



## Operation Manual for ARM-EVAC® 150 Fume Extraction System

MANUAL P/N 5050-0593

REV. 11 Nov 2018



This manual applies to:

Model	Required Power	Part Number
ARM-EVAC 150	120 VAC	8889-0150-P1
ARM-EVAC 150	230 VAC	8889-0155-P1



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<p style="text-align: center;"><b>WARNING</b></p>
<p style="text-align: center;">Read the safety &amp; setup information sections in this manual before installing and using your fume extraction system.</p>

## **Safety**

PACE Fume Extraction systems are designed to reduce harmful contaminants in the work environment for achieving recommended health and safety requirements. Be sure to follow all safety guidelines contained here and in other relevant safety literature (i.e., Material Safety Data Sheets) provided with the substances and equipment producing the fumes to be extracted.

### **Disclaimer**

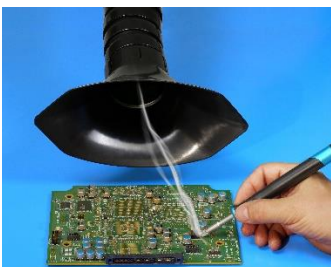
PACE hereby disclaims all responsibility for any personal injury, property damage, fine, citation or penalty imposed by any government or private entity which results from any use, misuse or misapplication of this product, failure of the user to regularly maintain the product according to the recommended guidelines, or failure to adequately monitor fume extraction exhaust air and the ambient workplace air for the presence of harmful levels of gases, fumes and particulates.

Compliance with all applicable environmental and personal safety regulations is the sole responsibility of the user. Adequate self-monitoring of exhaust air released, as well as monitoring of the ambient workplace air, is strongly recommended. To insure continued effective performance, the following guidelines must be followed:

### **Dangers**

1. PACE Fume Extractors are not intended as replacement of devices designed for removal of poorly adsorbed substances like carbon monoxide, methane, hydrogen, acetylene and other gases. Risk of serious injury or death, fire or explosion may result from improper use. If in doubt, contact your industrial hygienist or PACE.
2. Never use PACE Fume Extraction Systems to extract fumes from highly flammable liquids or gases such as Ether, Gasoline (Petrol) and others. Risk of serious injury, death, fire or explosion may result.
3. High concentrations of some airborne contaminants such as Methyl Ethyl Ketone, Cyclohexane, Ozone and others may have an exothermic reaction when contacted with activated carbon, possibly resulting in extreme heat generation and eventually combustion. PACE Fume Extraction Systems must not be used to extract fumes from these substances when high concentrations are present.
4. Failure to comply with the application and maintenance guidelines, filter replacement schedules, monitoring recommendations and safety guidelines contained herein and in other relevant product safety literature (i.e., Material Safety Data Sheets) provided with the substances and equipment producing the fumes to be extracted could result in risk of serious injury, fire or explosion.
5. Do not attempt to take out or replace filters while the machine is running. The internals of the machine can reach very high voltage. There are also moving parts that can be very dangerous. Only experienced personnel should perform routine checks and maintenance.

## **Introduction**



It's a fact ... unsafe particulates and gases in the workplace result in increased absenteeism, employee turnover, worker's compensation claims and lost productivity. Why depend on costly centralized air handling systems to purify the air when you can do so at the source? PACE's Arm-Evac 150® captures hazardous fumes locally and is suitable for benchtop soldering and electronic rework applications including handheld machining operations and light, limited use of solvents, adhesives, etc. The system represents the latest technology in affordable fume extraction and features:

- Rugged steel case construction and heavy-duty motor pumps for years of trouble-free use
- Low cost, easily changed, disposable filter cartridges
- Superior performance and quiet operation
- Optimal flow rates for use with our flexible arms & accessories

The Arm-Evac 150 comes standard with a General Purpose Combo Filter with a 3-stage filtration process consisting of a Pre-Filter for course particle removal, a HEPA-Type Particulate Filter and Gas Filter in a cartridge for efficient filtration. Several types of filters are available:

1. A General-Purpose Combo Filter for normal benchtop soldering and electronics rework applications (supplied with system).
2. A Clean Room Filter for use in cleanroom environments.
3. An Adhesive Filter intended for removal of fumes produced by light benchtop gluing or PCB cleaning applications involving light benchtop solvent use (no solvent tanks).
4. A High Capacity Filter and High Capacity Pre-Filter for longer maintenance intervals during normal soldering operations.

