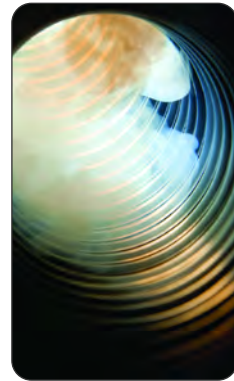
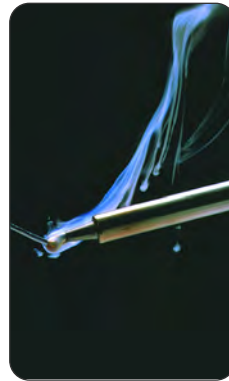
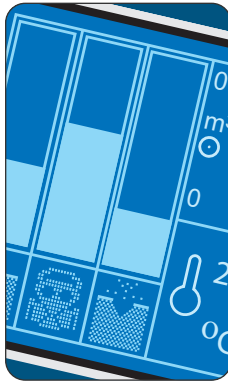
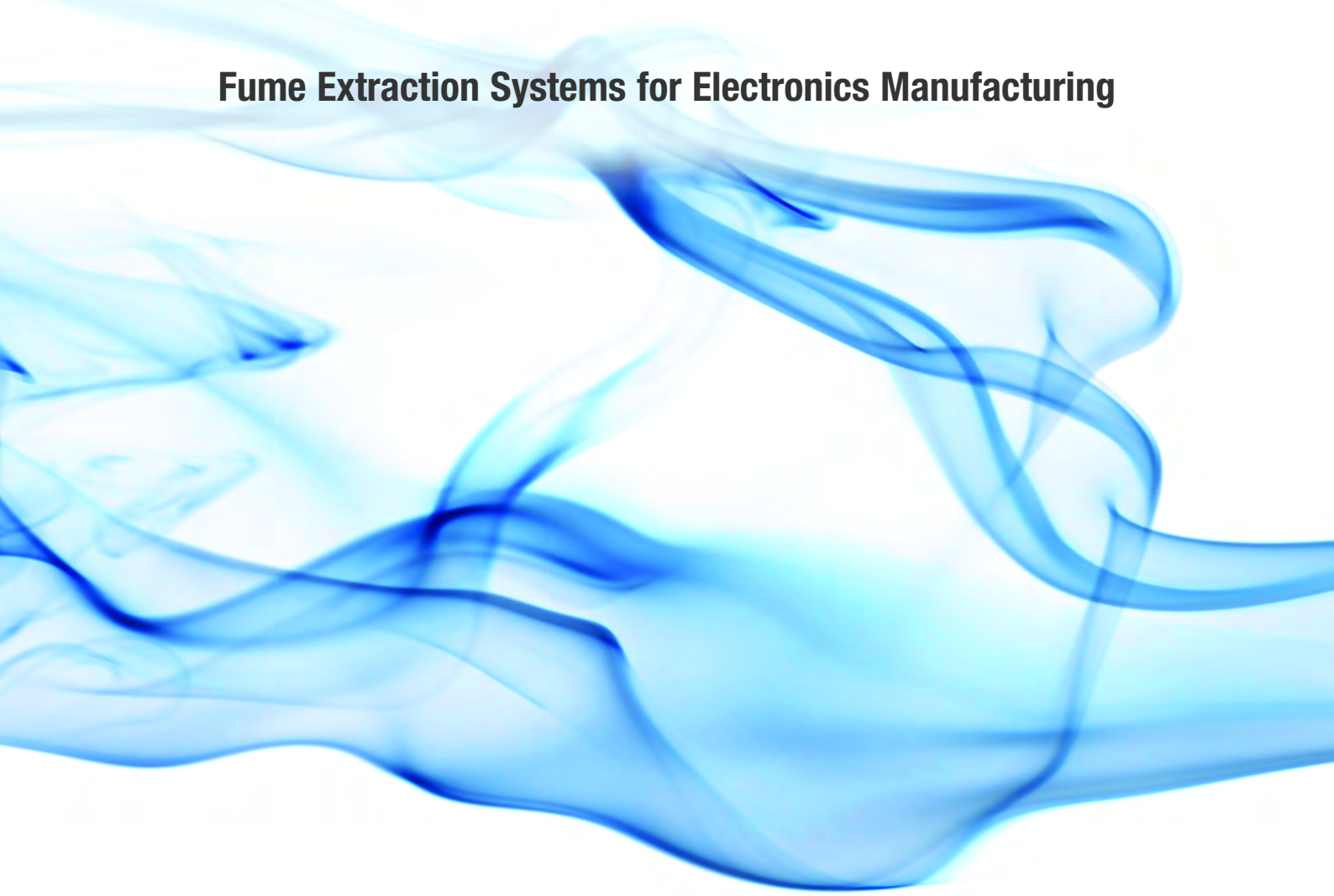


