Fume Extraction

Solutions and systems for soldering, rework and repair of electronics

PACE® worldwide

Fume Extraction Systems

PACE worldwide

As the full solution provider in the electronics industry, PACE has set the standards for over 15 years by leading technology development for fume extraction equipment specifically designed to meet the requirements of the electronics industry and by educating the industry on the effects of exposure and how to protect workers.

PACE offers Fume Extraction Systems that feature the latest advancements in filter condition monitoring and process control as well as cost effective solutions that incorporate many of our best features. A variety of collection accessories are available that offer highly effective source capture or wide area extraction to meet virtually any application.

Each system is composed of rugged steel construction and includes a heavy-duty, brushless motor for years of trouble-free service. Convenient, disposable filter cartridges are easily changed, eliminating the need for messy cleaning and costly service visits.

The Benefits
OF PACE FUME EXTRACTION

1. Fumes are pulled away from the primary solderer.
2. As flux fumes are removed at their source, secondary exposure of other operators is eliminated.
3. Assemblies and the work area are kept clean from flux fume contamination.
4. Filtered air is recirculated back into the work environment instead of being vented to the outside. Therefore, energy savings in the form of air conditioning and heating costs are realized.
5. Unfiltered air is not exhausted to the outside which may require costly environmental permits and pollution control devices.
6. PACE Fume Extraction Systems offer the greatest flexibility as they are modular and can be easily disassembled and reassembled in another location as manufacturing processes and layouts change.

It's a fact...hazardous fumes in the working environment result in increased absenteeism, employee turnover, worker's compensation claims and lost productivity. Medical research has confirmed an increased incidence of occupational asthma, chronic bronchitis, allergic reactions, contact dermatitis and other health related effects associated with exposure to flux fumes. The substances in flux fumes are regulated by international health and safety agencies and many have been designated as Occupational Sensitizers which means that exposure should be eliminated or reduced to as low a level as possible. Where manual soldering is being performed or where solder-pots/fountains are utilized, hazardous fumes are produced and workers need to be protected from them.

Table of Contents	Page

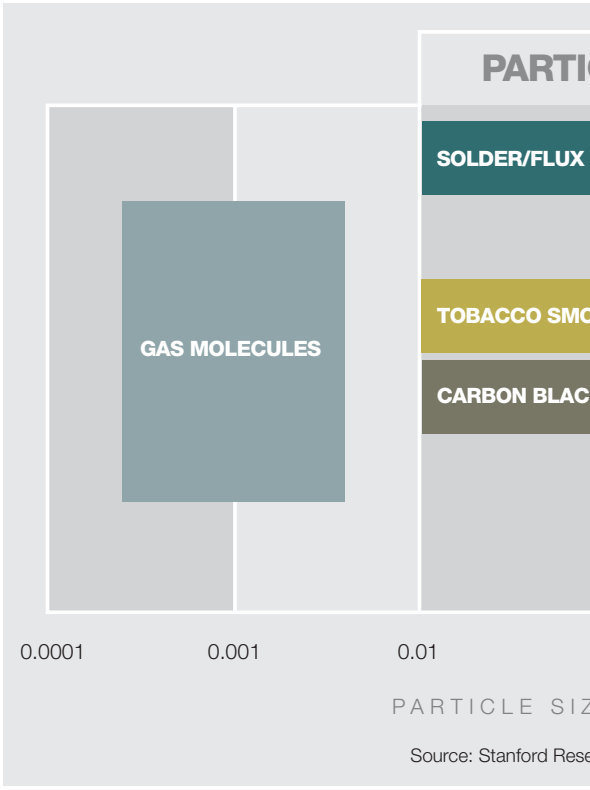
LEAD FREE SOLDER COMPATIBLE

FACT:

Exposure to Solder Fumes Leads to Respiratory Illness

When rosin-based or rosin-containing fluxes are heated, a substance called colophony is produced, which is one of the major causes of occupational asthma. In order to reduce exposure to colophony, rosin-based fluxes have been exchanged for no-clean or synthetic fluxes that contain no rosin or very low percentages. While this reduces or eliminates exposure to colophony, new chemical irritants may be introduced into the work place, many of which pose a more substantial threat to workers. Over 95% of the total fume produced from rosin-based fluxes are in the form of particulates. Chemical exposure from flux fume varies widely and is dependent on the chemical composition of the flux. Non-rosin or low-rosin fluxes use chemically aggressive substances such as acids, solvents, or alcohols in place of rosin to improve the cleaning action of the flux. **This is also true for Lead Free solders.**

