

# INSTRUCTION MANUAL

## DOUBLE DIAPHRAGM PUMPS

L-DDP13 / L-DDP19 / L-DDP25



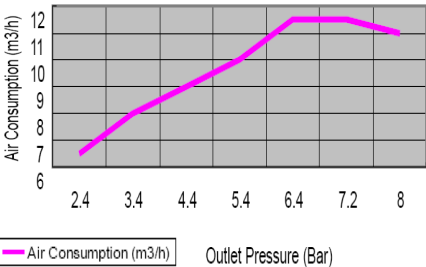
# DOUBLE DIAPHRAGM PUMPS

L-DDP13 / L-DDP19 / L-DDP25

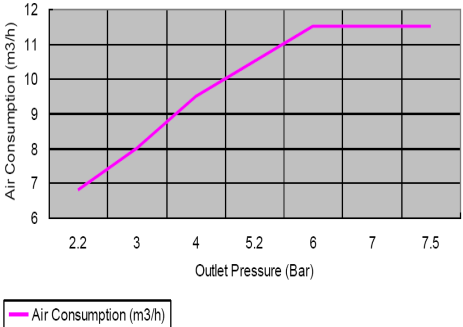
## TECHNICAL SPECIFICATIONS

SPECIFICATION	MODEL	MODEL	MODEL
	L-DDP13	L-DDP19	L-DDP25
Inlet / Outlet	1/2"BSP	3/4"BSP	1"BSP
Air inlet	1/4"BSP	1/4"BSP	1/4"BSP
Flow rate	45LPM	60LPM	90LPM
Maximum air pressure	116PSI (8BAR)	116PSI (8BAR)	116PSI (8BAR)
Maximum outlet pressure	116PSI (8BAR)	116PSI (8BAR)	116PSI (8BAR)
Maximum allowable particle size	1/8"	1/8"	1/8"
Diaphragm material	NITRILE	NITRILE	NITRILE

Air consumption chart for L-DDP25



Air consumption chart for L-DDP13 & L-DDP19



## GENERAL DESCRIPTION

Diaphragm pumps offer high volume fluid delivery at low air pressures, utilizing pressure differential in the air chamber to alternately create suction and positive fluid pressures. The ball check valves ensure a positive flow of fluid.

When air pressure is applied the pump will operate until maximum line pressure is reached (dispensing device closed) and will resume pumping when line pressure is reduced (dispensing valve open).



**IMPORTANT**

**POLYPROPYLENE DIAPHRAGM PUMPS ARE COMPATIBLE WITH A WIDE RANGE OF CHEMICALS, ENGINE COOLANTS AND WATER ONLY.**



**WARNING**

**Do not exceed the maximum inlet air pressure as stated on the pump model plate.**

**Be sure material hoses and other components are able to withstand fluid pressures developed by this pump.**



**WARNING**

**Static spark can cause an explosion resulting in severe injury or death. Ground the pump and pumping system.**

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### **WARNING**

1. The system should be grounded when being used with flammable materials such as paints, solvents, lacquers etc. or used in location where surrounding atmosphere is conducive to spontaneous combustion. Ground the dispensing valve or device, containers, hoses and any object to which material is being pumped.
2. Use the pump grounding screw terminal provided. Connect a suitable ground wire to a good earth ground source.
3. Secure pump, connections and all contact points to avoid vibration and generation of contact or static spark.
4. Consult local building codes and electrical codes for specific grounding requirements.
5. After grounding, periodically verify continuity of electrical path to ground.
6. Keep flammables away from heat, open flames and sparks.
7. Use proper ventilation

**WARNING!** Pump exhaust may contain contaminants. Can cause severe injury. Pipe exhaust away from work area and personnel.  
Parts and the substance being pumped, flushed or recirculated.

8. In the event of a diaphragm rupture material can be forced out of the air exhaust muffler.
9. Pipe the exhaust to a safe remote location when pumping hazardous or inflammable materials.

