



IsoClean® CM
HEPA Filtration Systems
INSTALLATION, OPERATION, AND MAINTENANCE MANUAL

ENVIRCO Technical Support: 800-884-0002

 **ENVIRCO**
Innovators in clean air technology

Installation, Operation, & Maintenance Manual

Table of Contents

Introduction	3
Installation	4
Operation	4
Maintenance & Service	5
Troubleshooting	9
Wiring Diagram	9
Specifications	10
Replacement Parts	10
Air Change Rates	10
Limited Warranty	11
Contact Envirco	11

■ Introduction

Description

The IsoClean® CM is a portable, self-contained high efficiency particulate air (HEPA) filtration system with an optional ultraviolet lamp that helps to disinfect the filter face. The IsoClean® CM is designed to easily and economically create a negative pressure isolation room or be used as a positive pressure clean air recirculating system for a large variety of applications. The IsoClean® CM's powerful motor/blower can deliver up to 1,700 CFM (2,888 m³/hr) to provide a large number of room air changes per hour to minimize the spread of airborne diseases. The unit works by pulling air through a MERV 8 antimicrobial prefilter and then through an efficient HEPA filter before being exhausted out of the top of the unit or through an optional 14" duct collar and ducted to the exterior through a window or wall.

Features

• Low Cost Isolation Room

The IsoClean® CM is an easy and economical solution for creating a negative pressure isolation room. Simply roll the IsoClean® CM into a standard room, connect flexible ducting to an optional 14 in. (355 mm) collar on the top of the unit and vent the purified air to the exterior through a window or wall.

• Flexible Applications

The versatile IsoClean® CM can be used as a clean air recirculating unit with a variable speed fan to accommodate spaces of all sizes.

• Small and Portable

The IsoClean® CM can be rolled from one room to another and easily fits into areas with limited floor space.

• Simple Maintenance

Both HEPA filter and prefilter are easily accessible for replacement by authorized personnel.

• Adjustable Airflow

The IsoClean® provides effective air filtration for a wide variety of room sizes. The IsoClean® CM utilizes a variable speed control with airflows ranging from 400 to 1,700 CFM (679 to 2,888 m³/hr).

• Quiet Operation

48 dBA on low and 65 dBA on high speed measured 30 in. (762mm) from face of the unit.

Applications

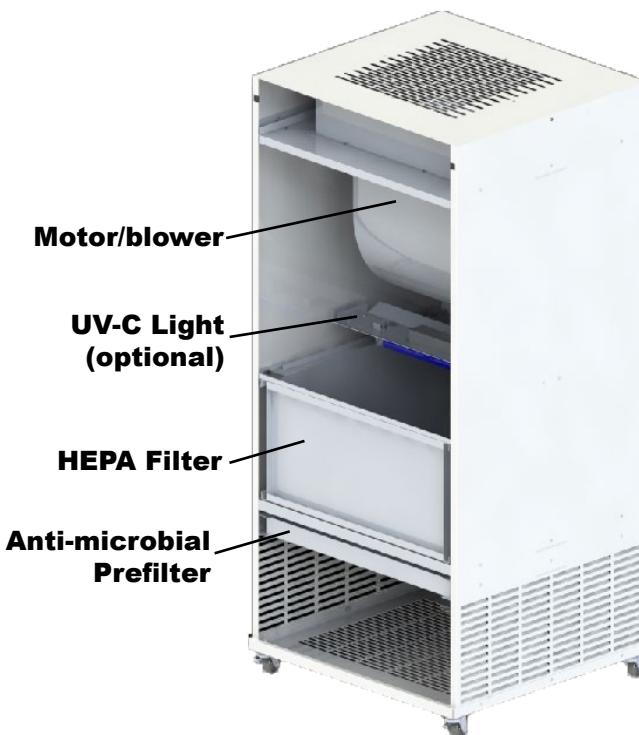
- Negative Pressure Rooms
- Office Buildings
- Waiting Rooms
- Health Clubs & Fitness Centers
- Dental & Medical Offices
- Classrooms & Dormitories
- Auditoriums