Fume Extraction Systems for Electronics Manufacturing



 **PUREX**
FUME EXTRACTION SYSTEMS

"Protecting People and the Environment with Innovative Technology"

Solder Fume

When heated, rosin-based solder fluxes form fumes containing a range of resin acid particulates and other components as gases. When inhaled, rosin based solder flux fume can lead to occupational asthma or make existing asthmatic conditions worse. The fume can also cause irritation to the eyes and upper respiratory tract and can also cause dermatitis.

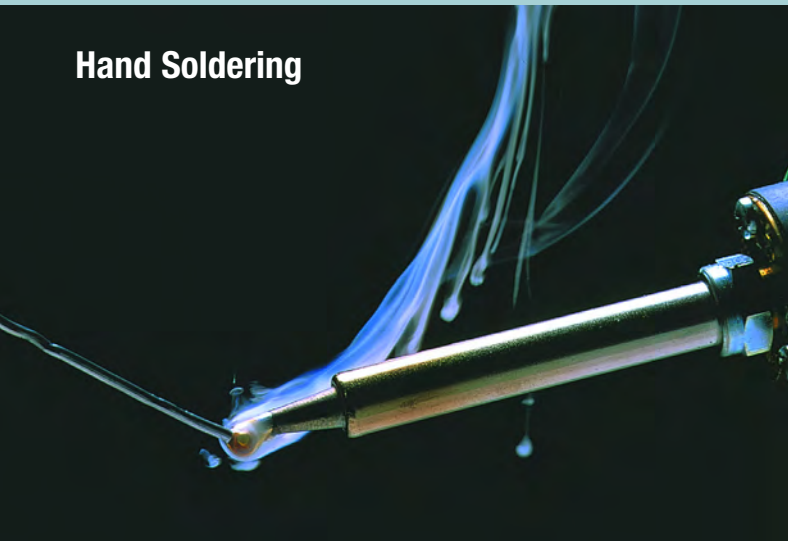
Rosin-based solder flux fume is now regarded as one of the most important causes of occupational asthma and the effects can be permanent and irreversible. Continued exposure, even to very small amounts of fume, may cause asthma attacks and the person affected may be unable to do any soldering with rosin-based fluxes again.

Solder fume is classed as a hazardous substance and should be controlled as per international legislation.

APPLICATIONS...

- Wave Soldering
- Selective Wave Soldering
- Reflow Ovens
- Component Underfill
- Selective Soldering
- Hand Soldering
- Point to Point Soldering
- Tip Extraction
- Arm Extraction
- Extraction Cabinets
- Laser Soldering
- Printing