**WARNING! HAZARDOUS PRESSURE.** Can result in serious injury or property damage. Do not service or clean pump, hoses or dispensing valve while the system is pressurized.

**CAUTION!** Do not use the pump for the structural support of the piping system. Be certain the system components are properly supported to prevent stress on the pump parts.

**CAUTION!** Prevent unnecessary damage to the pump. Do not allow pump to operate when out of material for long periods of time.

**CAUTION!** Verify the chemical compatibility of the pump wetted parts and the substances being pumped, flushed or recirculated.

**CAUTION!** Do not allow pump to operate when out of material for long periods of time.  
Disconnect air line from pump when system sits idle for long periods of time.

## **AIR AND LUBE REQUIREMENTS**



### **WARNING**

- Excessive air pressure can cause pump damage, personal injury or property damage.
- The air delivery pipe should be big enough to ensure adequate air supply.
- Air pressure must not exceed 116 PSI (8 BAR).
- A filter capable of filtering out particles larger than 50 microns should be used on the air supply.
- No lubrication is required other than the o-ring lubricant which is applied during assembly or repair.
- If lubricated air is present, make sure that is compatible with the o-rings in the air motor section of the pump.

## **OPERATING INSTRUCTIONS**

1. Always flush the pump with a solvent compatible with the material being pumped.
2. Disconnect the air supply from the pump if it is to be inactive for a few hours.
3. Disconnect the air supply from the pump if it is not in use.
4. The material supply hose must not be too small or restrictive.  
**Note:** Be sure to use non-collapsing type hose.
5. When the diaphragm pump is used in a forced-feed (flooded inlet) situation, it is recommended that a "Check Valve" be installed at the air inlet.
6. Secure the diaphragm pump legs to a suitable surface to insure against damage by vibration.

