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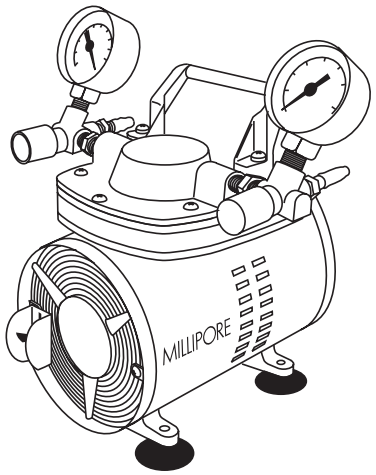
Chemical Duty Vacuum/Pressure Pump



WP61 115 60 (115 V, 60 Hz)
WP61 220 50 (230 V, 50 Hz, 1.7 A)
WP61 100 60 (100 V, 50/60 Hz)

Introduction

The Millipore vacuum/pressure pump is a continuously running constant air flow type unit for use with laboratory equipment. This vacuum/pressure pump combines all the advantages of lower pressure pumps with the perfect uniformity of diaphragm type operation. It compresses air by means of a long-life diaphragm, which flexes within the compressor. This pump is intended for filtration of liquids or gases, or for other continuous or intermittent use, with all types of filter holders.

CAUTION: Always use the supplied hydrophobic vent filter or a vacuum-flask water trap in conjunction with the pump (see Figures 1 and 2). Never pump or draw liquids through the pump, as this will damage it.

The pump has these features:

- The motor and pump are permanently lubricated.
- A thermal overload switch with automatic reset protects the motor.
- Low operating noise is further minimized by rubber feet.
- All internal surfaces (except the stainless steel leaf valves) are coated with PTFE polymer, to prevent corrosion.
- The diaphragm is PTFE-lined to prevent attack by chemicals or solvent vapors.
- A Millex®-FA$_{50}$ hydrophobic vent filter and 27 in. (69 cm) of 1/4 in. (6 mm) I.D. silicone vacuum tubing are supplied with the pump.

Rules for Safe Operation

The motor is thermally protected and will automatically restart unexpectedly when the overload device resets. Do NOT pump flammable or explosive gases or vapors or operate this pump in an atmosphere containing flammable or explosive gases or vapors.

Use of this pump in a manner not specifically stated in this user guide may result in severe bodily injury.

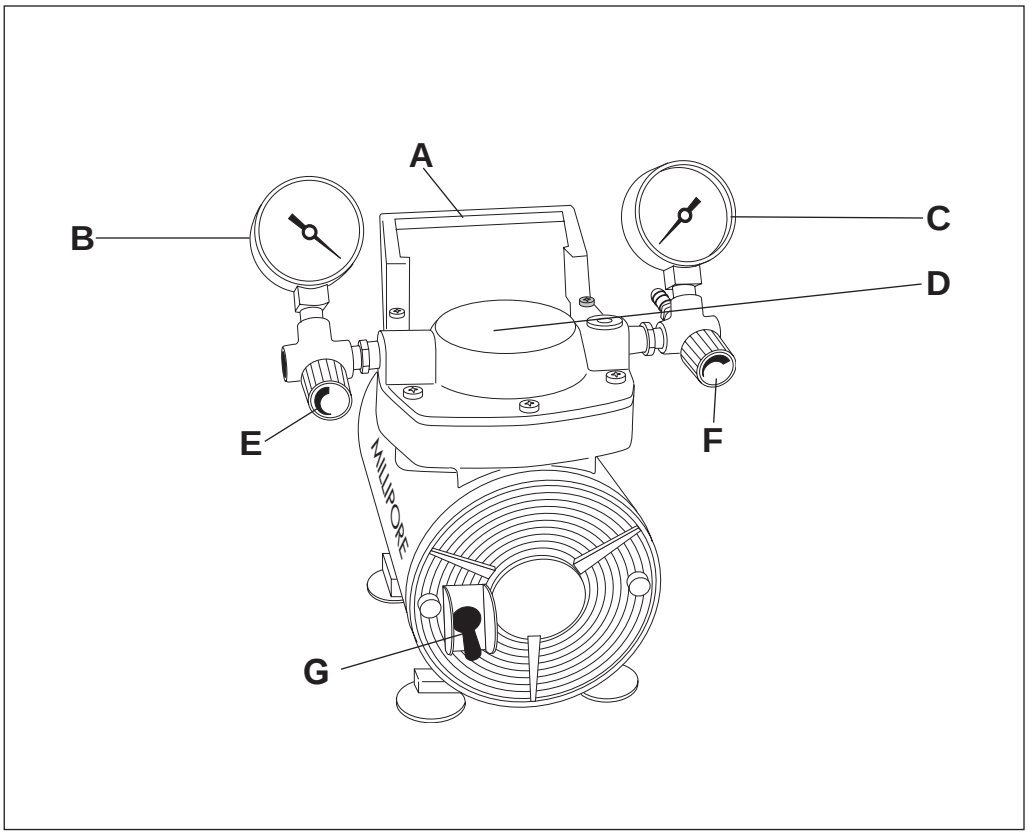
Read and understand the information in this owner's manual before operating the vacuum/pressure pump.

