

VESSEL

ESD PRODUCT CATALOG



VESSEL Co., Inc.

17-25, Fukae-Kita 2-chome, Higashinari-ku, Osaka 537-0001 JAPAN
Tel : +81(0)6 6976 7778 Fax : +81(0)6 6972 9441
E-mail : export@vessel.co.jp URL : www.vessel.co.jp/english

VESSEL EUROPE

contact@vessel-europe.com
www.vessel-europe.com

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- The specifications, dimensions, and others may be subject to change without prior notice.
- The ionizing performance shown in this catalogue is according to our measurement environments, and the results may differ depending on the actual using environment.

VESSEL, the ionizing and dust elimination expert, helps solve your quality problems.

Product quality is very important issue at manufacturing sites.

Since 2000, VESSEL has focused on solutions for static electricity and dust elimination, with aspiration for improvement in the product quality of all customers.

VESSEL, the ionizing and dust elimination expert, is ready to help.

3 reasons why VESSEL ionizers are chosen

1

Abundant line-up of products

VESSEL's line-up of reliable and wide range from fan, gun, and bar-type air blow ionizers, EPA mats and wrist straps that prevent static discharge, to adhesive mats that prevent dust from scattering. Our products provide solutions to your problems in relation to static electricity and dust.

2

User-friendly products

To provide optimum products for production sites, our design is oriented in the ease-of-use. VESSEL aims for user convenience in various applications.

3

Direct support from our specialists

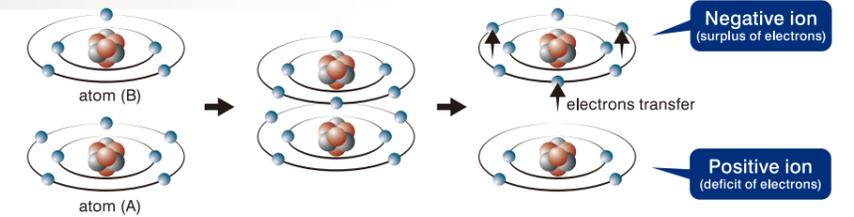
Our static elimination and dust removal spacialists will visit your production site to propose the best available products. Customization is also available upn request.



THE STATIC ELECTRICITY

Theory

The static electricity comes from the transfer of electrons between two or more atoms becoming electrically unbalanced.

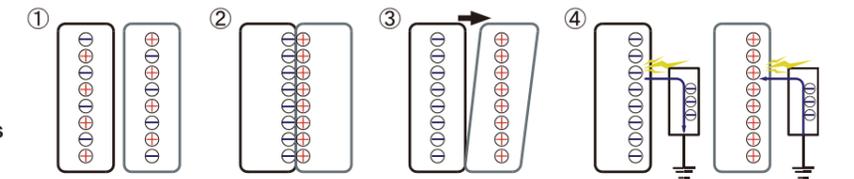


How is it created?

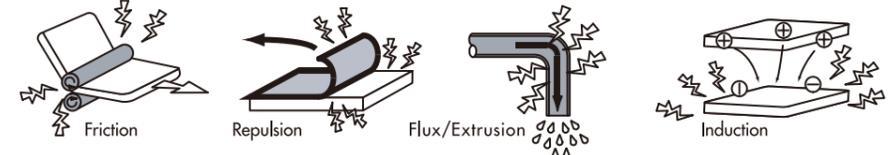
The static electricity is created after contact between two materials (one of which at least is an insulator).

The static electricity level depends on humidity, materials, as well as on the pressure, the time, and the surface of contact.

An electric voltage of several kV might be easily generated.



- Usually an object contains positive ions and negative ions. They are same in quantity and keep balance.
- When two objects come into contact, unstable electrons start moving (Charge Transfer). In such a state, however, electrons just move, and two objects in touch as a whole are not charged.
- Dragging these objects away makes the number of electrons unbalanced. At this time, one object which receives electrons is negatively charged, while another object which loses them is positively charged.
- Then, the electrons transfer, once the object, either negatively or positively charged, approaches to a grounded metal.



Triboelectric series

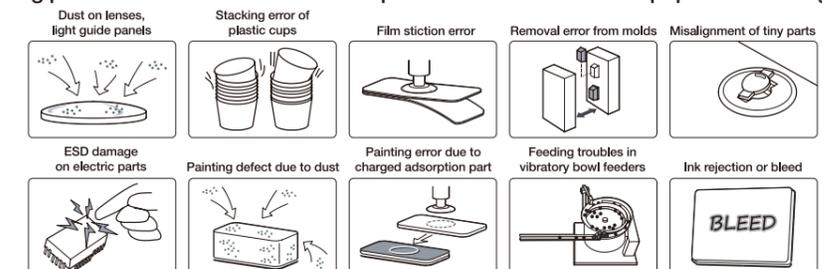
The Triboelectric Series chart shows the relative positive or negative charge of various materials.



Consequences

Three types of problems can result from static electricity:

- Apparition of electric arcs, which can damage the electronic circuits,
- Dust attraction, which can lead to unwanted defaults after parts painting or cause hygiene and cleanliness problems,
- And attraction or repulsion of other materials, which can cause, for instance, printing problems due to the repulsion of the ink or labeling problems due to the unwanted repulsion or attraction of the paper when being positioned.



How is it eliminated?

Different methods are used:

- The voltage of the part will be equal to 0V. However in certain cases, in order to avoid any sudden discharge, which could lead to electric arcs, in order to avoid any sudden discharge, which could lead to electric arcs, it is necessary to use dissipative material with a controlled conductivity.

Otherwise use an ionizer:

- The ionizer will send positive and negative ions to be combined with the positive and negative charges on the targeted surface. The ions are created thanks to the corona discharge principle. The static electricity elimination is made without any contact.

Realize ionizing and clean control from your fingertips to your toes. VESSEL's line-up of a reliable and wide range of anti-static products.

