum parts have been specially processed, so can resist the corrosion resulted from unclean air. The slide Bolt made of plastic material is robust and anti—tampered and needn't lubricate. It can ensure a smooth air way and flexible reverse.

Main Applications

1. Chemical industry: Acids, alkali, solvents, suspended solids, decentralized system.
2. Petrochemical industry: crude oil, heavy oil, grease, mud, sludge, etc.
3. Coatings Industry: resins, solvents, colouring agent, paint, etc.
4. Cosmetic industry: detergent, shampoo, lotion, emulsion, camphor ice, surface active agents.
5. Ceramics: mud, slurry pottery, lime milk, clay slurry.
6. Mining industry: coal slurry, magma, mud, mortar and explosives, lubricant, etc.
7. Water treatment: lime milk, soft sediments, sewage, chemicals, waste water.
8. The food industry: liquid semi—solid, chocolate, salt water, vinegar, syrup, vegetable oil, soybean oil, honey, animal blood.
9. Beverage industry: yeast, sugar syrup, concentrations, gas—liquid mixture, wine, fruit juice, com pulp.
10. Pharmaceutical industry: solvents, acids, alkali, plant extract liquid, cream, plasma and other liquid.
11. Paper industry: adhesives, resins, paints, inks, paints, hydrogen peroxide, etc
12. Electronics industry: solvent, electroplating fluid, cleaning fluid, sulfuric acid, nitric acid, waste acid, corrosive acid, polishing liquid.
13. Textile solution: chemical dyes, resins, rubber, etc.
14. Construction industry: grout, ceramic tile adhesives, rock slurry, ceiling finish, etc.
15. Automotive industry: polishing emulsion, oil, coolant, automotive priming, oil emulsion paint, varnish, varnish additives, degreasing fluid, paint, etc.
16. Furniture industry: adhesives, varnishes, decentralized system, solvents, colour agent, sapwood glue, epoxy resins, starch binder.
17. Metallurgy, casting and dyeing industry: metal slurry, hydroxides and carbide slurry, dust cleaning slurry.
18. Nuclear Power: Pipeline System, nuclear station lubrication system, CL wastewater treatment
19. New energy: fluid transportation, sewage discharge, solid-lipoid separation

Performance Introduction

Our pneumatic diaphragm pump can not only pump fluid liquids and day powders, but also some mediums that usually hard to flow. It possesses the advantages of self—priming pump, submerged pump, shielding pump, slurry pump, impurity pump and other transportation machines.

- Need not pilot water, suction lift up-to 7m, pump head up to 84m, outlet pressure ≥0.84MPa.
- Spacious flowing way with good through-pass performance, the largest size of particles allowed can be up to 9,4mm. While pumping slurry and impurity, the abrasion is very low.
- The pump head and capacity can be adjusted via the pressure of air source (between 0.03~0.84 MPa).
- Temperature range of working environment: 5~65č
- The pump has no rotating parts and shaft seals. The diaphragms separate the pumped medium from moving part and working medium absolutely, so that the pumped medium does not leak to outside. So, there are no risks of environment pollution and personal injury while pumping poisonous, volatile or corrosive media.
- It works without electricity and is safe and reliable in inflammable and explosive conditions.
- Can immerge into the medium.
- Easy to use and works reliably. To turn on/off the pump, just open and close the air valve. Even in cases of unexpected long-term operation without medium or sudden shutdown, it will not be damaged. Once overloaded, it has self—protecting function and will shut down automatically. As long as the load goes back to normal, it starts up automatically again.
- Simple structure, less vulnerable parts. The pump has a simple structure design and thus easy to install and maintain. The pumped medium does not contact with moving parts such as air—distributing valve and link rod, so the performance will not go worse with the abrasion of rotors, pistons, gears and vanes as other types of pumps.
- Can pump the viscous liquids (viscosity below 10000centipoise)
- Without lubrication. There are no effects to the pump in dry operation mode. This is a key feature of the pump.

Symbols

WARNING

This symbol alerts you to the possibility of serious injury or death if you do not follow the instructions.

CAUTION

To the possibility of damage to or destruction of equipment if you do not follow the instructions.

WARNING	
	EQUIPMENT MISUSE HAZADN Any misuse of the equipment can cause them to rupture and failure, and result in serious injury. • This equipment is for professional use only. • Read and understand all instruction manuals, warning labels, and tags before you operate the equipment. • This equipment can be used for specified purpose. Please contact with the distributor of our Company if you are not sure about it. • Never alter or modify any part of this equipment. Use only genuine our parts and accessories. • Check the equipment daily and repair or replace worn or damaged parts immediately. O • Do not exceed the maximum working pressure of the lowest rated component during the operation of your system. • This equipment has a maximum working pressure of 0.8MPa when the maximum incoming air pressure is 0.8MPa. • Be sure that all fluids and solvents used are chemically compatible with the wet parts. Always read the content about technical data in equipment instructions and acquaint yourself with the warning of the manufacturer about relevant fluid or solvent. • Never use 1.1. I—trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents in aluminium pressure equipment. Such use could result in a serious chemical reaction, with the possibility of explosion. • Never use a hose to pull the equipment. • The hose should be secured away from traffic areas, sharp edges and hot surface. • Never move or lift a pump under pressure. • Lifting pressurized equipment is prohibited. • Observe all relevant national regulations about fire, electrical and safety

	WARNING
	TOXIC FLUIDS HAZARDS Improper handling of hazardous fluids or inhaling toxic vapors can cause extremely serious injury or death from to splashing in the eyes, ingestion, or bodily contamination. • Know what fluid you are pumping and its specific HAZARDS • Store hazardous fluid in an appropriate, approved container. Dispose of it according to national guidelines. • Always wear appropriate clothing and equipment, such as eye protection and breathing apparatus recommended by manufacturer of fluids and solvents. • Pipe and dispose of the exhaust air safely, away from people, animals, and food handling areas. If the diaphragm fails, the fluid is exhausted along with the air.
	FIRE AND EXPLOSION HAZARDS If the equipment is not properly grounded and ventilated, sparking may occur and cause a fire or explosion and serious injury. • Ground all equipment. • If you experience any static sparking or even a slight shock while using this equipment, stop pumping immediately. Do not use the system again until the problem has been identified and corrected. • Provide ventilation of fresh air. Avoid accumulating flammable gases in solvents and fluids to be pumped. • Pipe and dispose of the exhaust air safely, away from all sources of ignition. If the diaphragm fails, the fluid is exhausted along with the air. • Keep the working place clean and without any waste, including solvents, clouts and gasoline. • Disconnect all equipment's in working place from electrical connection • Extinguish all flames and indicating lamps in working place. • Do not smoke in the work area. • Do not switch on and off any lamp switches during operation or if there exist flammable gases. • Never use gasoline engine in working place.

INSTALLATION

General Information

- The typical installation information is shown in Fig 2 is only used to guide you to select and install system components. If you want to plan a system to suit your need, please contact your pump distributor.
- Always use genuine parts and accessories of RV company.
- Hold the upper cover to lift the pump safely.

WARNING

TOXIC FLUIDS HAZARDS

Inbreathing toxic vapors, ingesting toxic liquids or splashing them in the eyes or on the skin may result in extremely serious injury or death.

- Read the Toxic Fluid hazards.
- Use fluids and solvents that compatible with the wetted parts in equipment. Refer to the content about technical data in equipment instructions, and acquaint yourself with the warning of the manufacturer

Tightening Screws before First use.

After unpacking the diaphragm pump, please check and re-torque all fasteners on the surface. Adjust the torque of screws of left and right fluid covers first and then the top/bottom fluid covers, in this way pump is guaranteed not affected by the fastened fluid covers. For technical specifications of torques, refer to maintenance section.

After the first day of operation, re-torque the fasteners, although pump use varies, a general guideline is to re-torque fasteners every two months.

GROUNDING

WARNING

FIRE AND EXPLOSIVE HAZARD

This pump must be grounded, Observe the following instruction to ground the system before you operate the pump. Read the instruction about Fire and Explosive Hazard

To reduce the risk of static sparking, ground the pump and all other equipment used or located in the pumping area. Check your local electrical code for detailed grounding instructions for your area and type of equipment.

GROUND OF ALL THIS EQUIPMENT

Diaphragm Pump: Connect a ground wire and clamp as shown in Fig. 1. Loosen the grounding lug locknut (W). Insert one end of a 1.5mm^2 minimum ground wire (Y) into the slot in the locknut and tighten the locknut securely. Connect the clamp end of the ground wire to a true earth ground

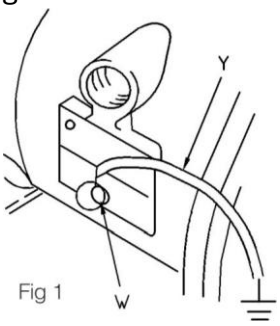


Fig 1

AIR COMPRESSOR: follow the manufacturer's recommendations.

AIR AND FLUID HOSES: Use only conductive hoses

ALL SOLVENT PAILS USED WHEN FLUSHING: Follow the local code. Use only metal pails which are conductive, do not place the pail on a non-conductive surface such as paper or cardboard which interrupts grounding continuity.

FLUID SUPPLY CONTAINER: follow the local code.

INSTALLATION

CAUTION
The pump exhaust air may contain contaminants. Ventilation distance should get further if contaminants affect the fluid supply. See Air Exhaust

1 . Be sure the mounting can support the weight of the pump, hoses, and accessories, as well as the stress during operation progress.
2. During installation, make sure that the pump has been fixed with bolts on the mounting feet.
3. To facilitate the operation and maintenance, the maintenance space should be enough during installing the pump.
4. While fastening the pump, rubber pad can be padded to reduce the noise and vibration during operation.

AIR LINE

WARNING
A bleed—type master air valve (B) is required on your system, to relieve air trapped between itself and the pump. Trapped air can cause the pump to cycle unexpectedly, which could result in serious bodily injury, including splashing liquid into eyes or skin, injury caused by moving parts, or contaminants, hazardous. fluids. Refer to Fig 2.

FLUID SUCTION LINE

1- Use grounded fluid hose (G). Pump fluid suction (R). Attach fluid hose terminal to inlet of pump with screws.

2- If the inlet pressure to the pump is more than 25 percent of the outlet working pressure, the ball check valves do not close fast, which results in inefficient pump operation.

3- At input fluid pressures over 0.1 MPa, diaphragm life will be shortened.