Hand Soldering



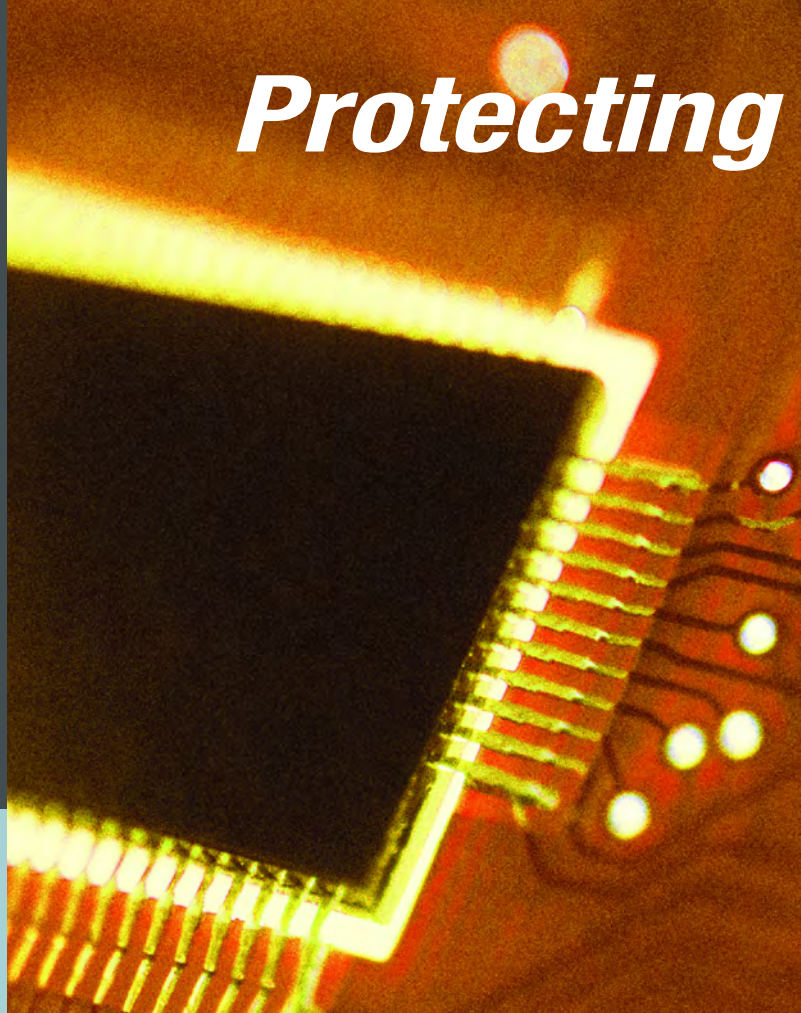
Hand & Machine Soldering

Electronic components can be soldered by hand using a soldering iron or by using automated machines such as reflow ovens.

In both cases a fume extraction system is vital to protect the health of employees and to keep the process and products clean.

The correct fume extraction system can also benefit production speeds and reduce downtime.

Protecting



The company philosophy is to provide customers with solutions for their fume extraction requirements plus excellent aftersales service and support. We strive to make the Purex brand synonymous with quality, reliability and performance and continually develop our products to meet and exceed the ever changing demands of industry and health & safety legislation.

Paul Priestley
Managing Director - Purex



Machine Soldering

People and the Environment with Innovative Technology

Health & Safety Legislation

Local and international health and safety legislation (such as COSHH, NIOSHH, OSHA etc) states that it is the employers responsibility to protect the health, welfare and safety of their employees. Failure to do so can result in expensive legal action, potential fines and poor employee relations.



- Reduce complaints by operators due to odours, dust and vapours.
- Avoid possible cost of health compensation claims.
- Provide a better working environment.
- Increase production speeds.
- Reduce downtime & breakdowns.
- Maintain a stable temperature profile.

Which Extraction System?

To protect people from the fumes produced by soldering, an extraction system should be used. These are usually available in two distinct types:-

- External - pump contaminated air into the environment outside the building.
- Internal - at source capture, filter and recirculate air.



In our opinion the best system to use is a recirculating LEV system. These capture fumes at source thereby preventing fumes escaping into the workplace. They also filter hazardous particles and gasses which

would otherwise be pumped into the outside environment causing pollution. Using an internal filter system also avoids issues with environmental regulations and potential complaints from neighbouring businesses about fumes and odours. Purex LEV systems sit next to the process and the extraction rate can be altered precisely to suit the application. Purex machines are also easy to move if the process moves whereas external systems are not.