Other Applications

- Clinics
- Physician Offices
- Correctional Facilities
- Nursing Homes
- Homeless Shelters
- Addiction Recovery Centers
- Temporary Medical Facilities

Options

- UV-C Sanitizing Light
- Carbon Prefilter (Sold Separately)
- 100% Exhaust Duct Collar (Sold Separately)
- Directional Discharge Kit (Sold Separately)



Installation, Operation, & Maintenance Manual

■ Installation

CAUTION AND WARNINGS

READ AND SAVE THESE INSTRUCTIONS

WARNING: To reduce the risk of fire, electrical shock, or injury to persons, observe the following.

1. Installation work and electrical wiring must be done by a qualified person(s) in accordance with all applicable codes and standards, including fire-rated construction.
2. Service to this equipment should be performed by an authorized technician trained and experienced in performance evaluation and maintenance of clean air equipment.
3. Before servicing or cleaning unit, unplug the unit power cord from outlet to prevent power from being switched on accidentally.
4. This unit may have UV lamps. Eye damage may result from direct exposure to the light. Take UV radiation protective measures for personnel during service.
5. Use this unit only in the manner intended by the manufacturer.

Unpacking Instructions

1. The IsoClean® CM will arrive in a cardboard carton that's wrapped and on top of shipping pallet. Inspect for any noticeable damage to the unit before unpacking. If any damage is observed, a claims report should be completed and promptly filed with the responsible carrier.
2. Cut the wrapping and remove the cardboard. Again inspect for any noticeable damage to the unit. The shipping components list and actual material received should be compared and any shortages reported to Envirco immediately.
3. Lift the IsoClean® CM off the shipping pallet. Move the unit to the desired location.
4. Remove the tie wrap around power cord.
5. Unit is ready to be plugged in for use.

■ Operation

Initial Start-Up

1. Connect the power cord to a standard 115-Volt, Single Phase, 60 Hertz, grounded power source. Verify that the circuit is sized to provide sufficient amperage as noted on the IsoClean® data label on the back.
2. Locate the "ON/OFF" switch on the left side of the unit. The switch is a maintain contact rocker type.
3. Turn the IsoClean® CM unit on by pressing downward on the raised portion of the rocker switch.

Airflow Adjustment

1. To adjust airflow, locate the speed control on the left side (viewing the unit from the front).
2. Turn the fan adjust knob using a small flathead screw driver to select the fan setpoint. Turn clockwise direction to speed up the unit or counterclockwise to slow the unit down.
3. The LED readout alternates between selected setpoint and motor RPM. The RPM may not scale linearly with the selected setpoint.

Filter Status Indicator

1. Locate the filter status indicator on the left side of the unit adjacent to the "ON/OFF" switch. The indicator light will be green during normal operation. The light will illuminate red should the pressure threshold be met. It is recommended to replace the prefilter. If the light continues to be red after a prefilter change, it is recommended to replace the HEPA filter. The indicator light should not be used as the only guide for when a filter change is necessary. The unit should be checked often to insure recommended room air changes per hour are being met.

Installation, Operation, & Maintenance Manual

Recirculation Mode

1. The IsoClean® CM unit arrives from the factory to provide air recirculation.
2. The room air change rate of the unit will depend on both the speed control setpoint and the size of the room. See Air Change Rates on page 10 for representative room air changes per hour (ACH).

Total Exhaust Mode (Negative Pressure)

CAUTION: To reduce risk of fire and to properly exhaust air, be sure to duct air outside - Do not vent exhaust air into spaces within walls or ceilings or into attics, crawl spaces, or garages.

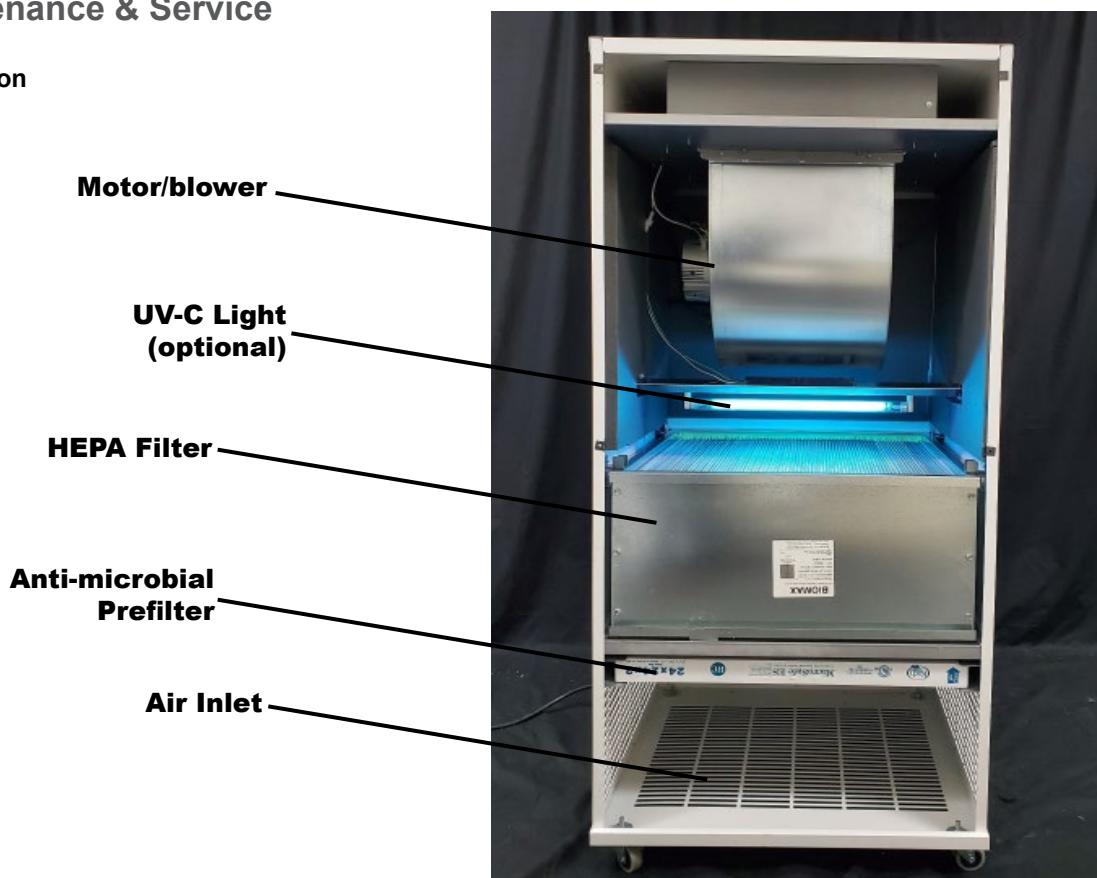
CAUTION: For General Ventilating Use Only. Do Not Use to Exhaust Hazardous or Explosive Materials and Vapors.

An optional 14-inch (355mm) Exhaust Collar kit (272040-001) is available to convert the IsoClean® CM unit to the 100% exhaust mode.

1. Remove the 8 screws from on top of the unit. These 8 screws will be utilized to connect the 14-inch Exhaust Collar.
2. Apply gasket (if not already applied) to the flat plate of the duct collar to help seal the exhaust collar to the IsoClean® CM.
3. Line up the 8 holes on the exhaust collar to the holes on top of the IsoClean® CM. Use the 8 previously removed screws to secure the exhaust collar to the unit.
4. Attach flexible exhaust duct (not included) over the 14-inch collar and fasten tightly with a round hose clamp (not included).
5. The HEPA filtered exhaust air can now be vented to the outside or returned to the main HVAC system. If the unit is ducted to an exhaust duct rather than directly to the outside, it must be verified that the exhaust duct is capable of handling the exhaust air expelled by the unit.

Maintenance & Service

Parts Identification



Installation, Operation, & Maintenance Manual

Daily Maintenance

The IsoClean® CM does not require daily maintenance for optimized operation. It is recommended to visually inspect the unit on occasion for any integrity issues with the unit, controls, power cord, casters, or ductwork (if attached). Remember to monitor the filter status indicator light over time to assist in setting a filter change schedule for the HEPA filter.

Cleaning the Unit

Periodic cleaning of the unit may be done with a mild disinfecting soap and water solution. A 1% or 1/100 dilution of bleach is an optional disinfectant. Wipe the exterior of the unit with a damp sponge or cloth. Do not use an excessive amount of liquid or cleaning agent when wiping the unit down.

Removal of Front Panel

To access the prefilter, HEPA filter, UV light, or motor/blower assembly, the front panel will need to be removed. To remove the front panel perform the following.

1. Turn off the unit by placing the power switch to the “OFF” position.
2. Unplug the unit from the power source.
3. Remove the 4 screws holding the front panel to the body of the unit. Two of these screws are located in the top left and top right of the front face. The other two screws are located approximately halfway down the unit on the left and right of the front face. It is recommended to wear protective gloves when performing maintenance on the IsoClean® CM.

Prefilter Replacement

The prefilter should be replaced every 60 to 90 days. Regularly replacing the prefilter will maximize the life of the HEPA filter. The IsoClean® CM comes standard with an anti-microbial pleated prefilter. Please see directions for removing the front panel before removing the prefilter. The prefilter can be removed and replaced by grabbing prefilter and sliding in and out. Reference facility protocols for handling and disposing of the prefilter.



Primary Filter Replacement

Reference the CDC for appropriate precautions required for handling HEPA filters. A regular maintenance program should include procedures for installation, removal, and disposal of filter elements and a program to monitor the HEPA filter for possible leakage and for filter loading. The filter status indicator light can help assist in determining an appropriate time to replace the HEPA filter. The indicator light should not be used as the only guide for when a filter change is necessary. The unit should be checked often to ensure recommended room air changes per hour are being met.

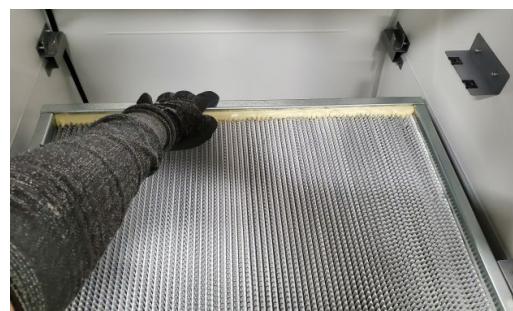
The expected HEPA filter life should range from eighteen (18) months to two (2) years depending on the environment and prefilter maintenance schedule. The filter indicator light will give a warning of filter loading by illuminating red. To replace the HEPA filter, please reference the directions for removing the front panel before removing the HEPA filter.

Installation, Operation, & Maintenance Manual

1. Once the power is off and the front panel is off, it is recommended to remove the UV bulb from the UV light assembly before removing the HEPA filter. If the unit does not have a UV bulb this can be skipped. It is recommended to wear protective gloves before removing the UV bulb. The UV bulb is removed from the UV light assembly by twisting the bulb out of the supporting lamp sockets (you should feel tension on the tube release). Please reference the UV bulb replacement section for all steps.
2. The HEPA filter is compressed and held in place using 4 rotating thumb latches located in the 4 corners of the HEPA filter. Rotate the thumb latches 90 degrees to allow the filter to be removed.



3. Pull the filter towards you using the filter frame to remove the filter. The filter will slide out the channel. Once the filter is pulled out far enough, the filter can be handled by using opposing sides of the filter frame. Reference facility protocols for handling and disposing of the HEPA filter. **Note:** Filter weighs approximately 30 lbs.



4. Remove the new HEPA filter from its packaging and install it in the reverse order of removal. Care must be taken when handling the filter. Do not bump or squeeze the filter as this may damage the filter and render it non-effective.

Removal of the UV Light Assembly

WARNING - Skin or eye damage may result from directly viewing the light produced by the lamp in this apparatus. Always disconnect power before relamping or servicing. Replace lamp with lamp TUV 15W SLV, manufactured by Philips.

1. Once the power is off and the front panel is off (reference removal of front panel), the UV light assembly can be removed and is located above the HEPA filter.
2. Disconnect the three-pin connector.
3. Remove the 2 screws on the left hand of the UV assembly and then the two screws on the right of the UV assembly.
4. The entire assembly can now be removed. For replacement perform these steps in reverse order.

Removal of the UV Light Bulb

The expected life of the UV light bulb is 9,000 hours of operation. To remove the bulb follow the steps below.

1. Twist the bulb to enable removal (you should feel tension on the tube release). To remove the light tube, carefully pull away from the supporting UV lamp sockets towards the HEPA filter (take care not to contact the filter). Dispose of the light

Installation, Operation, & Maintenance Manual

- bulb (or recycle) following local guidelines.
- Use clean latex gloves to ensure that the new light tube remains clean. Clean the new light tube using a cloth dampened with a 10% alcohol (or ammonia) and water solution. To replace, reverse the order of removal.

Motor/Blower Assembly Removal

To replace the motor/blower assembly, please reference the directions for removing the front panel before removing the motor/blower assembly.

- Once the power is off, the front panel is off, and the motor/blower is no longer spinning, the motor/blower assembly can be removed.
- Disconnect the power and control wire harnesses from the motor.



- Remove the 2 vertical screws fastening the assembly into the housing.



- Grip the motor/blower assembly on both sides and pull towards you. The motor/blower assembly will slide on the channel rails. Take care when at the edge of the channel to support the weight of the motor/blower assembly. **Note:** The motor/blower weighs approximately 35 lbs. To replace, reverse the order of removal.



Installation, Operation, & Maintenance Manual

■ Troubleshooting

If the unit requires service to repair the unit, use proper facility protocol. It is recommended to wear protective equipment, clean the unit, and verify power has been turned off at the unit and the unit is disconnected from the power source for initial inspection.

A few examples of issues that might occur:

Inoperative Air Flow

1. Confirm that the power cord is plugged into the building receptacle and power is present.
2. Confirm that the unit power switch is turned "ON".
3. Confirm the setpoint is set to a value that will allow the motor/blower to run. Recommended to change the position for confirmation.
4. Authorized personnel can check power switch and transformer for appropriate power. Contact the factory for more indepth troubleshooting if required. Replace or repair faulty component(s).

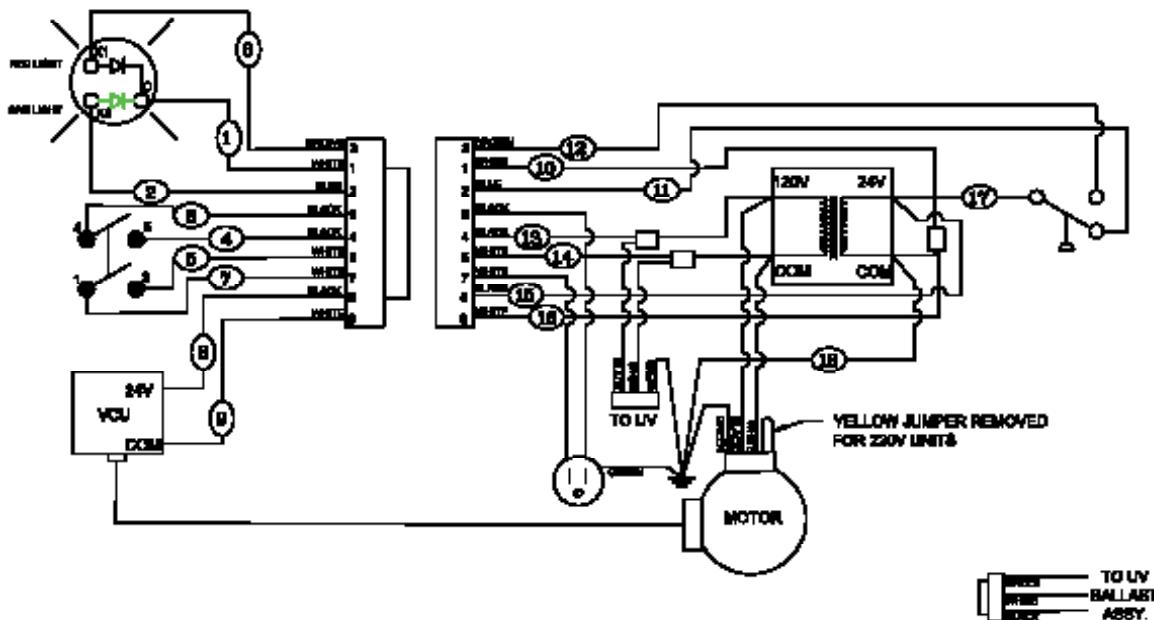
Low Air Flow

1. Check prefilter for obstruction and remove obstruction as necessary.
2. Replace dirty prefilter media.
3. Increase the setpoint requirement of the speed control.
4. Check power supply for proper voltage, amperage and distribution frequency.
5. Check for down-stream obstructions or erratic isolation room ventilation balance.
6. Replace HEPA filter if the air velocity remains low after checking all other causes of low air flow.

High Air Flow

1. Decrease the setpoint requirement of the speed control.
2. Verify all filters are properly in place.

■ Wiring Diagram



Installation, Operation, & Maintenance Manual

■ Specifications

IsoClean® CM

- Dimensions: 57.75 H x 26.18 W x 24.75 D (in.), 1467 H x 665 W x 629 D (mm)
- Weight: 175 lbs. (79 kg) ship weight
- Power Requirements: 10.2 A at 120V, 60 Hz, Single Phase, 10.3 A at 120V, 60 Hz, Single Phase with UV Light
- Airflow: 400 CFM (679 m³/hr) at minimum ±10% and 1,700 CFM (2,888 m³/hr) at maximum ±10%
- HEPA Filter Media: 99.97% at 0.3 micron minimum efficiency
- Prefilter: 2" MERV8 multi-pleat anti-microbial pleated prefilter with frame
- Motor: 3/4 HP (0.56 kW), direct drive, continuous duty, variable speed, electronically commutated motor with sealed-for-life bearings and overload protection

■ Replacement Parts

IsoClean® CM

Part No.	Description	Quantity
272000-001	IsoClean CM 120V	1
272000-001UV	IsoClean CM 120V UV	1
S272010-001	Motor/Blower Assembly, 120V	1
272022-001	99.97% HEPA Filter	1
63352-001	Anti-microbial Prefilter	1
63951-002	VCU Speed Control	1
62974	Caster w/ Lock	2
62973	Caster	2
63667	Transformer 120/24VAC	1
63739-002	On/Off Switch	1
272019-001	Filter Indicator Light	1
63415-004	Pressure Switch	1
60265-002	UV Lamp	1
272014-001	UV Light Assembly	1
272025-001	Power Cord - 120V	1

■ Air Change Rates

Room Size (Room Air Volume) in Feet								
IsoClean Model	Fan Speed	15 x 20 x 8 (2400 ft³)	20 x 20 x 8 (3200 ft³)	24 x 24 x 8 (4608 ft³)	24 x 30 x 8 (5760 ft³)	30 x 30 x 8 (7200 ft³)	30 x 40 x 8 (9600 ft³)	40 x 40 x 8 (12800 ft³)
CM	Min 400 CFM	10 ACH	7 ACH	5 ACH	4 ACH	3 ACH	2 ACH	1 ACH
CM	Max 1,700 CFM	42 ACH	31 ACH	22 ACH	17 ACH	14 ACH	10 ACH	7 ACH

Installation, Operation, & Maintenance Manual

Limited Warranty

a) Unless otherwise set forth in the Sales Confirmation, Seller warrants to Buyer, for a period of twelve (12) months following the date of shipment to the Delivery Location (the "Warranty Period"), that the Goods will be free from defects in material and workmanship. Notwithstanding the foregoing, the Warranty Period for consumable Goods shall in no event exceed recommended replacement intervals set forth in the Instructions (hereinafter defined). If, prior to the expiration of the Warranty Period, Buyer informs Seller in writing of any breach of this limited warranty, then Seller may repair or replace the Goods that gave rise to such breach or, in Seller's sole and exclusive discretion, refund the amounts that Buyer paid for such Goods.

The foregoing limited warranties do not apply to (i) any defect in Goods not manufactured by Seller; and (ii) any Goods manufactured according to Buyer's specifications.

(b) Buyer shall bear the costs of access, de-installation, re-installation and transportation of the Goods to Seller and back to Buyer. Any repair or replacement pursuant to this limited warranty shall not extend the Warranty Period. Seller does not warrant the Goods, or any repaired or replacement parts, against normal wear and tear. This limited warranty and remedy are expressly conditioned upon: (i) Buyer's payment of the purchase price in full, (ii) Buyer giving written notice of the defect, reasonably described, to Seller within ten (10) days of the time when Buyer discovers or ought to have discovered the defect, (iii) the storage, installation, operation, use, and maintenance of the Goods in compliance with the published specifications and instructions provided by Seller or its suppliers or subcontractors (the "Instructions"), (iv) the existence of proper records of Buyer's operation and maintenance of the Goods during the Warranty Period, (v) Buyer providing Seller with a reasonable opportunity to examine the Goods and the aforementioned records, and (vi) the absence of any unauthorized modification or repair of the Goods.

(c) Before any test may be used to evaluate the Goods, Buyer shall: (i) provide Seller with reasonable written notification of such test, (ii) allow Seller to be present during such test, and (iii) receive Seller's consent to the conditions of such test, which consent will not be unreasonably withheld. If a test is performed on the Goods, and Seller has not consented to the conditions of such test, then this limited warranty shall be void.

(d) THE REMEDIES SET FORTH IN THIS SECTION ARE BUYER'S SOLE AND EXCLUSIVE REMEDIES FOR ANY FAILURE OF SELLER TO COMPLY WITH ITS OBLIGATIONS UNDER THIS AGREEMENT, INCLUDING ANY BREACH OF THE LIMITED WARRANTY SET FORTH IN THIS SECTION. Correcting any defect in the manner set forth in this Section 8 shall constitute complete fulfillment of Seller's obligations and liabilities under the Agreement following the delivery of the Goods, regardless of whether a claim is based in contract law, tort law (including negligence, strict liability or otherwise), or other legal theory.

THE LIMITED WARRANTY SET FORTH IN THIS SECTION IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER STATUTORY, EXPRESS, OR IMPLIED. EXCEPT AS SET FORTH IN THIS SECTION, SELLER MAKES NO EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO ANY WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT, OR FITNESS FOR A PARTICULAR PURPOSE, OR ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE. Any other oral or written statements, whether contained in general advertising or other printed material, do not constitute warranties, and Buyer agrees that it is not entering into the Agreement in reliance upon any such statements.

Contact Envirco

For warranties, replacement parts, technical support, or any other questions please contact Envirco at 1-800-884-0002. For tech support related issues including troubleshooting and warranty, please email techsupport@envirco.com. For customer service related issues including parts ordering, please email customerservice@envirco.com.

Clean air solutions built for you.

MORE INFORMATION AVAILABLE AT WWW.ENVIRCO.COM

■ Industrial

Cleanroom Products

- » MAC 10® Original
- » MAC 10® IQ™
- » MAC 10® LEAC2™
- » MAC 10® LEDC™
- » MAC 10® RFAC™
- » Ducted Ceiling Module:
DCM & RSR
- » AC or DC Control Systems

■ Hospital & Healthcare

- Hospital & Healthcare
- » IsoClean® 800
- » IsoClean® 400
- » IsoClean® CM

■ Laboratory & Research

- » Unidirectional Flow
- » Horizontal Flow Bench (LF)
- » TT Table Top Horizontal
- » EnviraLab Sterility Module:
ESM

■ Pharmaceutical

- » Unimodule M-2 Vertical
- » Unidirectional Flow
- Workstation
- » METD 100% Exhausted
- Vertical Flow Workstation
- » Unidirectional Downflow
- Module

