Static Eliminator Blowers
HDC-AC with built-in high-voltage power supply

Static eliminator blower WINSTAT BF-2MA

Main Features
The BF-2MA is a reliable HDC-AC static eliminator blower that has long-term and stable static elimination capabilities and generates less ozone density than existing products. It is slim and lightweight with the following features.

- Error recognition of electrical discharges and sparks
- The time between regular maintenance is longer and users can replace the emitter needle unit on their own.
- Two way application: Strong & long distance ionization with Straight louver panel or Wide direction ionization with Wide angle louver panel.
- Lock the angle adjustment.

Indicator Panel

Replacable Emitter unit

Power indicator (green)
Run indicator (green)
Air flow controller
Fan speed indicator
Fan lock alarm (red)
Pulse discharge indicator (red)

CE label

Full features and static elimination area
Wide angle louver panel

Straight louver panel

Wide-angle louver panel static elimination

Straight louver panel static elimination

Power specification
AC Adapter input: AC100 to 240V 50/60Hz (output: 24V DC)
Input voltage: 24VDC ±10%
Output voltage: 7,000 ±5% Vp-p
Ion balance: 2±20% of 1000 V0-p
Decay time: 1 sec or less
Alarm output: Normal: ON, Fan abnormal: OFF

Airflow controller

Filters: package of 10

Knob bolt

Airflow

Material: Main body ABS, emitter tungsten, stand: SECC
Accessories: Operation manual, AC adapter, wide angle louver, alarm output cable, cleaning brush

Dimensions:
- Approx. 125 mm (H) x 125 mm (W) x 300 mm (D)

Specifications:
- Operating environment: Indoor use, 0 to 40°C, 15% to 85% RH (no condensation)
- Weight: Approx. 1.7 kg
- Power consumption: 6 VA
- Electric consumption: 6 VA
- Ion balance: 2±20% of 1000 V0-p
- Noise: 48 dB
- Weight: Approx. 840 g
- Airflow: 0.7 to 1.2 m³/min
- Ozone density: 0.003 ppm or less
- Angle of air direction: 360 degrees adjustable
- Operating environment: Indoor use, 0 to 40°C, 15% to 85% RH (no condensation)
- Material: Main body ABS, emitter tungsten, stand: SECC
- Accessories: Operation manual, AC adapter, wide angle louver, alarm output cable, cleaning brush

Options:
- Filter covering
- Fixing hole
- Emitter needle unit
- Electric consumption: 6 VA
A fan is used to transport the ions

The WINSTAT air ionizers are designed to eliminate static in a wide range of industries, providing solutions to issues such as ESD problems in the electronics industry and problems caused by static electricity in the plastic film manufacturing industry. The use of a fan enables the ionizer to eliminate static over a wide area, even from objects that are located some distance away. A wide selection is offered, with a choice of high frequency, AC, or DC models for desktop or production line use to suit various application needs.

**Main Features**

The WINSTAT BF-MA is an ionizer that is small and lightweight with a mounted HDC-AC static elimination blower for stronger emitter needle abrasion resistance as well as stable and long-term static elimination capabilities. Compared to existing high frequency AC types it has less deterioration with age meaning the duration between maintenance periods is longer.

- Louver and emitter needle easy to remove and replace
- Possible to continuously adjust the airflow with the fan adjustor.
- Light turns on when an abnormal high voltage and fan stoppage is detected.
- Generates less ozone density than existing products.
- Meets RoHS standards.

**Static elimination area**

<table>
<thead>
<tr>
<th>BF-MA Static elimination area</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
</tr>
<tr>
<td>200</td>
</tr>
<tr>
<td>100</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>-100</td>
</tr>
<tr>
<td>-200</td>
</tr>
<tr>
<td>-300</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Static elimination time (sec.)</th>
<th>0-2</th>
<th>2-4</th>
<th>4-6</th>
<th>6-10</th>
<th>10-12</th>
<th>12-14</th>
</tr>
</thead>
</table>

**Indicator Panel**

- Power indicator (green)
- Airflow controller
- Fan speed indicator [5 levels] (green)
- Over current indicator (red)
- Emitter discharge indicator (red)
- Alarm Output Normal: ON

**Options**

- Emitter needle unit
- Filters: package of 10 (optional)

**Dimensional Diagrams**

- **Front Panel louver**
- **Main Power Switch**
- **Folding hole 3-diameter 4.5mm**