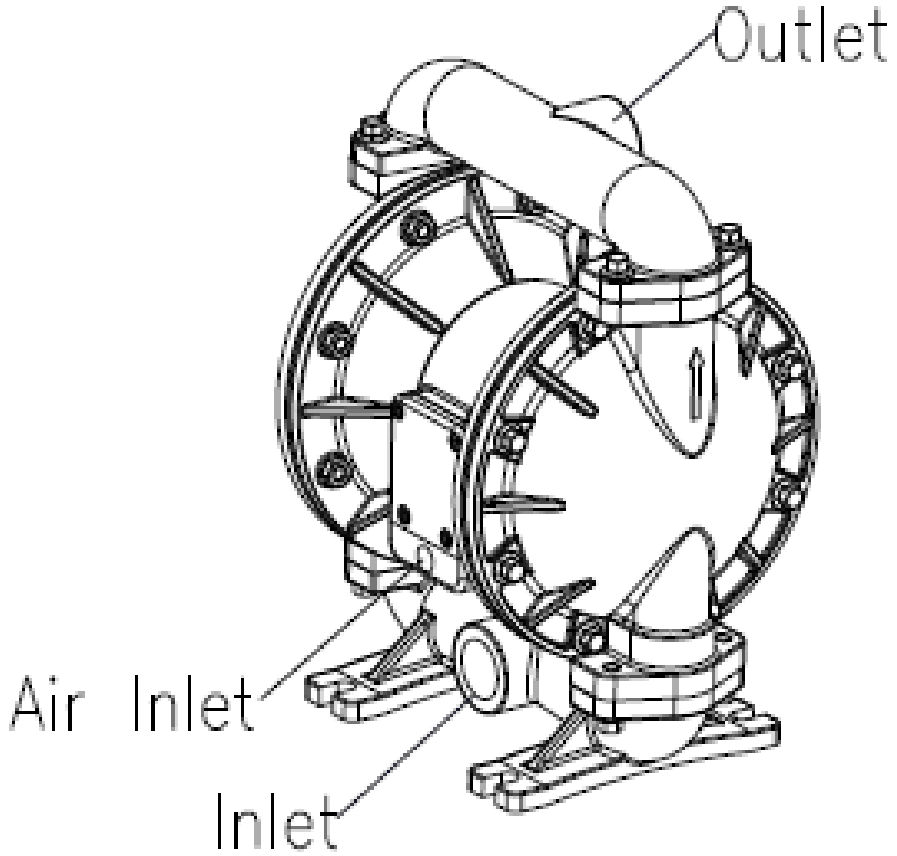
## **MAINTENANCE**

1. Provide a clean work surface to keep parts free from possible contamination from dirt and foreign matter during service disassembly and reassembly.
2. Keep good records of service activity and include pump in preventive maintenance program.
3. Before disassembling, empty captured material in the outlet manifold by turning the pump upside down to drain material from the pump.

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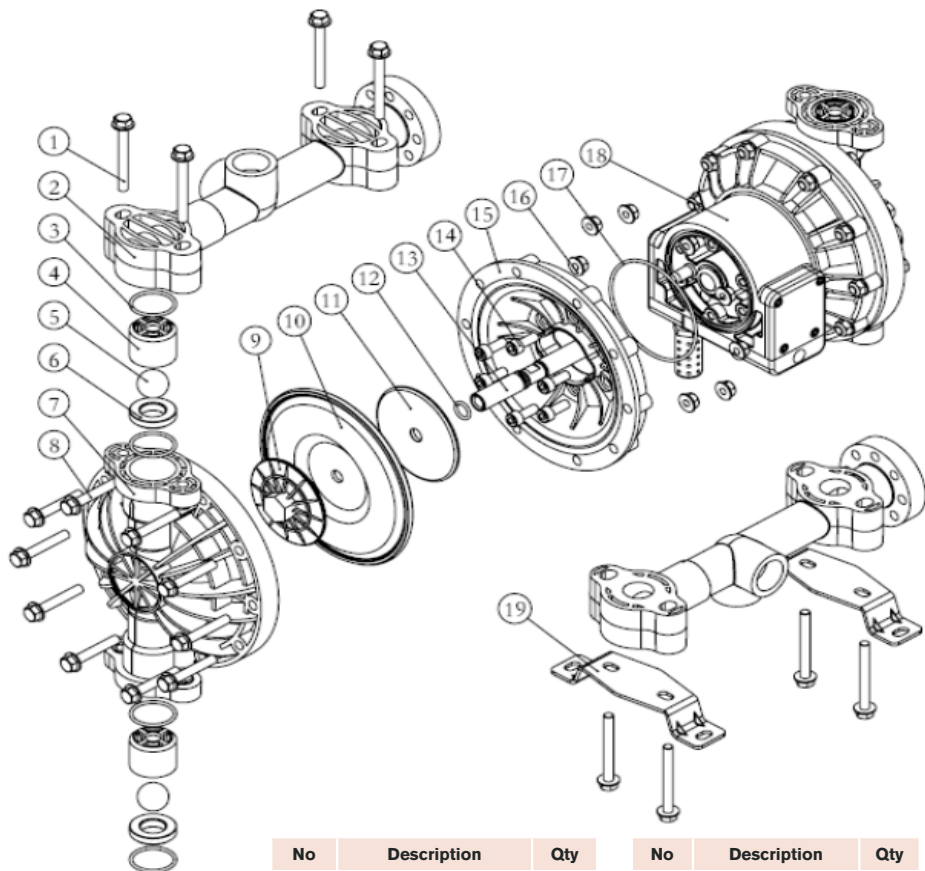
### CONNECTIONS