Fan Type	Nozzle Type	Gun Type	Bar Type	Ion Parts Cleaner	EPA Working Mat	Clean Walker	Options
<p>Mount on a cell workbench, parts stock shelf, or belt conveyor. Switch the fan speed for neutralization in the close or far distance.</p> <p><Mini> F-6BF-E →P6</p> <p><Mini> F-6RCL-E F-6RST-E →P6</p> <p><Standard> F120R-E F120S-E →P7</p> <p><Wide width> CF-300-E →P8</p> <p>CF-600-E →P8</p> <p>L-90-E →P9</p>	<p>Assemble into manufacturing devices for pinpoint neutralization and dust-elimination within cramped spaces. Just replace the nozzle to use for various applications (N-1, N-3).</p> <p>N-1 N-3 →P12</p> <p><High Power Series> HPN-1 →P33</p> <p>HPF-1 →P34</p> <p><High Power Series> HPG-1 →P35</p>	<p>Ideal for air cleaning and neutralization of parts after having received and before assembling them. Also good for resin molded parts before painting them.</p> <p>G7R-E →P14</p> <p>G-2-E →P15</p> <p>G-9 →P16</p> <p><High Power Series> HPG-1 →P35</p>	<p>Suitable for neutralization in clean rooms, and for prevention of static electricity on films moving at high speeds.</p> <p><Built-in power supply> C-series →P19</p> <p>SL-series →P21</p> <p><High Power Series> HPB-series →P36</p>	<p>Air cleaning in non-static area. Scattered dust is collected by a dust collector. Our Ion Parts Cleaner maintains the clean environment.</p> <p><Gel Dust Collection Type> IPC-A4 IPC-A3 →P24</p> <p>IPC-250CR →P25</p> <p><Vertical Type> IPC-V4 →P26</p>	<p>ESD control mats for use in areas where parts are handled, assembled, repaired and tested.</p> <p>Conductive Rubber Mat →P28</p> <p><Wrist Strap> EPS-05 →P28</p> <p><Grounding Kit> EPS-GK →P28</p> <p><Conductive Anti-Fatigue Mat> AF-45 AF-90 →P29</p> <p><Surface resistance checker> SRC-01 →P29</p> <p><Electrostatic Field Meter> Eye-02 →P30</p>	<p>Adhesive mat placed before a clean room, collects dust off soles of work shoes. Non-peeling, washable type.</p> <p><Clean Walker> CW-900B →P32</p>	<p>Options and replacement parts.</p> <p>Needle Electrode Unit Needle Electrode Unit</p> <p>AC Adapter Filter</p> <p>Standard Nozzle Branch Box</p> <p>Brush Needle Electrode</p> <p>Speed Controller Silent Nozzle</p> <p>Adhesive Gel Sheet</p>

→P05

→P11
High Power Series P33

→P13
High Power Series P35

→P17
High Power Series P36

→P23

→P27

→P31

→P37

Measurement Conditions

Ion balance : 300 mm from the front of the device at maximum airflow setting (As of ionizing gun and nozzle, measured at 150mm from the front)
Decay time : 300 mm from the front of the device at maximum airflow setting
(Decay time from ±1000V to ±100V)(Charged plate monitor: 150 mm x 150 mm square, 20 pF)
Noise level : 1 m from the front of the device at maximum airflow setting

※Measurement values given in this catalog are typical values from a sample unit, and do not guarantee the performance.

Fan Type



F-6BF-E
Exquisite wind for secure ion transfer without scattering dust.
Decay time 8.0 sec. or less



F-6RCL-E/F-6RST-E
Compact. Can install in any location. Pinpoint neutralization.
Decay time 3.0 sec. or less



F120R-E
Butterfly louver realizes high-speed neutralization.
Decay time 1.5 sec. or less



F120S-E
Low airflow model not disturbing the work environment.
Decay time 2.5 sec. or less



CF-300-E
Wide area neutralization. Easy cleaning of the discharge needles.
Decay time 1.5 sec. or less



CF-600-E
Wide area neutralization. Slim & 600mm wide space-saving model.
Decay time 1.5 sec. or less



L-90-E
Versatile neutralization by combination of the louvers, wide or straight.
Decay time 1.5 sec. or less

Why is VESSEL's fan type our customer's top choice?

1

High neutralization performance through efficient ion generation

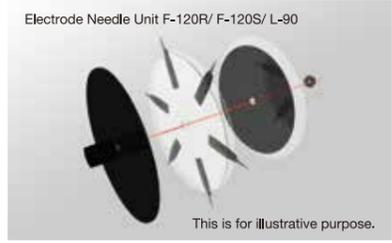
The high frequency piezoelectric transformer generates large volumes of ions, and eliminates losses caused by recoupling ions.



2

Advanced control technology with steady ion balance

The capacity coupling type discharge needle ensures a stable ion balance, and prevents static destruction of the semiconductor.



3

Improved maintainability by the louver type cover with the discharge needles integrated

Easy to detach the cover. Can clean the discharge needles in other area, not causing contamination in the work environment.



Ionizing Mini Fan with Stand

Exquisite wind for secure ion transfer without scattering dust.

F-6BF-E

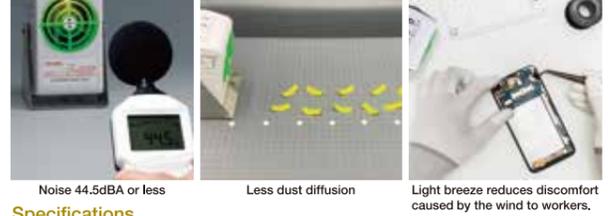


Low Noise Fan

Code No. 621677

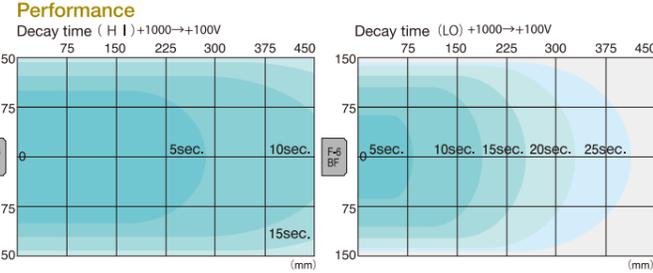
High Voltage Transformer	Ion balance	Decay time	Directive
Coiled, AC	within ±10 V	8.0 sec. or less	CE
Input voltage 24VDC	Fan Speed 2 steps	LED illumination	AC adapter 100~240V included
			Needle electrode unit replacement
			ALARM FAN LOCKUP
			ALARM H.V.

- ▶ Compact and lightweight.
- ▶ Easy to detach the louver.
- ▶ Confirm operation status and needle tip contamination with built-in light.



Specifications

Model No.	F-6BF-E
Ionizing method/Applied voltage	High frequency AC corona discharge / 3.5kVAC
Input voltage/Current consumption	24VDC±5% / 180mA (typ.)
Ion balance	within ±10V (150mm at front)
Decay time	HI: 8.0 sec. or less (300mm at front) / LO: 17.3 sec. or less (250mm at front)
Operating distance	150~300mm
Dimensions	H131 x W77 x D81mm (not including the stand)
Weight	360g (not including the stand)
Fan speed	HI : 0.36m/s / LO : 0.19m/s
Noise level	HI : 44.5dBA / LO : 40dBA
Ozone production	0.05ppm or less(50mm)
Operating temp./ humidity	5~40°C / 35~65% RH (no dew condensation or freezing)
Accessories	AC adapter AD24-ITF6-E, AC input cable 1.8m



Accessories



Ionizing Mini Fan with Clip

Clip type for attachment to a workbench or a desk support.

