

StonyLab[®]

**Diaphragm Vacuum Pump
HG-series**

Operation Manual

(Please read the instruction carefully before you use the machine)

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I. Introduction

The HG series diaphragm vacuum pump offers continuous, oil-free operation with low noise, high efficiency, and a long service life. Available in various models for different applications, it can serve as a solvent filtration device with both vacuum pump and compressor functions, a high vacuum pump for use with a rotary evaporator, and a dual-purpose pump for positive and negative pressure filtration, significantly reducing laboratory procurement costs. Key advantages include a stable vacuum, adjustable pressure, compact size, lightweight design, ease of use, oil-free and clean operation, long-lasting and stable performance, 24-hour continuous operation, simple maintenance and repair, and autonomous operation. It is primarily used in vacuum distillation, reaction vessels, vacuum filtration, vacuum concentration, vacuum drying, and for compressing and converting gases.

II. Technical Parameters

SKU Model	SB-HX-VacPu mp-HG-30F	SB-HX-VacPum p-HG-30LF	SB-HX-VacPu mp-HG-30DF	SB-HX-VacPu mp-HG-60DLF
Pumping Speed(L/MIN)	30	30	30	60
Ultimate Pressure(MPA)	>0.085	>0.085	>0.095	>0.085
	150mbar	150mbar	50mbar	150mbar
Positive Pressure(PSI)	—	40	—	40
Stages	1	1	2	2
Motor power(W)	180	180	180	180
Dimension L×W×H (mm)	250×135×210	250×135×210	315×135×210	315×135×210
Weight (mm)	9	9	13	13
Diaphragm Material	Corrosion-resistant rubber			
Noise (DB)	<50			
Function	Negative Pressure	Positive and Negative Pressure	Negative Pressure	Positive and Negative Pressure

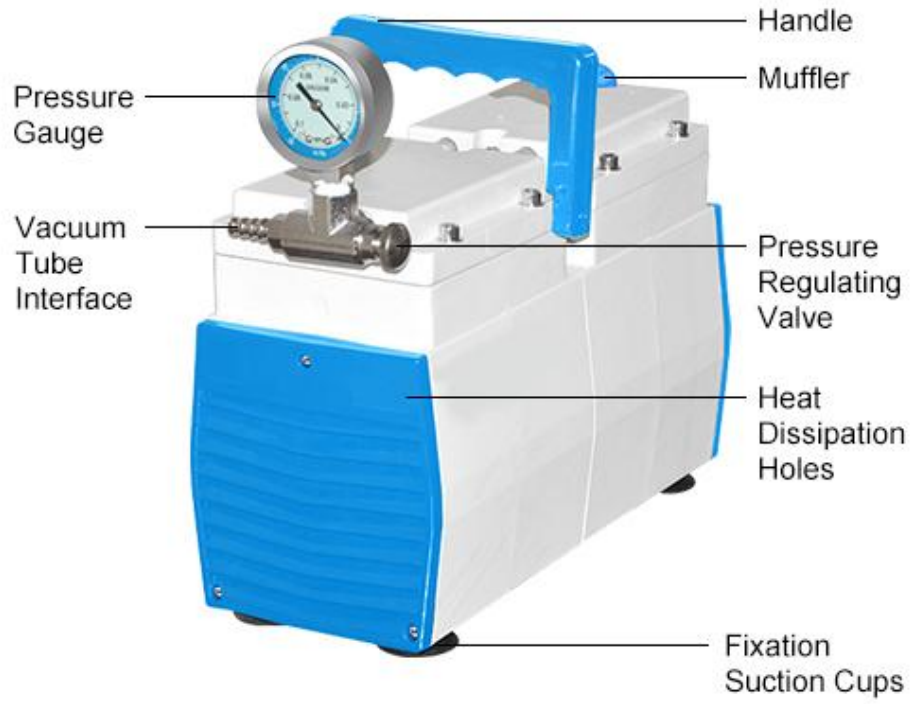
Note: Please thoroughly read this manual before using the product.

Installation and commissioning should only be performed by qualified engineers or electricians.

III. Usage Precautions

1. This product is designed for pumping air only.
2. Prevent corrosive liquids or particulate materials from entering the pump. Filter out water vapor, oil contaminants, or other liquids in advance.
3. The operating temperature must not exceed 55°C.
4. Do not use this product at high altitudes, as low air pressure will affect its performance.
5. As a precision instrument, protect this product from dirt and moisture.