## DOUBLE DIAPHRAGM PUMPS

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### L-DDP25 PARTS DIAGRAM



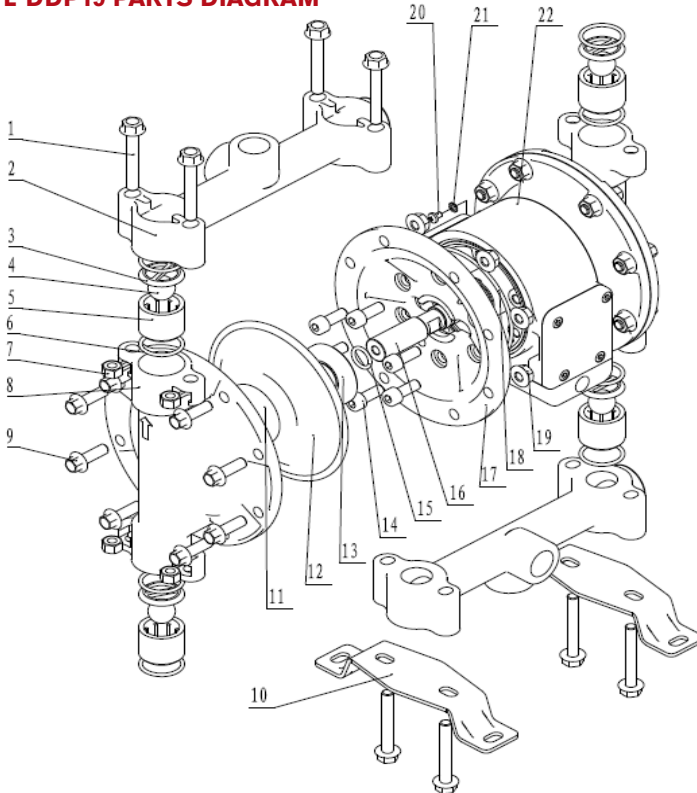
No	Description	Qty
1	Hex bolt M8x70	8
2	Discharge manifold	2
3	O-ring	8
4	Valve cover	4
5	Valve ball	4
6	Valve seat	4
7	Liquid chamber	2
8	Hex bolt m8x50	20
9	Liquid chamber plate	2
10	Diaphragm	2

No	Description	Qty
11	Air chamber plate	2
12	O-ring	1
13	Connecting shaft	1
14	Screw	12
15	Air chamber	2
16	Screw	28
17	O-ring	2
18	Air motor assembly	1
19	Bracket	2

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## L-DDP13 & L-DDP19 PARTS DIAGRAM



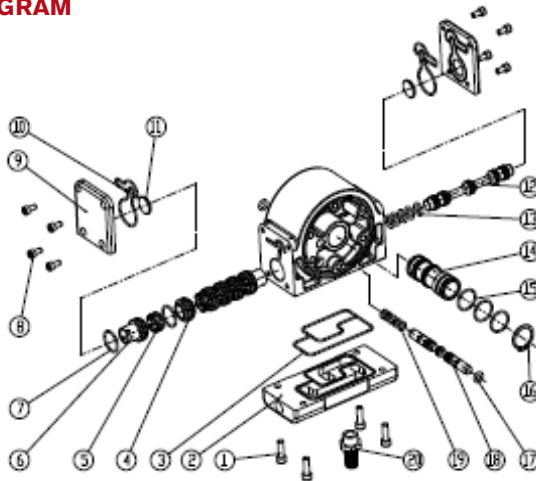
No	Description	Qty
1	Hex bolt M8x60	8
2	Discharge manifold	2
3	O-ring (28.24 x 2.62)	8
4	Valve cover	4
5	Valve ball	4
6	Valve seat	4
7	Liquid chamber	2
8	Hex bolt M8x35	16
9	Nut M8	24
10	Liquid chamber plate	2
11	Diaphragm	2

No	Description	Qty
12	Air chamber plate	2
13	Bracket	2
14	O-ring (13.94 x 2.62)	1
15	Screw M8x16	12
16	Connecting shaft	2
17	Air chamber	2
18	Washer	2
19	Screw M5x8	1
20	O-ring (94.92 x 2.62)	2
21	Air motor assembly	1