F-6RCL-E



Low Noise Fan

Code No.621663

Ionizing Mini Fan with Stand

Compact. Install anywhere for pinpoint neutralization.

F-6RST-E

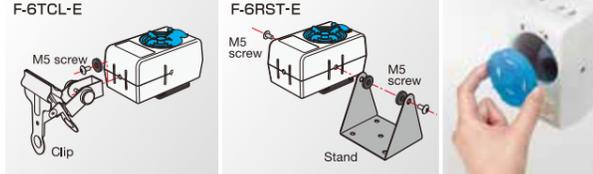


Low Noise Fan

Code No.621662

High Voltage Transformer	Ion balance	Decay time	Directive
Coiled, AC	within ±10 V	3.0 sec. or less	CE
Input voltage 24VDC	Fan Speed 2 steps	LED illumination	AC adapter 100~240V included
			Needle electrode unit replacement
			ALARM FAN LOCKUP
			ALARM H.V.

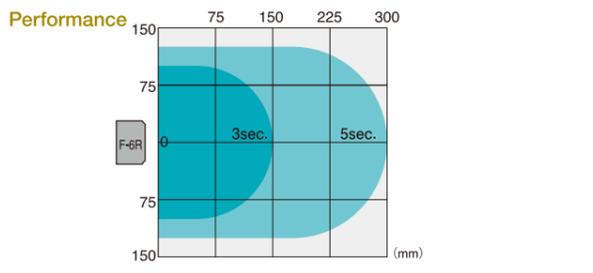
- ▶ Compact and lightweight.
- ▶ Easy to detach the louver.
- ▶ Confirm operation status and needle tip contamination with built-in light.



Can remove the clip when not needed. Can remove the stand when not needed. Easy to detach.

Common Specifications

Model No.	F-6RCL-E	F-6RST-E
Ionizing method/Applied voltage	High frequency AC corona discharge/ 3.5kVAC	
Input voltage/Current consumption	24VDC±5% / 210mA (typ.)	
Ion balance	within ±10V (150mm at front)	
Decay time	3.0 sec. or less (150mm at front)	
Operating distance	150~600mm	
Dimensions	H254 x W77xD108mm (Clip incl.)	H142 x W90xD81mm (Stand incl.)
Weight	524g	470g
Air volume	0.78m³/min(Max.)	
Noise level	HI 58.5dBA / LO 39.5dBA	
Ozone production	0.05ppm or less(50mm)	
Operating temp./ humidity	5~40°C / 35~65% RH (no dew condensation or freezing)	
Accessories	AC adapter AD24-ITF6-E, AC input cable 1.8m	



Accessories



Ionizing Fan

Butterfly louver, for neutralization in a wide area

F120R-E



Code No. 621651

High Voltage Transformer	Ion balance	Decay time	Directive
Piezoelectric, AC	within ± 10 V	1.5 sec. or less	CE

Input voltage 24VDC	Fan Speed HI/MD/LO	AC adapter 100-240V included	Electrode needle unit replacement	ALARM FAN LOCKUP	ALARM H.V.	External output terminal
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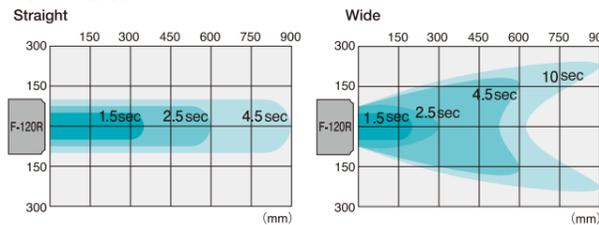
- ▶ Butterfly Louver. Press outer side to disperse air. Press around the center to let air go straight for quick neutralization.
- ▶ Apparent indication of operating status: 2-color LED illuminates red when errors or malfunction occurs.
- ▶ Easy maintenance. The needle electrode is set into the front cover.



Specifications

Model No.	F120R-E
Ionizing method/ Applied voltage	High-frequency AC corona discharge/ 10kVAC (p-p) (H/V power unit)
Input voltage/ Current consumption	24VDC $\pm 5\%$ / 700mA (max.)
Ion balance	within ± 10 V (at factory shipment, max. fan speed, straight, at 300mm)
Decay time	1.5 sec. or less (at factory shipment, max. fan speed, straight, at 300mm)
Operating distance	150 ~ 900 mm
Dimensions	H198×H162×D70mm(stand included)
Weight	0.9kg
Air volume	3.66m ³ /min (Max.)
Noise level	HI : 61dBA / LO : 55dBA
Ozone production	0.05ppm or less (50mm)
Operating temp./ humidity	5~40°C/ 35~65% RH (no dew condensation or freezing)
Accessories	AC adapter AD24-ITE, AC cable(1.8m)

Performance



Accessories



Ionizing Fan

Silent fan model with mild airflow

F120S-E



Code No. 621646

High Voltage Transformer	Ion balance	Decay time	Directive
Piezoelectric, AC	within ± 10 V	2.5 sec. or less	CE

Input voltage 24VDC	Fan Speed HI/MD/LO	AC adapter 100-240V included	Electrode needle unit replacement	ALARM FAN LOCKUP	ALARM H.V.	External output terminal
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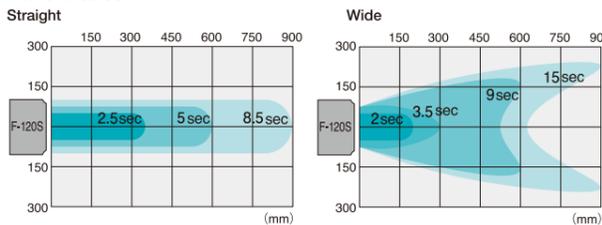
- ▶ Butterfly Louver. Press outer side to disperse air. Press around the center to let air go straight for quick neutralization.
- ▶ Apparent indication of operating status: 2-color LED illuminates red when errors or malfunction occurs.
- ▶ Easy maintenance. The needle electrode is set into the front cover.



