



# BVX-250

## Two-station Fume Extraction System

### User Guide

Guide de l'utilisateur (21)

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7100-2500\_A

## Operations Manual & User Guide

Congratulations on your purchase of the BVX-250 Fume Extraction System. It is designed to protect your health from hazardous and irritating air pollutants you may have in your work area. It has been designed and manufactured to the highest quality standards. Thank you for your purchase of the Metcal BVX-250 Series Fume Extraction System.

*This document has been prepared to guide you with the setup, operation, and user maintenance of your system. We recommend that you review it to optimize performance and for your safety.*

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## Get the BVX-250 Quick Start Guide

<https://bit.ly/Metcal-BVX-250-Quick-Start-Guide>

## 1. Safety Precautions

### 1.1. Safety Symbols



#### **Warning!**

Refers to safety regulations and required safety measures that protect the operator or other persons from injury.



#### **Caution!**

Emphasizes what must be done or avoided so the unit or other property is not damaged.



#### **Notice:**

Gives recommendations for better handling of the unit during operation, adjustment, and service activities.

### 1.2. Safety Warnings



#### **WARNING!**

For safe and successful operation of the Unit, read these instructions completely. If the instructions are not observed, the manufacturer can assume no responsibility. Retain this manual for future reference.



#### **WARNING!**

Consult your “safety department” when using the Unit on flammable gases. This Unit is not explosion safe and can **only** be used for the extraction of vapors, which have concentration levels well below the lower explosive limits.



#### **WARNING!**

Do not use the Unit to extract corrosive substances.



#### **WARNING!**

Do not expose the connecting cable to heat, oil, or sharp edges.



#### **WARNING!**

Make sure the Unit stands stable and secure.



#### **WARNING!**

Use only original equipment filters.



#### **WARNING!**

Do not operate the Unit without filter inserts. Contaminants in the extracted air will damage the blower.



#### **WARNING!**

Always disconnect the power supply before servicing the Unit.



#### **WARNING!**

Never cover exhaust openings.



#### **WARNING!**

Never cover all air inlet openings simultaneously.



**Exception:** One opening may be sealed off for single station operation.

#### **WARNING!**

This system is equipped with automatic reset overload protection, which may cause the unit to restart automatically.

#### **WARNING!**

Observe general safety regulations for the handling of chemicals such as adhesives and sealants. Observe the manufacturer’s instructions as stated in the Material Safety Data Sheet (MSDS).

## 2. Unpacking and Inspection

Carefully unpack the Fume Extraction System and examine the items contained in the carton. Inspect the Unit for any damage that might have occurred in transit. If such damage is present, notify the carrier immediately. Claims for damage must be made by the consignee to the carrier and should be reported to the manufacturer.

### 2.1. Items Supplied

- 2 Filters (Pre and Main) are installed in the unit
- 1 Remote start/stop switch
- 1 Power Cord
- 1 Operating Manual

### 2.2. Features

- Change filters without removing the hoses
- Color-coded LED status ring
- HEPA 13 Efficiency at 99.97%
- Optional Deep-bed gas filter (sold separately)
- Connects to 50 mm (2") hoses and arms
- On/Off switch with “soft-start” feature
- Adjustable air flow – Three airflow options (High, Medium, & Low)
- Powerful airflow and suction capacity
- Light-weight, portable, and compact design
- ESD-safe housing
- UL & CSA, UKCA, KC, PSE, NOM, CE (ISO-14644)
- RoHS/REACH
- Suitable for indoor use only
- May be used in temperatures between 0 °C and 40 °C
- Suitable for use at altitudes between 0 m and 2,000 m
- Pollution Degree 2



### 2.3. Usage

The Fume Extraction System is a portable, two-station filtration system for the removal of fumes, light dust, or vapors at the workplace. The filter set supplied with the filter unit depends on the model ordered.