**Additional Specifications**

- **Model**: BF-MA
- **Input power supply**: 24 VDC (with AC 100~240V AC adaptor)
- **Electric consumption**: 6 VA
- **Output voltage**: ±7000 Vp-p
- **Ion balance**: ±10V or less (when shipped from the factory)
- **Airflow**: 0.75 to 1.7 m³/min
- **Air speed**: 1.1 to 1.7 m/sec (distance 300 mm: centered)
- **Ozone density**: 0.005 ppm or less (distance 150 mm)
- **Operating environment**: 15°C to 40°C, 15% to 85% RH (no condensation)
- **Output signal**: No voltage contact output (normal close)
- **Main unit dimensions**: 104 x 197 x 70 mm (HxWxD) not including projecting portion
- **Weight**: Approx. 840 g (including stand)
- **Accuracy**: BF-MA, distance 3 m
- **Accompanying items**: Operation manual, AC adapter, ground wire, signal output cable, cleaning brush
- **Optional parts**: Emitter needle unit, filters (package of 10)
Static Eliminator Blowers
HDC-AC with built-in high-voltage power supply

Static elimination area

Main Features
- This is the overhead air ionizer with SSD new technology "HDC-AC".
- Alarm function for high voltage abnormal and fan locked with output signal and the buzzer.
- It is available to connect in serial up to five units with optional cable "SIRCBL-OHP3A".

Static Eliminator Blowers
Static eliminator blower WINSTAT BF-OHP3A

Indicator Panel

Dimensional Diagrams

<table>
<thead>
<tr>
<th>Model</th>
<th>BF-OHP3A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input power supply</td>
<td>AC Inlet 100 to 240 VAC 50/60 Hz</td>
</tr>
<tr>
<td>Capacity</td>
<td>Maximum 0.4 A</td>
</tr>
<tr>
<td>Output voltage</td>
<td>± 700 V or less</td>
</tr>
<tr>
<td>Ion Balance</td>
<td>± 10 V or less</td>
</tr>
<tr>
<td>Airflow</td>
<td>0 to 3.3 m³/min</td>
</tr>
<tr>
<td>Indicators</td>
<td>Power indication / High voltage indication / High voltage abnormal indication / Fan locked abnormal indication</td>
</tr>
<tr>
<td>Ozone density</td>
<td>0.005 ppm or less (at 150 mm front)</td>
</tr>
<tr>
<td>Operating Environment</td>
<td>10 to 40°C / 15 to 85% RH (no condensation)</td>
</tr>
<tr>
<td>AC Power outlet</td>
<td>Maximum input capacity: 5 A (without fuse)</td>
</tr>
<tr>
<td>Available number of serial connection</td>
<td>Up to five units</td>
</tr>
<tr>
<td>Output Alarm signal</td>
<td>Non-voltage contact output / Normally closed</td>
</tr>
<tr>
<td>Main unit dimensions</td>
<td>190×45×50 mm (WxHxD)</td>
</tr>
<tr>
<td>Weight</td>
<td>1800 g</td>
</tr>
<tr>
<td>Accessories</td>
<td>Manual / Power cable / cleaning brush</td>
</tr>
<tr>
<td>Optional part</td>
<td>Serial connecting cable / SIRCBL-OHP3A / Discharge emitter unit / Filter / 5 pieces as one packed</td>
</tr>
</tbody>
</table>
Static Eliminator Blowers
High frequency type

Static eliminator blower WINSTAT BF-2ZC

Main Features
When an ionizer is used continuously, the area around the emitter needles that are generating ions becomes dirty, causing a drop in the effectiveness of the static elimination process. In order to maintain effective static elimination, periodic cleaning of the emitter needles is essential. Shishido Electrostatic developed a proprietary automatic emitter needle cleaning function to solve this troublesome problem.

An automatic emitter needle cleaning function is built in to automatically perform periodic cleaning of the emitter needles (once every 24 hours).

The BF-2ZC features a built-in ion balance indicator to enable confirmation at any time of the correct balance between the positive and negative ions, as well as dramatically improved efficiency in maintenance and static elimination.

Static elimination area

<table>
<thead>
<tr>
<th>Model</th>
<th>BF-2ZC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input power supply</td>
<td>24 VDC (AC adapter supplied: compatible with 100 to 240 VAC)</td>
</tr>
<tr>
<td>Capacity</td>
<td>Normal operation: 12 VA</td>
</tr>
<tr>
<td></td>
<td>While brush cleaning: 17.5 VA</td>
</tr>
<tr>
<td>Output voltage</td>
<td>2.0 kVAC</td>
</tr>
<tr>
<td>Ion balance</td>
<td>5.0 V</td>
</tr>
<tr>
<td>Airflow</td>
<td>3.3 m³/min</td>
</tr>
<tr>
<td>Ozone density</td>
<td>0.02 ppm or less</td>
</tr>
<tr>
<td>Operating Environment</td>
<td>10 to 40°C, 15 to 65% RH (no condensation)</td>
</tr>
<tr>
<td>Filter</td>
<td>Prefilter level</td>
</tr>
<tr>
<td>Main unit dimensions</td>
<td>140 x 190 x 110 mm (W x H x D)</td>
</tr>
<tr>
<td>Weight</td>
<td>1800 g</td>
</tr>
<tr>
<td>Noise level</td>
<td>59 dB (A)</td>
</tr>
<tr>
<td>Alarm function</td>
<td>LED indication when high-voltage output stops</td>
</tr>
</tbody>
</table>
Static Eliminator Blowers
High frequency type

