TRION®

Indoor Air Quality

READ AND SAVE THESE INSTRUCTIONS

Mini M.E.

Mini Mist Eliminator
Industrial Applications

Mini Mist Eliminator for Industrial Applications

Mini M.E.

Table of Contents

Please read these instructions carefully for trouble free operation and to get the most out of your purchase. For further information concerning this project, contact your local TRION representative.

Inspection

Upon receipt, the unit(s) should be inspected for any damage incurred in shipping. Damage should be noted and a claim immediately filed with the carrier at the receiving end. Contact your TRION Representative or the factory for authorization and instructions prior to the return of any equipment.

Safety Information

1. Please read and understand this manual before installing and operating the equipment.
2. The equipment location, installation and operation should comply with the National Electrical Code and local building and fire codes. When in doubt, consult the proper authorities.

WARNING!
Do not install this equipment in an area where combustible vapors or gases exist. Do not use this equipment for the collection of any materials where there is a risk of fire or explosion.

3. Disconnect, lockout and tag the electrical power while performing service work within the unit cabinet.
4. All mounting arrangements used in the installation must be able to support the weight of the unit plus the weight of added accessories, options, and collected contaminant.
5. The TRION MINI M.E. weighs 104 lbs. (47 kg.).

Introduction

This manual should be carefully read before starting the preparation and installation of the air cleaner.

The installation should conform to all local ordinances associated with building codes and electrical codes required for the unit. Authorities having jurisdiction should be consulted before installation is made. If there are no local codes, the installation should conform to the National Electrical Code.

The TRION MINI M.E. is designed primarily for the filtration of mist and smoke from metalworking processes. The mist and smoke may be created from oil-based, synthetic, semi-synthetic, or water-based coolants like those used in cutting and grinding operations.

The unit, arranged vertically for upward airflow, provides collecting efficiency up to 95% and consists of up to four filtration stages (as described below) and a motor/blower. An optional inlet plenum is available for ductwork connection.

The first stage of filtration consists of two aluminum mesh prefilters in series to remove larger mist droplets.

The second stage – electrostatic precipitator – is the primary filtration method and consists of two Ionizing/ Collecting Cells in series to charge and collect up to 95% of mist and smoke.

The third stage is either an aluminum mesh filter or an optional charcoal filter for odor control.

The optional fourth stage is a 99.97% HEPA filter that is mounted externally on top of the unit discharge grille.

In application, the contaminated air is captured at its source from a machine enclosure or via a hood and is transported to the unit through ducting furnished by others. The contaminated air is then pulled upward through the various stages of filtration and the cleaned air is exhausted from the top of the cabinet through a discharge grille. The unit should be located in the vertical position and as close to the source of contaminant as practical to minimize the length of ducting.

Pre-Installation Considerations

Hood and Duct Design
The effectiveness of the installation is dependent upon the efficient capture and transport of the contaminant at its source to the unit for collection.

In cases where adequate hooding is not provided by the basic machine or the process creating the contaminant, the design of the pick-up hood and the transport ducting should not be oversimplified. Due to the wide variety of applications, this subject warrants a great deal more consideration than can be given here. It is recommended that a recognized text be consulted, such as Industrial Ventilation – A Manual of Recommended Practice, available from:

American Conference of Governmental Industrial Hygienist
6500 Glenway Avenue, Building D-7
Cincinnati, OH 45211-4438 U.S.A.
(Library of Congress Catalog Card #62-12929)

The duct between the pick-up hood and the unit should be as short as possible and of adequate cross sectional area to provide a transport velocity of 1500-2000 feet per 3 minute (7.6-10.2 m/sec.). If the optional inlet plenum is furnished, one 6" (152 mm) diameter air inlet collar is provided. The ductwork should be A) sloped to prevent the pooling of liquids, and B) sealed to prevent leakage.

When ducting is utilized, the static pressure created by the ductwork must be considered in conjunction with the pressure that will be created by the build-up of contaminant on the filters. Refer to the (System Performance) Blower Curves of this manual.

Unit Location

The unit should be mounted vertically with ample space above the discharge grille (12" minimum, 305mm). Also, provide ample filter access in front of the unit (24" minimum, 610mm) and ample service access on the right-hand side. If one unit is to collect the contaminant from two sources, the unit should be located so that the ducting from each source is identical in length and configuration. If this is not practical, the ducting should be designed and sized so that the static pressure created by each duct run is identical, or so that adequate capture and transport velocities from each source are assured.

Installation

WARNING: ELECTRICAL SHOCK HAZARD
This unit should only be installed by a qualified HVAC technician in accordance with the National Electrical Code (NEC) and local codes and ordinances. Do not connect the unit to the power source until installation is complete. Improper electrical installation may damage equipment, can create a hazard, cause personal injury or death, and will void the warranty.

