

## **INFORMATION GUIDE**

### **Understanding how the JewelXTRACT® filter units remove harmful dusts, fumes and vapours from Jewellery, Goldsmith and Lampworking processes**

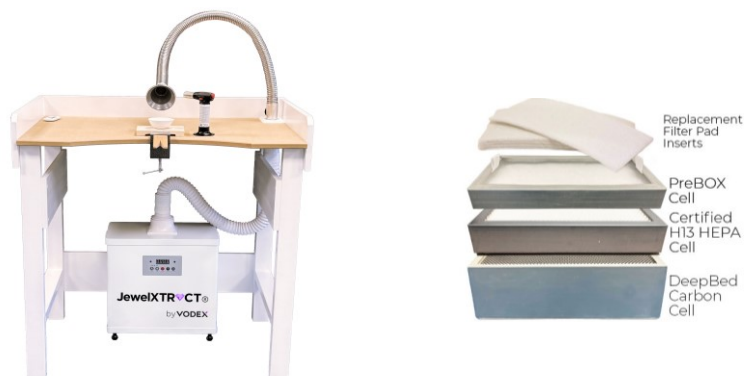
Here at Vodex Ltd, we have over 75 years' experience in fume & dust extraction within the team and we are one of the UK's leading providers of fume and dust extraction systems to the Medical, Beauty, Dental and Artisan sectors. The JewelXTRACT® units we supply are designed specifically for the jewellery and lampworking industry to protect your breathing zone from the inhalation of toxic fumes and dust particles that can lead to potentially serious health issues like occupational asthma.

The JewelXTRACT® units are fully mobile, low noise systems with:

- Integrated speed control
- Digital display and remote controller
- Modular, multi cell, UK manufactured filter system

The modular filter system houses a series of different filters, each designed to remove harmful particles and vapours from jewellery manufacturing processes.

The first filter stage consists of a 'dust filter box' with a replaceable media pad to capture large particles or debris, followed by a UK certified and manufactured H13 HEPA EN1822 particulate filter (with full batch traceability) to remove smoke and dust particles down to 0.3 microns to 99.95% efficiency, then a specially blended *deep bed* carbon filter designed to remove chemical vapours from all jewellery processes such as solder flux vapours, rhodium plating, smelting and other chemical gases. This results in a truly flexible unit with some of the best in-class 'features to cost' ratio available in the market to date.



*The JewelXTRACT® unit and 3 stage filter system*



The JewelXTRACT® unit is the perfect solution for your working environment. Both mobile and compact, this unit will fit easily into any working area, without the need to replace existing furniture. Ideal for:

- Fine/Light airborne dusts
- Chemical Vapour Extraction

The JewelXTRACT® fully complies with the HSE and COSHH requirements for controlling airborne contaminants in the work place, is built in the UK and fully UKCA approved.

Let's discuss the jewellery manufacturing processes and how they affect the body...

The process of manufacturing jewellery can produce numerous dangerous airborne substances. For example, gold and silver soldering or smelting and casting, can result in fumes heavy in cadmium, while other harmful toxins can include antimony and fluoride. When artisans are working in close proximity and without proper fume extraction, the likelihood of these substances being inhaled is high, potentially resulting in severe health implications.

Lampworking involves the process of melting glass which releases arsenic (leading to arsenic poisoning). Heating up glass also releases metal fumes in the air as the colours of glass are due to transition metal impurities in the glass. When heated to molten hot temperatures, the metals are also fumed and released into the air. Heavy metal poisoning is a severe health danger associated with glass working. Any other products that you use in your glass, including enamel or leaded frit, will also add to the ventilation problems.



Flame/torch soldering with extraction



Lampworking with two nozzles



The filter system is designed to protect your breathing zone from very harmful AIRBORNE contaminants, fine dusts plus harmful chemical vapours and odours.

### Your Breathing 'Zone'

A 'Beach Ball' sized area between your nose, mouth and working hands



### Understanding Particle sizes

Particle sizes are measured in 'microns'  
1 micron = 1 millionth of a metre



HAIR = 70-100 microns  
1 micron



30 microns



NOTE: Particles less than 30 microns are invisible to the naked eye

Indoor Air Quality: The World's leading health related organisations consider (Particle Matter) PM10, PM2.5 and PM1 fine dust fractions as the most important and dangerous for humans.

### Airborne particulate sizes and how far they can travel into the body

#### 10 microns

Are small enough to enter the nose and throat

#### 2.5 microns

Are small enough to reach the lungs and deposit in the bronchia and bronchioles

#### 1 micron or smaller

Are small enough to find their way through the lungs into blood vessels



NOTE: The JewelXTRACT® filter unit is not a high pressure vacuum cleaner and is not designed as a 'heavy dust collector'. It is designed as a cost-effective solution to remove the airborne contaminants in your breathing zone from entering your lungs. For heavier dust extraction we can offer higher pressure vacuum filter units as this requires an even stronger airflow and higher pressures to overcome the heavy particulates involved.



ARTISAN



HEALTH & PHARMACEUTICAL



**VODEX**  
INDUSTRY & MANUFACTURING



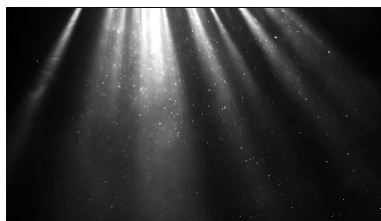
BEAUTY & COSMETICS



ELECTROSTATIC PROTECTION

**NOTE: Over 50% of the dust you create can be INVISIBLE to the naked eye!**

You simply cannot see it as it is so small. THIS is the dust that you can inhale deep into your lungs and that can lead to occupational asthma and lung infections. (Respirable inhalable dust as below eg, when sunlight shines through a window)



Every breath you take comes from your "breathing zone" – a beach ball area in front of your face. Any fine dust **under 10 microns** in diameter can be inhaled within this zone – but with the JewelXTRACT® stainless steel heatproof nozzle this dust (and any vapours) are extracted away from you – remember a single hair on your head is about 80-100 microns across! You can only see 30 microns with a naked eye,

The image below shows an electronics technician soldering (this gives off a small amount of smoke that you can just see on the left image). However, the right-hand image is of the same person with a bright light shining on the smoke – this is ACTUALLY producing the same amount of fume but the light shows up the invisible smoke – it's exactly the same for jewellery dust and fumes.



Soldering with and without Tyndall illumination  
– courtesy of the UK Health & Safety Executive (HSG258)

In conclusion – do not worry too much about the dust that falls on your bench or apron – this is more of an inconvenience and can be recovered for reclamation. It's the INVISIBLE and TINY dust particles that DO NOT settle on your bench that can cause asthma and lung/breathing problems. IMPORTANT NOTE: Positioning of the arm/nozzle is very important too – it needs to be as close as practicably possible (ideally a max of one nozzle dia. away)

If you have any further questions please email us at [sales@vodex.co.uk](mailto:sales@vodex.co.uk)