Specifications

Model No.	F120S-E
Ionizing method/ Applied voltage	High-frequency AC corona discharge/ 10kVAC (p-p) (H/V power unit)
Input voltage/ Current consumption	24VDC $\pm 5\%$ / 500mA (max.)
Ion balance	within ± 10 V (at factory shipment, max. fan speed, straight, at 300mm)
Decay time	2.5 sec. or less (max. fan speed, straight, no filter, at 300mm)
Operating distance	150 ~ 900 mm
Dimensions	H198×H162×D70mm(stand included)
Weight	0.9kg
Air volume	2.21m ³ /min (Max.)
Noise level	HI : 51dBA / LO : 44dBA
Ozone production	0.05ppm or less (50mm)
Operating temp./ humidity	5~40°C/ 35~65% RH (no dew condensation or freezing)
Accessories	AC adapter AD24-ITE, AC cable(1.8m)

Performance



Accessories



Ionizing Cross-Flow Fan

Wide area neutralization Evenly, straight, and far

CF-300-E



Code No. 621657

High Voltage Transformer	Ion balance	Decay time	Directive
Coiled, AC	within ± 10 V	1.5 sec. or less	CE

Input voltage 24VDC	No-step airflow volume changeover	AC adapter 100-240V included	ALARM FAN LOCKUP	ALARM H.V.	External output terminal
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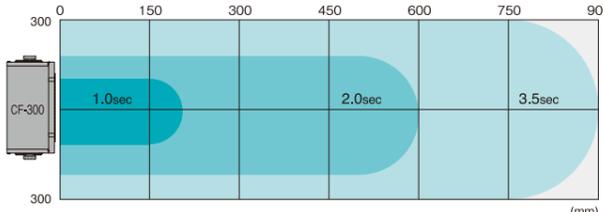
- ▶ Superior ionizing performance with a combination of a cross-flow fan for neutralization in a wide area and of a straight front cover.
- ▶ Easy maintenance of needle electrode with a brush that can be slid by a finger.



Specifications

Model No.	CF-300-E
Ionizing method/ Applied voltage	AC(20kHz) corona discharge / 9.2kVAC(p-p)
Input voltage/ Current consumption	24 VDC ripple (p-p) within $\pm 10\%$ / 500mA(max)
Ion balance	within ± 10 V (at factory shipment, at 300mm)
Decay time	1.5 sec. or less (300mm at front, max. fan speed)
Operating distance	150 ~ 900 mm
Dimensions	H157×W348×D165 mm
Weight	2.9 kg
Air volume	2.5m ³ /min (Max.)
Noise level	HI : 48dBA (at 1m)
Ozone production	0.05ppm or less (50mm)
Operating temp./ humidity	5~40°C/ 35~65% RH (no dew condensation or freezing)
Accessories	AC adapter AD24-ITE, AC cable(1.8m) Cleaning brush 1pc.

Performance



Accessories

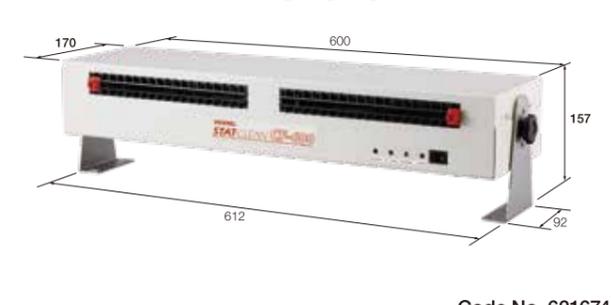


Options and replacement parts
⇒P.38

Ionizing Cross-Flow Fan

Slim and wide ionizer Very wide area neutralization

CF-600-E



Code No. 621674

High Voltage Transformer	Ion balance	Decay time
Coiled, AC	within ± 10 V	1.5 sec. or less

Input voltage 24VDC	No-step airflow volume changeover	AC adapter 100-240V included	ALARM FAN LOCKUP	ALARM H.V.	External output terminal
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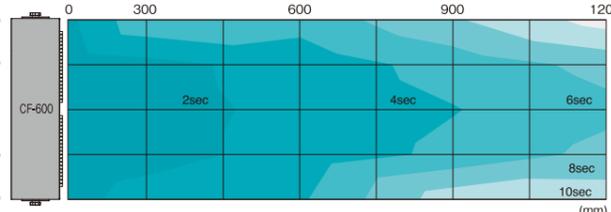
- ▶ Space-saving ionizer, slim and 600mm wide
- ▶ Superior ionizing performance with a combination of a cross-flow fan for neutralization in a wide area and of a straight front cover.
- ▶ Sliding cleaning brush is equipped



Specifications

Model No.	CF-600-E
Ionizing method/ Applied voltage	AC(20kHz) corona discharge / 9.2kVAC(p-p)
Input voltage/ Current consumption	24 VDC ripple (p-p) within $\pm 10\%$ / 900mA(max)
Ion balance	within ± 10 V (at factory shipment, at 300mm)
Decay time	1.5 sec. or less (300mm at front, max. airflow)
Operating distance	Approximately 150 ~ 900 mm
Dimensions	H157×W640×D170 mm
Weight	4.6 kg
Air volume	2.5m ³ (Max.)
Noise level	HI : 51.7dBA (at 1m)
Ozone production	0.05 ppm or less
Operating temp./ humidity	5~40°C/ 35~65% RH (no dew condensation or freezing)
Accessories	AC adapter, AC cable(1.8m), Cleaning brush 2pcs. (already mounted), Rubber washer 2pcs., Stand 2pcs., Angle adjustmet knob 2pcs.

Performance



Accessories



Options and replacement parts
⇒P.38

Overhead Ionizing Triple Fan

Versatile neutralization by combination of the louvers, wide or straight.

L-90-E



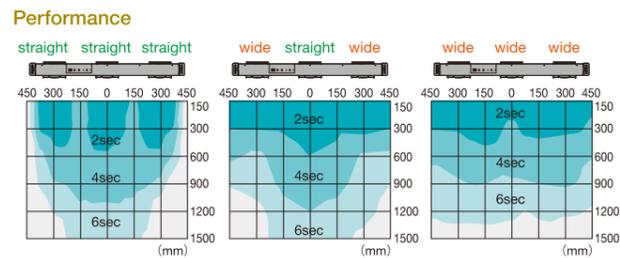
Code No. 621628

High Voltage Transformer	Ion balance	Decay time
Piezoelectric, AC	within ± 10 V	1.5 sec. or less
Input voltage	No-step fan speed changeover	AC adapter 100-240V included
24VDC		
Needle electrode unit replacement	ALARM FAN LOCKUP	ALARM H.V.
		External output terminal

- ▶ Butterfly louver is equipped on each fan. Press outer side to disperse air and around the center to let air go straight for quick neutralization.
- ▶ Capacitive-coupled needles ensure stable and long-lasting ionizing performance.
- ▶ Easy maintenance: needle electrode is integrated to the front cover.