See **Replacement Filter Chart** on page 8 for full range of filters and part numbers.

The Arm-Evac 150 Fume Extractor uses specially designed extraction accessories that can be conveniently mounted on any workbench or tabletop. The Arm-Evac 150® can be used to extract fumes from up to two different work benches/collection points.

## Specifications

Arm-Evac 150 System Part Number	8889-0150-P1 for 110V, 60hz unit
	8889-0155-P1 for 230V, 50hz unit
Flow Rate with General Purpose Combo Filter	Single Inlet: 155 cfm
	Dual Inlet: 90 cfm each Arm
Flow Rate with Optional Cleanroom Filter	Single inlet: 145 cfm
	Dual inlet: 85 cfm each
Sound Level DbA	< 53 dbA 50% motor speed < 63 dbA 100% motor speed
Weight (Central Filtration Unit with Filter)	9.07 Kg/20 lbs
Size W x D x H	305mm W x 305mm D x 432mm H (12" W x 12" D x 17" H)
Housing	20-gauge steel (ESD-safe)
Flex Arm Diameter	60mm (2.4")
Maximum Number of Flex Arms	2

## Environmental Specifications

Ambient operating temperature	0°C to 80° (32°F to 176°F)
Storage temperature	-40°C to 125°C (-40°F to 257°F)
Ambient operating humidity	90% relative humidity max non-condensing
Storage humidity	90% relative humidity max non-condensing

## **Features of Arm-Evac 150 Fume Extraction System**

- 1.** ESD-Safe Flex Arm with Nozzle Assembly
- 2.** Lockable Lid
- 3.** Lid Clasp
- 4.** Handles (1 on each side)
- 5.** Exhaust Vents (1 on each side)
- 6.** Power Switch/Power Receptacle/Fuse Tray
- 7.** Locking Caster (1 on opposite corner also)
- 8.** Remote Control
- 9.** Central Filtration Unit
- 10.** Control Panel
- 11.** Air Inlet (2)
- 12.** Inlet Cap



**Arm-Evac 150 Fume Extraction System comes complete as shown above**

## Set up

1. The Arm-Evac 150 has been designed for ease of use and maximum installation flexibility in mind. The major considerations for placement of the unit are:



**Exhaust Vents:** Located on both sides of the unit (see image on left). When positioning the unit, make sure airflow to exhaust vents are not blocked/restricted.

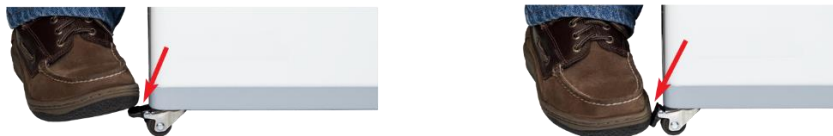
**Proximity to work area:** The unit should be placed as close to the work area as is convenient. Do not create sharp bends in the Flex Arm, as this reduces airflow.

**Unit Location:** The unit should be located so that it will not block aiseways or impede traffic of material handling pathways. It is important to position the unit in a way that allows clearance to remove the lid and replace the filter when needed.

2. Remove Arm-Evac 150 from packaging and place in suitable position.
3. Open the Arm Evac 150 Central Filtration Unit by unlatching the Lid Clasps. The General-Purpose Combo Filter P/N 8883-0932-P1 (includes Pre-Filter P/N 8883-0112-P5) is preinstalled – simply verify the Filter is directly in the middle, and in the correct position. Then re-latch the Lid Clasps.