Static eliminator blower WINSTAT BF-SZA

Main Features
- Up to eight units can be connected serially. However, only three units can be connected when the AC adapter is used.
- A louver that is simple to attach or detach has been adopted to facilitate product maintenance.

Static elimination area

An AC adapter is not provided with the BF-SZA model.
- Please purchase the dedicated AC adapter (BF-24V-A) to enable connection to an AC power source.
- Please purchase the dedicated serial connection cable as 2 meter (BF-SZA-CBL) for connecting BF-SZA serially.

Static eliminator blower WINSTAT BF-ZB

Main Features
- Up to six units can be connected serially. However, only two units can be connected when the AC adapter is used.

Static elimination area

Please purchase the dedicated serial connection cable as 2 meter (OBF-SZA-CBL) for connecting BF-SZA serially.
1. The high-frequency corona discharge method used generates a good balance of positive and negative ions with minimal secular change for highly effective static elimination. These ionizers are also easy to service and maintain. (all the vertical models in the range)

2. The self-adjusting function ensures an ideal balance between the positive and negative ions.

3. The compact fan-type models are ideal for incorporation into systems and for use in production lines where space is limited. (BF-SZA, BF-ZB) The BF-SZA model is also suitable for spot ionizing at locations where an airflow cannot be used.

4. The built-in alarm is activated (signal output provided) when high-voltage output stops, or when the fan stops. The airflow can be selected in two steps. Serial connection enables multiple devices to be connected in a series within the system. (BF-SZA, BF-ZB)

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Static Elimination Blowers

**Main Features**

- Thin and lightweight high-frequency corona discharge method fan-type ionizer.
- Louver and emitter needle easy to remove and replace.
- Signal output and LED announce when there is dust or abrasions on the emitter needle.
- Can choose the area for static elimination with two types of louveres.
- Main unit angle can be adjusted and locked and the angle never changes due to vibrations.
- Meets RoHS standards.

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**Static elimination area**

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**Indicators**

- Indicator lamp (green)
- High-voltage abnormality indicator lamp (red)
- Fan abnormality/stopped indicator lamp (red)

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**Dimensional Diagrams**

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**Technical Specifications**

- **Model**: BF-X2ZA
- **Input power supply**: DC 24 V (with AC 100 to 240 V AC adapter)
- **Electric consumption**: 10 VA
- **Output voltage**: AC 2000 V
- **Ion balance**: ± 10 V or less (distance 300 mm; when shipped from the factory)
- **Airflow**: 1.5 to 3.0 m/min
- **Air speed**: 1.5 to 3.1 m/min (straight louver, distance 300 mm; centered)
- **Ozone density**: 0.04 ppm or less (distance 150 mm)
- **Operating environment**: 5 to 95°F; 10 to 90% RH (no condensation)
- **Output signal**: MOS FET relay no voltage contact output
- **Main unit dimensions**: 190x182x48 mm (WxHxD) (not including protruding parts)
- **Weight**: Approx. 790 g (including stand)
- **Noise**: 68 dB (A, 1 meter distance)
- **AC adapter**: 100 to 240 V, 1.5 A
- **Output voltage**: 2.0 kVAC
- **Input power supply**: 24 VDC
- **Power switch**: OFF ON
- **Airflow adjustment switch**: Mid Hi
- **Input power supply and signal connectors**: Power supply and signal connectors
- **Filter covering**: Filter covering
- **Alarming**: ALARM (alarm indicator)
- **Output**: OUTPUT
- **Fan abnormality**: FAN ADJUSTER

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**Supplied Accessories**

- Operation manual, AC adapter, wide-angle louver, ground wire, signal output cable, cleaning brush

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**Package Contents**

- Emitter needle unit, filter cover, package of 10
Main Features

- The capacitive coupling system used in the emitter section generates a good balance of positive and negative ions with minimal secular change for highly effective static elimination.
- Multiple fan motors are provided, the airflow is continuously variable, and the airflow direction can be adjusted vertically. (all models)
- The horizontal configuration of these models enables the elimination of static over a wide-ranging area, which makes them ideal for use in various applications including desktop and line use. (all models)
- The self-adjusting function ensures an ideal balance between the positive and negative ions. (An ion balancer is built)