Exposure to these substances is also recognized as hazardous, and when flux is heated, the resultant chemical by-products can be even more hazardous. Additionally, the use of cleaners, solvents or adhesives, which are common in electronic soldering



Source: Stanford Rese

Benchtop
Fume Extraction

Arm-Evac 50

Arm-Evac 50 with optional Dual Arm Attachment

Providing fume extraction to two workstations

Arm-Evac **50**

The Arm-Evac 50 is a unique, portable, cost-effective, bench-top fume extractor that provides wide area fume extraction or highly efficient source capture at two points using the optional arm attachment. The Arm-Evac 50 features operator adjustable airflow, quiet operation and a wide variety of filters to meet the needs of virtually any application.

See page 7 for replacement filters.

Specifications	**Arm-Evac 50**
Part Number	8889-0050-P1
Dimensions	250mm (8.5") **H** x 330mm (13") **W** x 315mm (12.5") **D**
Weight	6 Kg (13 lbs)
Power Requirements	115 or 230 VAC, 50/60 Hz
Noise Level*	54 dBA
Number of Inlets	One laminar flow, plenum inlet
Flow Rate	Adjustable: 152m³/h (90cfm) max with Plenum, One Arm Adjustable: 84.5m³/h (45cfm) max, Two Arms Adjustable: 50m³/h (30 cfm) max per arm
System Options	Dual Arm Accessory, 8886-0055-P1
Standard Primary Filter	General Purpose Filter
Filtration Options	General Purpose Filter, Cleanroom FIlter, Economy Filter

* Airflow and noise level are nominal numbers and will vary based on voltage

Portable
Fume Extraction

See page 7 for replacement filters.
See pages 8 and 9 for additional accessories.

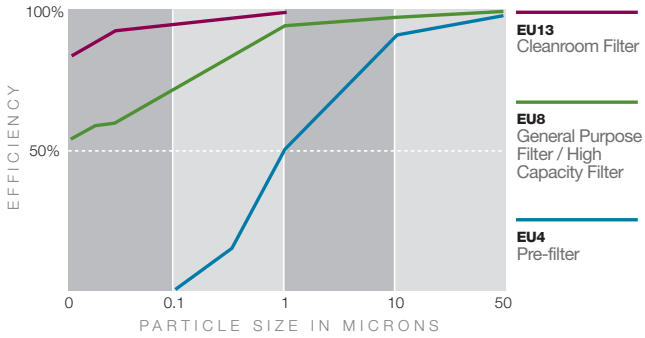
Arm-Evac **250**

The Arm-Evac 250 is ideal for heavy-duty operations that need high capacity and continuous particle filter monitoring. Incorporating microprocessor technology, an easy-to-read graphical LED filter condition monitor changes from green to yellow to red as the filter becomes clogged. Additionally, flow sensors increase power to the motor as filters become blocked to assure peak performance. The filter monitoring system self calibrates using a membrane keypad on the front panel and an audible alarm alerts the operator when a filter change is required. A three-position motor speed button is also on the front panel. A wide variety of collection accessory options and filters are available. An optional silencer/mobile cart is available.

Specifications	Arm-Evac 250	Arm-Evac 250E
Part Number	8889-0255-P1	8889-0250-P1
Power Requirements	115 VAC, 60 Hz	230 VAC, 50 Hz
Dimensions	393mm (15.4") **H** x 282mm (11.1") **W** x 365mm (14.3") **D**	
Weight	14 Kg (31 lbs)	
Noise Level*	58 dBA	
Number of Inlets	Two 75mm (3")	
Flow Rate* General Purpose Filter	**Single Inlet:** 288m³/h (170 cfm); **Dual Inlet:** 170m³/h (100 cfm) per inlet	
Flow Rate* Cleanroom Filter	**Single Inlet:** 255m³/h (150 cfm); **Dual Inlet:** 135m³/h (80 cfm) per inlet	
Number of Collection Accessories	50mm (2"), Three 75mm (3")	
Maximum Duct Run	5m (16') per inlet	
System Options	Silencer / Mobile Cart	
Standard Primary Filter	General Purpose Filter	
Filtration Options	General Purpose Filter, Cleanroom Filter, Adhesive Filter, Extended Life Filter, Economy Filter	

