

# BREATHE EASIER

PROVIDING CLEAN AIR FOR YOUR WORKPLACE



**Weller**<sup>®</sup>

# ZERO SMOG®

## fume extraction solutions

### Why fume extraction?

Many work environments today, including soldering and adhesives applications, create particles and gases that can be harmful to the work place and the environment. To protect the operator, it is important to use an extraction system that is able to separate these particles and gases and then re-circulate the cleaned air back into the work place. It is important to use the correct safety equipment to remove these hazardous substances. Inhalation of fine particles is more dangerous than big particles that get caught more easily because they can block the alveoli in the lungs.

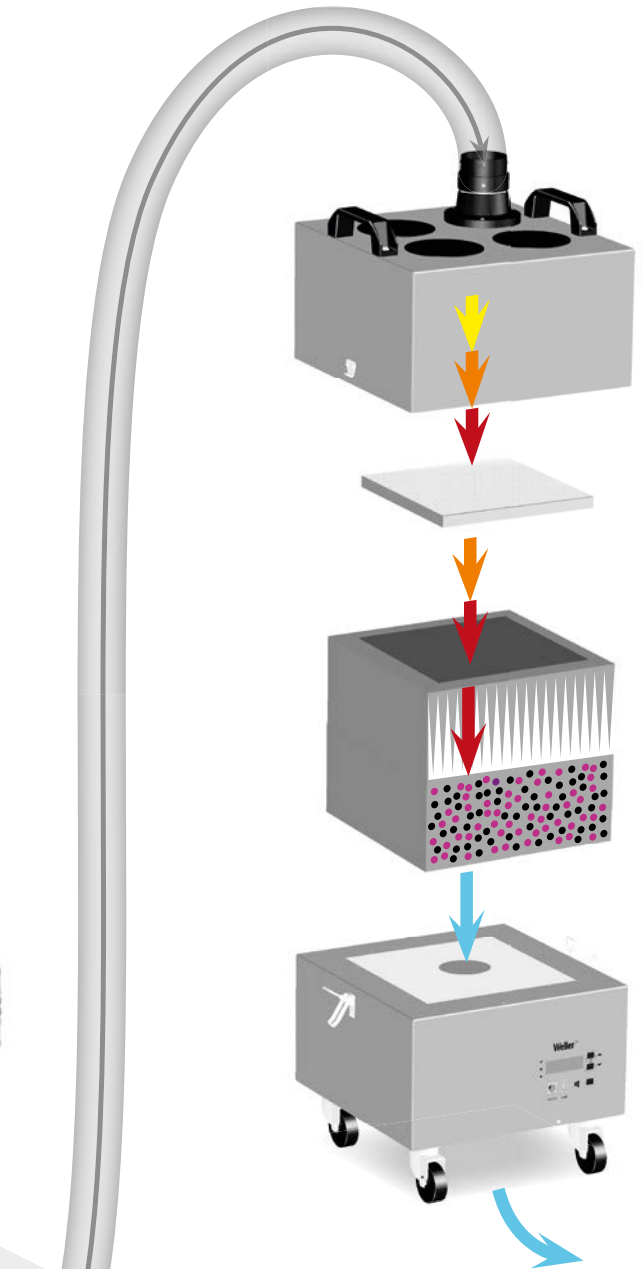


### Fine particles – A health hazard!

Protect your health and the health of your employees!

Particles and gases are hazardous to health.

Fine particles can get into the lungs and cause allergies, asthma or cancer.



Why fume extraction?

See the video on  
[www.youtube.com/wellersoldering](http://www.youtube.com/wellersoldering)

# 10 important things you need to know ... Weller®

...if you work with hazardous gases and particles!



1

Long term exposure to airborne particles and gases can cause permanent damage to human beings

2

Thousands of workers all over the world contract occupational lung and other diseases, including cancer, each year. They develop those because they breathe in too much dust, fumes or other airborne contaminants at work\*.

\*HSE Health & Safety Executive in Great Britain

3

At least 20% of the employees in the soldering area indicate clinical symptoms of asthma\*.

\*Results from a study made in US & Europe.

4

Occupational asthma is a major issue in electronics manufacturing because when a person develops occupational asthma he / she has to be moved from that working area.

5

Breathing with occupational asthma feels like breathing through a straw.

6

Once a person develops asthma, the symptoms are permanent and irreversible.

7

Almost everyone who works in an industrial environment comes in contact with chemicals which contain a solvent.

