Effective capture of airborne pollutants

Best possible collection. That’s where it starts.

ULT
air quality

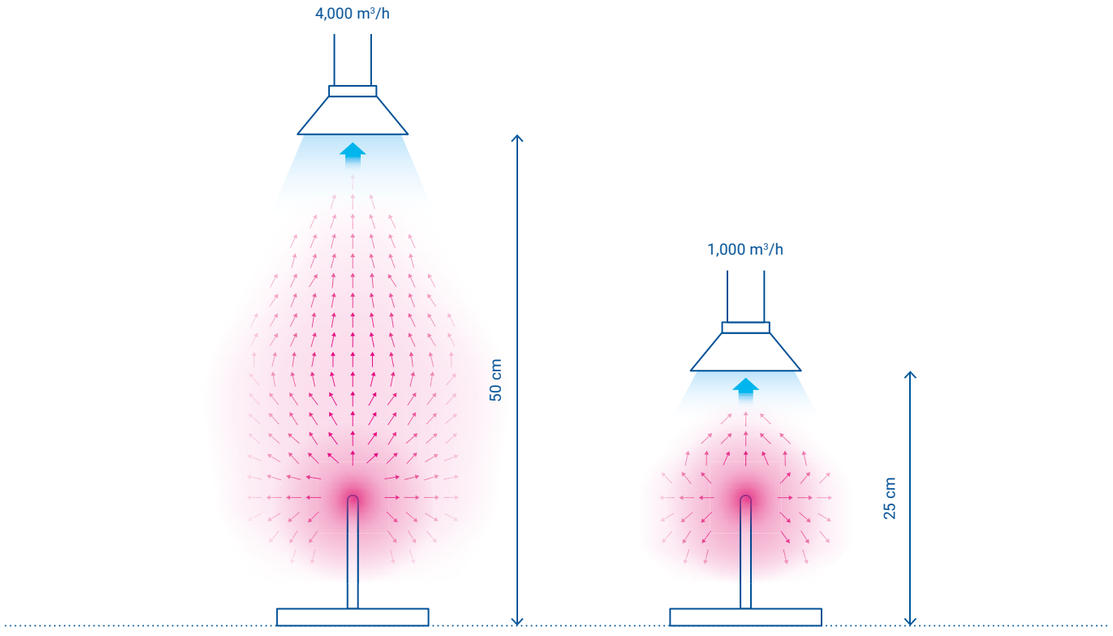
Pollutant capture

The key to effective extraction

In modern industrial production, the removal of airborne pollutants is crucial for the health of employees, process stability, product quality, and environmental protection.

Extraction technology is often reduced to the filter system. However, even the best filtration system is useless if pollutants are not captured efficiently. The right ideal capture technology forms the basis for optimum pollutant removal – i. e. the overall efficiency of an extraction and filtration system.

This is particularly important for hazardous fine dusts, such as those generated during laser material processing or Additive Manufacturing. Since ambient conditions such as adhesion, air flow, or tool movement also play a role, choosing the right capture element is essential.



Proximity to the pollutant source is crucial for:
· Degree of collection
· Suction capacity/system efficiency
· Investment and operating costs

Other important factors are:
· Characteristics of the capturing elements (shape, size, material, position)
· Characteristics of the air ducts (length, diameter, material, surface texture)

Rule of thumb: Double the distance from the emission source requires four times the energy expenditure for extraction.

More detailed information on air pollutant collection and capture elements from the VDMA (German association for machinery and equipment manufacturing)

Capturing elements

Capturing elements are essential for the effective removal of air pollutants. They are roughly divided into three types or systems: closed, semi-open and open.

Closed systems

Closed systems are work spaces hermetically sealed from the environment with connection for air ducts.

Semi-open systems

Semi-open systems are enclosures of the pollutant source with an open side for handling and with a connection for air ducting.

Open systems

Open systems are form elements, available in various variants. Their utilization is defined by shape, geometry, and material.

Open systems

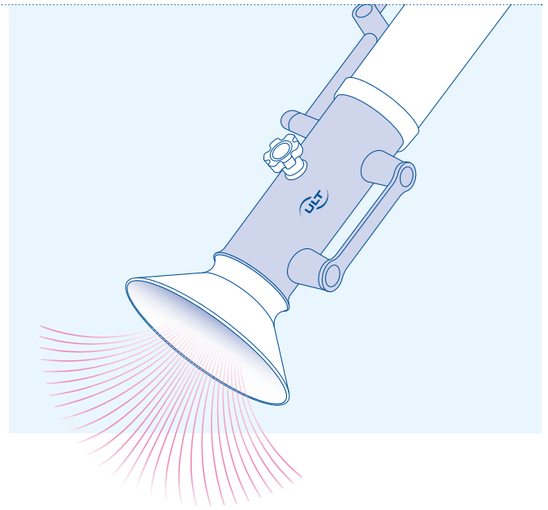
Open systems are typically mounted on extraction arms. Their selection is based on the amount of pollutants, the type of emissions, and other parameters, such as use under ESD conditions or fire protection considerations.

The geometry and dimensions of the extraction arms and their installation—directly on the filter system, as table or wall mount—also depend on their practical application. Collection elements can also be attached to extraction hoses.

Suction funnel

Universal collection element; combines the benefits of round and flat top hoods for various pollutant sources.