4- About the max suction height (wet& dry), refer to the technical data.

5- As shown on fig2, hang all the airline accessories on the wall or on a bracket. Ensure that the airline accessories are on the ground.

6- Install & control an air regulator (C). The output pressure of fluid should be equal to the value set in air regulator.

7- Install a copper ball valve B near the pump and use it to relieve trapped air. See warning above. ANOTHER copper B valve ball should be located above all airline accessories, and be used to isolate the accessories during cleaning and repair.

8- The air filter C can be used to remove harmful dirt and moisture in the air.

9- Install a flex air hose between the accessories and the pump ½ npt (f) air inlet (f). The air hose with minimum inner diameter of 1/2” (13mm) should be used. Screw the air line connector D at the end of the air hose A and secure terminal at the connecting stub with screw.
10- Before operating the pump, do not connect the hose terminal to connector (D).

AIR EXHAUST VENTILATION

WARNING
FIRE OR EXPLOSION HAZARDS Be sure to read and follow the USING hazardous FLUID and FIRE OR EXPLOSION HAZARDS warnings on page 09, before you operate this pump. Be sure the system is properly ventilated for your type of installation. You must vent the exhaust to a safe place, away from people, animals or food handling are as when pumping flammable or hazardous fluids. If the diaphragm ruptures, the fluid being pumped will be exhausted with the air. Place a container at the end of the air exhaust line to catch fluid in case the diaphragm ruptures.

The size of air exhaust port is 3/4npt (f). Do not restrict the air exhaust port. Excessive restriction can cause pump working unstably.

When need remote control emission:

1- Remove the muffler (P) from the pump air exhaust port.
2- Install a grounded air exhaust hose T and connect the muffler P to the other side of the hose. The minimum size for the exhaust hose is ¾ in (19mm). If a hose longer than 15in (4,57m) is required. Use a larger diameter hose. Avoid sharp bends or kinks in the hose.
3- Place container (u) at the end of their exhaust line to catch fluid in case a diaphragm ruptures.

VENTING EXHAUST AIR

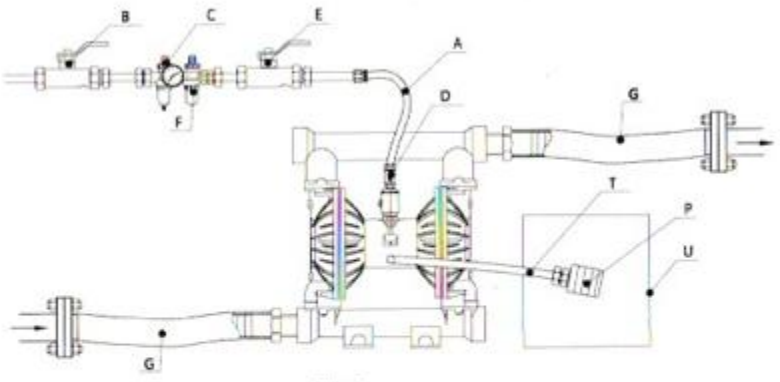


Fig.2

INDEX:

A. Air supply line
B. Cooper ball valve
C. Air regulator
D. Air suction pipe quick connector
E. Funnel cooper ball valve
F. Air line filter
P. Muffler
T. Air exhausts hose
U. Container for air exhaust
G. Inlet and outlet hose

OPERATION
PRESSURE RELIEF PROCEDURE

WARNING
PRESSURE EQUIPMENT HAZARDS Before manual pressure relief, the equipment is in pressure state. To reduce the risk of extremely serious injury from pressure fluids, spray gun or splashing fluid, during the following operation, specified procedures should be Observe. • Request to relief pressure. • Stop pumping. • Check, clean and repair any system equipment. • Install and clean the fluid spray gun

Shut off the air to the pump.
Open the dispensing valves if exist hold it open while continuing with step.
Open any available outbound fluid valves to relieve fluid pressure from the pump and starts preparing the container for discharged fluid.

STARTING AND ADJUSTING THE PUMP

WARNING
TOXIC FLUIDS HAZARDS To reduce the risk of serious injury, splashing in the eyes or on the skin, and toxic fluid spills, never move or lift a pump under pressure. If the pump is dropped, the fluid section could rupture. Always follow the Pressure Relief Procedure above before you move or lift the pump.

- Be sure the pump is properly grounded. Refer to the instructions in Grounding section on page 1 1
- Check all fittings and make sure they are tight. Be sure to use a compatible liquid thread sealant on all male threads. Make sure the fittings at inlet and outlet are reliably secured.
- Place the suction tube (if used) in the fluid to be pumped. NOTE: If the inlet pressure to the pump is more than 25 percent of the outlet working pressure, the ball check valves will not close fast enough, resulting in inefficient pump operation.
- Place the end of the outlet hose (L) into an appropriate container.
- Close the fluid drain valve
- With the air regulated closed, open all bleed-type master air valves
- If the outlet has a dispensing device, hold it open while continuing with step
- Slowly open the air regulator until the pump starts to cycle. Allow the pump to cycle slowly until all air is pushed out of the lines and the pump is primed. If you are flushing, run the pump long enough to thoroughly clean the pump and hoses, close the air regulator and remove the suction hose from the solvent and place it in the fluid to be pumped.

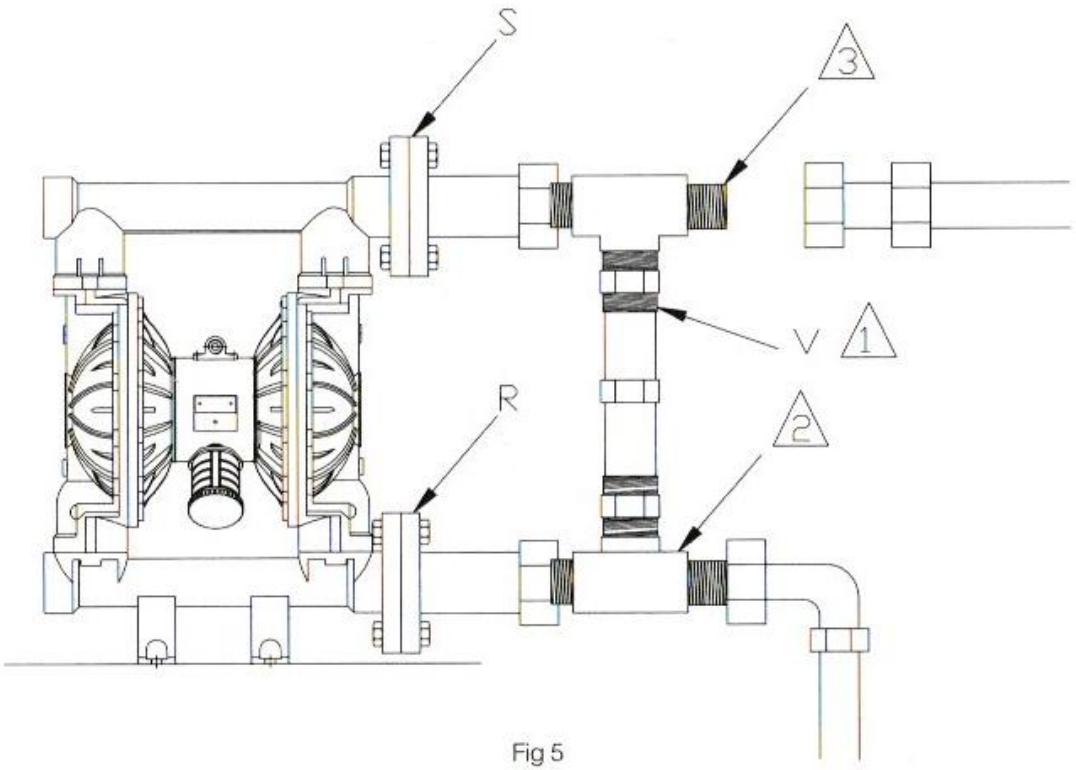


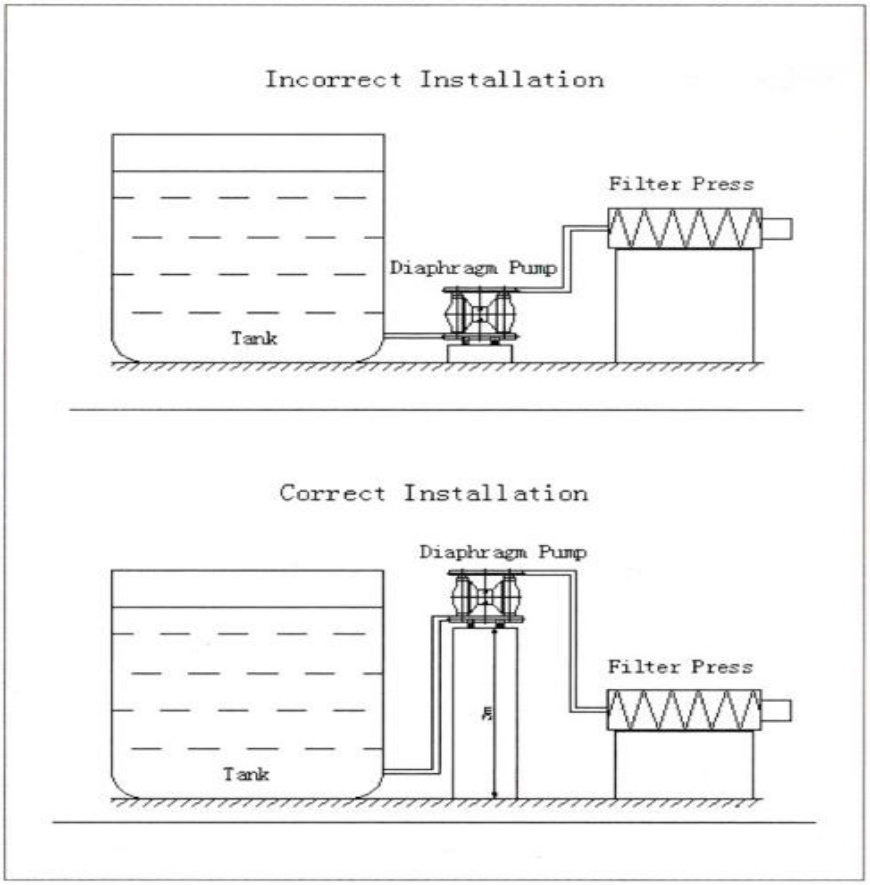
Fig 5

KEY

R 1" fluid inlet port
S 1" fluid outlet port
V Pressure relief valve
Part No. 110134 (aluminum)
Part No. 112119 (stainless steel)
Connect fluid outlet line here.
Starting and Adjusting the Pump

⚠1 Install valve between fluid inlet and outlet ports.
⚠2 Connect fluid inlet line here
⚠3 Connect fluid outlet line here

INSTALLATION MODE



MAINTENANCE
LUBRICATION

CAUTION
Do not over—lubricate the pump. Excess oil is exhausted through the muffler, which could contaminate your fluid supply or other equipment. Over—lubrication may also result in operation failure.

