



10311001/10311002/10311003

Zephyrus Series

Diaphragm Pump

**User Manual**

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For claims under the warranty please contact your local supplier. You may also send the instrument directly to manufacturer, enclosing the invoice copy and by giving reasons for the claim.

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## II. Safety



### **IMPORTANT Safety Items to be Observed.**

## **Safety Warnings**

### **! Dangerous (may result in serious loss of property or casualties)**

1. The instrument must be grounded and away from sources of electromagnetic interference.
2. Before use, please confirm the voltage and frequency of the power supply match the instruments' name plate voltage requirements
3. The instrument should be operated via a separate power outlet.
4. When the instrument is not in use, turn 'OFF' the power switch and unplug the power plug.
5. Do not alter, cut or shorten the instrument's power cord.
6. Do not repair the instrument without proper authorisation, only a qualified or accredited service technician should conduct repairs.

### **! Warning (may cause property damage or personal injury)**

7. Please fully read and understand all the user manual instructions prior operation.
8. When unplugging the power plug, do not pull on the power cord directly.
9. Prior to all the below activities, the instruments power plug must be 'unplugged':
  - 9.1 When replacing the fuse
  - 9.2 Instrument failure
  - 9.3 Instrument not in use for long periods
  - 9.4 When moving or relocating the instrument

### **! Attention (may affect performance or service life)**

10. The instrument should be placed on a stable, hard and level surface.
11. The instrument requires adequate ventilation and operating space.
12. The instrument must be used in accordance with the correct settings as outlined within this user manual.
13. Only accredited and qualified professional repair technicians can open the instrument or conduct repairs. Persons performing repairs on the instrument other than those selected or approved by the Company shall operate to void any warranty contained hereinabove for the product.

## III. Zephyrus Series Diaphragm Pump – Introduction

The Zephyrus series diaphragm pump is constructed using polytetrafluoroethylene (PTFE) making it corrosion resistant and ideal for processing corrosive gases commonly used by the pharmaceutical and petrochemical industries. It is specifically designed to easily work in environments where suction filtration, vacuum distillation, rotary evaporation, vacuum concentration, centrifugal concentration, solid phase extraction, and the like are required.

### 3.1 Main Features

#### 3.1.1 Strong Chemical Corrosion Resistance

The Zephyrus series corrosion-resistant pump uses a PTFE to coat all surfaces that in contact with the processed gas/liquids. These include the specially designed PTFE coated diaphragm and pump head, joint fixtures, and pipelines. Additionally, all electrical components and chassis are also solid PTFE or PTFE coated.

#### 3.1.2 Non-Polluting and Maintenance Free

The Zephyrus series diaphragm pump can completely recover and separate solvents used in the processing, thereby eliminating environmental pollution. The Zephyrus series diaphragm pumps are water/oil-free dry pumps and are ideal for use in “clean rooms” and low-noise environments. The pumps are designed for very low maintenance.

#### 3.1.3 Low Noise and Low Vibration

The Zephyrus series diaphragm pumps use a direct drive power transmission plus a low noise diaphragm that operates at or below 70 decibels.

#### 3.1.4 Overheat Protection

The Zephyrus series diaphragm pumps are equipped with thermal protection sensors that stop processing if excessive heating occurs. The process will automatically be restarted after the system cools.

## 3.2 Proper Use

The Zephyrus series are designed for non-residential use e.g. in schools, laboratories or factories and to be used in conjunction only with accessories recommended within this manual and by the manufacturer

## 3.3 After Sales Support

If problems are encountered or technical assistance support is required, when installing or using the instrument, please immediately contact the service department. The company may provide technical assistance and information regarding the instrument or equipment or service without charge at its sole discretion. Buyer assumes sole responsibility for any reliance on or use of such assistance and information, and the company makes no warranty thereon.

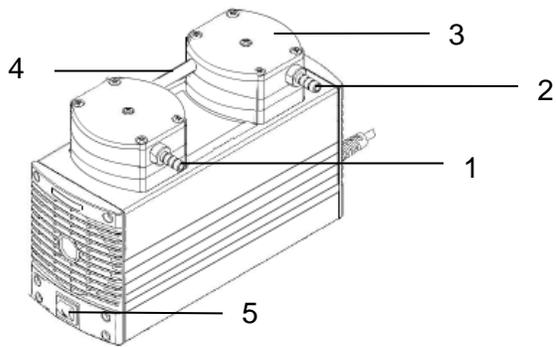
Upon contact the following information is required to be provided:

- Product serial number (located on rear panel instrument nameplate)
- Warranty card
- Description of issue or problem (i.e., software or hardware)
- Method and or operating steps you have undertaken towards resolution.
- Your contact details inclusive of telephone number and email address.