Specifications	
Model No.	L-90-E
Ionizing method/ Applied voltage	High-frequency AC corona discharge/ 9.5kVAC(p-p) (H/V power unit)
Input voltage/ Current consumption	24 VDC $\pm 5\%$ / 3.0A(max)
Ion balance	within ± 10 V (at factory shipment, at 300mm)
Decay time	1.5 sec. or less (at 150mm)
Operating distance	150 ~ 900 mm
Dimensions	H182xW814xD91 mm (with stand: H201xW880xD91 mm)
Weight	5.7kg
Air volume	7.1m ³ /min (a total of 3 fans) (max. fan speed)
Noise level	HI : 75.4dBA, LO : 71.9dBA (at 1m)
Ozone production	0.05 ppm or less (at 50mm)
Operating temp./ humidity	5-40°C / 35-65% RH (no dew condensation or freezing)
Accessories	AC adapter, AD24-IT37E, AC cable(1.8m)



Accessories
 AC Adapter
AD24-IT37E I/P : 100-240VAC 1.5A
 Code No.806139 O/P : 24VDC 3.75A

VESSEL ionizers for a variety of applications.



Inspection process



Dust prevention on molded parts



Wide conveyor



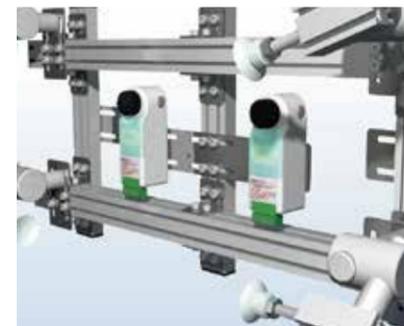
Cell production table



Bottle cleaning



Vibratory bowl feeder (joint nozzle + shower tube)



Robots for molded parts



Removal of fluid spills in filling lines



Using with flexible shaft



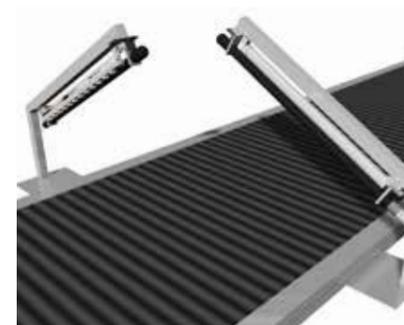
Moveal in a bottle



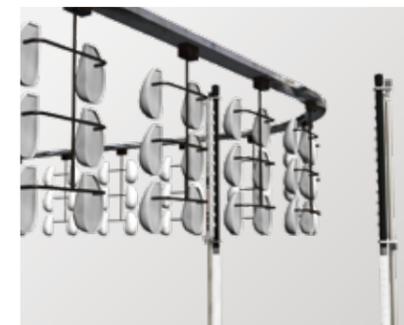
Check the small points with LED Beam Light.



Static electricity removal of resin parts



Over a belt conveyor



Injection molded plastic objects



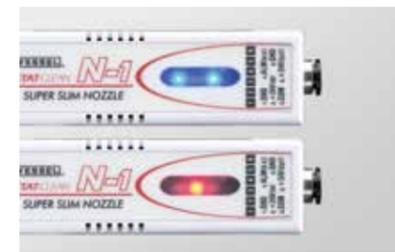
Packing process of food containers

Why is VESSEL's nozzle type our customer's top choice?

1

LED indicators clearly indicate the operating status

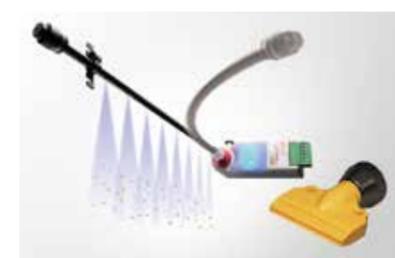
The bright LED lamps show the operating state even when installing in dark systems.



2

Diverse lineup of optional nozzles support various applications

Use the Silent Nozzle, reducing the exhausting noise.



3

Daisy-chain wiring. Safe because the high voltage cables stay inside the product.

Power can be supplied to multiple units by the daisy-chain wiring. 24 VDC wiring enhances safe connection.



Nozzle Type



N-1
Ultra-compact slim ionizing nozzle

Decay time 1.0 sec. or less



N-3
Interchangeable nozzles for a versatile application

Decay time 1.0 sec. or less



HPN-1 →P33
Good for highly charged products. Suitable for an automated production line.

Decay time 0.5 sec. or less



HPF-1 →P34
Good for highly charged products. Flexible nozzle angle adjustment.

Decay time 1.0 sec. or less

Super Slim Ionizing Nozzle

Super Compact Slim Body.

N-1



Code No. 621639

High Voltage Transformer	Ion balance	Decay time				
Piezoelectric, AC	within ±10 V	1.0 sec. or less				
Input voltage	Air pressure	AC Adapter (Option)	Screw-type needle electrode	"ON" lamp	ALARM H.V.	External output terminal
24VDC	max.0.6MPa	(Option)				

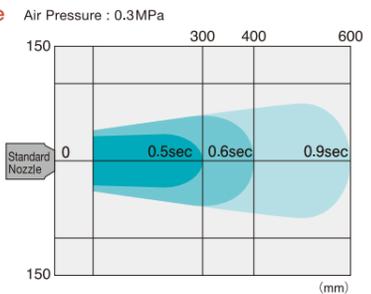
- ▶ Super slim and compact design enabling to be installed at any place for any direction. 27.5mmx28mm.
- ▶ Equipped with 6-pole terminals enabling high voltage alarm signal output as well as 24VDC daisy-chain wiring.



Specifications

Model No.	N-1
Ionizing method/ Applied voltage	High frequency AC corona discharge /5kVAC(p-p)
Input voltage/ Current consumption	24VDC±5%, ripple(p-p) 10% or less/ 100mA
Ion balance	within ±10V (w/standard nozzle, 0.3MPa, at 150mm)
Decay time	1.0 sec or less (0.3MPa, at 150mm)
Operating distance	50 ~ 600 mm
Dimensions	L109.6xW27.5xH28 mm
Weight	62g (with standard nozzle mounted)
Air supply house diameter	Tube fitting O/D6mm
Operating fluid	Clean dry air (0.1 ~ 0.6MPa), N ₂ (0.1 ~ 0.6MPa)
Air consumption	160L/min (with standard nozzle mounted, 0.2MPa)
Noise	94.2dBA (0.3MPa)
Ozone production	0.05ppm or less (50mm)
Operating temp./ humidity	5~40°C/35~65% RH(no dew condensation or freezing)
Accessories	Standard nozzle (already mounted)