* Airflow and noise level are nominal numbers and will vary based on voltage

Fume Extraction **Filters**

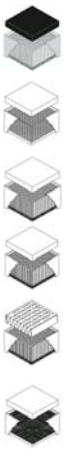


Our Filtration Systems

PACE's Filtration Systems have been specifically designed for applications in the electronics industry. A wide variety of filtration options are available for use with PACE Fume Extractors ensuring that you always have the right filter for the job.

Filtration systems for soldering applications are comprised of three filters. As fumes are collected, they first encounter the Pre-filter, which is a lower efficiency particle filter that is used to protect the primary filter from large particles, extending the life of the primary filter. Next is the Primary Particle Filter which is a particulate filter with large surface area having efficiency ratings of 85% and higher. A variety of filtration efficiencies are available to suit your needs. Lastly, a Gas Filter is included to eliminate any hazardous gases that may be present. PACE's Gas Filters use high-grade activated carbon or they combine adsorptive and chemisorptive technologies to maximize effectiveness. To fully understand your gas filtration needs, always consult your Material Safety Data Sheet. The Arm-Evac 50, 105, 200 & 250 use "Combo Filters" which means that the Primary and Gas filters are contained in one filter cartridge. The Arm-Evac 500 uses separate Primary and Gas filters which need to be changed individually. Pre-filters should be inspected at least weekly. When they become clogged, they should be replaced immediately to maximize primary filter life.

Filter Types



Filter Type	Filter Efficiency Rating	Recommended Application
Pre-filters	90% ARRESTANCE EU 4	Recommended for use with all filtration systems.
Economy Filters	N/A N/A	Recommended for soldering applications where cost-effective solutions are required. Ideal for applications where coarse dust is generated.
General Purpose Filters	85% EU 8	Recommended for soldering applications where normal volumes of fumes are being generated for 1 or 2 shifts. (.2-80 microns)
Cleanroom Filters	99.99% EU 13	Recommended for applications in Cleanroom environments or where the highest filtration efficiency is required. (.2-2 microns)
High Capacity Filters	85% EU 8	Recommended for soldering applications where heavy volumes of fumes are generated or where operations are running 3 shifts. Filter contains additional filtration media and will last longer.
Adhesive Filters	N/A	Recommended for any bench-top application utilizing adhesives, solvents, or cleaners used in small quantities and not in open containers or "baths".

Filter Selection

The following chart is a quick reference guide for PACE Filtration Systems. Simply select your fume extraction central filtration unit and the type of filter you need to identify the part number of the filter. (**Bold part numbers indicates standard primary filter in Central Filtration Unit**).

System	Pre-filter	High Capacity Pre-filter	Economy Filter	General Filter	Cleanroom Filter	High Capacity Filter	Carbon Filter	Adhesive Filter
Arm-Evac 50	8883-0125-P5	N/A	8883-0300-P5	**8883-0280-P1**	8883-0290-P1	N/A	N/A	8883-0295-P1
Arm-Evac 105	8883-0111-P5	8883-0986-P10*	8883-0871-P1	**8883-0901-P1**	8883-0921-P1	8883-0987-P1*	N/A	8883-0951-P1
Arm-Evac 200	8883-0111-P5	8883-0986-P10*	8883-0871-P1	**8883-0931-P1**	8883-0921-P1	8883-0987-P1*	N/A	8883-0951-P1
Arm-Evac 250	8883-0111-P5	8883-0986-P10*	8883-0871-P1	**8883-0931-P1**	8883-0921-P1	8883-0987-P1*	N/A	8883-0951-P1
Arm-Evac 500	**8883-0145-P10**	N/A	N/A	**8883-0955-P1**	8883-0965-P1	N/A	**8883-0956-P1**	N/A

* High Capacity Pre-fIlters must be used in combination with a High Capacity Filter. When filters need to be replaced, simply remove them from the Fume Extractor and replace with a new one. Disposal of filters should be done in compliance with local environmental regulations.