This air valve is designed to operate un-lubricated. If lubrication is desired every 500 operation hours or monthly, just add several drops of machine oil to container below in air regulator (C).

FLUSHING AND STORAGE

WARNING
To reduce the risk of serious injury whenever you are instructed to relieving pressure procedure and always follow the Pressure Relief Procedure.

Flush the pump often enough to prevent the fluid you are pumping from drying or freezing in the pump and damaging it. The fluid for flushing should be compatible with pumped fluid and doesn't affect the wetted parts. For recommendation on flushing and periods please contact with the provider and manufacturer. Always flush the pump and relieve the pressure before storing it for any length of time.

TROUBLESHOOTING

- Be sure to relieve pressure before checking and repairing.
- Check all possible problems and causes before you disassemble the pump.

WARNING
To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the pressure relief procedure.

Floor Mount Typical Installation

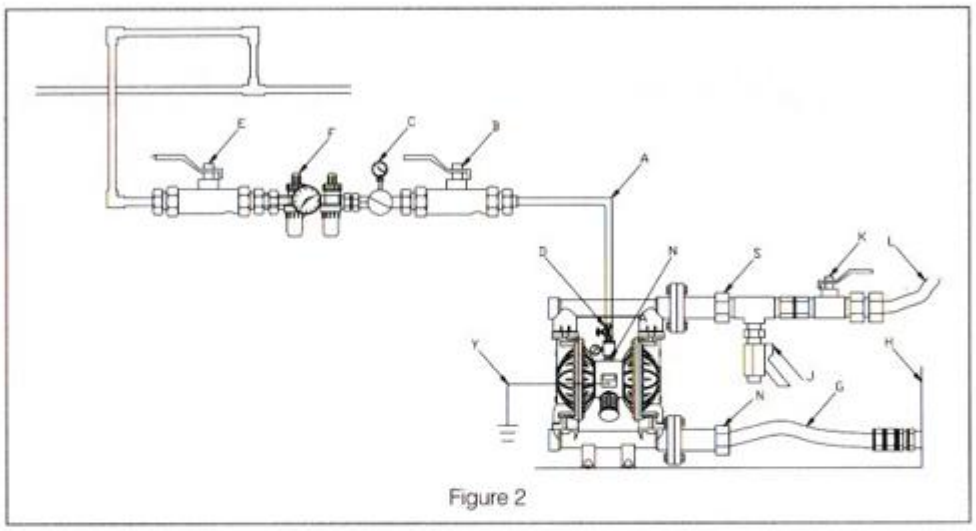


Figure 2

KEY

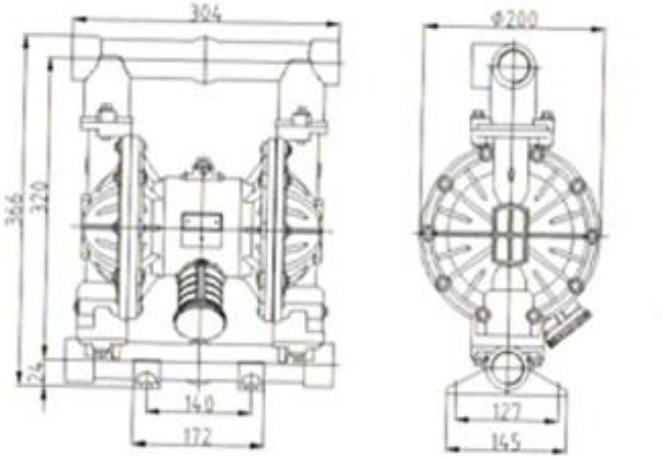
A Air supply hose
B Bleed–type master air valve (required for pump)
C Air regulator
D Air line quick disconnect
E Master air valve (for accessories)
F Air line filter
G Fluid suction line
H Fluid supply
J Fluid drain valve (required)
K Fluid shutoff valve
L Fluid line
N 1/2 npt(f) air inlet port
R 1" fluid inlet port
S 1" fluid outlet port
Y Ground wire (required; see page 6) for installation instructions)

PROBLEM	CAUSE	SOLUTION
Pump cycles all stall or fails to hold pressure.	Check valve balls, seats or O-rings	Replace
Pump does not cycle or cycle once and stops	Air Valve is stuck or dirty.	Disassemble and clean air valve, use filtered air.
	Valve ball severely worn and wedged in seat or manifold.	Replace ball and seat.
	Valve ball is wedged into seat due to overpressure	Install a pressure relief valve.
	Dispensing valve is clogged	Relieve pressure and clear valve.
Pump operates erratically	Suction line is clogged	Inspect and clear
	Sticky or leaking check valve balls	Clean or replace
	Diaphragm is ruptured	Replace
	Restricted exhaust	Remove restriction.
Air bubbles in fluid.	Suction line is clogged	Tighten.
	Diaphragm is ruptured	Replace
	Loose intel manifold, damaged seal between manifold and seat or damaged O-ring	Tighten manifold bolts or replace seats or O-rings.
	Loose diaphragm shaft bolt	Tighten or replace
	Damaged O-ring	Replace.
Fluid in Exhaust Air.	Diaphragm is ruptured.	Replace.
	Loose diaphragm shaft bolt.	Tighten or replace
	Damaged O-ring	Replace
Pump discharge excess air during standstill.	Warn air-valves, O-ring, Valve plate, Position block, U-seals or position pin O-ring.	Inspect, replace.
	Worn shaft seals	Replace
Pump leaks air externally.	Air-valve cover or screws are loose	Tighten manifold bolts.
	Air-valve gasket or air cover gasket is damaged	Inspect, replace.
	Air cover screws are loose.	Tighten manifold bolts.
Pump leaks fluid externally from ball check valves.	Loose manifolds, damaged seals between manifold and seat, damaged O-ring.	Tighten manifold bolts or replace seat on O-rings.

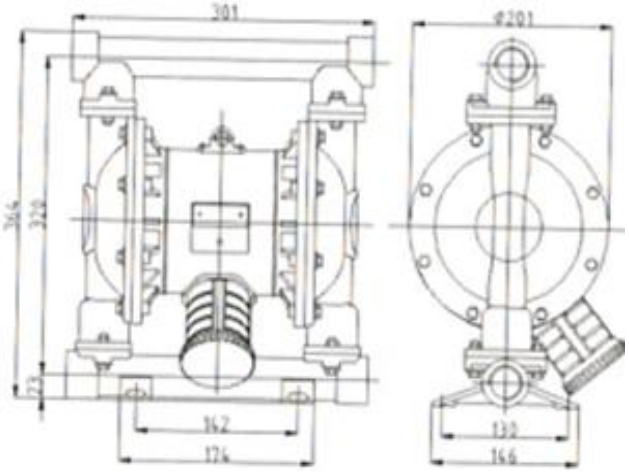
TECHNICAL DATA

	RV25	RV40	RV50
Max working pressure	120 psi (0.84MPa, 8,4bar)	120 psi (0.84MPa, 8,4bar)	120 psi (0.84MPa, 8,4bar)
Max air consumption	45 scfm (22.5L/s)	80 scfm (9 L/s)	140 scfm (70L/s)
Max flow rate	48 GPM (129pm)	118 gpm (446 lpm)	50 gpm (568lpm)
Max reciprocating speed	276 cm	200 cpm	145 cpm
Max permitted Grain	4mm	5mm	6mm
Max suction Height	5m	5m	5m
Air Inlet size	½ in	½ in	½ in
Air Outlet size	¾ in	¾ in	¾ in
Fluid Inlet size	1in	1-1/2 in	2in
Fluid Outlet size	1in	1-1/2 in	2in
Weight (about) PP pump	8kg	15kg	28kg
Weight (about) PVDF	10kg	20kg	30.5kg
Aluminium Alloy Pump	8.2kg	16kg	29kg
Stainless steel Pump	15kg	29kg	47kg
Ductile Iron Pump	-	32kg	57.5kg

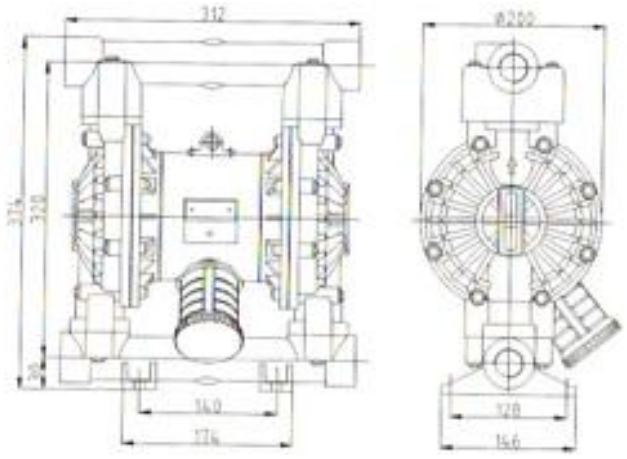
INSTALLATION MAP



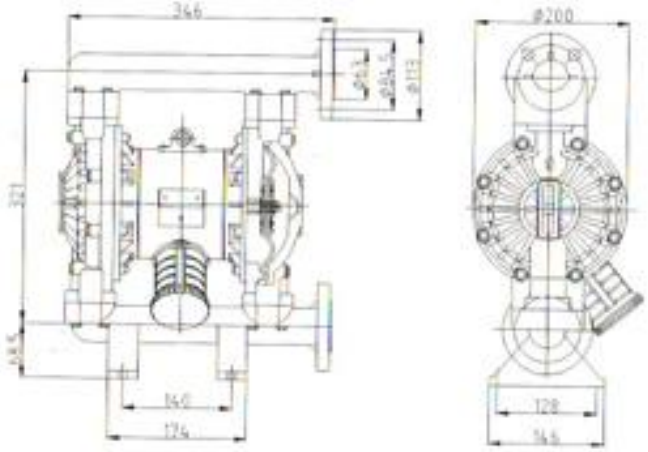
RV25 ALUMINUM



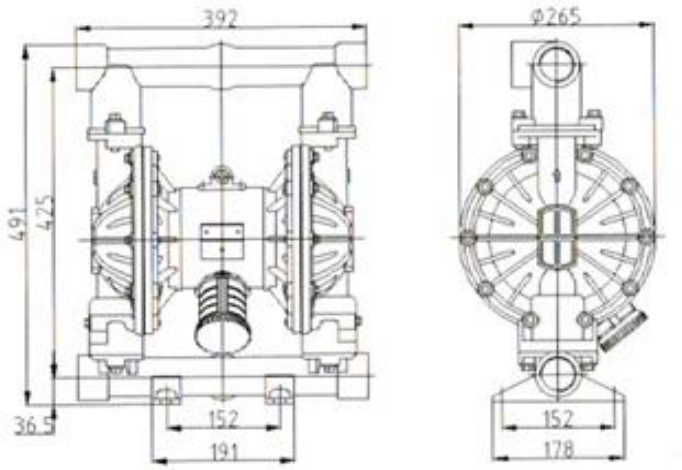
RV25 STAINLESS STEEL



RV25 PP



RV 25 PP (FLANGE)