Stable Temperature Profile

When machine soldering it is critical to maintain a stable temperature profile to ensure product quality. To help achieve this, Purex systems use "flow control" to maintain a constant extraction rate throughout the life of the filter.

This prevents backdrafts and loss of extraction which can cause the temperature to fluctuate.

Purex LEV systems have additional benefits over external exhaust systems.

See comparison table below...

The Need for Fume Extraction

Both the company and the employee must ensure that the correct fume extraction equipment is utilised and maintained.

Some of the main reasons are to:-

- Protect employee health.
- Ensure compliance with Health & Safety regulations such as OSHA, NIOSH C.O.S.H.H, MAK, AFNOR, or equivalent.

COMPARISON: Exhaust into the Environment System "vs" Purex LEV System...

Comparison Question	Exhausting into the Environment	Purex LEV System
How long will it take to install the system?	Hours or days on average.	In many cases just minutes.
Will there be any disruption in the workplace?	Specialist tools / installers may be required, potentially disrupting work for lengthy periods.	Minor, if any.
Can the system be moved?	See above.	Yes. Simply push to new location.
Are holes in the building required?	Yes. They need to be specially cut and sealed.	No.
Are external emissions regulations a problem?	Company must investigate and obey local laws.	Not applicable.
Is there any energy lost e.g. heating costs?	Energy (and therefore money) is wasted when heated or conditioned air is pumped outside.	No energy or heat is lost as the air is recycled. So costs are lowered.
Are there any ducting / installation costs?	Potentially expensive - as ducting needs to be purchased and specialist installation is required.	Minimal if any, depending on process.
Are there any cleaning costs?	Specialist cleaning may be required to prevent risk of fire or contamination.	One annual service is recommended to comply with regulations such as COSHH & NIOSHH.
Are there any decontamination costs?	Specialist decontamination may be required.	None.
Can fumes be drawn back into the workplace?	Yes. Through windows or vents.	No. Fumes are captured by highly efficient filters
Could there be disputes with my neighbours?	Yes. Over hazardous fumes and odours.	Not applicable.

Graphic Display & Digital Control System

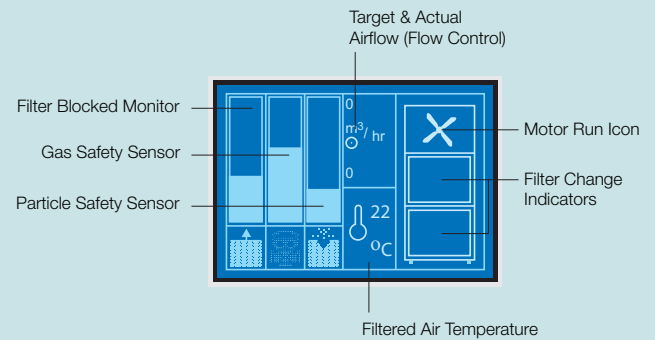
Purex extractors feature a unique control system which monitors the machine and makes automatic adjustments for optimum performance. The 'live' status of the machine is shown on a clear, easy to read graphic display.*

Safety Sensors

Hazardous gas or particles can pass through a filter system if the filter is damaged, not fitted correctly or is missing. For added safety, Purex systems incorporate gas and particle sensors as standard to warn the operator if hazardous fumes bypass the filter, this further protects people in the workplace*. The sensors also alert the operator when the chemical filter is saturated or the particle filters are blocked.

* not available on Analogue systems

Control, Performance & Safety



Flow Control - As a filter becomes full, the resistance to airflow increases. This causes the extraction rate to fall, potentially allowing hazardous fumes to enter the workplace.

To prevent this happening Purex systems use "Flow Control" to automatically increase the speed of the motor to keep the extraction rate constant.



Speed Control - The user can set the required airflow for the process. The motor will automatically speed up or slow down until the "actual" airflow equals the "required" airflow.

This system is more efficient as the motor does not have to constantly run at 100%. It also means the machine is quieter, uses less energy and the filters last longer.