4. Push the brake lever down on the 2 opposing Locking Casters to prevent the unit from rolling.



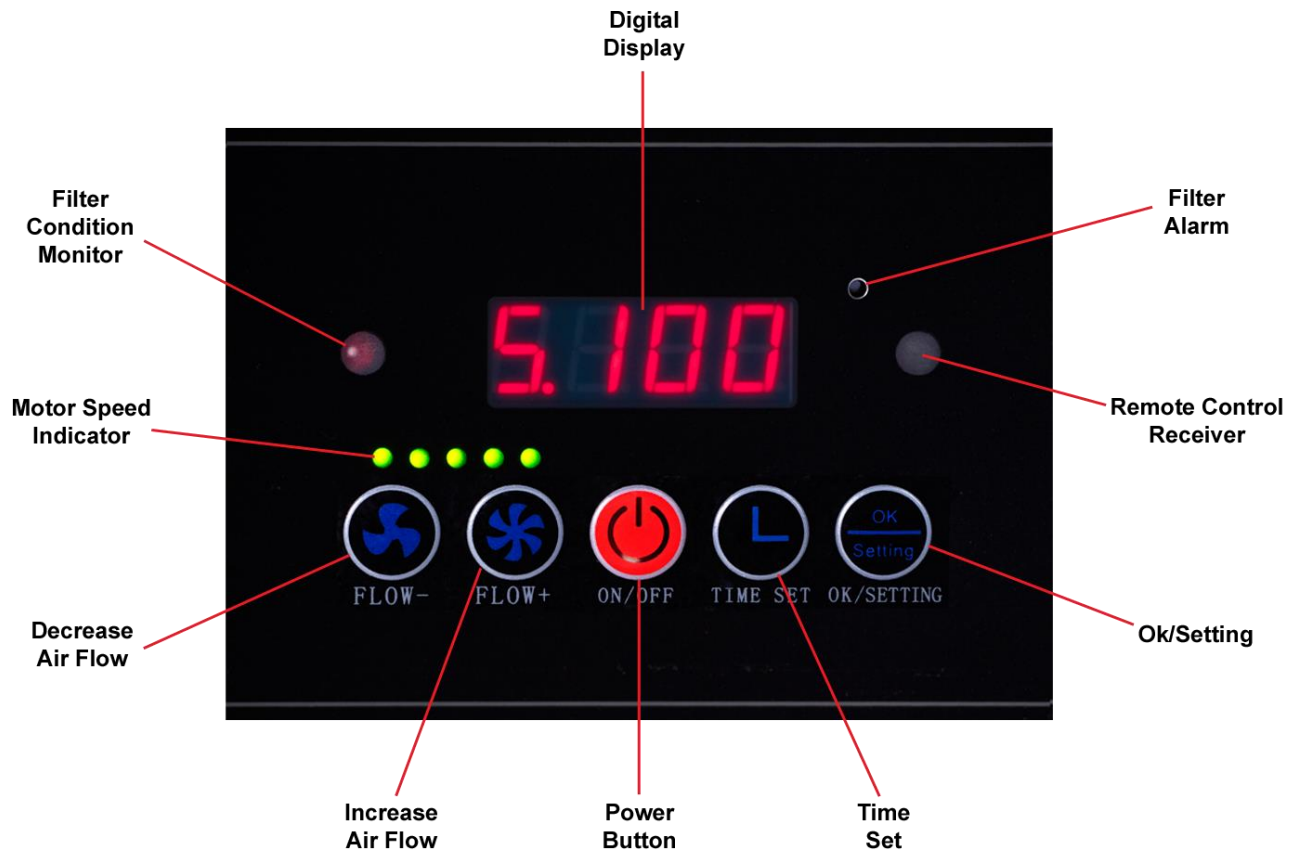
5. Install the Flex Arm by attaching the flange to one of the Air Inlets on the top of the Central Filtration Unit. After the Arm is secure, attach the Nozzle to the front of the Flex Arm – it should snap on easily.