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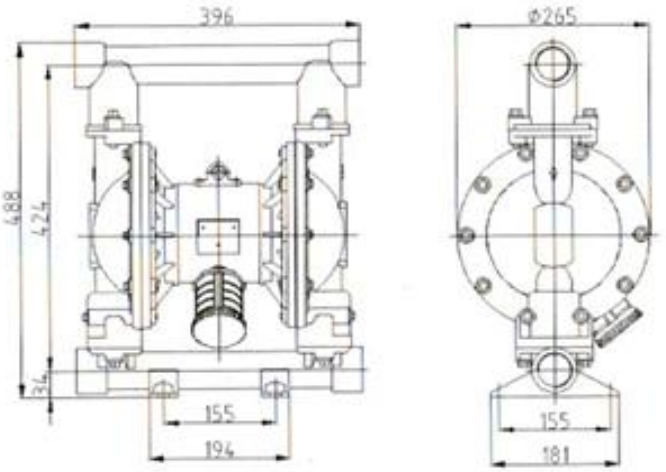
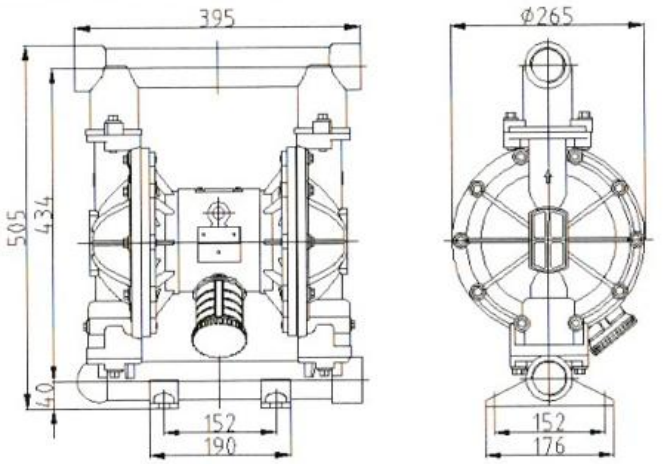
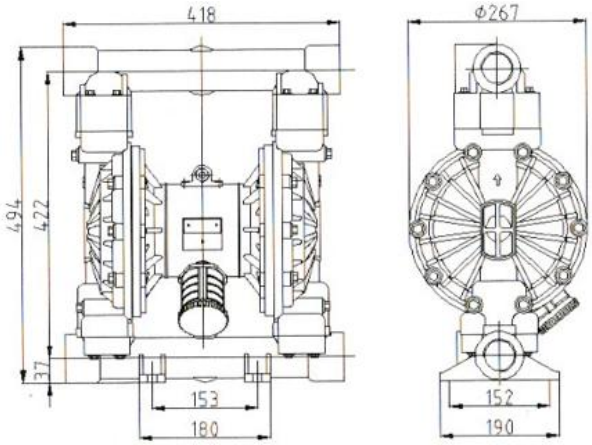


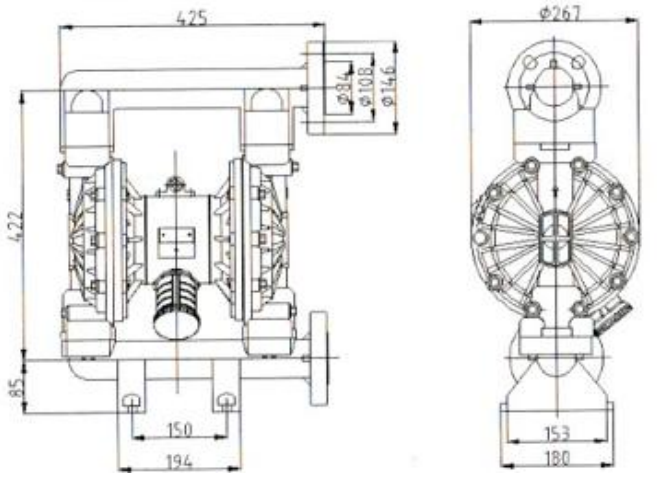
RV40 STAINLESS STEEL



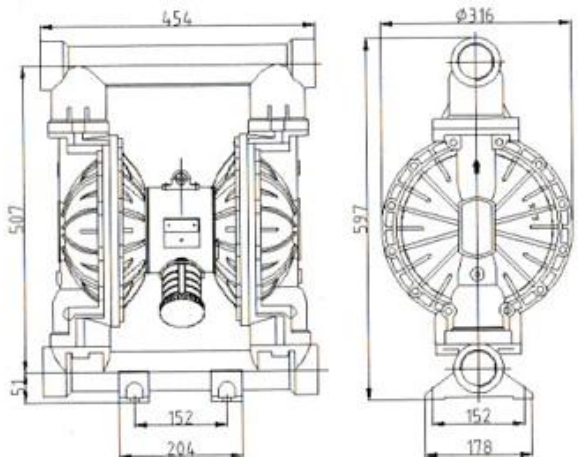
RV40 DUCTILE IRON



RV40 PP



RV40PP FLANGE



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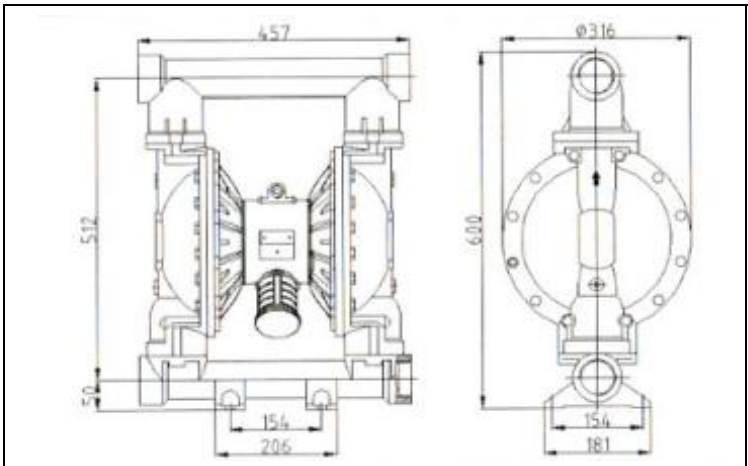
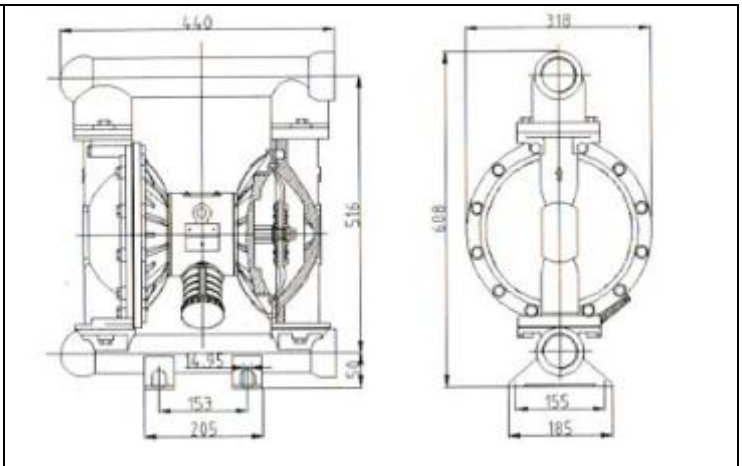
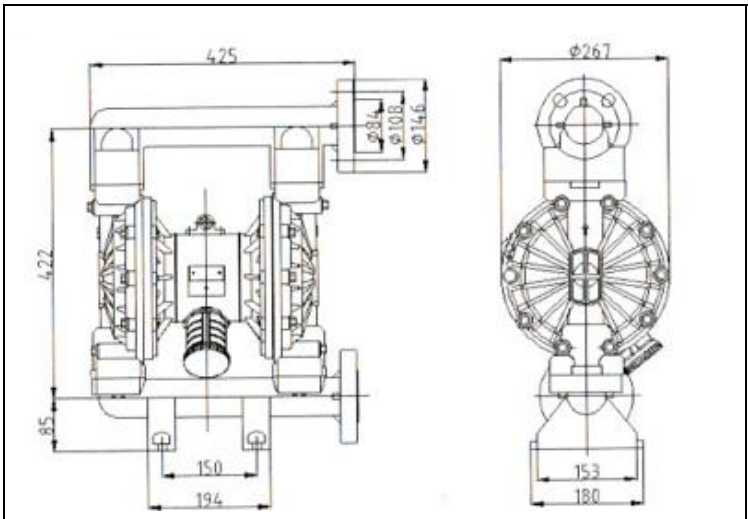


