

A001 Smoke Purification Equipment — Technical Datasheet



The A001 is a self-contained, indoor-rated fume and smoke purification unit designed for multi-station soldering, laser engraving, laser marking, wave soldering, polishing, ink printing, and chemical laboratory applications. Utilizing a triple-stage physical filtration architecture, the A001 captures particulate matter, hazardous gases, and large-particle dust at 99.99% efficiency down to 0.3 μm — delivering clean, recirculated air directly back into the workspace without the need for external ductwork or building exhaust connections.

250

Air Volume

m³/h maximum throughput

99.99%

Filtration Efficiency

At 0.3 μm particle size

100W

Power Draw

AC 220V / 50Hz input

≤65dB

Noise Level

Quiet enough for shared
workspaces

15kg

Unit Weight

Mounted on four caster wheels

Specifications & Structure

Full Technical Specification

Parameter	Value
Model	A001
Air Inlet Flange	φ75mm (3–6 in. flange compatible)
Input Voltage	AC 220V 50Hz (AC 110V optional)
Output Power	100W
Air Volume	250 m ³ /h
Filtration Efficiency	99.99% @ 0.3 μm
Noise Level	≤65 dB
Overall Dimensions	L440 × W250 × H500 mm
Unit Weight	15 kg
Packed Size (Host)	L500 × W320 × H550 mm
Packed Weight	18 kg
Mobility	Four-wheel caster base
Motor Type	Brushless DC, built-in controller
Speed Control	Stepless (variable) speed adjustment

Key Application Scope

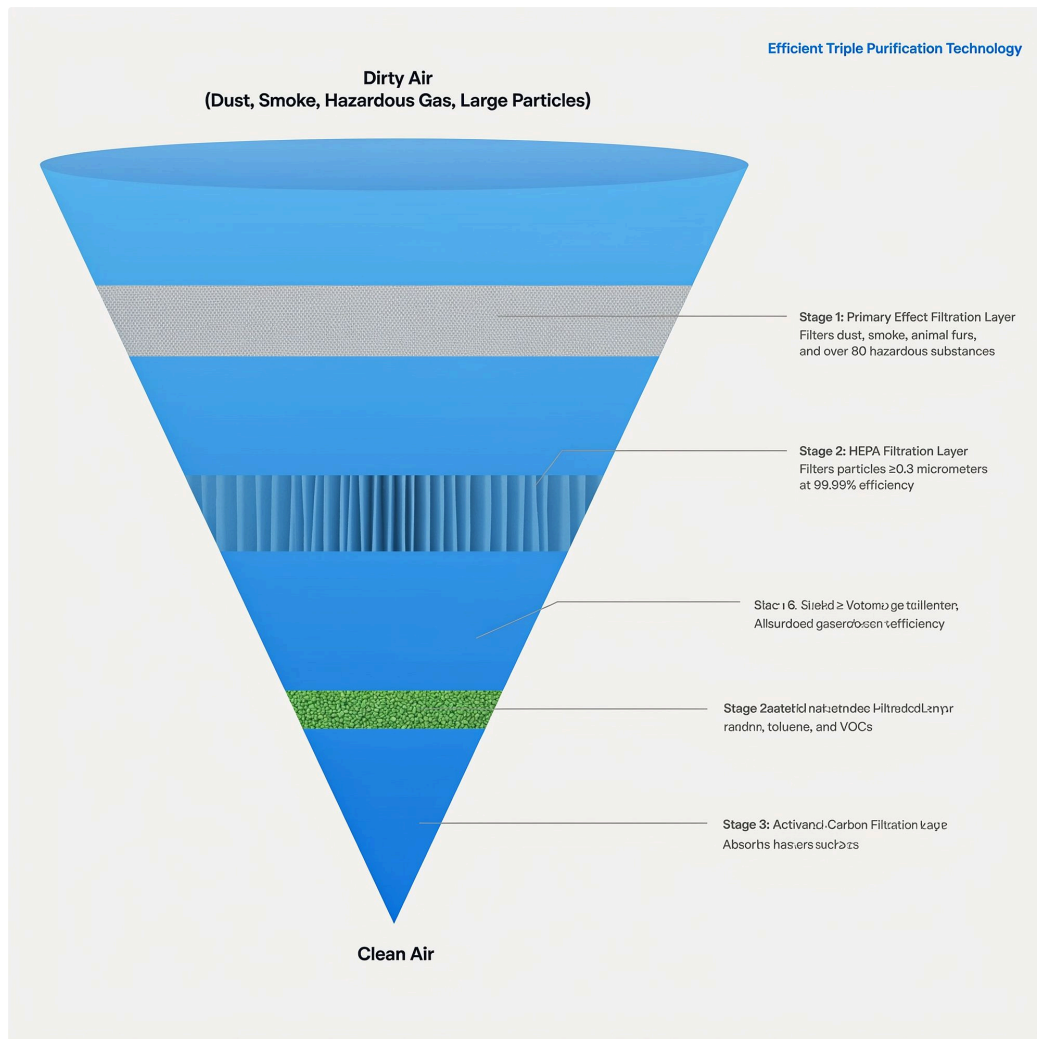
- Multi-station soldering iron and wave soldering (4–6 stations)
- Laser engraving and laser marking
- Immersion/solder machine tin operations
- Polishing, ink printing, and chemical experiments

Exterior Structure



The A001 features a pollutant suction inlet (φ75mm, top-center), a front-facing operating control panel with stepless speed knob, a rear-panel 220V 50Hz power input, and left-side ventilation slots that discharge purified air back into the workspace.