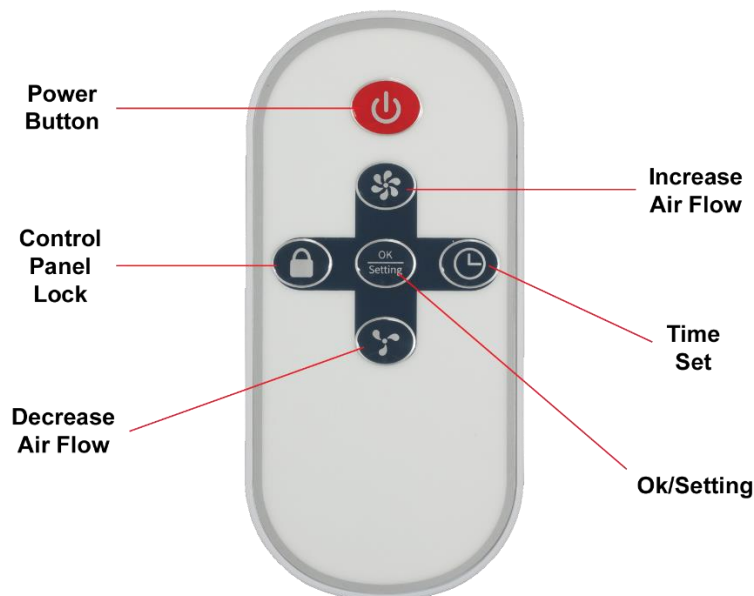
6. Plug the supplied power cord into receptacle at left side of unit, ensuring that it is connected to a properly grounded outlet. The Arm-Evac 150 will plug into a standard 110VAC or 230VAC electrical outlet depending on which version you have. The appropriate power cord is provided with each system.
7. Turn on the Arm-Evac 150 using the main power switch at the side of the unit.

## Operation

### Arm-Evac 150 Front Control Panel



### Remote Control





## **Front Control Panel & Remote Button Functions**

**Power Button** – Press the *Power Button* on the front panel or on the remote to activate the unit. When the machine comes on, the *Power Button* on the front panel will light up red. Press the *Power Button* again to stop the unit, and the button will begin flashing to indicate the main power switch is still on. ATTENTION: If the unit is not going to be used again for a long time, turn off the main power switch at the side of the unit.

**Motor Speed Indicator** – The number of green illuminated LED's will increase or decrease to indicate motor speed.

**Increase Air Flow Button** – With the machine running, each press of the button will increase the motor speed by 10%. The number on the display will increase by 010 (e.g. S. 010) to a maximum of 100 (S. 100).

**Decrease Air Flow** – While the machine is running, each press of this button will slow the motor speed. The number on the display will decrease by 10%. To turn the motor completely off, press the power button.

**Time Set** – While the machine is running, pressing this button will allow a timer to be set that will automatically shut the unit off. Pressing the *Time Set* button will cause the display to switch from the flow speed display to "HXXX", with "H" meaning Hours and "XXX" being the number of hours before the unit shuts off. The minimum setting is 1 hour with a maximum of 300 hours. Press the *Increase Air Flow* or *Decrease Air Flow* buttons to change the number of hours. Each digit is set individually. After setting the desired single digits, press *Time Set* to advance to the tens and again to the hundreds. After completing the desired run-time entry, press the *OK-Setting* button to save the setting.

**Filter Condition Monitor** – When the filter becomes clogged, a red LED will blink (along with an auditory alarm), indicating a filter change might be required.

**Filter Alarm** – An auditory alarm will sound alerting the operator to check the filter condition, as it may be clogged. Push the *Ok/Setting* button to mute the alarm sound.