8

Most of dangerous gases are invisible to the eye.

9

For people with heart disease, short term exposure to hazardous airborne particles, can be linked to heart attacks and abnormal heart rhythms.

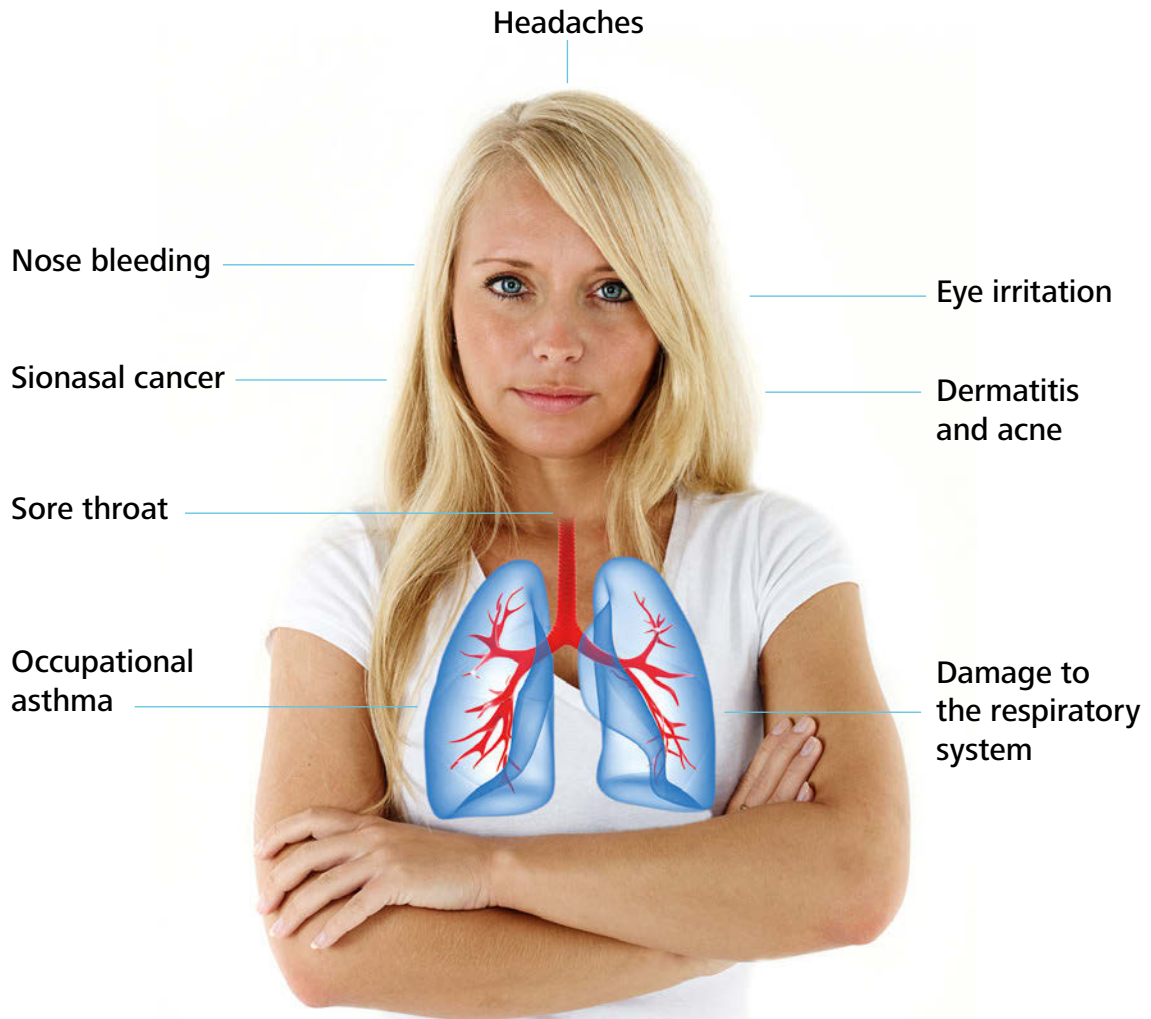
10

The combination of being exposed to both gases and airborne particles is more dangerous than only being exposed to gases.