Performance

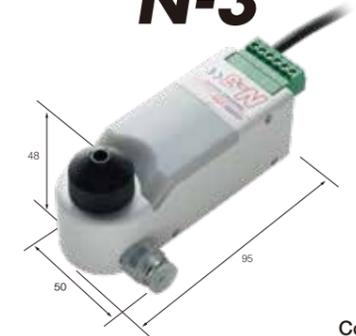


Options and replacement parts
⇒P.37

Pinpoint Ionizing Nozzle

Featuring an LED indicator that communicates the device's operating status at a glance

N-3



Code No. 621654

High Voltage Transformer	Ion balance	Decay time	Directive			
Coiled, AC	within ±10 V	1.0 sec. or less	CE			
Input voltage	Air pressure	AC Adapter (Option)	Screw-type needle electrode	"ON" lamp	ALARM H.V.	External output terminal
24VDC	max.0.6MPa	(Option)				

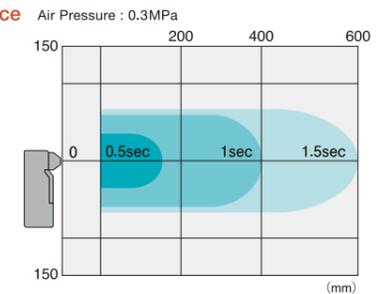
- ▶ Easy to wire with connector terminals.
- ▶ Diverse nozzles support various applications.



Specifications

Model No.	N-3
Ionizing method/ Applied voltage	High frequency AC corona discharge / 5.6kVAC(p-p)
Input voltage/ Current consumption	24VDC±5%/90mA(max.)
Ion balance	within ±10V (w/standard nozzle, 0.3MPa, at 150mm)
Decay time	1.0 sec or less (0.3MPa, at 150mm)
Operating distance	50 ~ 600 mm
Dimensions	L95xW50xH48 mm
Weight	104g
Air supply house diameter	Tube fitting O/D6mm
Operating fluid	Clean dry air (0.1 ~ 0.6MPa), N ₂ (0.1 ~ 0.6MPa)
Air consumption	210L/min (with standard nozzle mounted, 0.3MPa)
Noise	99.4dBA (0.3MPa)
Ozone production	0.05ppm or less (50mm)
Operating temp./ humidity	5~40°C/35~65% RH(no dew condensation or freezing)
Accessories	Standard nozzle (already mounted), Power supply harness

Performance



Options and replacement parts
⇒P.37

Gun Type

G7R-E
Compact and lightweight
High discharge air blow ionizer
Decay time 1.0 sec. or less

G-2-E
Practicable handy ionizer
with flexible cable installation
Decay time 0.8 sec. or less

G-9
Self Power Generating
Ionizing Gun
Decay time 1.0 sec. or less

HPG-1 →P35
Good for Highly Charged Products
Easy handling large trigger model
Decay time 0.5 sec. or less

Why is VESSEL's gun type our customer's top choice?

1

The bright LED lamp makes dust visible

Use the LED lamp to check dust that has adhered on the workpiece.



2

Piezoelectric transformer enhances safety with no need to expose high-voltage cables

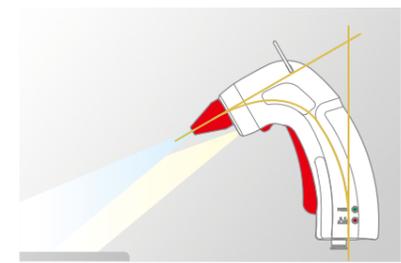
The high-voltage cable is not exposed, so there's no need to worry about current leaks or electric shock caused by wire breakage.



3

Ergonomically designed grip is easy to hold and adjusted to the optimum angle

The nozzle direction faces the optimum direction when the grip is held, allowing work to be started right away.



Ionizing Gun

Our most popular ionizing air gun is compact, lightweight and user-friendly

G7R-E



Code No. 621621

High Voltage Transformer	Ion balance	Decay time	Directive
Piezoelectric, AC	within ±10 V	1.0 sec. or less	CE

Input voltage	Air Pressure	LED Illumination	AC adapter	Screw-type needle electrode	"ON" lamp	ALARM H.V.
24VDC	max 0.6MPa	included	100-240V included	included	included	included

- ▶ Bright white LED lamp makes dust visible.
- ▶ Ideal for neutralization and dust elimination from precision parts, for example, at hand in a cell production.
- ▶ Diverse options support various applications.



Attach a brush to blow out dust

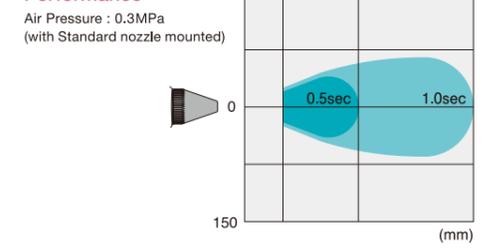


Operating and malfunction alarm LEDs on both sides of the grip

Specifications

Model No.	G7R-E
Ionizing method/ Applied voltage	High frequency AC corona discharge / 6.0kVAC(p-p)
Input voltage/ Current consumption	24VDC±5%/74mA(typ. LED lamp:ON)
Ion balance	within ±10V(at factory shipment, input air pressure 0.3MPa, at 150mm)
Decay time	1.0 sec or less (0.3MPa, at 150mm)
Operating distance	50 ~ 300 mm (Installation: indoor, non-hazardous area)
Dimensions	H150xW36xD102mm
Weight	198g
Air supply house diameter	Tube fitting O/D6mm
Operating fluid	Clean dry air (0.1 ~ 0.6MPa)
Air consumption	180L/min (0.3MPa)
Noise	92dBA (0.3MPa)
Ozone production	0.05ppm or less (50mm)
Operating temp./ humidity	5~40°C/35-65% RH(no dew condensation or freezing)
Accessories	AC adapter AD24-ITC-E, AC cable (1.8m), Standard Nozzle (Already mounted)

Performance



Dust removal from plastic trays



Dust removal from substrates



Dust and static-electricity removal from mobile phone parts



Dust and static-electricity removal from bumpers



Accessories

AC Adapter
AD24-ITC-E
Code No. 806067
I/P : 100-240VAC 0.4A
O/P : 24VDC 0.75A

Options and replacement parts

⇒P.37

Ionizing Gun

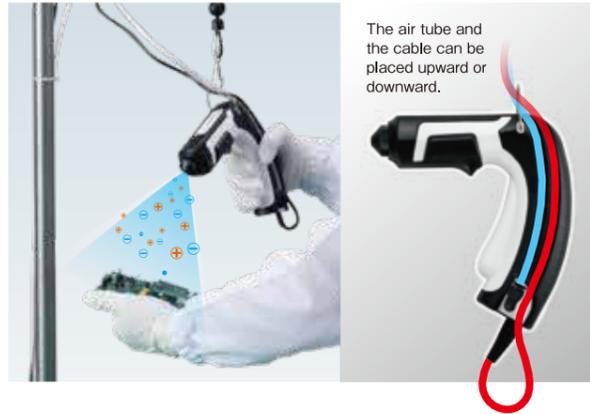
Improved workability with the cables in the grooves on the grip

G-2-E



Code No. 621659

Use by hanging above cell production benches



The air tube and the cable can be placed upward or downward.