**OK-Setting** – If the machine sounds an alarm, press this button to acknowledge the alarm and stop the auditory tone. The total run-time of the machine (in hours) can also be displayed by pressing this button during normal operation. The button also serves to save certain settings.

**Control Panel Lock (Remote only)** – On the Remote Control, pressing the *Control Panel Lock* button will lock the buttons on the front panel of the unit. This is to prevent unauthorized personnel from changing the settings. The front panel can be unlocked by pressing the button on the Remote again, or by turning the unit off then back on using the main power switch.

## **Maintenance**

**Fuses:** The fuse is located in a sliding tray at the left side of the unit, between the power receptacle and power switch. *Each Arm-Evac is supplied with one replacement fuse, also located in the sliding tray.*

**Motor:** The Arm-Evac 150 is fitted with a brushless, single inlet motor pump assembly, which does not require routine maintenance. It is important that fume extractor filters are changed on a regular basis to protect the fan assembly.

**Exhaust Vents:** Vents are located on both sides of the unit to allow the cleaned air to return to the workplace. Do not cover them as this may cause damage to the motor assembly.

**Never operate the Arm-Evac 150 without filters installed.**



## **Filter Replacement & Spare Parts**

PACE Fume Extraction Systems are equipped with filters designed to capture particulates, noxious gases and odors from the air being filtered. Regular monitoring of exhaust fume from the unit is recommended. Over time, the particulate filters will become clogged causing restriction of air flow through the system and/or the capacity of the gas filter will be reached causing a reduction in the ability to continue neutralizing and adsorbing noxious gases or odors.

Do not attempt to clean any PACE fume extraction filters for reuse. Cleaning the filters can severely damage the filter media, ruining the filter's performance. This will result in unfiltered, contaminated air being returned to the working environment. Unfiltered air can also damage the fan assembly.

To ensure the highest level of performance, use only genuine PACE replacement filters in your PACE Fume Extraction System.

### **Arm-Evac 150 Pre-Filter P/N 8883-0112-P5**

The Pre-Filter removes coarse particles from the air. In general, the Pre-Filter should be changed on a monthly basis. However, depending on your particular process, the filter may need to be changed more or less frequently. A visual inspection on a weekly basis is recommended.

Replacing the Pre-Filter:

1. Remove the Filter access cover (lid)
2. Remove the old Pre-Filter
3. Install a new Pre-Filter.
4. Attach lid.
5. Dispose of used Pre-Filter properly

### **Arm-Evac 150 General Purpose Combo Filter P/N 8883-0932-P1**

The General Purpose Combo Filter cartridge removes particulates from the air and captures noxious odors & gases. In general, the filter cartridge must be changed every 6 to 9 months. However, depending on your particular process, the filter cartridge may need to be changed more or less frequently.

Replacing the Filter cartridge:





1. Remove the lid.
2. Remove the old filter cartridge.
3. Install new filter cartridge.
4. Install a new Pre-Filter.
5. Attach lid
6. Dispose of old filters properly.



BE SURE the new filter cartridge is installed with the airflow arrows correctly oriented as shown on the filter.

When disposing of used filters, care must be taken to comply with all applicable environmental regulations. Carefully consult the SDS supplied with the material(s) producing the fume. If in doubt, check with your local Environmental Authority.