Working Principle



Stage 1: Primary Effect Filter Cotton

Captures large-particle dust, smoke, animal furs, and over 80 hazardous substances on first contact. Pre-filters the airstream to protect downstream elements.



Stage 2: HEPA Filtration Layer

High-efficiency PP filter element removes particulate matter $\geq 0.3 \mu\text{m}$ at 99.99% efficiency. Disposable; engineered for high-load industrial environments.



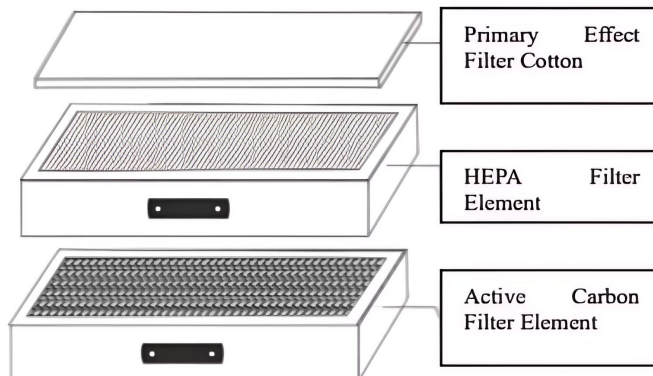
Stage 3: Activated Carbon Layer

Adsorbs residual hazardous gases including radon, toluene, and other volatile organic compounds. Final polishing stage before clean air is returned to the room.

The brushless DC motor drives a vortex backward-designed wind wheel fabricated from special corrosion-resistant alloy. Dynamic balance correction technology ensures stable, vibration-free operation across the full stepless speed range. Built-in circulation filtration means no indoor conditioned air is exhausted — the temperature and humidity of the operating environment are fully preserved.

Filter Maintenance

Filter Layer Assembly



The modular three-layer stack must always be installed in the correct sequence from top to bottom: Primary Effect Filter Cotton → HEPA Filter Element → Active Carbon Filter Element. Never alter the placement sequence. Always observe the directional arrow printed on the primary filter cotton packaging during installation.

Recommended Replacement Intervals

Primary Effect Filter Cotton

Every ~15 days. When suction weakens or cotton turns yellow/black, replace or knock clean (max 5 reuses). Accumulated particles may be cleared by inverting and tapping.

HEPA Filter Element

Every 2–5 months. Disposable — replace when suction weakens or both faces turn black. Do not attempt cleaning or reuse.

Activated Carbon Filter Element

Every 3–8 months. Replace when odor is detected at air outlet after confirming upstream filters are fresh. Can be sun-dried for 2–3 hours to regenerate (max 3 times).

All replacement cycles are approximate and vary depending on the pollutant load of the specific operating environment.

Packing List & Precautions

Standard Packing List (Per Unit)

No.	Item	Specification	Qty	Notes
1	Host — Smoke Purification Unit	A001	1	Main unit
2	Bamboo Joint Smoke Absorption Pipe	φ75mm, L1.4m	1	Flexible arm
3	Trumpet-Shaped Smoke Absorption Cover	Square W210 × H140mm	1	Hood/nozzle
4	Primary Effect Filter Cotton	PP material	4 pkg × 5 pcs	Consumable
5	HEPA Filter Element	Efficient PP type	1	Consumable
6	Active Carbon Filter Element	Odor/gas filter	1	Consumable
7	External Power Cord	L1.8m, 250V, 10A, 1mm ²	1	IEC standard

 This unit uses physical filtration only. Once filters reach saturation, purification effectiveness drops to zero and blockage occurs. Do not operate beyond indicated replacement intervals — replace filter elements promptly to maintain rated performance and protect operator health.



Durable Construction

Metal framework with electrostatic-sprayed cold-roll steel panels. Compact footprint; no installation required. Four-caster mobility for easy repositioning between workstations.



Flexible Capture Arm

Universal smoke absorption arm articulates freely and self-positions at any angle. Compatible with flexible hose connections. Large-format hood maximizes capture zone. Custom arm lengths available on request.



Recirculating Design

No external ductwork or building exhaust penetration required. Purified air is returned directly to the room, preserving conditioned air and maintaining workspace temperature and humidity balance.