Gas Sensor - Constantly monitors the chemical filters to warn the user when they are nearly saturated. This helps reduce downtime by allowing the user time to make replacement filters ready. Gas sensors also warn the user if hazardous gas is passing through the system, e.g. due to a missing, damaged or incorrectly fitted filter.*



Particle Sensor - Constantly monitors the particle filters to warn the user if hazardous particles are passing through the system, e.g. due to a missing, damaged or incorrectly fitted filter.*



Filter Status - Constantly monitors the particle filters to warn the user when they are nearly full. This helps reduce downtime by allowing the user time to make replacement filters ready.



Filter Indicator - If a filter is nearly blocked or if the gas or particle alarms are triggered, this icon will show which filters may need attention.

This makes it quick and easy for the user to identify where action may be required. This icon also indicates to the user when the motor is running.*



Temperature - An adjustable safety alarm to warn if the internal temperature of the machine goes above a certain level.*



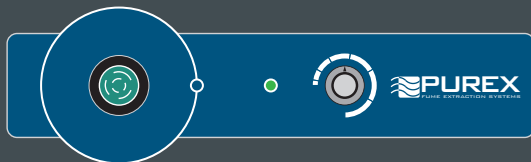
Interfacing - Allows the Purex unit to communicate with associated equipment, options include:

- Synchronised STOP/START
- Automatic run on
- Filter Alarm Signals

Inside the Labyrinth™

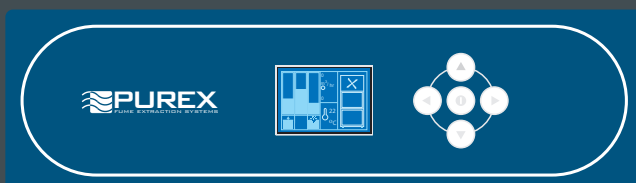
Analogue Control

Filter blocked warning LED and speed control dial.



Digital Control

Digital Control System with Graphic Display



Product Range

Purex offer a range of high performance fume extractors and accessories for hand or machine soldering applications. Machines are available for:-

- Hobby & small scale use
- Education establishments
- R&D and repair application
- Large scale industrial electronics manufacturing

Filtration

In independent tests, Purex HEPA filters removed 99.997% of all particles above 0.3 microns and 95% down to 0.01 micron. Purex filters incorporate a layer of high efficiency chemical adsorbent material to capture and lock in hazardous gas from the process before clean filtered air is returned to the workplace.

Purex filters incorporate a layer of high efficiency chemical adsorbent material to capture and lock in hazardous gas from the process before clean filtered air is returned to the workplace.

Unique Patented Filter Technology

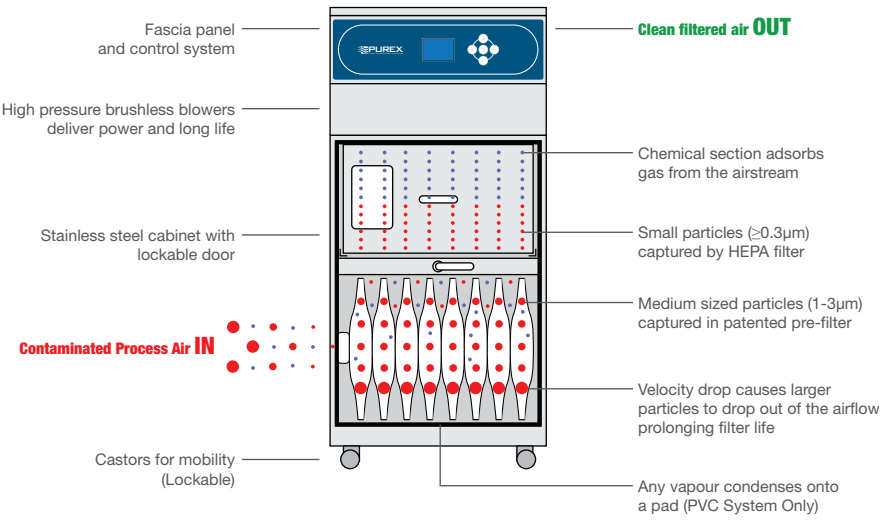
The Labyrinth™ pre-filter is unique to Purex. It's patented design presents more filter fibre surface area to the airflow than other filters on the market, allowing the filter to capture more particles before it becomes blocked.