**Replacement Filter Chart**

Product Image	Name/Part Number	Description & Recommended Application
	<p>Pre-Filter P/N 8883-0112-P5</p>	<p>Comes standard with the Arm-Evac 150. The Pre-Filter is a lower efficiency (90% arrestance, EU 4) particle filter that is used to protect the primary filter from large particles, extending the life of the primary filter. Available in packages of 5 each.</p>
	<p>General Purpose Combo Filter P/N 8883-0932-P1</p>	<p>Comes standard with Arm-Evac 150. Also includes Pre-Filter P/N 8883-0112. Recommended for benchtop soldering and electronic rework applications, where normal volumes of fumes are being generated for 1 or 2 shifts (.2-80 microns, 85% EU 8).</p>
	<p>Cleanroom Combo Filter P/N 8883-0922-P1</p>	<p>Includes HEPA particulate filter media &amp; activated carbon element. Also includes Pre-Filter P/N 8883-0112. Recommended for applications in cleanroom environments or where high filtration efficiency is required (.2-2 microns, 99.99% EU 13).</p>
	<p>Adhesive Combo Filter P/N 8883-0952-P1</p>	<p>Also includes Pre-Filter P/N 8883-0112. Recommended for any bench top application utilizing adhesives, solvents and cleaners used in small quantities.</p>

## Replacement Parts



**SteadyFlex™ ESD-Safe Flex Arm & Nozzle Assembly**

Item Description	Part Number
60mm/2.4" SteadyFlex ESD-Safe Flex Arm & Nozzle Assembly	8886-0850-P1
Replacement ESD-Safe Nozzle/Endpiece	8884-0154-P1
Replacement Wireless Remote Control	8884-0153-P1
Replacement Inlet Cap	8884-0152-P1
Replacement Casters, set of 4 (2 locking, 2 standard casters)	8884-0151-P1
Replacement Fuses (120VAC) Pkg/5	8884-9962-P5
Replacement Fuses (230VAC) Pkg/5	8884-9963-P5

## Troubleshooting

Symptom	Possible Causes	Solution
System turns on but shuts off immediately.	Filter blocked.	Check & change filter(s)
	Duct work blocked or restricted.	Check that the arms/hoses are not pinched or bent to sharply.
System will not turn on.	No power supplied to unit	Make sure the power cord is fully seated and that the power is turned on.
Reduced Airflow	Filter blocked.	Check & change filter(s)
	Arm attachment not installed correctly.	Make sure all accessories are fully seated.

If the unit does not work after checking the above, please contact PACE or, if you are located outside of the U.S., your Authorized PACE Distributor.

## **Warranty**

PACE warrants that this equipment will be free of defects in materials and workmanship for a period of one (1) year from the date of receipt by the first user.

This warranty does not cover repair or replacement required as a result of misuse, mishandling or improper storage. Failure to perform recommended routine maintenance, alterations or repairs made other than in accordance with PACE's directions, or removal or alteration of identification plates in any way will void this warranty. This warranty is available only to the first user, but the exclusions and limitations therein apply to all persons and entities.

This warranty does not apply to consumable items such as filters.

PACE MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, AND MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

PACE will, at its option, repair or replace and defective equipment or parts at its facility or other location approved by it at no charge to the user, or provide parts without charge for installation by the user in the field at the user's expense and risk. User will be responsible for all costs of shipping equipment to PACE or other warranty location for warranty service.

EXCEPT FOR THE REMEDY ABOVE DESCRIBED, UNLESS OTHERWISE REQUIRED BY APPLICABLE LAW, PACE WILL HAVE NO OTHER OBLIGATION WITH REGARD TO ANY BREACH OF WARRANTY OR OTHER CLAIM WITH RESPECT TO THE EQUIPMENT, OR LIABILITY FOR ANY DIRECT, INDIRECT, CONSEQUENTIAL, OR INCIDENTAL LOSS OR DAMAGE CAUSED BY OR OCCURRING IN CONNECTION WITH ANY OF THE EQUIPMENT.

To obtain warranty service, contact the appropriate PACE company.

Do NOT return defective equipment or parts to PACE without obtaining prior authorization.

Any warranty or other claim with respect to the equipment must be made in writing and delivered to PACE (or local authorized PACE Distributor outside the U.S.) within a reasonable time of the expiration date of this warranty. Sufficient evidence of purchase and date of receipt must also be included, otherwise user's rights under this warranty shall be deemed waived.



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