For claims under the warranty please contact [serviceusa@hollandgreenscience.com](mailto:serviceusa@hollandgreenscience.com). Prior to returning any pump for service or maintenance, it is mandatory to provide information if the pump has been contaminated and if so, what pollutants or hazardous substances may be existing within the pump. Without this required statement provided in advance to the receiving service team, the pump will be declined by receiving and returned to the sender.

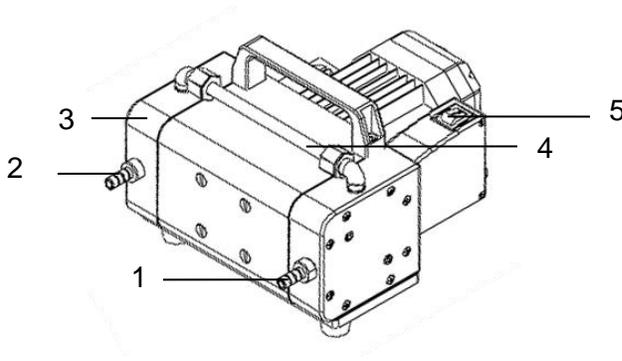
## IV. Zephyrus Series Diaphragm Pump Overview

### 4.1 Zephyrus Mini Diaphragm Pump



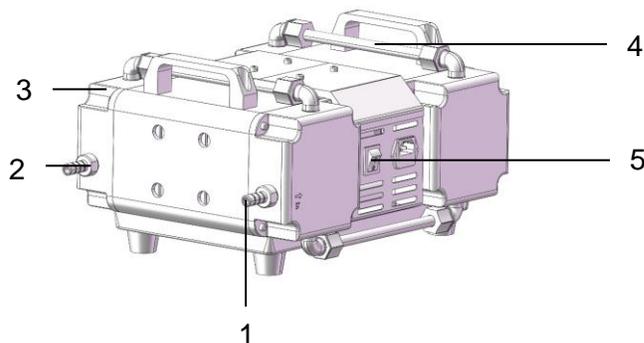
1. Suction Side
2. Discharge Side
3. Working Pump Body
4. Connection Pipe
5. Power Switch

### 4.2 Zephyrus Diaphragm Pump



1. Suction Side
2. Discharge Side
3. Working Pump Body
4. Connection Pipe
5. Power Switch

### 4.3 Zephyrus Max Diaphragm Pump



1. Suction Side
2. Discharge Side
3. Working Pump Body
4. Connection Pipe
5. Power Switch

## V. Technical Specifications

<b>Product Name</b> <b>Parameters</b>	Zephyrus Mini	Zephyrus	Zephyrus Max
Model	10311001	10311002	10311003
Rated Voltage / Frequency	110 V±10%/60 Hz		
rated power	240 W	400 W	400 W
Pump Head Type	Ultimate Vacuum, Two-Stage Pump		
Ultimate Vacuum	6~8 mbar		
Maximum Operating Pressure	1 bar		
Maximum Flow	35 L/min	65 L/min	125L/min
Interface Specification	10 mm	12 mm	
Medium and Ambient Temperature	5 °C ~ 40 °C		
Relative Humidity	<80%		
Pump Head Material	PTFE Composite Diaphragm Material		
Valve Material	FFPM		
Work System	Continuously Working		
Noise (dB)	<70		<80
Dimensions (L x W x H)mm	330x170x210	290x240x355	300x380x200

## VI. Standards and Conformity

**Construction in Accordance with the following Safety Standards:**

**EN 61010-1**

**CSA C22.2#61010-1-12:2012**

**Construction in Accordance with the following EMC Standards:**

**EN 61326-1**

## VII. Inspection

### 7.1 Packing List

Unpack the equipment carefully and check for any damage which may have arisen during transport. In the event of identified damage, please contact [serviceusa@hollandgreenscience.com](mailto:serviceusa@hollandgreenscience.com) for technical support.

- Carefully unpack the shipping container.
- Remove the diaphragm pump and place it onto a clean, level surface / bench.
- Check the instrument and accessories against the below 'Packing List'.

If the instrument or accessories are found to be incorrect, or the accessories are incomplete or abnormal, please contact the supplier/ manufacturer.