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### AIR MOTOR DIAGRAM

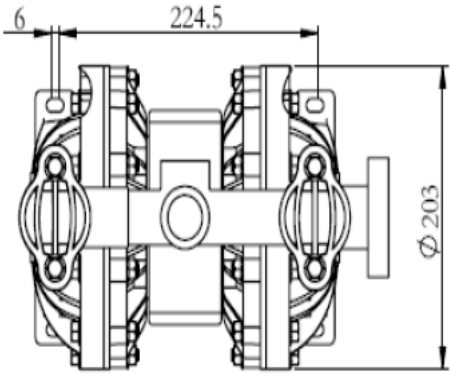
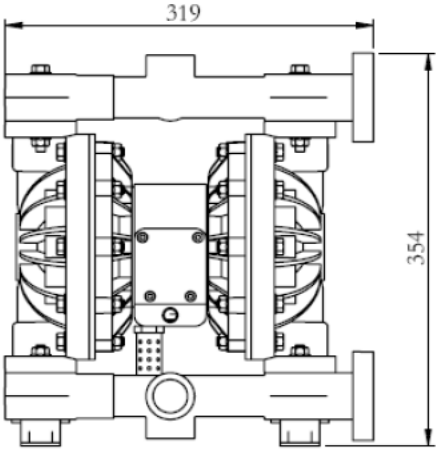


No	Description	Qty	No	Description	Qty
1	Hex bolt m6x20	4	11	Washer	2
2	Press board	1	12	Major valve	1
3	Seal for press board	1	13	O-ring (9.93 x 2.62)	5
4	Spacer	4	14	Sleeve	1
5	Spacer	5	15	O-ring (20.35x1.78)	3
6	Spacer	2	16	Retaining ring 25	1
7	O-ring (20.35 x 1.78)	6	17	O-ring (7.1x2.65)	2
8	Hex bolt M5x12	8	18	Pilot valve	1
9	Gasket	2	19	O-ring (6.86x1.78)	5
10	Seal for gasket	2	20	Muffler 3/8	1

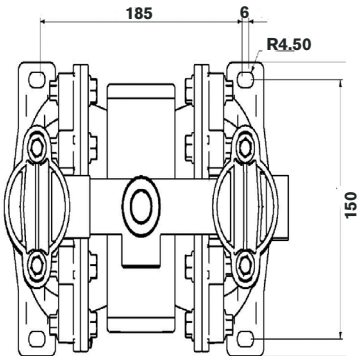
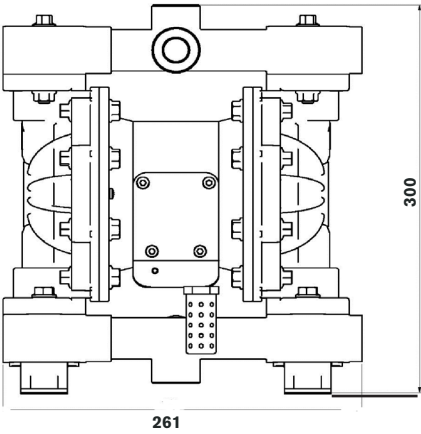
**DOUBLE DIAPHRAGM PUMPS**

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**DIMENSIONAL DATA FOR L-DDP25**



**DIMENSIONAL DATA FOR L-DDP13 & L-DDP19**





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### **TROUBLESHOOTING GUIDE**

<b>PROBLEM</b>	<b>SOLUTION</b>
Product discharging from air exhaust	Check for diaphragm rupture
	Check tightness of the diaphragm
Air bubbles in product discharge	Reseal suction hose connections
	Check the O-rings between the intake manifold and the fluid caps.
	Check the diaphragm nut is tight.
Low output volume, erratic flow or no flow	Check air supply is correct
	Check for blockage in the outlet hose
	Checked for kinked (restricted) or collapsed inlet hose.
	Check all connections for leaks. <b>NOTE:</b> All connections must be air tight
	Inspect the pump for solid objects clogged in the diaphragm chamber or check valves.

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### NOTES: