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**Glove Boxes**

Overview and Applications

Plastic Laboratory Glove Boxes

Nitrogen Purge

Vacuum Processing

HEPA or ULPA Filtration

Aseptic Processing Chambers

Anaerobic/Hypoxic Processing

Controlled Atmosphere Glove Boxes

Biohazard Containment (Negative Pressure)

Double-Wall, Insulated

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Vacuum Antechambers

Air Locks, Access Doors

Glovebox Accessories

Windows & Access Panels

Waste Chutes, Feed-Throughs and Trap Doors

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Pass-Through Ovens

Dual Purge System

NitroWatch

DewWatch

Automatic RB Valve

Trace Gas Mixer

Oxygen Analyzers

Humex 2

Humex

DryCycler™ Gas Purifier

Dryex

Desiccant Dryers

USB-502 RH/Temp Data Logger

Filtration Modules

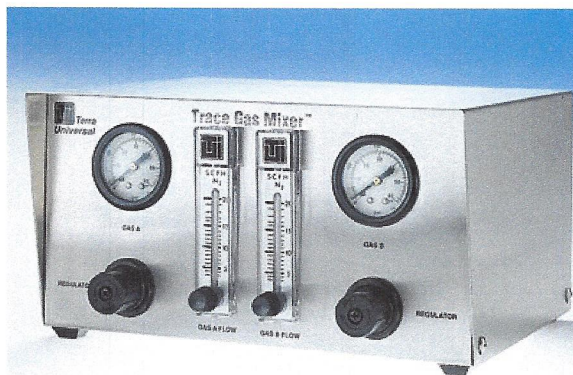
Temperature Control Modules

Gauges

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## Trace Gas Mixer™

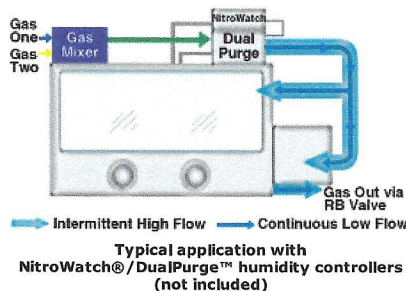
- Assures accurate gas mixtures, including the 90% nitrogen/10% helium mixture used in hybrid packaging
- Regulates constant, correct flows
- Aids in leak detection
- Easy to install
- Adaptable to most atmospheric chambers



This Trace Gas Mixer™ assures the accurate nitrogen/helium mixtures commonly required in the preparation of hybrid and other microelectronic component packages.

It is designed to operate in conjunction with resistance and seam welders in a dry-box environment or a vacuum leak detector. By backfilling a carefully regulated 10% helium mixture into each component package, the Trace Gas Mixer™ aids in subsequent leak detection and guarantees the integrity of your products. After sealing a package, you simply place it in a vacuum leak detector and check for helium traces.

Other gas mixers commonly regulate line pressure only, and resulting pressure differentials frequently cause back-ups that lead to imprecise gas mixtures and can damage equipment. Because this mixer regulates both line pressure and flow pressure, it assures that you get the precise mixture you bargained for. Its compact, lightweight design lets you easily adapt this unit to most operations in atmospheric chambers. No power required. Dimensions: 7"H x 12"W x 11.5"D (178 mm x 305 mm x 292 mm). Weight: 12 lbs. (5443 g.)



Trace Gas Mixer™					
Flow Range (SCFH)	Cat. #		Flow Range (SCFH)	Cat. #	
2-20 and 2-20	2701-00	\$ 983	5-50 and 5-50	2703-00	\$ 1,019
2-20 and 5-50	2702-00	\$ 1,001	5-50 and 10-100	2704-00	\$ 984

### Running a 90/10 N<sub>2</sub>/He Mix

For running a 90% nitrogen, 10% helium mixture, we recommend you use Terra Part #2702-00, with a 2-20 SCFH N<sub>2</sub> flowmeter and a 5-50 SCFH N<sub>2</sub> flowmeter. Terra does not supply flowmeters calibrated for helium. Rather, we supply a correction factor to adjust for the differences in specific gravity. To properly read helium in an N<sub>2</sub> flowmeter, the N<sub>2</sub> reading is multiplied by 2.65. For example, with the N<sub>2</sub> flowmeter set at 2 SCFH, the volumetric flow rate of helium would be 5.3 SCFH. To create a 90/10 N<sub>2</sub>/He mix, connect your helium line to the 2-20 SCFH N<sub>2</sub> flowmeter. Connect the nitrogen line to the 5-50 SCFH N<sub>2</sub> flowmeter. Set the 2-20 SCFH N<sub>2</sub> flowmeter to 2 SCFH. This corresponds to 5.3 SCFH of helium. Set the 5-50 SCFH N<sub>2</sub> flowmeter to 45. This will give a proper 90/10 mixture. The error on the 10% mixture would be ± 1%. If more accuracy is required, call a Terra Sales Associate and ask about a custom trace gas mixer.

### Correction Factor

The correction factor, K, is used to find the difference in reading a flowmeter using a different gas than the one it was calibrated for. The equation below shows the relationship between two volumetric flow rates and K.  $Q_1 = K Q_2$   
Where Q<sub>1</sub> is the actual volumetric flow rate of the gas you're measuring and Q<sub>2</sub> is the volumetric flow rate that you read from the flowmeter. K is defined by the following equation.

$$K = \sqrt{\frac{SG_2}{SG_1}}$$

SG<sub>1</sub> represents the specific gravity of the gas you're measuring and SG<sub>2</sub> is the specific gravity of the gas the flowmeter is calibrated to measure. These two simple equations can correct for any difference between the flowmeter's calibration gas and the gas you

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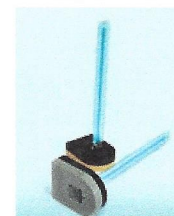


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Did You Know?



**UVC systems prevent microbial contamination**  
Ultraviolet sanitizers, available for Terra gloveboxes, help maintain aseptic conditions.

Laboratory Balances



**Precision and Analytical Balances by Sartorius** are available in a variety of weighing capacities and pan sizes. Select models feature a USB interface, overload protection, motorized draft shield and downloadable apps for application specific processes.