# BVX-250 Series Fume Extraction System

## User Guide



The BVX-250 is supplied with a pre-filter and a main filter. The main-filter is a HEPA/Gas combo-filter consisting of a HEPA 13 filter, with an efficiency of 99.97% at 0.3 micron, and an activated carbon filter. This model is designed for applications such as solder fumes from soldering irons, solder pots, etc.

A deep-bed gas (activated carbon) main filter is also available (FG-BVX250), designed for applications such as cleaning with solvents, conformal coating, etc. (Sold separately)



### **WARNING!**

Consult your “safety department” when using the Unit on flammable gases. This unit is not explosion safe and only used for the extraction of vapors, which have concentration levels well below the lower explosive limits.

PRE FILTER

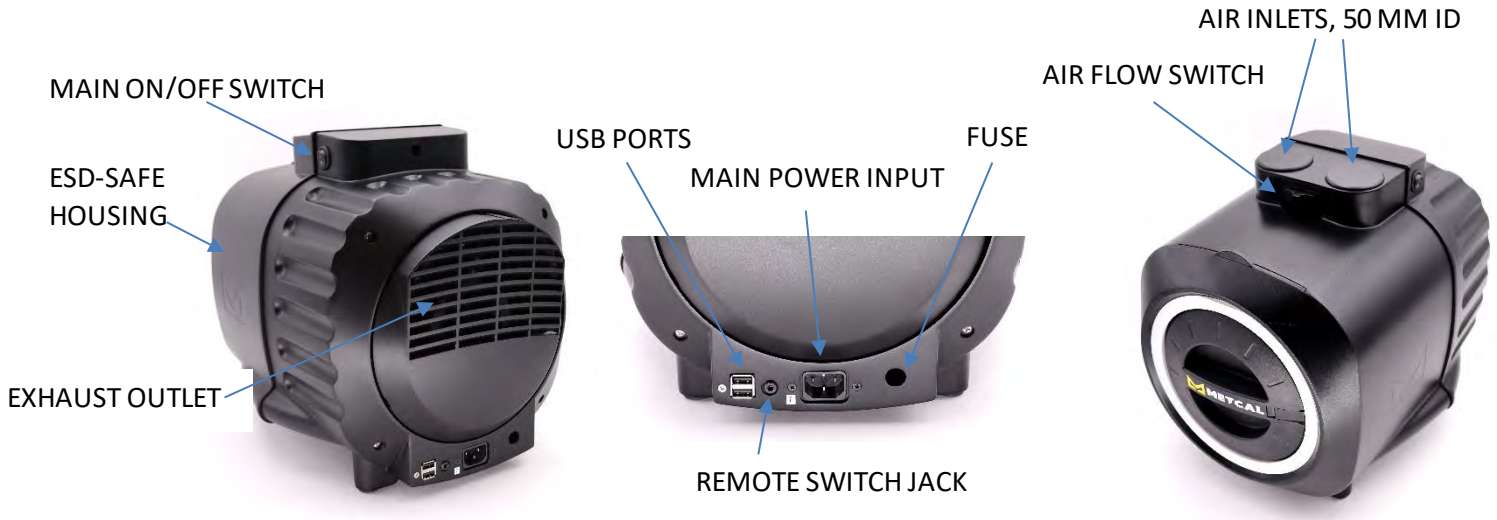


MAIN FILTER



### 3. Description

#### 3.1. Operating Elements and Construction



**Warning:** Do not insert audio devices into the Remote Switch Jack.

**Warning:** USB ports are used for communication and data transfer; NOT intended to be used as a charging device.

#### 3.2. Theory of Operation

The efficient removal of hazardous fumes at your workplace is a two-step process: fume capture and filtration. The filter unit is supplied with a set of filters already installed.

To capture fumes, Metcal recommends use of optional hoses/arms and accessories (purchased separately). The hoses/arms need to be set up properly (instructions supplied with hoses/arms) and the nozzle positioned in a way to optimize fume capture.