Removal of static electricity from plastic trays



High Voltage Transformer	Ion balance	Decay time	Directive
Piezoelectric, AC	within ±10 V	0.8 sec. or less	CE

Input voltage 24VDC	Air Pressure max 0.6MPa	AC adapter 100~240V included	Screw-type needle electrode	"ON" lamp	ALARM H.V.
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- ▶ Can change the piping and cable direction according to the application. Does not get in the way of work on the cell production bench.
- ▶ Remove the cap, and it is easy to clean the needle.



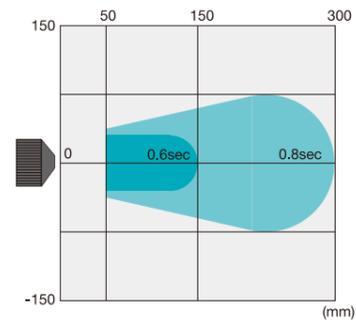
Powerful blow of ionized air through the dedicated nozzle. Can fit the cable in the groove on the grip lateral side.

Specifications

Model No.	G-2-E
Ionizing method/ Applied voltage	High-frequency AC corona discharge / 4.5kVAC(p-p)
Input voltage/ Current consumption	24VDC±5%/100mA(typ.)
Ion balance	within ±10V
Decay time	1.0 sec or less (0.3MPa, at 150mm)
Operating distance	50 - 300 mm (Installation: indoor, non-hazardous area)
Dimensions	H157xW148xD44mm
Weight	260g
Air supply house diameter	Tube fitting O/D6mm
Operating fluid	Clean dry air (0.1 ~ 0.6MPa)
Air consumption	153L/min (0.3MPa)
Noise	94dBA (0.3MPa)
Ozone production	0.05ppm or less (50mm)
Operating temp./ humidity	5~40°C/35~65% RH(no dew condensation or freezing)
Accessories	AC adapter AD24-ITCS-E, AC cable(1.8m), Standard Nozzle (already mounted)

Performance

Air Pressure:0.3MPa



Accessories



AC Adapter
AD24-ITCS-E (Length 1.5m)
Code No. 806084
I/P : 100~240VAC 0.4A
O/P : 24VDC 0.75A

Pneu-Power Ion Gun

Innovative self-power generating ionizing gun.
No need for electric wiring

G-9



Code No. 621670

High Voltage Transformer	Ion balance	Decay time	Directive
Coiled, AC	within ±30V	1 sec. or less	CE

Air Pressure max 0.6MPa	Screw-type needle electrode	Adjustment lamp	Regulator
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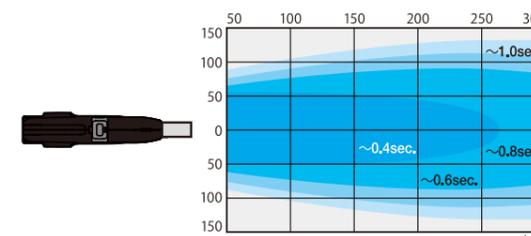
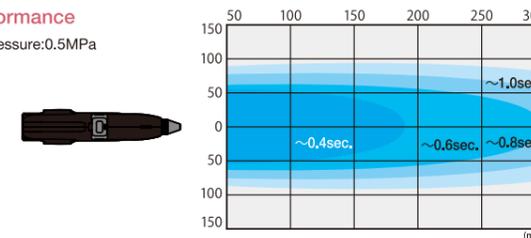
- ▶ The motor is rotated by an air turbine to generate power for ion production.
- ▶ No AC adapter or high-voltage wiring is required; all that is needed is to connect an air hose, and it is ready to use.
- ▶ High Flow Nozzle is included in the package. For blowing work that requires more airflow or for work over a wide area.

Specifications

Model No.	G-9
Ionizing method/Applied voltage	High-frequency AC corona discharge / 8kVAC(p-p)
Ion balance	within ±30V
Decay Time	1sec. or less ±100V→±100V (0.5MPa, 200L/min, at 150mm)
Operating distance	50~300mm(distance between the charged product and the tip of the G-9)
Air connection	Φ8mm with one-touch joint
Operating fluid	Clean dry air / 0.4 ~ 0.6MPa (rated 0.5MPa)
Dimensions	W 232.5mm × H 191mm × W 50.6mm
Weight	Approx. 470g
Air consumption	200L/min (0.5MPa)
Noise	Approx. 74.6dBA (Standard nozzle, 0.5MPa, 210L/min, at 1m) Approx. 87.3dBA (G-9HFN, 0.5MPa, 210L/min, at 1m)
Operating temp./humidity	0~45°C/10~90% RH (no dew condensation or freezing)
Accessories	High flow nozzle, Instruction manual

Performance

Air Pressure:0.5MPa



Air turbine rotates the motor, and this generates the power for ion generation.



High Flow Nozzle (enclosed)
By using this new nozzle, blowing performance is dramatically improved!



Options

- Silent Nozzle G-9WN** Code No. 806151
- Straight Silent Nozzle BB-ZSN** Code No. 621708
- Plug with Urethane Tube G-9UTP** Code No. 806148 Hose: Φ8xΦ5mm Length : 3m
- High Flow Nozzle G-9HFN** Code No. 806154

Why is VESSEL's bar type our customer's top choice?

Bar Type



C-series

Compact and clean design
Super-high speed ionizer

Ion balance within $\pm 30V$
(at 1000mm)



SL-series

For highly charged or
fast moving products



HPB-series →P36

Good for Highly Charged Products
Optimum for installation in a cramped space

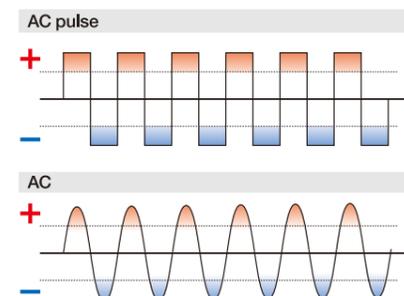
Decay time 2.0 sec. or less

1

High Speed Static Electricity Removal

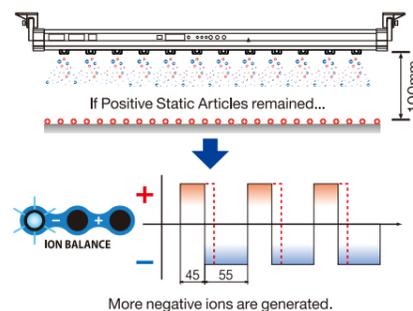
AC pulse method

Generating alternately positive ions and negative ions from each electrode. Since ions are generated at the maximum width of each positive and negative electrode cycle, the ion volume is high and static electricity can be removed quickly.