The package includes the following items:

Item Description.	Quantity.
Diaphragm Pump	1
Power Cord	1
Quick Setup Card	1



**Note:**

If you find any visible damage on the product, please do not connect the product to Power supply.

## VIII Installation instructions

### 8.1 Unpacking inspection

- Carefully unpack the shipping container.
- Remove the diaphragm pump and accessories and make sure everything on the packing list is included. If anything is missing or damaged, please contact the service department as soon as possible to order a replacement.

### 8.2 Installation

- The diaphragm pump and the accessories should be kept indoors and in a room temperature environment.
- The diaphragm pump's motor is air-cooled, and it should only be operated in a well-ventilated area to ensure sufficient cooling air is available.
- The required AC line voltage and power usage are listed on the pump's nameplate. Make sure that the external power line voltage agrees with that listed on the pump's nameplate.
- The diaphragm pump should always be kept in a dry environment and no water should ever be sprayed or poured directly on the diaphragm pump.
- Only high-pressure hoses should be connected to the discharge outlet port of the diaphragm pump. Note that the hose connected to the pump's discharge outlet port will be at a relative high point, and this will allow liquid to flow away from the port and prevent backflow and clogging.

## IX Operating Instructions

- After properly assembling the Zephyrus series diaphragm pump, connect the electrical power cord to the wall outlet and turn the power switch to 'ON'.
- After any processing is completed, open the vacuum seal (break vacuum) and continue to run the vacuum pump for at least two minutes. This will help extend the life of the pump by eliminating processing residuals.

**Note:**

- a. When vacuum pump is being used the exhaust port must not be blocked.
- b. Do not transport the pump unless completely empty.
- c. This equipment is not considered safe for use in areas that are 'Hazard Free'. This is due to the potential for fire and/or explosion if volatile chemicals are in use.
- d. It is not recommended that highly flammable or explosive chemicals be used in the processing due to the possibility of combustion.
- e. The suction port of the pump should never be connected to any high-pressure sources such as pressurized argon or nitrogen tanks.
- f. If the Zephyrus series diaphragm pump fails to power on after being properly connected to the wall outlet, turn the power switch to 'OFF' and then 'ON'. If the pump does not work after repeating this 'OFF'/'ON' switching please contact a qualified service technician.

## X. Fault Diagnosis

<b>Problems</b>	<b>Possible Causes</b>	<b>Possible Solution</b>
No power	Instrument is not connected to a power supply	Check that the power supply and connection are correct and the power switched 'ON'.
	Fuse blown or wall circuit breaker tripped	Open the base plate and check the power fuse and replace if necessary. Reset circuit breaker(external).
	Pump is overheated	Allow the pump cool and determine the cause of the overheating.
Pump runs but does not create vacuum	Connection line blockage	Remove blockage in the connection line.
	Connected valve is closed, or the filter is blocked	Check all valves and filter connections.
	Excess condensation in pump head	After the pump is relieved of vacuum, continue to run the pump for ~ 5 minutes and restart process
	Composite diaphragm and valve plate contamination has occurred	Clean or replace the composite diaphragm and valve plate.
System leaks or fails to reach ultimate vacuum	Pipe is improperly connected or cracked	Check pipe connections
	Pipe leakage	Replacement of pipes is recommended
	Pump head has condensed liquid	After the pump is relieved of vacuum, continue to run for about 5 minutes (note that condensed liquid will then be collected at the pump exhaust outlet)
	Composite diaphragm and valve plate contamination is present	Clean or replace the composite diaphragm and valve plate

## XI. Maintenance and Cleaning

Proper maintenance and operation of the vacuum pump is recommended to extend the pump's service life.

The Zephyrus series diaphragm pump should be stored in a dry ventilated area.

The inlet and outlet port connections of the pump must be sealed with a special corrosion resistant glue.

It is recommended that the Zephyrus series diaphragm pump be stored in a dry and clean area after routine operations.

The external surface of the Zephyrus series diaphragm pump should be cleaned after the power is disconnected using a non-abrasive cleanser.

If liquid or moist solids enter the instrument, immediately disconnect the power supply and contact the service department for assistance.

- Minor surface stains (e.g., coffee spills) should be cleaned using a soft rag and mild detergent.
- Do not allow any form of cleaning solution to seep or flow into the instrument.
- The system power must be disconnected before any maintenance or cleaning occurs. Only use the recommended methods described above to clean the Zephyrus series diaphragm pump.