The special material used has a graduated fibre density i.e. there are fewer fibres per unit area at the air entry to the fabric but the density increases towards the air exit layer. This allows the fibres to collect more dust before the filter becomes blocked. This means the filter lasts longer and is therefore more cost effective.



Performance

Purex machines utilise powerful, maintenance free brushless fans which are continuously rated so they can run day and night, 365 days a year if required. Purex fans are also flow controlled so they operate at lower speeds and only speed up when filters begin to block. This means higher efficiency, lower energy costs and reduced noise.



Install in Minutes

Easy to Connect to the Process

Easy to Move if the Process Moves

Filters can be Changed in Seconds

Long Life Filters Supplied as Standard

Features

Model	Graphic Display	Gas Safety Sensor	Particle Safety Sensor	Filter Indicator	Temp Warning	Machine Interfacing	Speed Control	Flow Control	Filter Life Warning	Labyrinth Pre-filters
200/400	●	●	●	●	●	■	●	●	●	-
200i/400i	●	●	●	●	●	■	●	●	●	●
800i 2-Tier	●	●	●	●	●	■	●	●	●	●
800i 3-Tier	●	●	●	●	●	■	●	●	●	●
1500i/2000i	●	●	●	●	●	■	●	●	●	●
5000i	●	●	●	●	●	■	●	●	●	●
FumeCube*	-	-	-	-	-	■	●	●	●	-
FumeBuster*	-	-	-	-	-	■	●	●	●	-

■ Optional. * Analogue control system

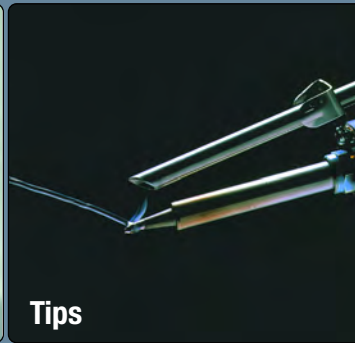
Selection Guide...



38mm Arms



100mm Arms



Tips



Point to Point



Reflow, Underfill, Selective



Wave & Selective Wave

Machine	Capture Arms				Tips	Reflows	Wave
	Max No. Arms		Cleancabs Max No.	Cowls Max No.			
	38mm	100mm					
FumeCube	1 or 2	-	-	-	1*	-	-
FumeBuster	-	-	1 or 2	1 or 2	-	-	-
200	3	-	2	2	up to 30	-	-
400	6	1	4	4	-	-	-
200i	3	-	2	2	up to 30	-	-
400i	6	1	4	4	-	-	-
800i	9	2	6	6	-	-	-
1500i	12	4	8	8	-	Below 900	-
2000i	15	5	10	10	-	Below 1200	Below 2000
5000i	30	9	20	20	-	Over 1200	Over 2000

- Notes:
1. The selection is based on the use of a standard connection kit.
 2. Longer pipe runs may require a larger extraction machine.
 3. * Point-to-point soldering machines only, not suitable for handheld tip extraction.
 4. Continuous use may require a machine with larger filtration capacity. Contact Purex for further advice.
 5. IMPORTANT: Choose a vacuum control machine for Arm and Tip extraction and a volume control machine for other applications.

Analogue Control

Digital Control



Fume
Cube



Fume
Buster



200
400



200i
400i



800i



1500i
2000i



5000i



Protecting People and the Environment with Innovative Technology.



Purex International Ltd

Purex House
Farfield Park, Manvers
Rotherham
S63 5DB
UK

T: +44 (0)1709 763000

F: +44 (0)1709 763001

E: purex@purex.co.uk

W: www.purex.co.uk

