



Quick-Start Operating Guide

Document No.1800-02

Vacuum Antechamber

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Your Comprehensive
 Equipment Source





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Safety Notice

A thorough familiarity with all operating guidelines is essential to safe operation of the product. Failure to observe safety precautions could result in poor performance, damage to the system or other property, or serious bodily injury or death.



CAUTION

Cautions are used when failure to observe instructions could result in significant damage to equipment.

The following symbols are intended to call your attention to two levels of hazard involved in operation:



WARNING

Warnings are used when failure to observe instructions or precautions could result in injury or death.

The information presented here is subject to change without notice.

1.0 Introduction

This manual provides information on installing and operating your Terra Vacuum Antechamber.

By studying this document carefully, you can be assured of a long, efficient service life from your system.



Aluminum or Stainless Steel – for Terra Series 400 Glove



Acrylic – for Terra Series 200 Glove Box



Vacuum Antechamber

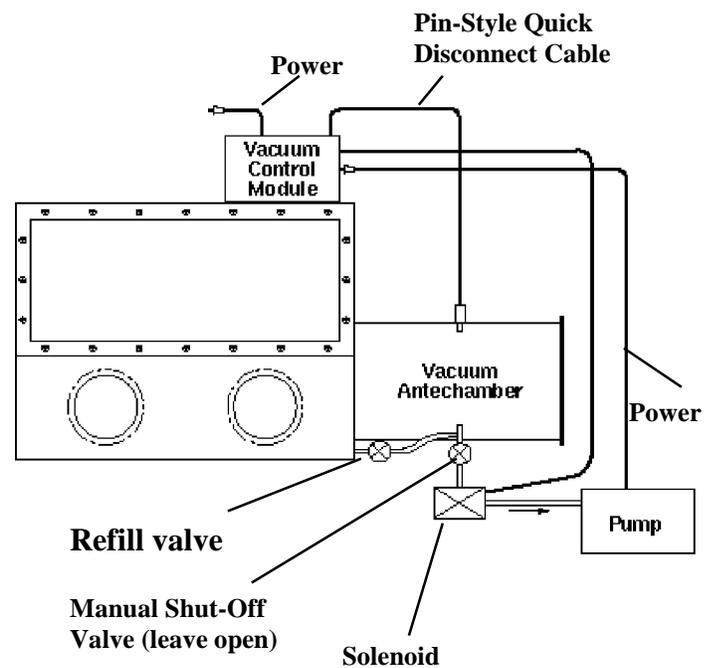
2.0 Description

Terra's Vacuum Antechamber assures a safe, contamination-free atmosphere for use with Terra's Series 200 Polymer Glove Box or Series 400 Stainless Steel Glove Box. It allows you to perform moisture removal and other degassing operations on materials prior to transfer into the glove box without risk of contaminating the chamber environment.

Available in acrylic, aluminum or stainless steel, it features a single center clamped, counterbalanced door for easy operation and sealing. A 23-inch sliding tray extends 14 inches beyond the antechamber opening when fully extended to allow for easy loading of parts (Series 400 models only). With its high vacuum design and TIG welded structure, this antechamber has been tested and certified with no detectable leaks at full vacuum with a helium mass spectrometer calibrated to 3 x 10⁻¹⁰ std. cc/sec (aluminum and stainless steel models only). Together with a Terra Vacuum Control Model, the vacuum antechamber provides completely automated vacuum control at any point you require, down to 29.9" Hg.

The Vacuum Control Module automatically controls pump operation to maintain a preset vacuum level (to 800 Torr) inside the vacuum antechamber. This vacuum control is especially important in testing or processing applications that require sustained exposure to a precisely regulated vacuum level.

The Vacuum Control Module also helps to extend the service life of your vacuum pump by allowing continuous pump operation. Repeated starts and stops, especially under existing vacuum pressure, can lead to back streaming of pump oil into the vacuum line, resulting in contamination and premature pump failure. The Vacuum Control Module eliminates this problem by switching a Solenoid Vacuum Valve on and off, which in turn controls vacuum pressure in the processing chamber. The Vacuum Control Module includes an easy-to-read digital vacuum gauge mounted in a stainless steel housing, which reads out vacuums between 1 and 800 Torr; two vacuum alarm relays to let you set high and low set points; and a piezo-resistive sensor tube.



**Series 400 Vacuum Antechamber
With Vacuum Control Module**

3.0 Operation

1. The Antechamber is shipped with all specified components as a complete turnkey system. Simply connect the equipment to an appropriate power source and the Vacuum Antechamber is ready for operation.
2. Refer to illustration below for system configuration. Refer to the manual for the Digital Vacuum Gauge to determine the vacuum set point.



Vacuum Antechamber

NOTE: The valve positioned at the vacuum inlet should always be in the open position.

- When the vacuum processing cycle has been completed, refill the antechamber by opening the refill valve in the line that runs from the antechamber to the main atmospheric chamber.



CAUTION: Although the refill rate is restricted by the 1/32-inch ID orifice in the refill valve, care should be taken to ensure that the glove box is not exposed to potentially dangerous negative pressure. The Dual Purge System must be on during the refill procedure and the internal pressure gauge of the Dual Purge System must be monitored

Refer to Terra Document No. 1800-58 for operating instructions for Terra's Vacuum Control Module.

4.0 Specifications

Series 200 Vacuum Antechamber

Construction: 0.5" thick acrylic

Dimensions: 12" dia. x 12"L or 23"L

Vacuum Capability: 29.9"Hg

Series 400 Vacuum Antechamber

Construction: 6061 Aluminum (with brass fittings); or stainless steel (with stainless steel fittings); high-vacuum design; TIG welded structure

Dimensions: 15" dia. x 24" long

Tray Dimensions: 12" x 23"; extends to 14" beyond opening for loading

Door: Single center-clamped, O-ring sealed, counterbalanced, vertical travel; stainless steel on both models
Vacuum Capability: 1 x 10⁻³ Torr

Vacuum Gauge: 2.5" compound Bourdon tube dial type

Connections: 1" evacuation valve, 0.25" backfill valve, 0.25" IPS plug

Vacuum Control Module

Dimensions: 12"W x 11.25"D x 7"H

Weight: 16 lbs.

Range: 0-800 Torr (linear)
Range: ±1% of full scale (0°C to 50°C)

Resolution: 1 Torr

Output: 0-8 VDC, minimum 1K ohm load

Vacuum Control Module

120VAC, 60Hz Catalog No. 1681-75

220VAC, 50/60Hz Catalog No. 1681-76



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