Air extracted from your work area will be purified when passing through the filters inside the unit. Contact your local Metcal representative if there are any questions regarding the proper selection of filters for your application.

### 3.3. Color-coded LED Status Ring

The BVX-250 is designed with a color-coded LED status ring. The LED ring changes colors depending on the mode the unit is in, or if there is an issue with one of the filters.

- **BLUE:** Power is on, unit is in idle mode
- **GREEN:** Power is on, unit is operating normally, extracting fumes
- **AMBER FLASHING:** The Pre-Filter is not installed properly
- **AMBER:** The Pre-Filter should be replaced
- **RED FLASHING:** The Main Filter is not installed properly
- **RED:** The Main Filter should be replaced

See Section 7.4 for filter replacement procedures.



### 3.4. Managing Unit Exhaust

The unit's exhaust can be directed by the attached rotating diverter, or by connecting the unit to your building's ventilation system.

#### 360-Degree Rotating Exhaust Diverter

The BVX-250 features a 360-degree rotating exhaust diverter. The filtered air coming from the unit can be easily exhausted in any direction. Simply rotate the exhaust diverter to aim the air as desired for maximum operator comfort.



The adjustable air diverter rotates 360 degrees for maximum operator comfort.

### Connecting BVX-250 to Ducting Systems

The rotating diverter can easily be removed to allow direct ducting into building ventilation systems with the available ducting adapter.

- 1. Remove the Diverter:** The diverter is held on the unit by six (6) small tabs. Gently insert a small flat-head screwdriver into the slot the corresponds to the top-most tab. With the head of the screwdriver, push down slightly on the tab. You will feel the tab release. Repeat this process until enough tabs have been released to remove the diverter.



- 2. Install the Ducting Adapter:** Replace the diverter with the optional adapter for direct ducting (AC-BVX250-DUCT). It is secured to the BVX-250 using the same tab system as the diverter. Make sure the adapter fits snugly.



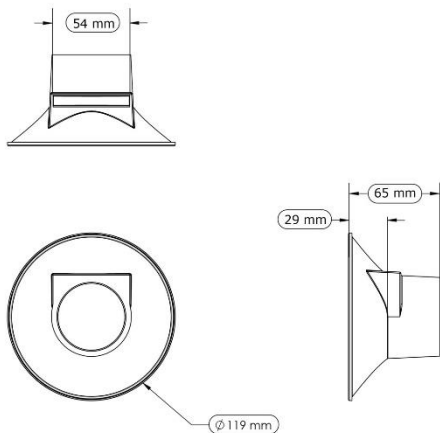


- 3. Attach the Ducting to the Adapter:** Simply attach standard 3" ducting to the ducting adapter using an adjustable "worm" ducting clamp.

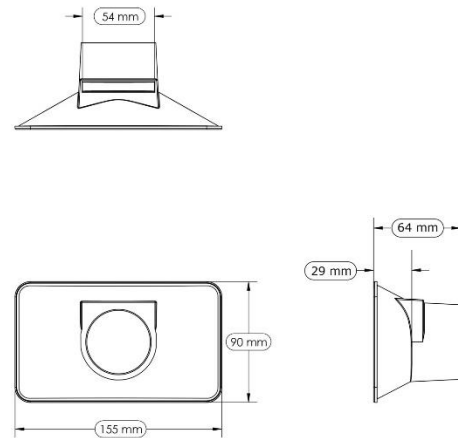


### 4. Technical Data

<b>Max. airflow, free blowing</b>	297 m <sup>3</sup> /h (175 cfm)
<b>Flow rate</b>	2 x 75 m <sup>3</sup> /h (45 cfm)
<b>Static pressure</b>	1743 Pa (7" WC)
<b>Noise level (approx.)</b>	50 dBA (at medium setting)
<b>Voltage</b>	100 - 240 VAC, 1 phase
<b>Frequency</b>	50/60 Hz
<b>Power</b>	150 Watts
<b>Safety compliance</b>	UL & CSA, UKCA, KC, PSE, NOM, CE (ISO-14644), TUV
<b>Dimensions W/D/H mm</b>	268 x 400 x 320
<b>Dimensions W/D/H inches</b>	10.5" x 16" x 13"
<b>Weight (approx.)</b>	12 lbs. / 5.5 kg



BVX-NOZC



BVX-NOZR

## 5. Installation

### 5.1 Unboxing & Set-up

Remove the Fume Extraction System from the packing materials and place it on the floor under the workbench or near your work area where fume extraction is required. Make sure you have access to the unit for filter maintenance.