IV. Diagram



V. Installation

1. Disconnect the power supply before installation or maintenance to prevent electric shock, injury, or death.
2. To avoid electric shock, do not use this product in environments where it may come into contact with water or other liquids. Protect the machine in case of rain or snow.
3. Ensure motor wiring complies with local electrical regulations.
4. Verify that the local voltage matches the machine's requirements (see label). Use a transformer if the voltage is different.
5. Avoid touching the motor casing during or immediately after use to prevent burns.
6. This product does not require lubrication.
7. Ensure the connecting hose size matches the air inlet. Install the provided silencer at the air outlet.

VI. Placement

1. To reduce noise and vibration, place the product on a shockproof device on a horizontal tabletop to minimize resonance.
2. Ensure the product's vents are unobstructed to maintain proper heat dissipation.
3. Connect the power supply and turn on the power switch.

VII. Handling Abnormalities

1. Disconnect the power supply.
2. Do not disassemble the product without disconnecting the power supply.
3. Allow the pump to cool down.
4. Refer to the Common Troubleshooting section.
5. Contact the manufacturer or distributor for further assistance.
6. The motor is equipped with an overheat protector to prevent damage from overheating or overloading.

VIII. Troubleshooting

Before conducting maintenance, ensure the power supply is disconnected. If the motor struggles to run or runs slowly under pressure, switch off the device and disconnect the power supply. Verify that the power supply matches the specifications on the nameplate. Inspect plugs, wires, and switches for signs of wear or detachment. If the pump overheats or produces excessive noise, cease operation immediately and perform maintenance.

Note: Our company bears no responsibility for pumps that have been modified by users.

Potential Causes	Low Pressure	Low Vacuum	Excessive Noise	Overheating	Failure to Initiate
Contaminated Valve Plate	√	√			
Valve Plate Damage	√	√			
Impaired Membrane	√	√			
Low Voltage Supply	√	√		√	√
Voltage Mismatch			√	√	√
Pressure-Triggered Start					√
Loosened Pressure Regulator Valve	√	√	√		
Leakage in Rubber Hose	√	√	√		

IX. Maintenance

Regular upkeep is crucial to ensure optimal performance. A grimy filter or silencer can impede airflow, leading to potential issues such as overheating and excessive noise. Therefore, it's imperative to routinely inspect and cleanse the filter material within the pump head. Should the need arise, utilize alcohol to clean the air chamber. Avoid using substances like organic compounds, acids, corrosive, or flammable solvents during cleaning, as they could adversely affect the longevity of the pump. Lubrication of any part of the pump is strictly prohibited.

In case of servicing, you have the option to return the pump to the factory or follow the outlined installation steps. Each unit includes essential components such as a Vacuum Pressure Gauge (-0.1Mpa), a connecting hose ($\Phi 7\text{mm} \times \Phi 13\text{mm} \times \Phi 1000\text{mm}$), a silencer, and a manual. Contact your agent or the manufacturer for any required parts.

Below are the steps for basic type pump HG-30 maintenance (take note of the accessory locations):

- A. Start by disconnecting the power supply to prevent any potential accidents.
- B. Release gas trapped in the pump body by loosening the pressure valve.

- C. Remove the hose to facilitate further disassembly.
- D. Extract the pressure gauge and the four-way valve.
- E. Proceed to unscrew the six hexagonal screws located at the pump head to access the gas chamber.
- F. There is seal in the grooves on the opposite side of the air chamber, if damaged, discard them. Likewise, if the filter wool in the air chamber is soiled, discard it.
- G. Beneath the air chamber is a circular diaphragm chamber equipped with a valve plate. Pull out the diaphragm chamber.
- H. Take a close look at the valves (both black rubber and stainless steel) for any signs of wear or contamination; clean or replace as necessary. Simply unscrew the screws.
- I. Underneath the membrane chamber lies a black diaphragm secured by a small gland. Loosen the three screws on the gland, and then remove the gland. Inspect the diaphragm visually for signs of damage or aging. If it appears broken or significantly worn, please replace it.
- J. Employ a water-based solvent or high-pressure gas to clean the pump head if needed. Note: Avoid using organic compounds, acids, or corrosive solvents for cleaning or lubricating any pump component, as it may shorten the pump's lifespan. Only utilize water-based solvents for these tasks.
- K. During diaphragm replacement, ensure to utilize a new original

diaphragm to maintain optimal performance. Place the diaphragm on the raised connecting rod.

- L. Install the diaphragm chamber with the new valve plate. Avoid creating any marks or adhesions on the valve plate.
- M. Install the new seal and filter wool.
- N. Once completed, cover the air chamber and securely fasten the hexagonal screws.
- O. Reattach the four-way valve and pressure gauge in accordance with their designated markings.

Note: please be aware that our HG series diaphragm vacuum pumps are subject to continuous improvements without prior notice.