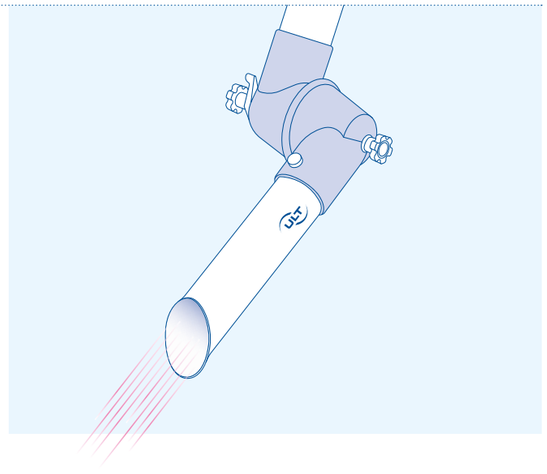
Typical applications:
· Welding
· Soldering
· Cleaning
· Grinding



Suction pen

For small, selective pollutant sources.

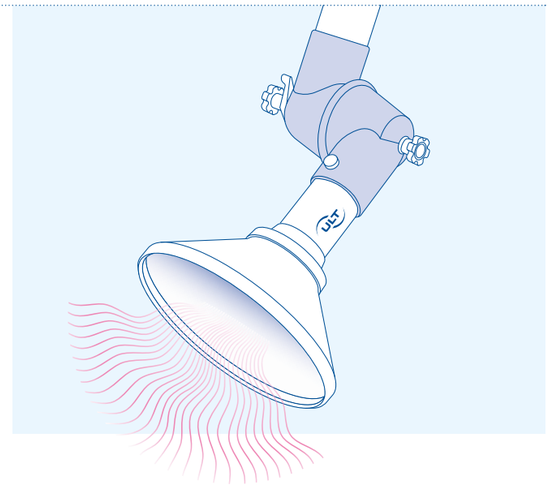
Typical applications:
· Soldering
· Laser material processing



Round hood

In the event of explosive release of pollutant clouds or other impulsive pollutant formation.

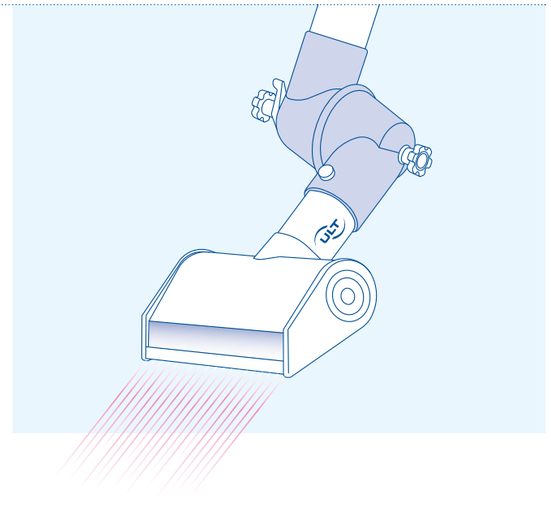
Typical applications:
· Soldering
· Micro welding
· Spot welding
· Laboratory applications



Suction nozzle

For vapors heavier than air, when positioned flat and lateral to the pollutant source—uses the Coandă effect.

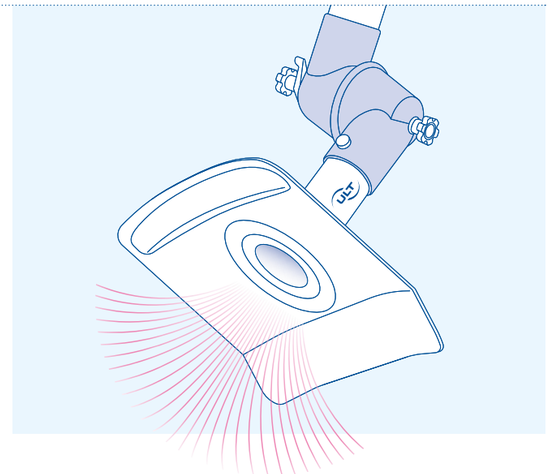
Typical applications:
· Bonding
· Cleaning



Flat hood

For capturing above the pollutant source.

Typical applications:
· Soldering
· Bonding
· Laser material processing

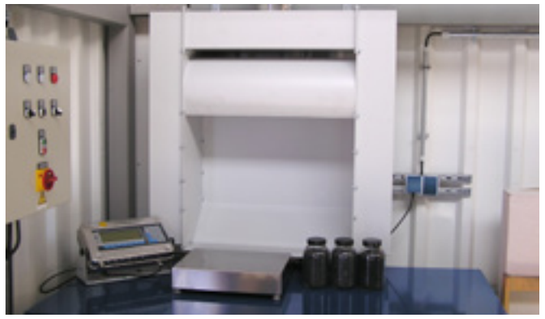


Individual solutions and comprehensive service

If the best-possible collection solution cannot be configured from the standard portfolio, ULT develops specially designed or integrated capturing variants.

Examples:

Table extraction
Integrated solution for ESD protection workstations for extracting gases, vapors, and ozone.



Backdraft panel
Extraction cabinet for laboratory applications, e.g. for weighing fine powders.

Barrel suction
For the extraction of rising dusts during the filling of containers/barrels.

Your extraction situation at a glance

Request
You describe your pollutant situation and level.

Analysis
We evaluate and determine the extraction task – if necessary on-site.

System configuration
We configure the ideal combination.

Installation
We install and commission the technology.

Service
We maintain your system regularly.

Our service:

We recommend and use the following checklist to define your workstation and capture requirements:

- ☐ Type of pollutant
- ☐ Amount of pollutants
- ☐ Pollutant characteristics
- ☐ Mobility
- ☐ Influence of air flows
- ☐ Maximum proximity to the pollutant source
- ☐ Level of automation
- ☐ Number of workstations

Made in Germany.

ULT AG
Am Göpelteich 1
02708 Löbau
Germany

Phone.: +49 3585 4128 0
Fax: +49 3585 4128 11
Email: ult@ult.de
Web: www.ult-airtec.com

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