Fume Extraction
Accessories

Air Flow Controller

The Air Flow Controller for the 75mm (3") ESD Safe Flex-Arm gives the u
fume extraction air flow at their work bench. It is infinitely adjustable from
precisely deliver the ideal airflow needed to protect workers' health and e
that could cool the solder/reflow work area.

Metal Plenum

The Plenum is ideal for providing fume extraction to work spaces where
on a large PCB. At 455mm (18") wide laminar airflow is supplied over th
The Plenum also preserves bench-top space as it provides a sturdy she
includes 2.5m (8') of 75mm (3") ESD Safe Flexible Hose for easy conne

Specifications
Part Number
Dimensions
Weight
Material
Inlet

Silencer / Mobile Carts

Specifications	Silencer/Mobile Cart Arm-Evac 200
Part Number	8885-1225-P1
Weight	4.5kg (10 lbs)
Description	Constructed of 18-Gauge steel and acoustical foam baffle liner. Arm-Evac 250 Silencer/Mobile Cart includes front locking casters.

Fume Extraction Configuration Examples

2 x 75mm (3") ESD Safe, Flex-Arms
(includes Round Endpiece)
8886-0750-P1
1 x Cowl Endpiece 8886-0793-P1

2 x ESD Safe Flex-Arm Kits
(refer to page 8 for kit contents)
8886-0765-P1
1 x Cowl Endpiece 8886-0793-P1

PACE provides innovative solutions, products and training for the assembly, rework, repair and testing of printed circuit boards. PACE's unique capabilities and evolving vision have provided universal solutions to thru-hole and surface-mount assembly and rework problems for the most advanced electronics. Our strong commitment and history of achievement has resulted in an unparalleled range of Assembly, Repair and Fume Extraction systems to meet your company's needs whether working to ISO-9001, industrial, military or your own internal specifications. Whatever the challenge, PACE stands ready to provide the best, cost-effective solution for you.

Solder & Desolder Stations

SMR

WJS **100**

ST **50**

ST **70**

ST **65**

ST **115**

Fume Extraction

Arm-Evac **50**

Arm-Evac **105**

Arm-Evac **200**

Arm-Evac **250**

Rework & Repair Systems

MBT **250**

MBT **350**

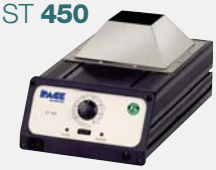
ST **325**

ST **350**

Pre-heaters & Process Monitors

ST **400**

ST **450**

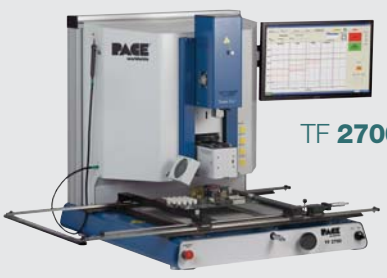


ST **1600**

Tip Temperature Monitor

PM **200**

Area Array (BGA) Rework Systems



TF **2700**

TF **1700**

IR **3000**

IR **1000**

Solutions and systems for soldering, rework and repair of electronics

A Worldwide Commitment

With offices worldwide, PACE is a recognized world leader in the development of solutions for the assembly and repair of highly advanced electronics. Our expertise extends back to the dawn of the modern electronics industry. In 1958, PACE introduced training programs for the repair of printed wire assemblies and soon after, revolutionized the industry by creating the first self-contained vacuum desoldering system.

Today, PACE continues to provide innovative solutions, products and training for the rework, repair and testing of printed circuit assemblies. Our unique capabilities and evolving vision have provided universal solutions for thru-hole and surface mount assembly and rework problems for the most advanced electronics.

Additionally, PACE manufactures Fume Extraction Systems to reduce exposure to harmful particulates and gases created from hand soldering operations. PACE Fume Extraction Systems effectively remove these contaminants from the worker's breathing zone thereby reducing or eliminating health risks and improving productivity.

Our strong commitment and history of achievement has resulted in an unparalleled range of Assembly, Repair and Fume Extraction solutions to meet your needs whether working to ISO-9001, industrial, military or your own internal specifications. Whatever the challenge, PACE stands ready to help you set a new standard.

PACE products meet or exceed all applicable military or civilian EOS/ESD, temperature stability and other specifications, including MIL-STD-2000, ANSI/J-STD001, IPC 7711, IPC 7721 and IPC-A-610.

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