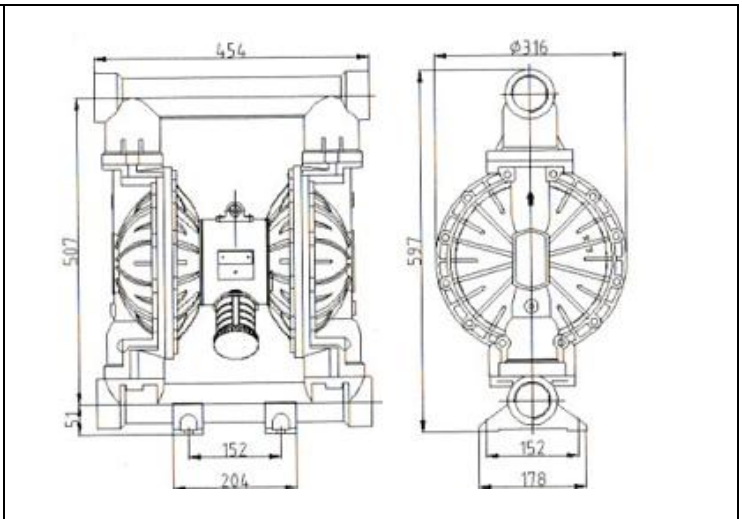
RV50 STAINLESS STEEL



RV50 DUCTILE IRON

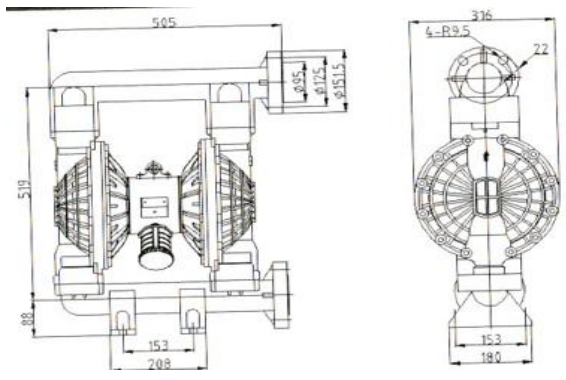


RV40PP FLANGE



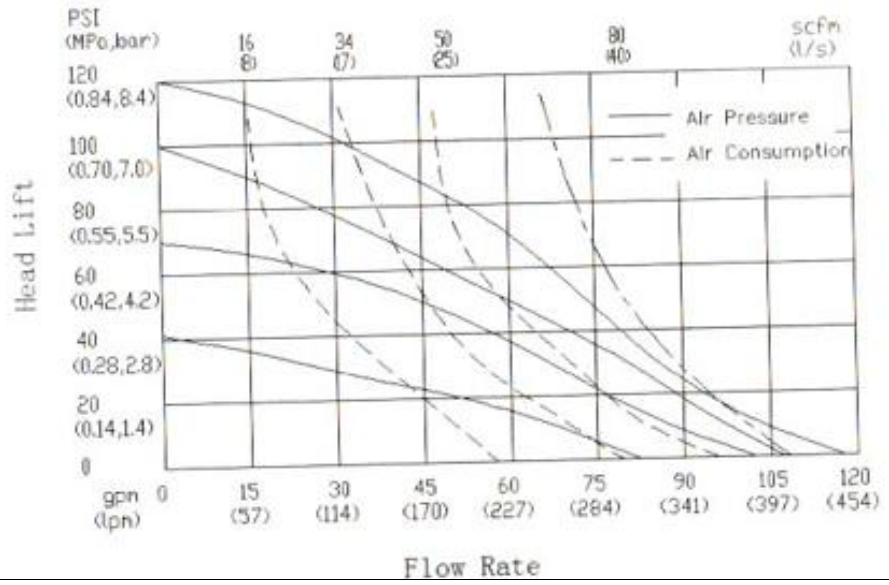
RV50 ALUMINUM

RV50 PP

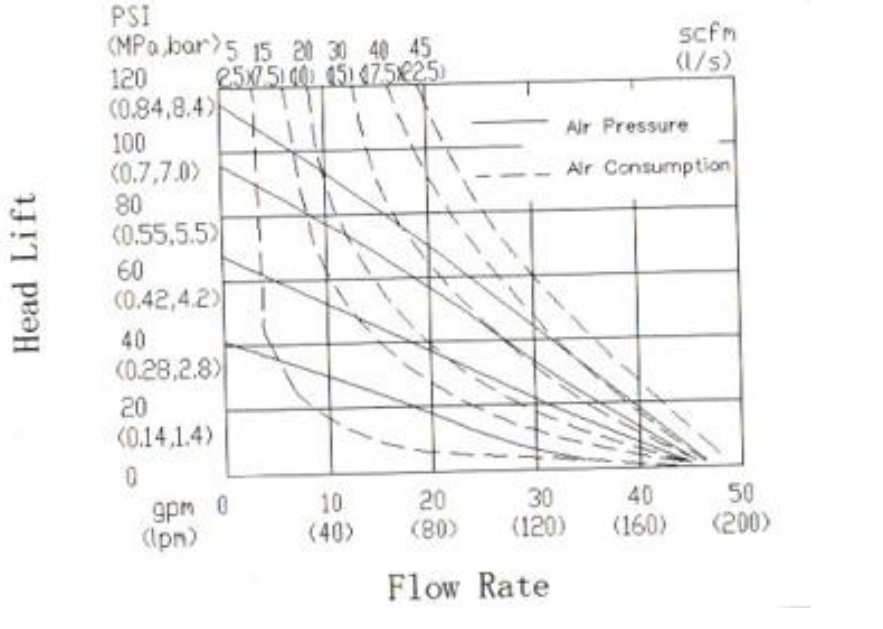


TECHNICAL CURVE

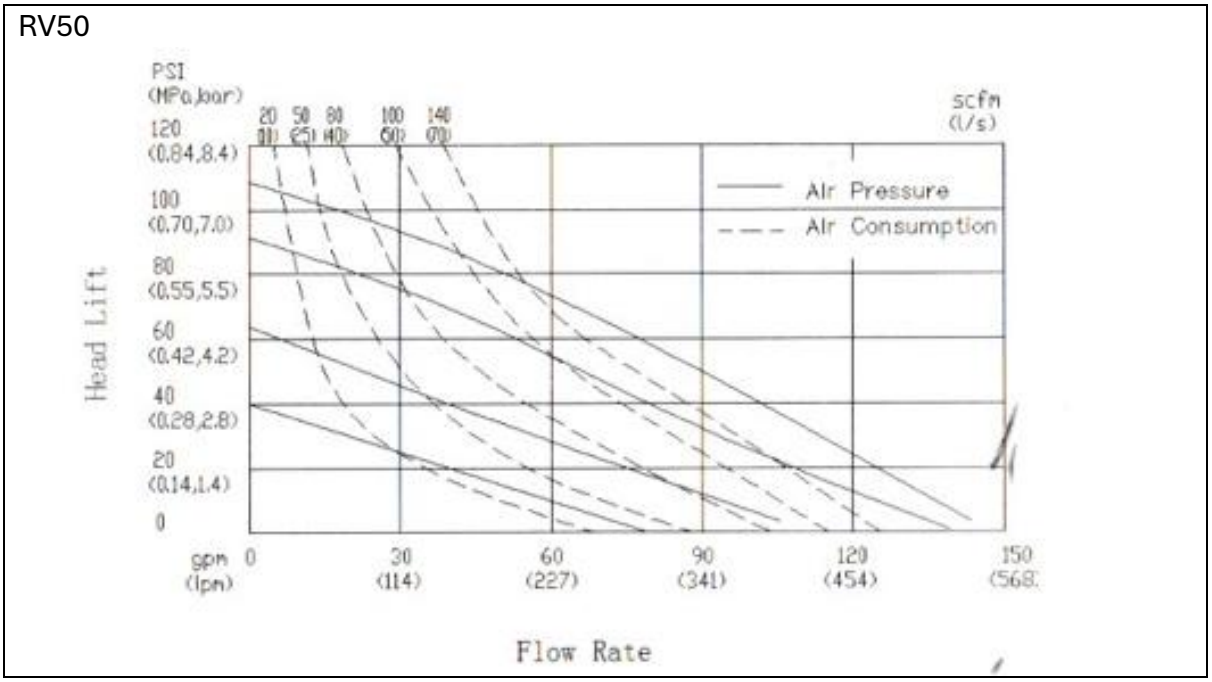
RV40



RV25

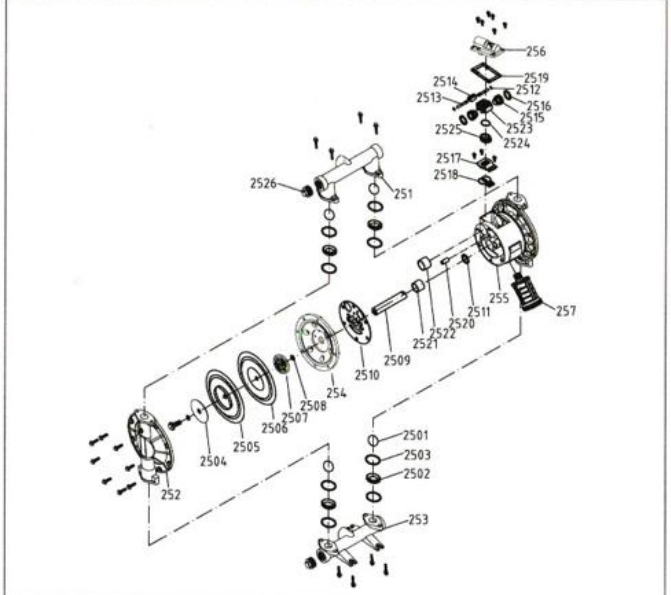


RV50



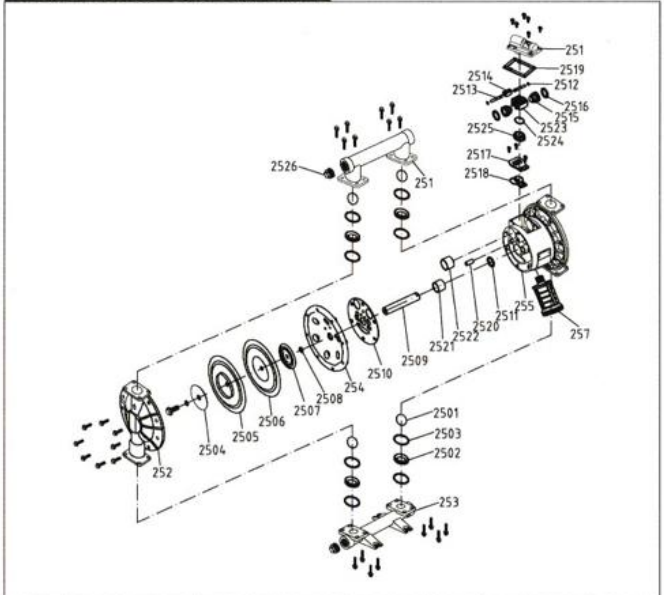
PARTS DRAWING

25 Aluminum Diaphragm Pump



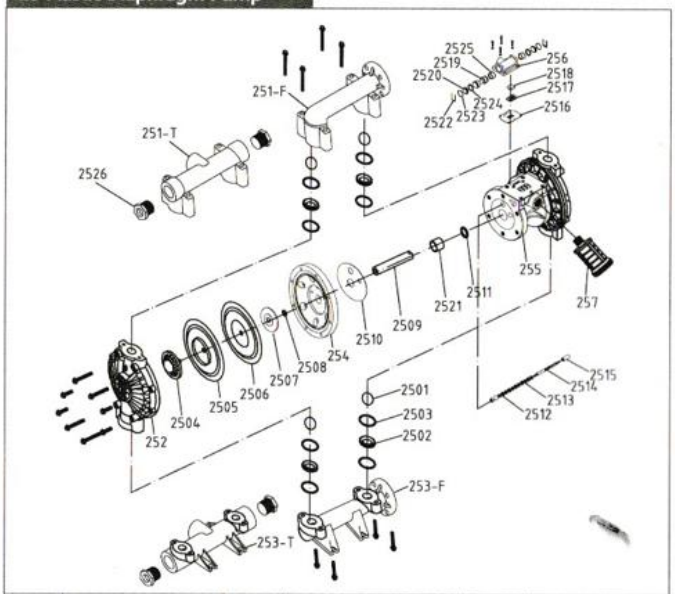
No.	Name	No.	Name	No.	Name
251	Upper manifold	2505	Diaphragm	2516	Piston V-ring
252	Fluid cover	2506	Backup for PTFE	2517	SST air guide block
253	Bottom manifold	2507	Inner plate	2518	SST air guide block gasket
254-A	Inner splint	2508	O-ring for plate	2519	Air valve cover gasket
255	Air valve house	2509	Central axis	2520	Commutation pin coat
256	Air valve cover	2510	Air valve house gasket	2521	Central axis coat
257	Silencer	2511	Central axis V-ring	2522	Piston coat
2501	Valve ball	2512	Commutation pin O-ring	2523	Air-guide switch(Al)
2502	Valve seat	2513	Commutation pin	2524	Air-guide switch O-ring
2503	Seat O-ring	2514	Commutation switch	2525	Air-guide switch(PP)
2504	Plate	2515	Piston	2526	Block

25 Stainless Steel Diaphragm Pump



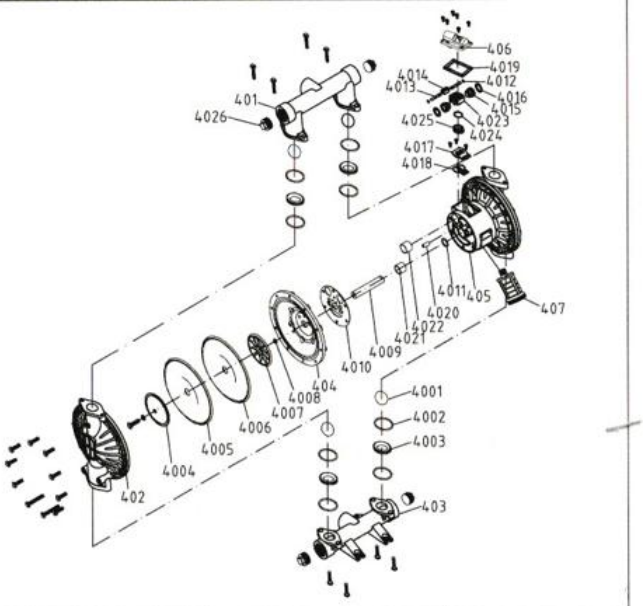
No.	Name	No.	Name	No.	Name
251	Upper manifold	2505	Diaphragm	2516	Piston V-ring
252	Fluid cover	2506	Backup for PTFE	2517	SST air guide block
253	Bottom manifold	2507	Inner plate	2518	SST air guide block gasket
254-A	Inner splint	2508	O-ring for plate	2519	Air valve cover gasket
255	Air valve house	2509	Central axis	2520	Commutation pin coat
256	Air valve cover	2510	Air valve house gasket	2521	Central axis coat
257	Silencer	2511	Central axis V-ring	2522	Piston coat
2501	Valve ball	2512	Commutation pin O-ring	2523	Air-guide switch(Al)
2502	Valve seat	2513	Commutation pin	2524	Air-guide switch O-ring
2503	Seat O-ring	2514	Commutation switch	2525	Air-guide switch(PP)
2504	Plate	2515	Piston	2526	Block

25 Plastic Diaphragm Pump



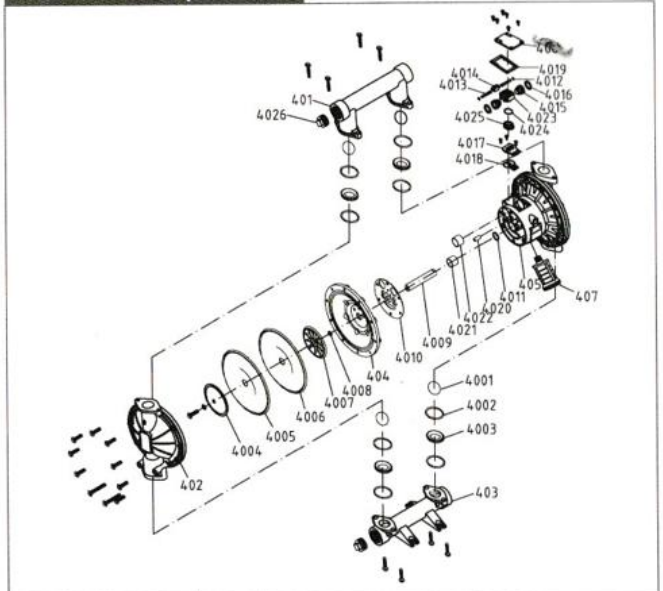
No.	Name	No.	Name	No.	Name
251-F	Flange upper manifold	2504	Plate	2516	Air valve gasket