Static elimination area

<table>
<thead>
<tr>
<th>Model</th>
<th>BF-80</th>
<th>BF-120</th>
<th>BF-160</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input power supply</td>
<td>100 to 120/200 to 240 VAC (50/60 Hz), switch-selectable</td>
<td>70 VA</td>
<td>90 VA</td>
</tr>
<tr>
<td>Capacity</td>
<td>50 VA</td>
<td>70 VA</td>
<td>90 VA</td>
</tr>
<tr>
<td>Output voltage</td>
<td>4.5 kVAC</td>
<td>7.5 kVDC</td>
<td></td>
</tr>
<tr>
<td>Ion balance</td>
<td>±20 V or less</td>
<td>±30 V or less</td>
<td></td>
</tr>
<tr>
<td>Airflow</td>
<td>8.8 m³/min</td>
<td>13.2 m³/min</td>
<td>17.6 m³/min</td>
</tr>
<tr>
<td>Ozone density</td>
<td>0.01 ppm or less</td>
<td>0.007 ppm or less</td>
<td></td>
</tr>
<tr>
<td>Operating Environment</td>
<td>10 to 40°C, 15 to 65% RH (no condensation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Filter</td>
<td>Pre-filter level (option)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main unit dimensions</td>
<td>868×130×218 mm (W×H×D)</td>
<td>1262×130×218 mm (W×H×D)</td>
<td>1656×130×218 mm (W×H×D)</td>
</tr>
<tr>
<td>Weight (including stand)</td>
<td>8500 g</td>
<td>12000 g</td>
<td>16000 g</td>
</tr>
<tr>
<td>Noise level</td>
<td>65 dB (A)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Static Eliminator Blowers
DC System

Static eliminator blower WINSTAT BF-2DD

Main Features

The BF-2DD is a compact, lightweight DC air ionizer that can be incorporated into machinery or installed on a desktop or on a production line. It uses a fan to eliminate static from the distant charged object by sending air that includes positive and negative ions towards the target object.

- Reasonable pricing and easy installation.
- The DC corona discharge method used generates a good balance of positive and negative ions for highly effective static elimination. The device is also easy to service and maintain.
- The standard cleaning interval for the emitter needles is 5000 hours (approximately six months if the device is operated continuously day and night), thereby enabling easy maintenance.

Static elimination area

![Graph showing static decay time and charged voltage]

<table>
<thead>
<tr>
<th>Model</th>
<th>BF-2DD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input power supply</td>
<td>24 VDC</td>
</tr>
<tr>
<td>(AC adapter supplied: compatible with 100 to 240 VAC)</td>
<td></td>
</tr>
<tr>
<td>Capacity</td>
<td>15 VA</td>
</tr>
<tr>
<td>Output voltage</td>
<td>7.5 kVDC</td>
</tr>
<tr>
<td>Ion balance</td>
<td>±30 V or less</td>
</tr>
<tr>
<td>Airflow</td>
<td>3.3 m³/min (MAX)</td>
</tr>
<tr>
<td>Ozone density</td>
<td>0.007 ppm or less</td>
</tr>
<tr>
<td>Operating Environment</td>
<td>10 to 40 °C / 10 to 65% RH (no condensation)</td>
</tr>
<tr>
<td>Filter</td>
<td>Pre-filter level</td>
</tr>
<tr>
<td>Main unit dimensions</td>
<td>150 x 180 x 75 mm (WxHxD)</td>
</tr>
<tr>
<td>Weight</td>
<td>1900 g</td>
</tr>
<tr>
<td>Noise level</td>
<td>57 dB (A)</td>
</tr>
</tbody>
</table>

Dimensional Diagrams

![Diagram showing dimensions and features of the BF-2DD]
What is HDC-AC?

The unique AC-type high-voltage power supply (patent pending) developed by our company is compact and maintains a stable electrical supply.

A power supply with superior features has become a reality by using digital control for the input of the wire-wound transformer

1) Ultra compact and high-voltage generating wire-wound transformer has been made as small as possible (about 1/10th the size of existing models).

2) By using digital control (PWM*) for the transformer, we have achieved easy control of high-voltage power output.

Features of HDC-AC

The HDC-AC mounted ionizer is equipped with superior features such as the ability to maintain long-term stability in static elimination.

Long-term stability in static elimination capabilities

Running data (HDC-AC mounted ionizer)

Decrease in emitter needle abrasions

High voltage power stoppages contribute to fewer emitter needle abrasions leading to less dirt and long-term stability.

Ultra low ozone (same as background level)

Unique ion balance adjustment functions

Amplitude modulation: Controls the amount of ions generated

Position modulation: Emitter needle absorbs excess ions