- The vacuum/pressure pump should be operated in a dry clean and well ventilated area.

  NOTE: To ensure proper cooling, the vacuum/pressure pump cooling fan must not be blocked and should be a minimum of 1 in. (2.5 cm) away from any wall or obstruction.

- When the unit is not in use, wrap the power cord around the vacuum/pressure pump and store in a dry place. Do not abuse the cord.
- Replace the Millex-FA$_{50}$ vent filter (SLFA 050 10) if necessary.
- Inspect hose, plug, and cord for signs of damage before use. Do not use if a deficiency is found. Never operate a damaged unit. Contact Millipore for replacement parts; see Technical Assistance section for details.
- This vacuum/pressure pump needs no lubrication. Applying oil to any part may result in polluted air delivery to the air-handling equipment and will damage the pump.
- To operate at maximum efficiency, the pump system must be thoroughly clean. Refer to the Maintenance section for details on properly cleaning the pump.
- Compressed air blast must never be aimed at anyone because it can cause serious injury. Keep children away.
- All vacuum/pressure pumps generate heat, even under normal operating conditions. To avoid serious burns, never touch the head parts or tubing during and immediately after operation.

Pump Components



Letter	Description
A	Handle
B	Vacuum gauge
C	Pressure gauge
D	Pump head
E	Vacuum valve
F	Pressure valve
G	On/off switch

Identification Symbols

WARNING

ON (Power)

OFF (Power)

Direction of Pressure Control (Valves)

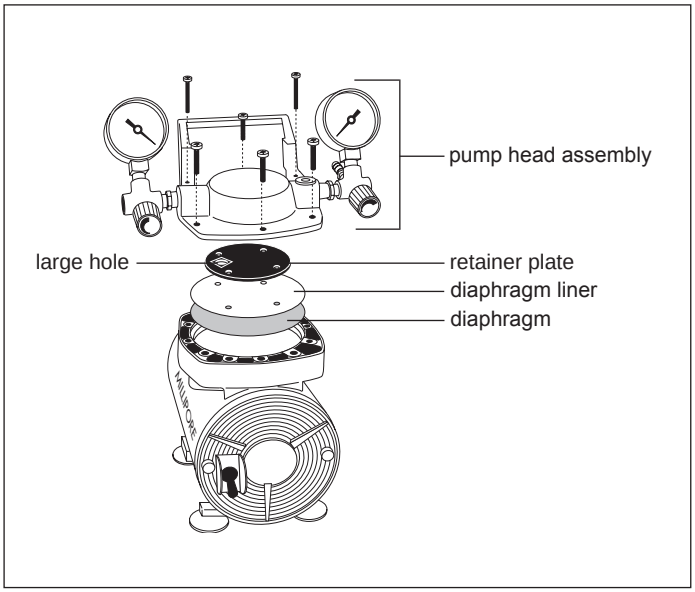
Hot Surface

Protective Conductor Terminal

Replacing the Diaphragm

1. Unscrew the four socket-cap screws from the pump head and unscrew the two screws from the pump handle. Remove the pump head assembly from the top of the pump.
2. Unscrew the four Phillips-head screws, then remove the retainer plate, the diaphragm liner, and the diaphragm.
3. Replace the diaphragm (the number printed on it should be facing up), aligning the holes in the diaphragm with the screw holes in the top of the pump.
4. Replace the diaphragm liner, lining up holes in the liner with the screw holes in the top of the pump.
5. Replace the retainer plate, aligning the four small holes with the screw holes and orienting the large hole to the left as shown. Replace and tighten the Phillips-head screws.