Connect the Unit power cord into the main power input on the back of the system. Plug the power cord into a grounded wall outlet.



#### **Warning!**

**To provide protection against the risk of electrical shock, connect to properly grounded outlets only.**

Connect the Unit to hoses/arms (optional) per installation instructions. To power up the system, press the power switch located on the top right side of the Unit (“I” indicates the “Power On” position). The operator can expect a delay of a few seconds before hearing the fan running. This is due to a built-in motor “Soft-Start” feature.

Position the arms/hoses to optimize the fume capture.

Follow maintenance procedures below.

#### **Attach the Nozzle to the Hose**

1. Connect the nozzle to the hose by pushing it until it stops.
2. Turn the nozzle clockwise to ensure the nozzle is attached firmly to the hose.
3. Insert the nozzle filter into the top of the nozzle - ensure it clicks into place.
4. Insert the assembled nozzle and hose into the suction inlet of the fume extraction unit.



### 5.2 Turning off the Blue LED Status Light (optional)

Some users of the BVX-250 prefer to turn off the LED status ring light when the unit is in idle mode.

To turn off the blue Idle Mode status indicator:

1. Make sure the unit is off.
2. Open the Pre-Filter drawer.
3. Turn the unit on.
4. Gently open and close the Pre-Filter drawer four times, each open/close cycle lasting about one second each.
5. Make sure the Pre-Filter drawer is completely closed.



The blue status light has now been deactivated and will not turn on when the unit goes into idle mode.

To reactivate the blue status light, simply repeat the steps above.

### 6. Communication with ConnectionValidation™ (CV) and GT Series Soldering Systems

The BVX-250 Series Fume Extraction System can communicate with a connected Metcal CV or GT Series soldering system. (A firmware update may be required)

Simply connect a USB-A to USB-A cable between the USB port on the BVX-250 and the USB port on the CV or GT Series soldering station.

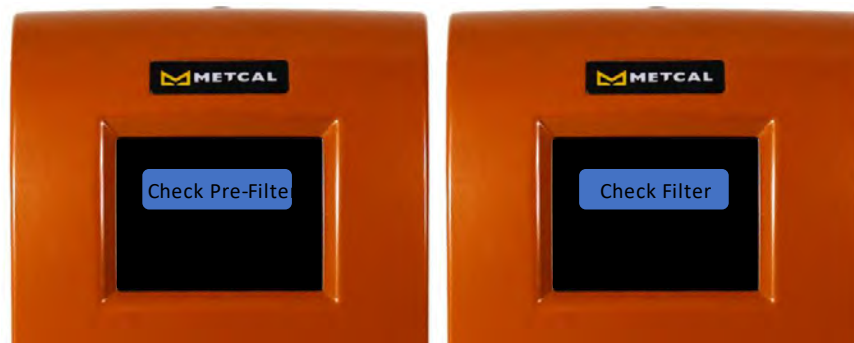
#### IDLE MODE

When the BVX-250 is connected to a CV or GT soldering system, it will go into idle mode (indicated by the LED ring turning blue) when the connected soldering system is in an idle mode. The GT goes into idle/sleep mode when the handpiece does not move for a set time (selectable). The CV will go into idle/sleep when the tip is in the sleeper stand. If the BVX is connected to two soldering systems, both systems need to be in idle mode to trigger idle mode on the extraction system. When the connected soldering station is no longer in idle/sleep mode, the BVX unit will resume normal fume extraction.