# What health risks can develop?

In many industrial environments, dust and fumes are hazardous to health when inhaled. Overexposure can lead to serious and long term medical problems such as occupational asthma or other effects like:



## Soldering



Lead free soldering produces up to 250% more particles in the breathing zone than leaded solder. As much as 700 million small particles per cubic meter are produced, which can be transported into the alveoli.

## Gluing



Fumes from gluing can cause skin irritation, skin drying, allergic contact eczema, inhalation and asthmatic problems.

## Solvents



Fumes from organic solvents can cause damage to the nervous system, with symptoms of reduced sensibility, restless legs and arms.



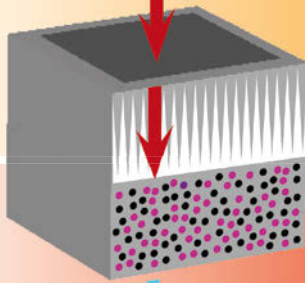
**+** SEPARATE FILTERS  
LESS WEAR

Up to four filters of different permeability separate out particles and gases that are hazardous to health.

Filter classification:	Recommended application
In accordance with EN 1822:2009	<b>M5</b> For standard applications
	<b>F7</b> For applications with high flux or dust content
In accordance with EN 1822:2009	<b>E12 / H13</b> For applications with high flux or dust content
	<b>Gas</b> For applications with fumes from adhesives and solvents

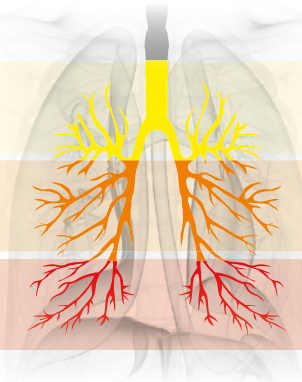


Fine dust filter  
M5 / F7



Particle filter  
E12 / H13

Wide band  
gas filter



Fibers, pollen 10 µm  
Bacteria, pigments 5 µm

Smog  
Asbestos dust > 1 µm  
Viruses > 0.5 µm

Gas

### FINE DUST ACCUMULATION IN THE HUMAN BODY

The smaller particles are, the deeper they penetrate into the respiratory system

- The deeper particles penetrate, the higher the health risks
- The smallest particles can travel via alveoli into the bloodstream



End product – clean air – is re-circulated into the workplace.

**+** SAVES ENERGY AND  
REDUCES ENERGY COSTS



**BEFORE**  
New filter

**AFTER**  
90 minutes  
soldering with  
leadfree solder wire

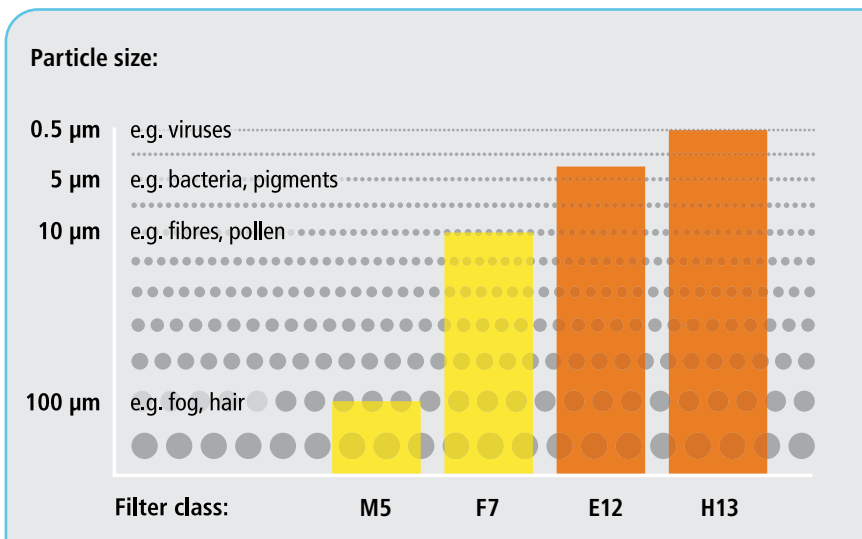
# Protect your health

90 minutes soldering  
with leadfree solder wire



The test was made with a lead free solder wire with 3 % flux.