251-T	Thread upper manifold	2505	Diaphragm	2517	Air guided block
252	Fluid cover	2506	Backup for PTFE	2518	Air guided switch
253-F	Flange bottom manifold	2507	Inner plate	2519	Piston
253-T	Thread bottom manifold	2508	O-ring for plate	2520	Piston stopper
254	Inner splint	2509	Central axis	2521	Central axis coat
255	Air valve house	2510	Air valve house gasket	2522	Locking ring
256	Air valve cover	2511	Central axis V-ring	2523	Stopper O-ring
257	Silencer	2512	Commutation switch	2524	Piston V-ring
2501	Valve ball	2513	Commutation switch O-ring	2525	Steel coat
2502	Valve seat	2514	Commutation pin	2526	Block
2503	Seat O-ring	2515	Commutation pin coat		

40 Aluminum Diaphragm Pump



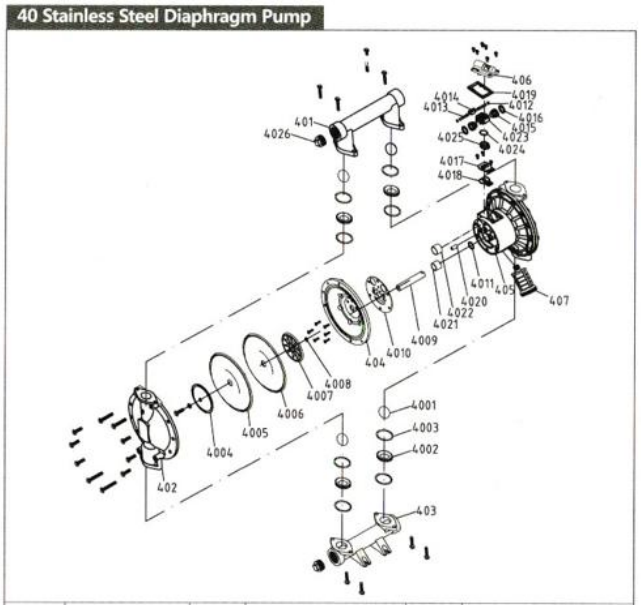
No.	Name	No.	Name	No.	Name
401	Upper manifold	4005	Diaphragm	4016	Piston V-ring
402	Fluid cover	4006	Backup for PTFE	4017	SST air guide block
403	Bottom manifold	4007	Inner plate	4018	SST air guide block gasket
404-A	Inner splint	4008	O-ring for plate	4019	Air valve cover gasket
405	Air valve house	4009	Central axis	4020	Commutation pin coat
406	Air valve cover	4010	Air valve house gasket	4021	Central axis coat
407	Silencer	4011	Central axis V-ring	4022	Piston coat
4001	Valve ball	4012	Commutation pin O-ring	4023	Air-guide switch(Al)
4002	Valve seat	4013	Commutation pin	4024	Air-guide switch O-ring
4003	Seat O-ring	4014	Commutation switch	4025	Air-guide switch(PP)
4004	Plate	4015	Piston	4026	Block

40 Ductile Iron Pump



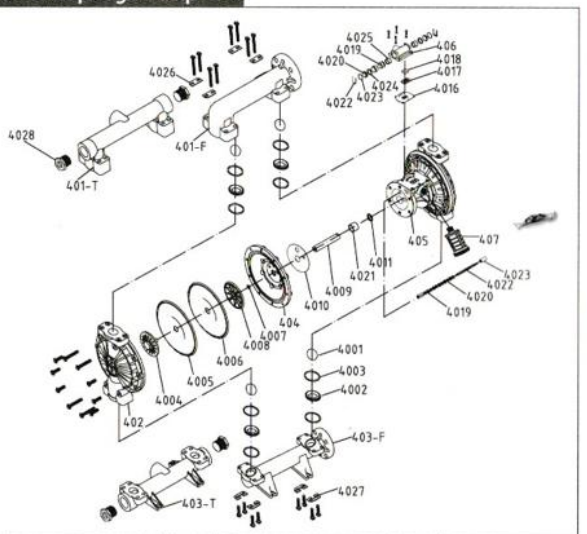
No.	Name	No.	Name	No.	Name
401	Upper manifold	4005	Diaphragm	4016	Piston V-ring
402	Fluid cover	4006	Backup for PTFE	4017	SST air guide block
403	Bottom manifold	4007	Inner plate	4018	SST air guide block gasket
404-A	Inner splint	4008	O-ring for plate	4019	Air valve cover gasket
405	Air valve house	4009	Central axis	4020	Commutation pin coat
406	Air valve cover	4010	Air valve house gasket	4021	Central axis coat
407	Silencer	4011	Central axis V-ring	4022	Piston coat
4001	Valve ball	4012	Commutation pin O-ring	4023	Air-guide switch(Al)
4002	Valve seat	4013	Commutation pin	4024	Air-guide switch O-ring
4003	Seat O-ring	4014	Commutation switch	4025	Air-guide switch(PP)
4004	Plate	4015	Piston	4026	Block