Location and Mounting
Review the Pre-Installation Considerations as found on Page 3 and prepare the unit for installation in the planned location as follows:

1. To reduce weight for ease in handling and to gain access inside the cabinet, open the access door and remove the ionizing/collecting cells, placing them safely aside.
2. Next, locate, level and secure the unit in the desired location, assuring that the weight of the unit plus the weight of any accessories, collected contaminant and any ducting are adequately supported. See Safety Information on page 3 for unit weight.
3. Replace the ionizing/collecting cells.

Ductwork
Connect the ductwork as described under Hood and Duct Design on page 3, being sure it is sloped to prevent the pooling of liquids and is sealed to prevent leakage.

WARNING!
Sharp edges may be located on metal ductwork. Wear protective gloves when handling.

Drain Piping
The bottom of the unit is open to allow drainage back into a machine enclosure. The optional inlet plenum is provided with a ½" NPT (12 mm) female connection. If the collected liquid drain-off is to be piped to a machine sump or an oil recovery reservoir, the piping must be adequately trapped to overcome the negative pressure inside the unit cabinet and thereby prevent air being drawn through the drain, refer to diagram on page 7.

Operation

Initial Start-Up
1. Double-check the unit for proper mounting securement, ductwork, piping, and wiring connections.
2. Open the access door and check the interior cabinet for cleanliness and ensure that all of the filtration stages are in place.
3. Close the access door and plug the MINI M.E. into a standard 3-wire grounded wall receptacle using

the power cord provided.

4. Turn the variable speed control switch from the "Off" position to initiate the blower. Air should blow out of the discharge grille located on top of the unit. Adjust airflow as required.

SAFETY NOTE
Factory designed access to all electrically charged high voltage components contain electrical interlocks for the safety of operating personnel. Any additional access that may be provided in the system, where there is access to high voltage, must be equipped with such interlocks. Interlocks are readily available from the factory.

Indicating Light
The LED light on the front panel provides an indication of the electrical operation of the electronic air cleaner. Constant illumination indicates correct operation of the power supplies and power to the ionizing/collecting cells. If the LED is continuously flickering, or fails to glow, it is an indicator of potential problems. Refer to the Troubleshooting diagram to correct the problem.

Care and Maintenance

WARNING: ELECTRICAL SHOCK HAZARD
Before cleaning or servicing this unit it is recommended that this unit be disconnected from any electrical supply outlet. Failure to follow these precautions could result in electrical shock, fire, death or serious personal injury.

General
Care and maintenance includes the periodic cleaning and replacement of the various filtration components, and servicing the blower/motor assembly.

The frequency for routine cleaning and/or replacement of the filters after initial start-up is dependent upon the nature and amount of contaminant being collected. Relatively clean mist particles that coalesce into larger droplets when collected tend to drain from the collecting surfaces in a "self-cleaning" action. Mist mixed with semi-solids, smoke, dust, and other solids do not drain as readily and therefore require more frequent manual cleaning. As the make-up and quantity of contaminants vary from application to application, practical maintenance time schedules are best established by several visual examinations of the filtration components after the unit is placed into operation. Also, observing the contaminant pick-up at the hood is a good indicator of the filter condition. Any depreciation in the effectiveness of pick-up indicates a drop off in capture velocity, which is usually attributed to clogged filters.

Guide for Recommended Cleaning Frequency

Light loading	4-6 months
Medium loading	2-4 months
Heavy loading	1-2 months
Very heavy loading	2 weeks-1 month

Cleaning
The aluminum mesh filters and ionizing/collecting cells require periodic cleaning. Hot water, 140-1600 F (60-710 C), and a good non-foaming, non-corrosive detergent (safe for use on aluminum) should be used. TRION's Tridex APS liquid detergent, formulated specifically for this purpose, is available through your TRION Representative.

The filter components should first be rinsed in warm water, and then soaked in a detergent water solution. When the contaminant loosens or dissolves, the filters should then be thoroughly rinsed and dried prior to placing them back into service. When cleaning the components, it is not necessary to "make them shine." Cleaning is to remove the accumulated dirt build-up. Dirt stains do not impair efficiency.

WARNING!
Do not allow debris or foreign objects to become lodged between the cell plates. This will cause shorting and damage the cells and/ or the power supply.

CAUTION!
Do not use steam cleaners to wash the cells. The high temperatures may cause the cell plates to warp or create other damage to the cell.

If a scheduled maintenance time for filter component cleaning is at a premium, it may be advantageous to maintain a clean, spare set of filter components so that service to the dirty components can be completed within a few minutes.

Blower/Motor Assembly
After 1,000 hours of operation, remove the blower access panel on top of the unit. Check and correct the following, if necessary:

1. Securement of fasteners.
2. Blower wheel and compartment for excess dirt buildup.

NOTE: Blower and motor bearings are sealed and require no lubrication.

WARNING!
Factory designed access to all electrically charged high voltage components contain electrical interlocks for the safety of operating personnel. Always unplug the unit while performing service within the cabinet.

WARNING: RISK OF ELECTRIC SHOCK
These maintenance and service instructions are for use by qualified personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

Troubleshooting

All TRION Air Cleaners are manufactured to provide continued, trouble-free service. However, as with all mechanical equipment, breakdowns can occasionally occur.

Refer to the Replacement Parts diagram for replacement parts.

Before troubleshooting the unit, review the safety information on Page 3, refer to the Wiring Diagram on Page 12, check for proper wiring connections, and the correct input line voltage.

Troubleshooting Procedure

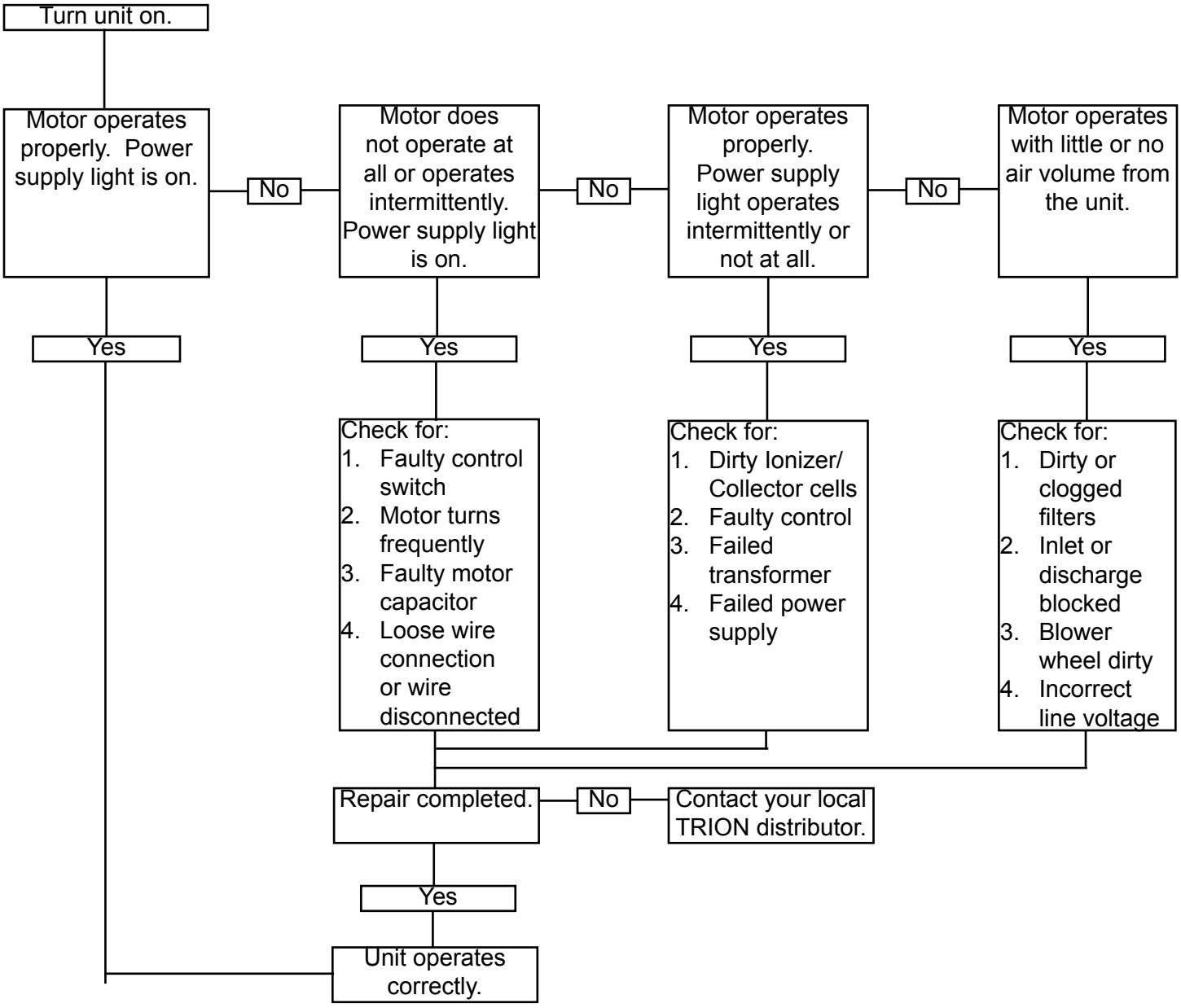


Figure 1 - Drawing with Drain Line

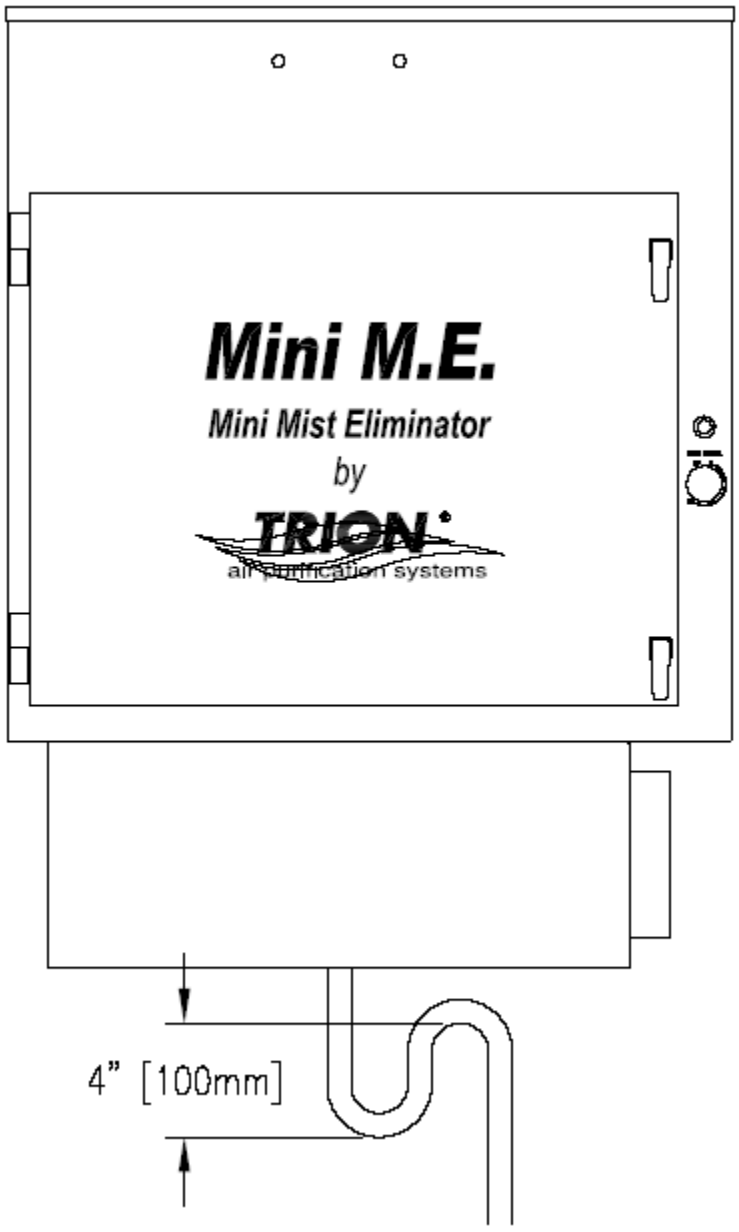
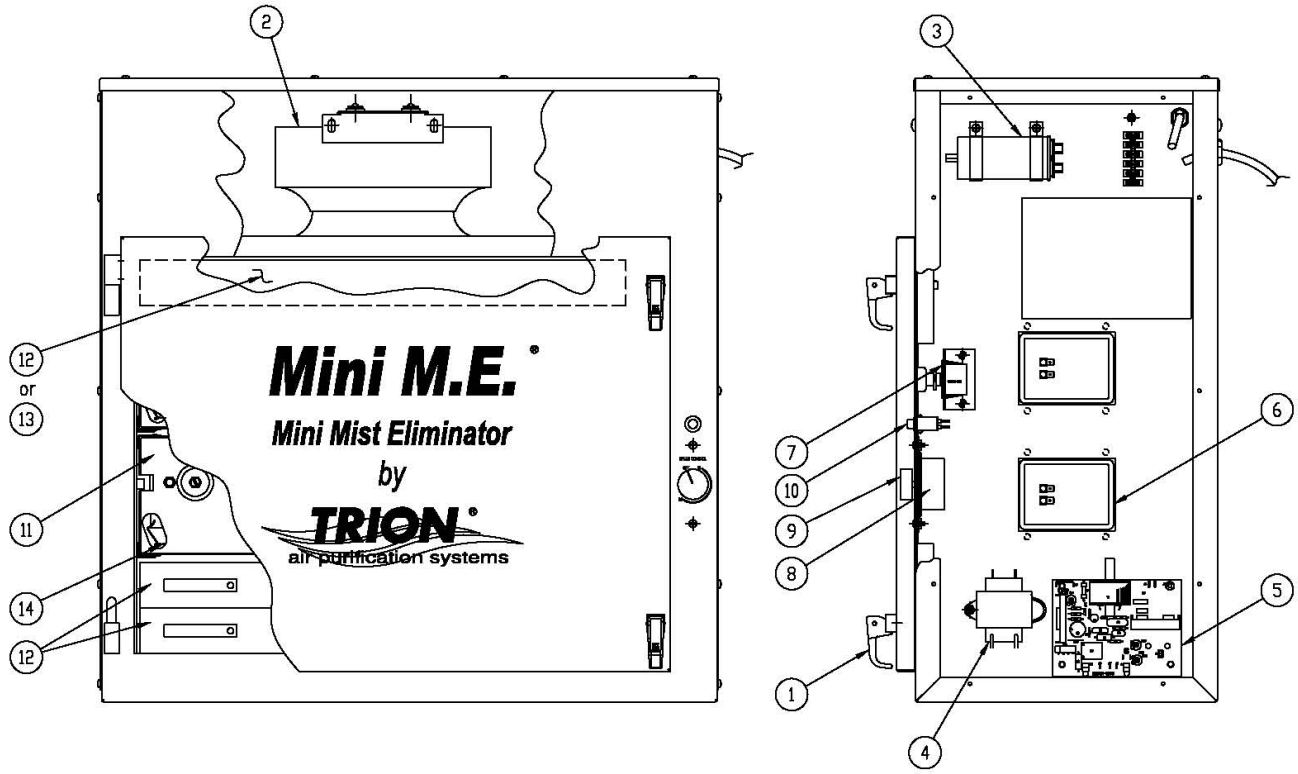


Figure 2 - Mini M.E. Replacement Parts



Item	TRION Part No.	Description
1	334562-005	Lift and Turn Latch
2	357679-001	Motorized Impeller Assembly, 120V/60Hz
	357679-002	Motorized Impeller Assembly, 230V/50-60Hz
3	257680-001	Capacitor, 20µF, 120V
	257680-002	Capacitor, 50µF, 230V
4	239071-006	Transformer, 120V
	239071-011	Transformer, 230V
5	356764-001	PCB Assembly
6	257544-001	HV Contact Board Assembly
7	132311-001	Interlock Switch
8	235477-001	Speed Control, 120V/60Hz
	235477-002	Speed Control, 230V/60Hz
9	139999-001	Speed Control Knob
10	141102-001	LED, Red
11	441729-201C	Ionizer/Collector Cell
12	240550-013	Aluminum Mesh Filter
13	245395-007	Charcoal Filter (Optional)
14	220110-929	Ionizer Wire Assembly

Figure 3 - Base Unit Outline Drawing

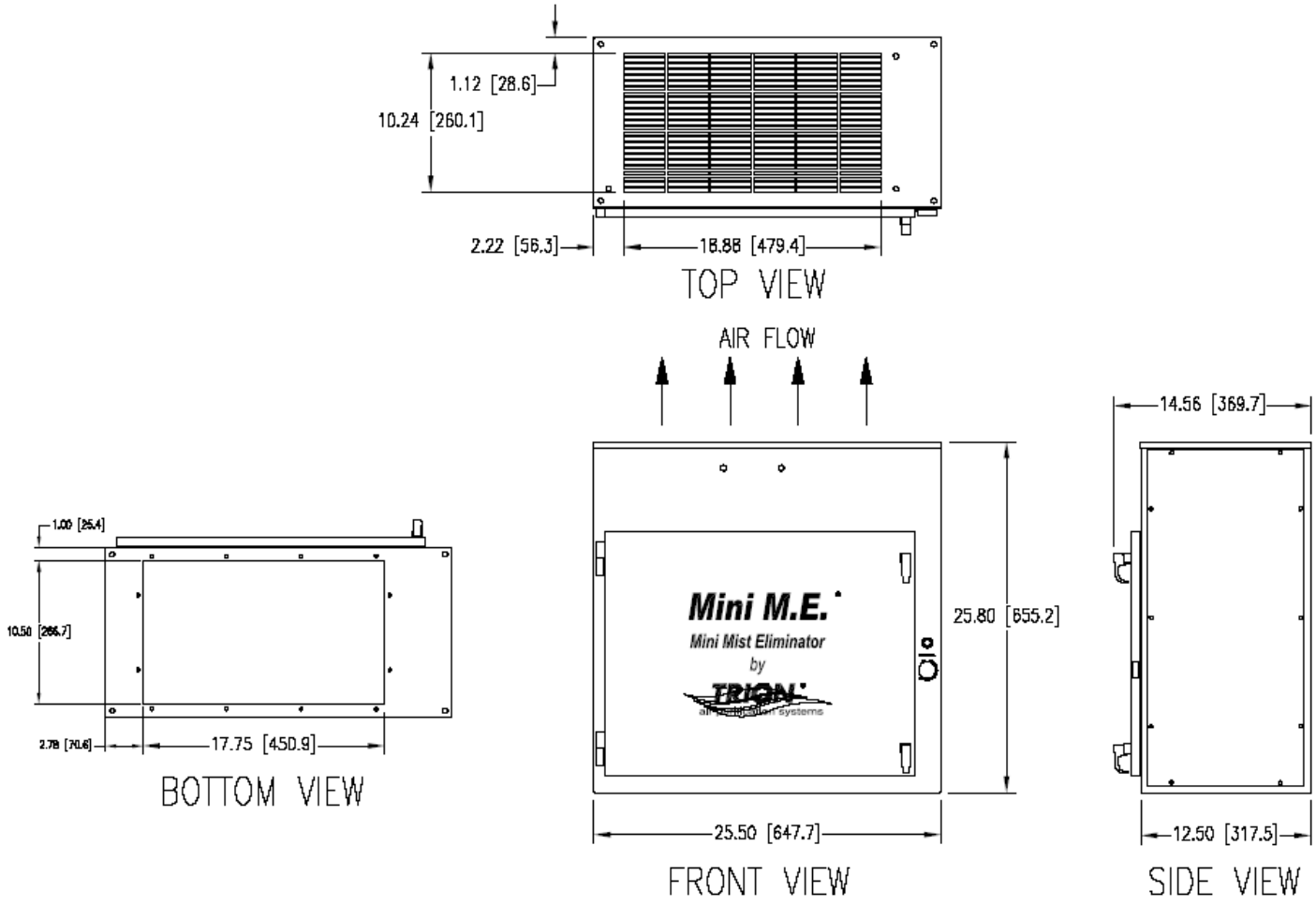


Figure 4 - Outline Drawing with Optional Accessories

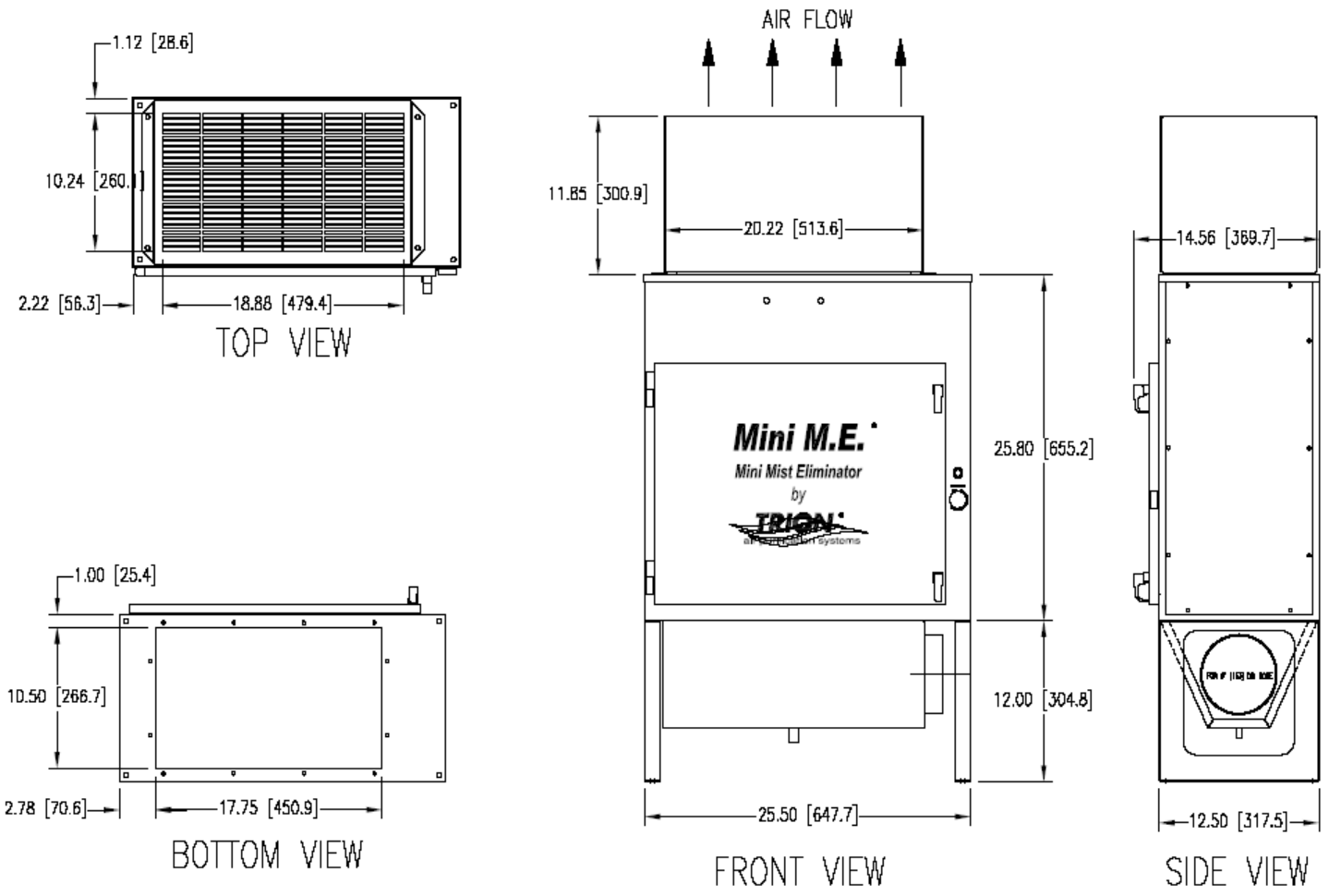
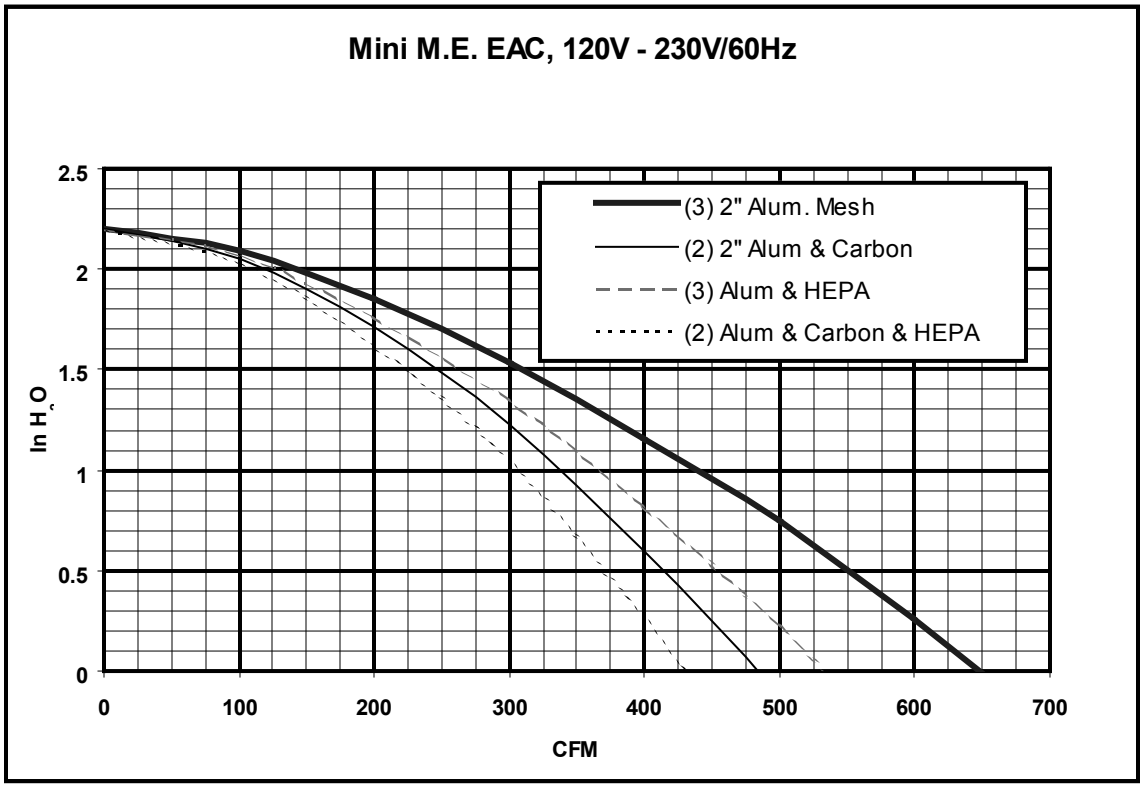


Figure 5 - Blower Curves



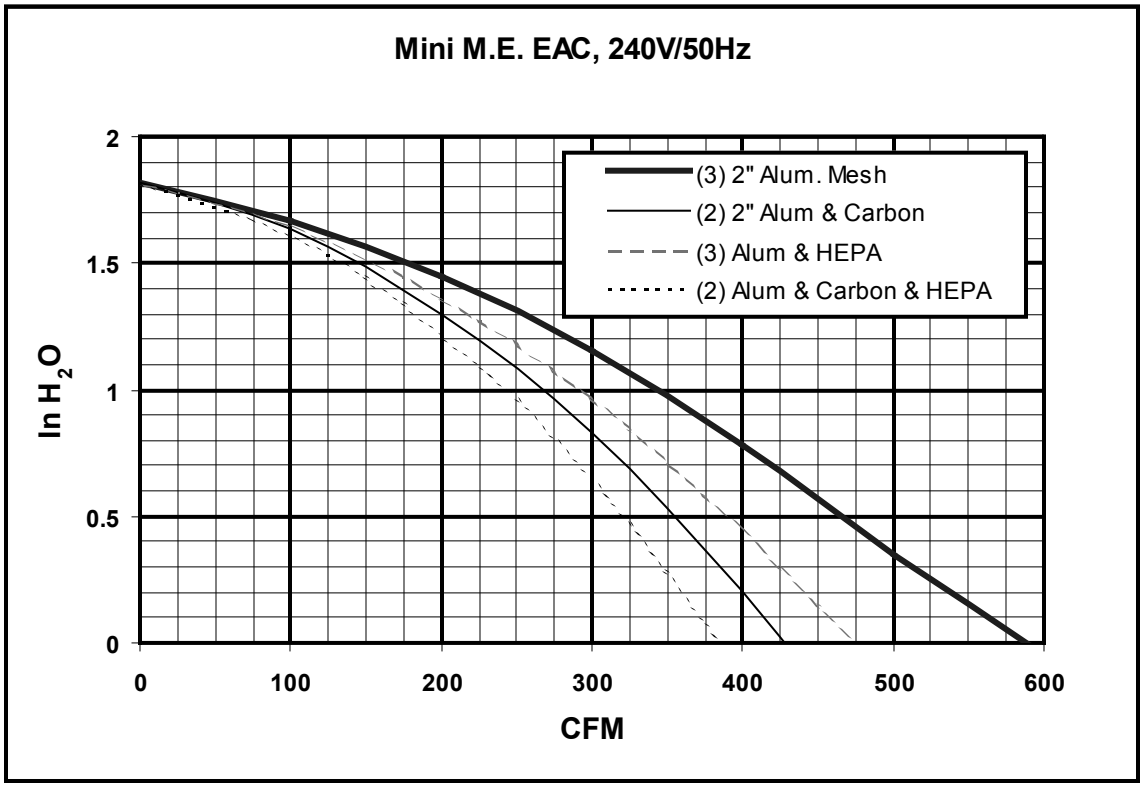
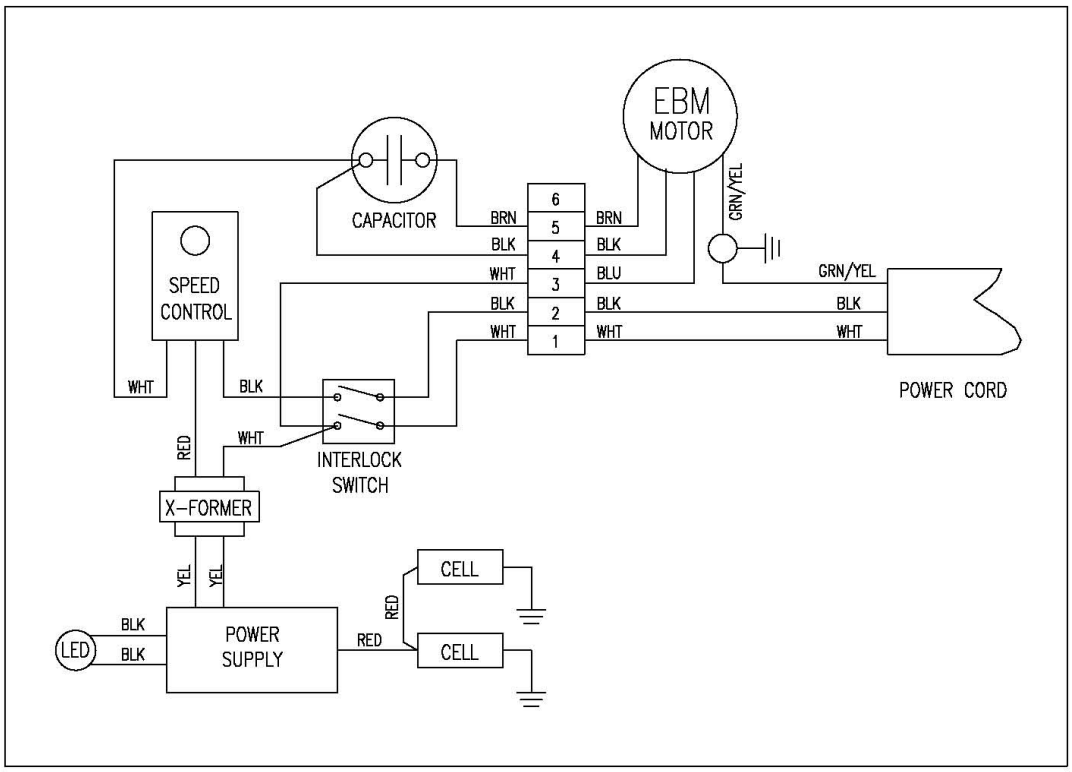


Figure 6 - Wiring Diagram



Limited Warranty

Seller warrants the equipment of its manufacture to be free from defects in workmanship and material for a period of three (3) years after shipment or if applicable – three (3) years after initial startup of equipment, whichever occurs first. This warranty is limited, however, to the repair or replacement of defective equipment, which is returned, freight prepaid, to Seller's factory.

This limited warranty does not apply to any part or component that is damaged in transit or when handling, has been subject to misuse, negligence or accident, has not been installed, operated or serviced according to Seller's instructions, or has been operated beyond the factory-rated capacity or has been altered in any way.

Seller's liability is limited to replacement of defective parts or components and does not include any cost of labor (including, but not limited to, labor required to remove and/or reinstall any defective part) other than TRION factory labor.

TRION shall not be responsible for loss of use of any product, loss of time, inconvenience, or damage to other equipment or any other indirect or consequential damage with respect to property whether as a result of breach of warranty, neglect or otherwise.

THE WARRANTIES AND LIABILITIES SET FORTH ABOVE ARE IN LIEU OF ALL OTHER WARRANTIES AND LIABILITIES, EXPRESSED OR IMPLIED, IN LAW OR IN FACT, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE.

The foregoing shall constitute the total liability of Seller in the case of defective performance of all or any of the equipment or services provided to Buyer. Buyer agrees to accept and herby accepts the foregoing as the sole and exclusive remedy for any breach or alleged breach of warranty by Seller.

TRION®

Indoor Air Quality

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