#### SCREEN ALERTS

The screen on the connected CV or GT soldering system will now display alerts sent from the fume extraction system that correspond to the messages conveyed by the LED ring:

- **PRE-FILTER (SOLID OR FLASHING AMBER LED RING):** If the pre-filter needs to be changed or is not installed correctly, a popup will appear on a connected soldering system.
- **FILTER (SOLID OR FLASHING RED LED RING):** If the main filter is blocked or not installed correctly, a popup will appear on a connected soldering system.



## 7. Maintenance and Cleaning

### 7.1. Filter Unit - Maintenance and Safety

The Fume Extraction System is designed with low maintenance in mind. The housing is ESD-safe plastic. Here are a few tips to keep your system running in top shape:

To clean, use a light wipe with a gentle cleaner to prevent buildup of particulate and flux residue (be sure the Unit is turned off while cleaning).



Do not block the exhaust outlets; this will cause the operating temperature of the system to rise, potentially damaging the Unit, and causing a drop in performance.



Do not defeat the filter interlock switch. Running the system without a filter will allow particulate and flux residue to adhere to the blower and decrease the life of the system and increase noise.

**Do not lift the system while operating.**



Be sure to handle filters with care.

### 7.2. Filter Replacement Timing

#### HEPA/Gas Filter

When fumes are filtered inside the Unit, the particulates captured will start clogging the filter over time. The coarse particles are collected in the pre-filter while fine particles will be collected in the HEPA 13 filter. The clogging will result in a reduction of the airflow, which may reduce the number of fumes extracted from the work area. This condition may not necessarily require filter replacement. One step is to move the optional extraction arms closer to the application if possible. If the fumes are not extracted any longer to previous satisfaction level, or when the LED light changes to RED or AMBER, filter replacement is required. See section 7.4 for filter replacement procedures.



#### **Warning!**

**Do not attempt to clean filters. Attempted cleaning can damage filters and cause potential risk to health and equipment.**



**Notice:** Metcal recommends replacement of main filters annually as a minimum. Regular changing of the pre-filter will prolong the life of the main filter (HEPA/Carbon). Use only original replacement filters.

### Optional Deep Bed Gas Filter

Deep bed gas filters generally do not clog and reduce airflow as is common with HEPA filters. Replace both filters, pre-filter, and carbon filter, as soon as odors become noticeable.



**Notice:** Replace filters at least every 6 months, as most gas-phase filter media achieve saturation by absorbing moisture from ambient air. **Use only original replacement filters.**

### 7.3. Safety Interlock

The safety switch is an interlock which deactivates the fan motor when the main filter is removed, allowing the fan inlet opening to be exposed. The safety switch also prevents the system from operating without the filters, which would allow impurities to contaminate the internal unit.



SAFETY SWITCH LOCATION



### WARNING!

Do not bypass the safety interlock. Bypassing the safety interlock could result in injury.

### 7.4. Filter Replacement Procedure:

1. Turn the Unit off.
2. Disconnect the power cord.
3. Remove and replace the Pre-filter (see illustration below).
4. Remove and replace the Main filter (see illustration below).
5. Reinsert the filter by lining up the white dot on the filter holder with the white dot at the top of the opening. Slide the filter into place.
6. Secure the filter holder by turning it 90 degrees clock-wise. *The Metcal logo should be right-side-up and parallel with the floor.*
7. Reconnect the power cord and turn the system on.
8. If Unit does not operate, refer to the Troubleshooting section.



**Notice:** Always use new replacement filters!

# BVX-250 Series Fume Extraction System

## User Guide



### REPLACE PRE-FILTER



### REPLACE MAIN FILTER





### 7.5. Filter Disposal

The gas filter collects some organic materials and care in disposal may be required. The filter may contain toxic materials and inhalation of dust particles or exposure to skin must be avoided. Please consult the MSDS sheets for the material used at your facility and follow the prescribed handling instructions.