   CAUTION: Take care not to nick the heads of the screws; burrs can damage the inlet valve.
6. Replace the pump head assembly and tighten the six screws to hold it in place.



Specifications

Performance

Vacuum	24.0 inches of Hg
Pressure	20 psi continuous, 35 psi intermittent (230 V pump duty cycle: 15 minutes on, 15 minutes off)
Regulatory Compliance	115 V UL/CSA recognized; 230 V CE compliant 2004/108/EC 2006/95/EC 98/37/EC
Sound Level	Less than 60 dB(A)

Dimensions	WP61 115 60, WP61 100 60	WP61 220 50
Length	7.5 in. (19.1 cm)	10.5 in. (26.7 cm)
Width	7 in. (17.8 cm)	9.4 in. (23.9 cm)
Height	8 in. (20.3 cm)	9.7 in. (24.6 cm)
Weight (approximate)	9 lbs (4.1 kg)	12 lbs (5.4 kg)
Tubing connectors	Stepped 1/4 in. hose barb	

Materials of Construction

Body and pump head	Die-cast aluminum
Diaphragm	Buna-N with PTFE lining
Head gasket	Buna-N
Leaf valves	High grade stainless steel
Internal pump surfaces	PTFE-coated

Electrical Specifications

Shaded-pole, single phase, 1/15 HP motor

115 V, 60 Hz *or*	
100 V, 50/60 Hz AC	3-pronged, grounded cord and plug
230 V, 50 Hz AC	HAR cordage, CEE 7/7 (Schuko) plug
Line voltage limits	±10% of supply voltage

Environmental Conditions

Temperature	5 °C (41 °F) to 40 °C (104 °F)
Relative Humidity, Max.	80% for temperatures up to 31 °C, decreasing to 50% at 40 °C
Altitude, Max.	2,000 meters
Pollution Degree	2, per IEC 664 (indoor usage: lab, office, etc.)
Installation Category	II, per IEC 624 (local level: appliances, portable equipment, etc.)

Air Flow Rates

Air flow rates at different vacuum and pressure settings are shown in the following table. For vacuum operation, pump exit pressure is 1 atmosphere (14.7 psi). To obtain the indicated performance, the specified electrical and environmental specifications must be met.

Vacuum		Flow Rate		Pressure		Flow Rate	
mbar	in. Hg	L/min	CFM	bar	PSIG	L/min	CFM
0	0	37	1.31	0	0	37	1.31
840	5	25	0.88	0.3	5	32	1.13
670	10	18	0.64	0.7	10	27	0.95
510	15	10	0.35	1.0	15	21	0.74
340	20	4	0.14	1.4	20	16	0.57
200	24	0	0	1.7	25	12	0.42
—	—	—	—	2.4	35	4	0.14

Maintenance

Under normal operating conditions, and using proper handling procedures, the chemical duty vacuum/pressure pump should provide many hours of trouble-free operation.

Millipore dry vacuum/pressure pumps are 100% oil-free. The pump employs a non-lube piston and cylinder. No maintenance is necessary for the bearings. All bearings are sealed and permanently lubricated. Lubrication should not be attempted. The units are built for continuous duty operation with quietness and durability.

CAUTION: Do not lubricate any of the parts with oil, grease or petroleum products. Do not clean with acids, caustics or chlorinated solvents. Do not replace the connecting rod or motor bearings.

Product Ordering Information

This section lists the catalogue numbers for the Chemical Duty Vacuum/Pressure Pump.

Vacuum/Pressure Pump	**Catalogue Number**
115V, 60 Hz	WP61 115 60
230V, 50 Hz	WP61 220 50
100V, 50/60 Hz	WP61 100 60
Replacement Parts	
Pump Maintenance Kit includes diaphragm, diaphragm liner, O-ring gasket, head screws, and handle screws	WP61 MNT 00
Pump Rebuild Kit includes hold-down plate assembly, valve plate assembly, pump head, vacuum gauge, pressure gauge, head screws, and handle screws	WP61 RBD 00
Millex-FA$_{50}$ filter, 10/pk	SLFA 050 10
Pressure tubing, silicone, 25 ft	XX80 000 25
Vacuum tubing. silicone, 4 ft	XX71 000 04

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