40 Stainless Steel Diaphragm Pump



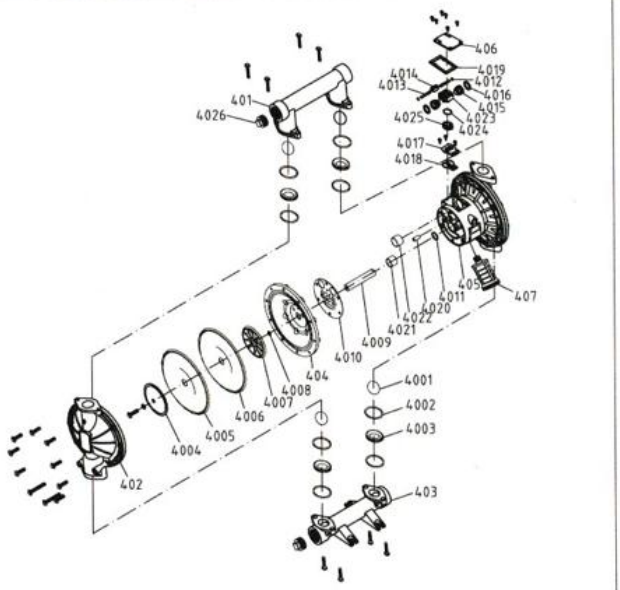
No.	Name	No.	Name	No.	Name
401	Upper manifold	4005	Diaphragm	4016	Piston V-ring
402	Fluid cover	4006	Backup for PTFE	4017	SST air guide block
403	Bottom manifold	4007	Inner plate	4018	SST air guide block gasket
404-A	Inner splint	4008	O-ring for plate	4019	Air valve cover gasket
405	Air valve house	4009	Central axis	4020	Commutation pin coat
406	Air valve cover	4010	Air valve house gasket	4021	Central axis coat
407	Silencer	4011	Central axis V-ring	4022	Piston coat
4001	Valve ball	4012	Commutation pin O-ring	4023	Air-guide switch(Al)
4002	Valve seat	4013	Commutation pin	4024	Air-guide switch O-ring
4003	Seat O-ring	4014	Commutation switch	4025	Air-guide switch(PP)
4004	Plate	4015	Piston	4026	Block

40 Plastic Diaphragm Pump



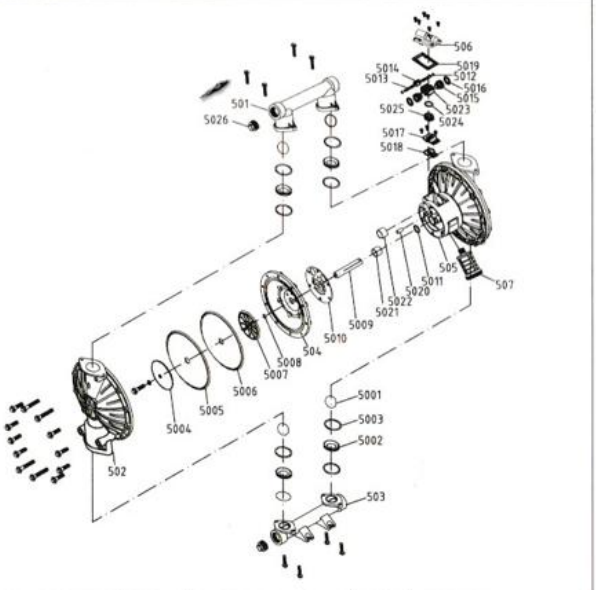
No.	Name	No.	Name	No.	Name
401-F	Flange upper manifold	4005	Diaphragm	4018	Air guided switch
401-T	Thread upper manifold	4006	Backup for PTFE	4019	Piston
402	Fluid cover	4007	Inner plate	4020	Piston stopper
403-F	Flange bottom manifold	4008	O-ring for plate	4021	Central axis coat
403-T	Thread bottom manifold	4009	Central axis	4022	Locking ring
404	Inner splint	4010	Air valve house gasket	4023	Stopper O-ring
405	Air valve house	4011	Central axis V-ring	4024	Piston V-ring
406	Air valve cover	4012	Commutation switch	4025	Steel coat
407	Silencer	4013	Commutation switch O-ring	4026	Bolt gasket of upper manifold
4001	Valve ball	4014	Commutation pin	4027	Bolt gasket of bottom manifold
4002	Valve seat	4015	Commutation pin coat	4028	Block
4003	Seat O-ring	4016	Air valve gasket		
4004	Plate	4017	Air guided block		

40 Ductile Iron Pump



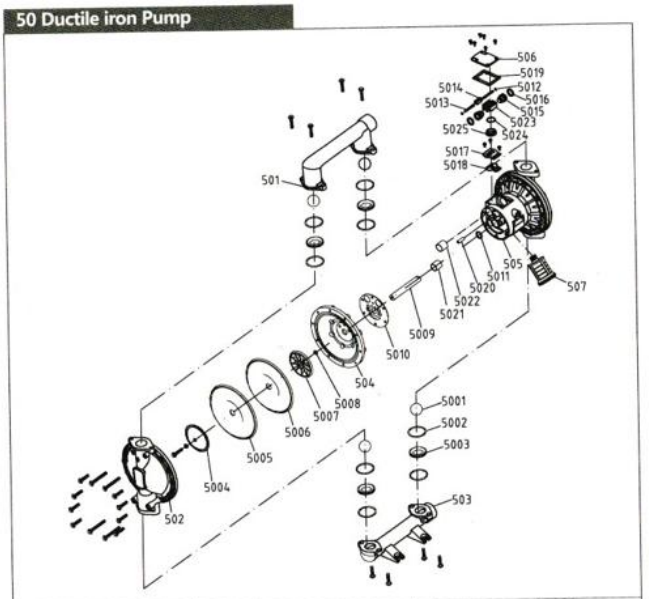
No.	Name	No.	Name	No.	Name
401	Upper manifold	4005	Diaphragm	4016	Piston V-ring
402	Fluid cover	4006	Backup for PTFE	4017	SST air guide block
403	Bottom manifold	4007	Inner plate	4018	SST air guide block gasket
404-A	Inner splint	4008	O-ring for plate	4019	Air valve cover gasket
405-A	Air valve house	4009	Central axis	4020	Commutation pin coat
406	Air valve cover	4010	Air valve house gasket	4021	Central axis coat
407	Silencer	4011	Central axis V-ring	4022	Piston coat
4001	Valve ball	4012	Commutation pin O-ring	4023	Air-guide switch(Al)
4002	Valve seat	4013	Commutation pin	4024	Air-guide switch O-ring
4003	Seat O-ring	4014	Commutation switch	4025	Air-guide switch(PP)
4004	Plate	4015	Piston	4026	Block

50 Aluminum Diaphragm Pump



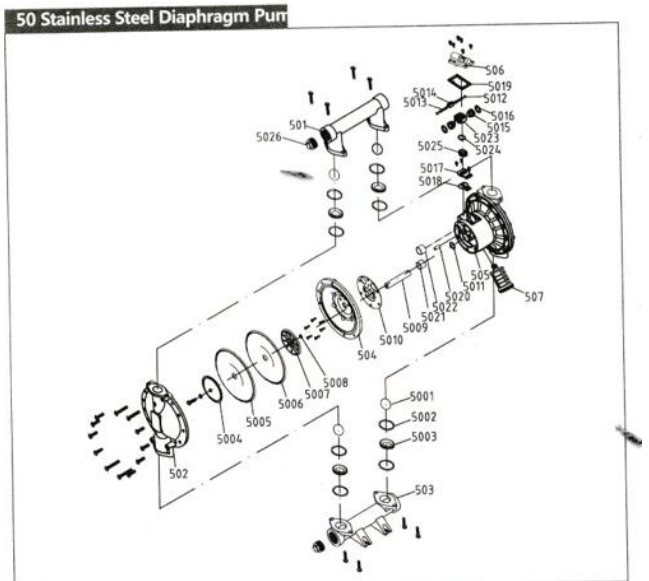
No.	Name	No.	Name	No.	Name
501	Upper manifold	5005	Diaphragm	5016	Piston V-ring
502	Fluid cover	5006	Backup for PTFE	5017	SST air guide block
503	Bottom manifold	5007	Inner plate	5018	SST air guide block gasket
504-A	Inner splint	5008	O-ring for plate	5019	Air valve cover gasket
505	Air valve house	5009	Central axis	5020	Commutation pin coat
506	Air valve cover	5010	Air valve house gasket	5021	Central axis coat
507	Silencer	5011	Central axis V-ring	5022	Piston coat
5001	Valve ball	5012	Commutation pin O-ring	5023	Air-guide switch(Al)
5002	Valve seat	5013	Commutation pin	5024	Air-guide switch O-ring
5003	Seat O-ring	5014	Commutation switch	5025	Air-guide switch(PP)
5004	Plate	5015	Piston	5026	Block

50 Ductile iron Pump



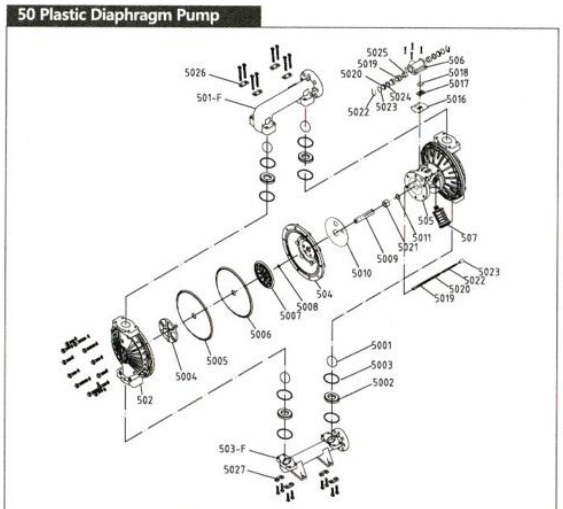
No.	Name	No.	Name	No.	Name
501	Upper manifold	5005	Diaphragm	5016	Piston V-ring
502	Fluid cover	5006	Backup for PTFE	5017	SST air guide block
503	Bottom manifold	5007	Inner plate	5018	SST air guide block gasket
504-A	Inner splint	5008	O-ring for plate	5019	Air valve cover gasket
505-A	Air valve house	5009	Central axis	5020	Commutation pin coat
506	Air valve cover	5010	Air valve house gasket	5021	Central axis coat
507	Silencer	5011	Central axis V-ring	5022	Piston coat
5001	Valve ball	5012	Commutation pin O-ring	5023	Air-guide switch(Al)
5002	Valve seat	5013	Commutation pin	5024	Air-guide switch O-ring
5003	Seat O-ring	5014	Commutation switch	5025	Air-guide switch(PP)
5004	Plate	5015	Piston		