## Weller offers the **highest efficiency dust filters** to remove large to very small particles



Filter Class M5, F7: Fine dust filter as per EN 779:2012

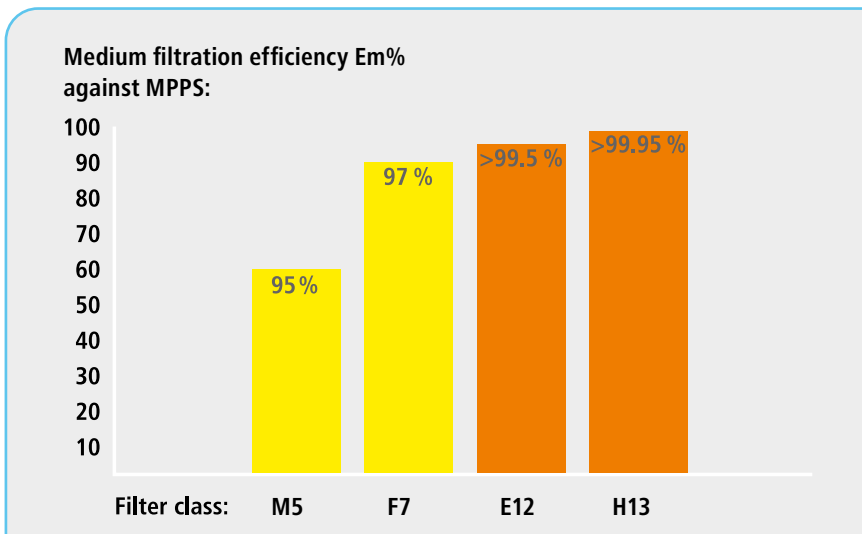
Filter Class E12/H13: According EN 1822:2009 HEPA (High Efficiency Particulate Air) Filter

### What are dust filter classes?

Filters are classified based on the size of the particle they can capture. The smaller the particles are, the deeper they penetrate into the respiratory system. The smallest particles travel via alveoli into the bloodstream. The top graph shows filter classes and the size of the particles they can efficiently filter. Particles are measured in microns, which is one millionth of a meter.

Each filter class is assigned an efficiency rating based on the ability to filter MPPS (Most Penetrating Particle Size). HEPA filters have efficiencies of at least 99.95% at 0.3 microns. The most penetrating size is a function of the structure of the filter medium, the velocity of the airflow through the filter, and the physical and chemical nature of the particles.

– Source: HEPA Corporation



# How do I get the best protection?



- Weller filter systems offer the best possible protection to the operator by extracting dangerous fumes and capturing airborne particles at highest levels.
- The filter systems are mobile, and can be moved around the workplace.
- The systems are easy to install and have low service requirements.
- The noise levels of the filter systems are very low, additionally protecting the operator from excessive noise pollution in manufacturing areas.
- The product range consists of various products that can be used for different applications.
- The filters have a long life time.

## Multiple Workplaces

up to 8 workplaces (Zero Smog 6V) can be connected to the filtration system

## Constant Filtration (ZS 4V & 6V)

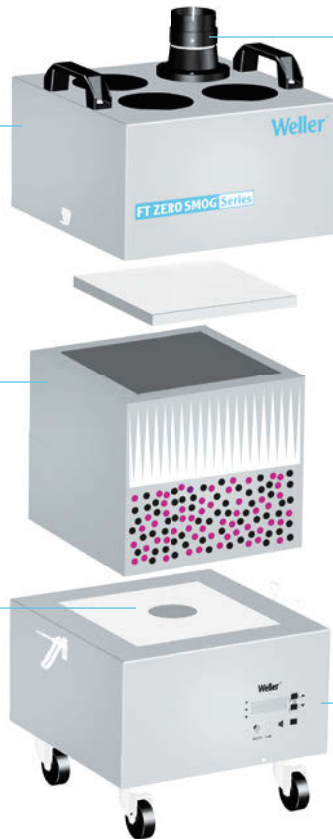
Automatic constant flow control (CFO)

## Connected Filtration (ZS 4V, ZS 6V, ZS TL)

Filtration unit connected to soldering station for control

## Easy Filtration

Easy Click accessories for fast set-up and perfect integration into the workspace



## Efficient Filtration (ZS 4V & 6V)

Acoustic and visual filter change alarm to guarantee that filters are efficient, Ampel System

## Zero Smog Series

Zero Smog EL



Zero Smog TL



Zero Smog 4V



Zero Smog 6V



Zero Smog EL



WE1010 soldering station



Zero Smog TL



WT Hub



WT soldering station



Zero Smog 4V



WX Hub



WX soldering station



Visit [Weller-Tools.com](http://Weller-Tools.com) to see our full line of Volume and Tip Extraction solutions

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