## 8. Troubleshooting

	Possible Cause	Check and Correction
No air flow	No Power	Check On/Off switch Check power outlet Check power cord Check for filter Check safety interlock switch
Little air flow	Air leak	Check hose/arm for leaks Check hose/arm for proper installation Check hose/arm for partial clogging
Motor not running and RED LED display	Main filter not inserted or not fully inserted	Place Main filter in unit and push, make sure it is fully inserted
Motor not running AMBER LED DISPLAY	Pre-filter not inserted or not fully inserted	Place Pre-filter in unit and make sure it is fully inserted
Motor is running and RED LED DISPLAY	Main filter needs to change	Change Main filter per 7.4
Motor is running and AMBER LED DISPLAY	Pre-filter needs to be replaced	Change Pre-filter per 7.4

The BVX-250 filter-block LED display is factory calibrated to a specific airflow.

1. Assemble the BVX-250 as per the User Guide. Both the main power switch and the remote switch (if used) should be in the 'Off' position.
2. Switch On the main Unit and press the remote switch. The remote switch LED will light when powered. The Unit will run, and you will see the LED display on BVX-250 Unit turn GREEN.



**While under warranty, the Unit may only be repaired by an Authorized Metcal Service Representative.**

### 9. Part Numbers

#### Systems

BVX-250	Unit, HEPA 13/Gas Filter & Pre-Filter (Arms sold separately)
BVX-250-KIT	Unit, HEPA 13/Gas Filter, Pre-Filter, and (1) BVX-ARML, (1) BVX-NOZR, (1) BVX-NOZC (includes Rectangular and Circular Nozzles, Nozzle Filters)

#### Filters

FP-BVX250	Pre-Filter (Pack of 5)
FM-BVX250	Main Filter, HEPA 13/Gas/Carbon
FG-BVX250	Main Filter, Deep Bed Gas/Carbon
FN-BVX	Replacement Nozzle Filter for BVX-NOZR and BVX-NOZC nozzles (pack of 5)

#### Nozzles

BVX-NOZR	Rectangular Nozzle for BVX Systems, ESD-Safe
BVX-NOZC	Circular Nozzle for BVX Systems, ESD-Safe
BVX-NOZ1	Hoof Nozzle for BVX Systems, ESD-Safe

#### Arm Kits & Accessories

BVX-ARM-K1	2.5' Flexible Arm, 6' Hose, Table Bracket & Claps, ESD-Safe
BVX-ARM	2.5' Flexible Arm, 2" Ø, ESD-Safe
BVX-ARML	5' Flexible Arm, 2" Ø, ESD-Safe
BVX-CH01	6' BVX Connection Hose, 2" Ø, ESD-Safe
BVX-CH02	12' BVX Connection Hose, 2" Ø, ESD-Safe
AC-BVX250-DUCT	Adapter for Direct Ducting BVX-250 to Ventilation Systems
AC-BVX250-OMNI	BVX-250 Adaptor for Omniflex Arms
RPS-1	Replacement Remote Power Switch for BVX-200 Series
BVX-TB01	BVX Table Bracket Mount & 2 C-Clamps

## 10. Warranty

Please visit Metcal's website ([www.metcal.com](http://www.metcal.com)) where you will find available information on systems, accessories, technical notes, and more. You may also contact your local representative for pricing and availability.

Metcal warrants the BVX-250 Series against any defects in materials or workmanship for one (1) year from the date of purchase by the original owner. This Warranty excludes normal maintenance and shall not apply to any opened, misused, abused, altered, or damaged items. If the product should become defective within the warranty period, Metcal will repair or replace it free of charge at its sole option. The repaired or replacement item(s) will be shipped, freight prepaid, to the original purchaser. The warranty period will start from the date of purchase. If the date of purchase cannot be substantiated, the date of manufacture will be used as the start of the warranty period.

For the repair or return of a unit a Return Material Authorization Number (RMA #) needs to be obtained.

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