50 Stainless Steel Diaphragm Pum



No.	Name	No.	Name	No.	Name
501	Upper manifold	5005	Diaphragm	5016	Piston V-ring
502	Fluid cover	5006	Backup for PTFE	5017	SST air guide block
503	Bottom manifold	5007	Inner plate	5018	SST air guide block gasket
504-A	Inner splint	5008	O-ring for plate	5019	Air valve cover gasket
505	Air valve house	5009	Central axis	5020	Commutation pin coat
506	Air valve cover	5010	Air valve house gasket	5021	Central axis coat
507	Silencer	5011	Central axis V-ring	5022	Piston coat
5001	Valve ball	5012	Commutation pin O-ring	5023	Air-guide switch(Al)
5002	Valve seat	5013	Commutation pin	5024	Air-guide switch O-ring
5003	Seat O-ring	5014	Commutation switch	5025	Air-guide switch(PP)
5004	Plate	5015	Piston	5026	Block

50 Plastic Diaphragm Pump



No.	Name	No.	Name	No.	Name
501	Upper manifold	5006	Backup for PTFE	5018	Air guided switch
502	Fluid cover	5007	Inner plate	5019	Piston
503	Bottom manifold	5008	O-ring for plate	5020	Piston stopper
504	Inner splint	5009	Central axis	5021	Central axis coat
505	Air valve house	5010	Air valve house gasket	5022	Locking ring
506	Air valve cover	5011	Central axis V-ring	5023	Stopper O-ring
507	Silencer	5012	Commutation switch	5024	Piston V-ring
5001	Valve ball	5013	Commutation switch O-ring	5025	Steel coat
5002	Valve seat	5014	Commutation pin	5026	Bolt gasket of upper manifold
5003	Seat O-ring	5015	Commutation pin coat	5027	Bolt gasket of bottom manifold
5004	Plate	5016	Air valve gasket		
5005	Diaphragm	5017	Air guided block		

MODEL SELECTION INSTRUCTION

Series	Size	Body	Seat	Ball	Diaphragm	Connection (only for plastic pumps)
RV–A Aluminum center body RV–S Stainless Steel center body RV–P Plastic center body	1=1/4in(06mm) 3=3/8in(10mm) 5=1/2in(15mm) 6=3/4in(20mm) 7=1in(25mm) B=1–1/2in (40mm) F=2in(50mm) K=3in(80mm)	1=Acetal 2=Polypropylene 3=Aluminum 4=SS304 5=PVDF 6=Ductile Iron L=SS316 H=SS316L C=WCB	1=PTFE 2=Acetal 3=SS304 4=SS316 5=Hytrel 6=Santoprene 8=Viton 9=Polypropylene A=PVDF H=SS316L	1=Teflon 2=Ceramic 3=SS304 4=SS316 5=Hytrel 6=Santoprene 7=Buna N 8=Viton 9=EPDM H=SS316L	1=Teflon 5=Hytrel 6=Santoprene 7=Buna N 8=Viton 9=EPDM	F=Flange T=Threaded

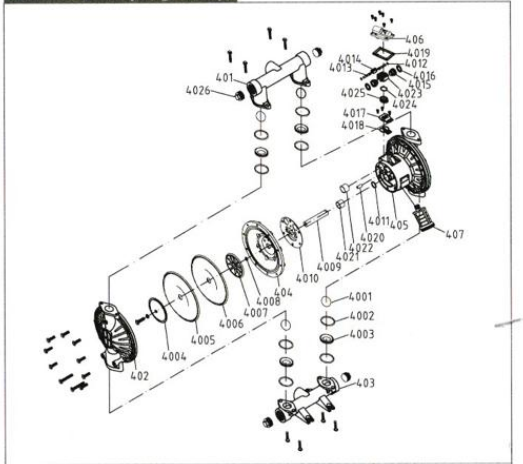
Model Examples

RVP–72A11–F

RVA–73311

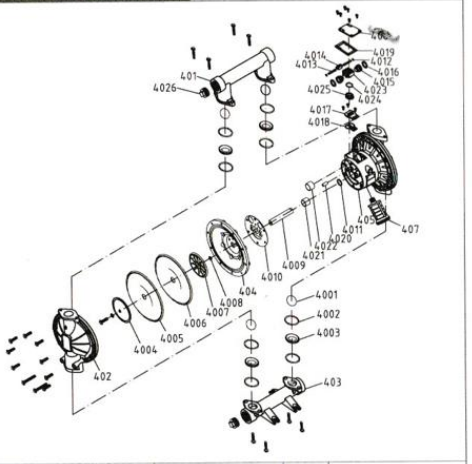
cncese

40 Aluminum Diaphragm Pump



No.	Name	No.	Name	No.	Name
401	Upper manifold	4005	Diaphragm	4016	Piston,V-ring
402	Fluid cover	4006	Backup for PTFE	4017	SST air guide block
403	Bottom manifold	4007	Inner plate	4018	SST air guide block gasket
404-A	Inner splint	4008	O-ring for plate	4019	Air valve cover gasket
405	Air valve house	4009	Central axis	4020	Commutation pin coat
406	Air valve cover	4010	Air valve house gasket	4021	Central axis coat
407	Silencer	4011	Central axis V-ring	4022	Piston coat
4001	Valve ball	4012	Commutation pin O-ring	4023	Air-guide switch(Al)
4002	Valve seat	4013	Commutation pin	4024	Air-guide switch O-ring
4003	Seat O-ring	4014	Commutation switch	4025	Air-guide switch(PP)
4004	Plate	4015	Piston	4026	Block

40 Ductile Iron Pump



No.	Name	No.	Name	No.	Name
401	Upper manifold	4005	Diaphragm	4016	Piston,V-ring
402	Fluid cover	4006	Backup for PTFE	4017	SST air guide block
403	Bottom manifold	4007	Inner plate	4018	SST air guide block gasket
404-A	Inner splint	4008	O-ring for plate	4019	Air valve cover gasket
405	Air valve house	4009	Central axis	4020	Commutation pin coat
406	Air valve cover	4010	Air valve house gasket	4021	Central axis coat
407	Silencer	4011	Central axis V-ring	4022	Piston coat
4001	Valve ball	4012	Commutation pin O-ring	4023	Air-guide switch(Al)
4002	Valve seat	4013	Commutation pin	4024	Air-guide switch O-ring
4003	Seat O-ring	4014	Commutation switch	4025	Air-guide switch(PP)
4004	Plate	4015	Piston	4026	Block

Be sure the pump is properly grounded. Refer to the instructions in Grounding section on page 1 1
Check all fittings and make sure they are tight. Be sure to use a compatible liquid thread sealant on all male threads. Make sure the fittings at inlet and outlet are reliably secured.
Place the suction tube (if used) in the fluid to be pumped. NOTE: If the inlet pressure to the pump is more than 25 percent of the outlet working pressure, the ball check valves will not close fast enough, resulting in inefficient pump operation.
Place the end of the outlet hose (D) into an appropriate container.

3. Need not pilot water, suction lift up to 7m, pump head up to 80m, outlet pressure 0.8 MPa. be up to
   9.4mm. While pumping slurry and impurity, the abrasion is very low.
4. The pump head and capacity can be adjusted via the pressure of air source (between O. 1—0.84 MPa).
5. Temperature range of working environment: 5 650

1 1 .

Pump can start to work after it's connected with air supply, even if without fluid, pump can also work, but should be in a limited time. Air inlet pressure should be increased little by little, the pressure shouldn't be too large, to avoid valve ball damaging.

Attention :

Clean and dry all parts (especially air side) and check all sealing parts: central axis v— ring, commutation pin O— ring, piston coat, piston, inner plate, plate, air chamber; valve seat, ball, commutation switch, air—guided switch, air valve cover, air valve house gasket.

Grease all these parts simultaneously.

2). Installation:

Lay pump on a platform, fix bottom feet, connect fluid inlet pipe, fluid outlet pipe and air supply pipe.

Attention :

Keep inlet air pure clean, it's better to install an air filter regulator in front of air inlet port; Fluid inlet tube should be well sealing, or else, there'll be no suction at fluid inlet port. The air supply should be always lower then stated maximum air pressure.

System Drawing:

3). Air protection

Keep supplied air pure clean, no impurities such as sand, oil dirties, rust water included.

Usually, air contains moisture, the filter/ dryer installed on the air compressor or gasholder can't evaporate moisture completely. After long distance transportation, the residual moisture easily turn into rust water and go into the pump, it'll cause air valve

Bolt or damage. Particularly, once pump in store for a long time, the rust water will turn into dry rust, it's extremely bad for air valve.
It's better to install air filter regulator at air inlet port, for regulating intake pressure. Then, evacuate water inside air compressor and gas pipeline regularly, to ensure supplied air always be in clean and dry.

4). Usage:

Operate according to the basic working principle of pump :

- No pressure at the fluid inlet port.
- If there's any bubble found at fluid discharge port, it means diaphragm screws loosen or diaphragm broken, clean all impurities inside pump before replace diaphragm, lubricate all sealing and bearings before reassembling.
- If pumping medium is waste water or high corrosive fluid, pump should be stop first before cleaning.
- Rubber ball is not recommend for pump supply with filter press.
- Rubber ball is not recommend for high suction lift.
- Rubber ball is a good choice under the condition of low suction lift or discharge pressure around 5 bar.

5). Maintenance

Overhaul regularly, lubricate and replace wearing parts if necessary.

Matters need attention:

No need to lubricate pump before or during working, but lubricate between central axis and central axis V— ring before reassemble.