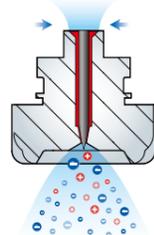
Auto Balance Mode

The C series are equipped with a mode to optimally adjust the ion balance automatically according to the polarity of the charged matter. (Target distance: 50 to 100 mm)



Air purge function

With air purged toward the needle electrode tip. This not only prevents contamination at the tip of the electrode needle, but also carries the generated ions quickly to the charged object and removes static electricity.



2

Usability

Easy maintenance design

One-touch needle replacement. A socket type needle can be easily replaced.



Clean design

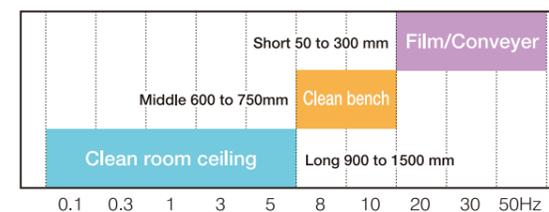
Needle cleaning time notified

The cleaning interval of the needles can be set by a unit of day from 1 to 60 days. When the time elapses, the needle cleaning alarm lamp lights up.
※C-90 and longer sizes

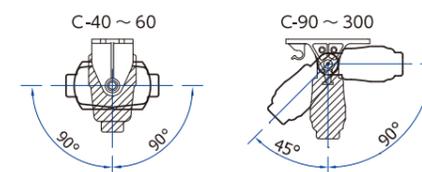


Frequency

Change the frequency according to the distance to the object to be neutralized, for elimination of static electricity.



Angle adjustment

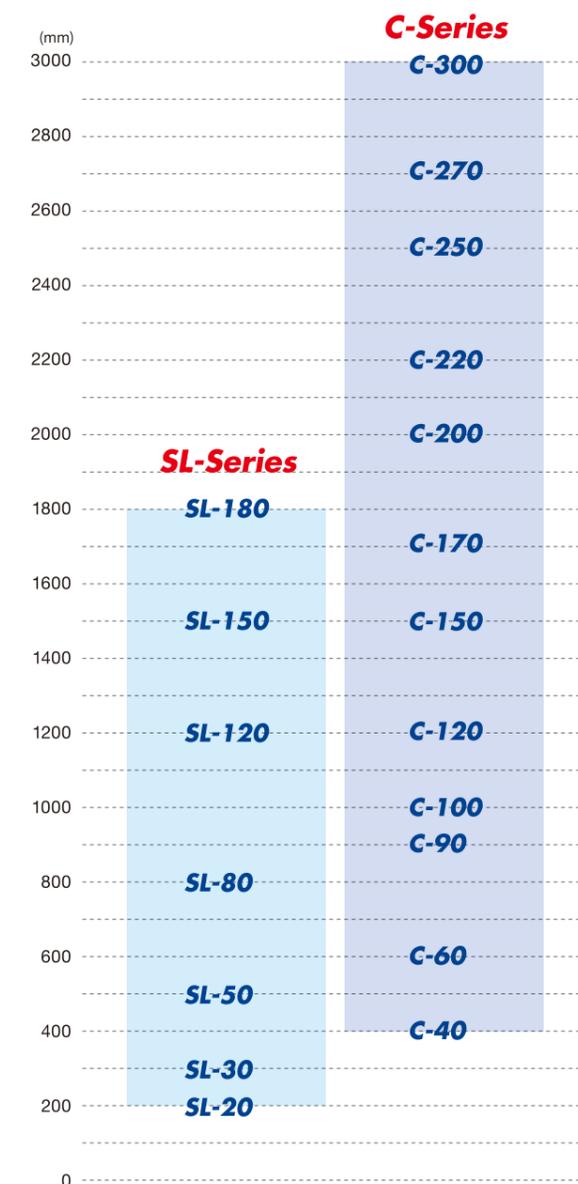


3

Line-up at a glance

Sizes to match various working environments

Ionizing bars are available in a variety of sizes for assembly into small electronic part manufacturing systems to neutralization of large workpieces such as film and liquid crystal glass.



AC Pulse Ionizing Clean Bar

Clean & Compact.
Newly designed high-precision and high-speed ionizer applying a new technology

C-series



- C-40** Code No.621857 **C-170** Code No.621855
- C-60** Code No.621858 **C-200** Code No.621856
- C-90** Code No.621851 **C-220** Code No.621859
- C-100** Code No.621852 **C-250** Code No.621860
- C-120** Code No.621853 **C-270** Code No.621861
- C-150** Code No.621854 **C-300** Code No.621862

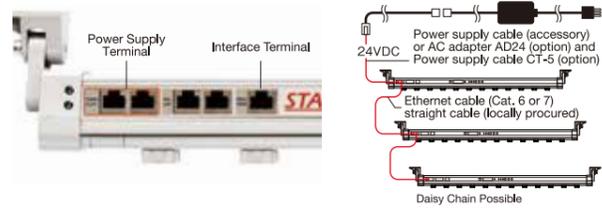
Common Specifications

Model No.	C-40~C-300
Ionizing method/Applied voltage	Pulse AC Corona discharge / 8~12.5kVAC (p-p)
Frequency	0.1~50Hz(C-40/60: 10 steps, C-90 or longer types: 13 steps)
Pulse ratio	Positive side 40~70%, adjustable in 0.1% increment
Input voltage(Current consumption)	24VDC±5% (C-40/60: max.7.8W, C-90 or longer types: max.14.4W)
Ion balance	within ±30V (at 1000mm)
Decay time	See below
Operating distance	50~2000mm
HxWxDmm	See the table on the right
Weight	See the table on the right
Air joint	PT1/8 (I/D 6mm or larger recommended)
Operating fluid	Clean dry air or N2 (0.3MPa or less) (0.2MPa or less for intermittent supply)
Ozone production	0.05ppm or less (50mm)
Operating temp./humidity	0~50°C / 35~85% RH (no dew condensation or freezing)
Accessories	Remote controller (Except C-40/60), Power cable 10m, Signal cable 10m (C-40/60 only), End bracket (Already mounted), Middle bracket (Only some models. See the right page.)

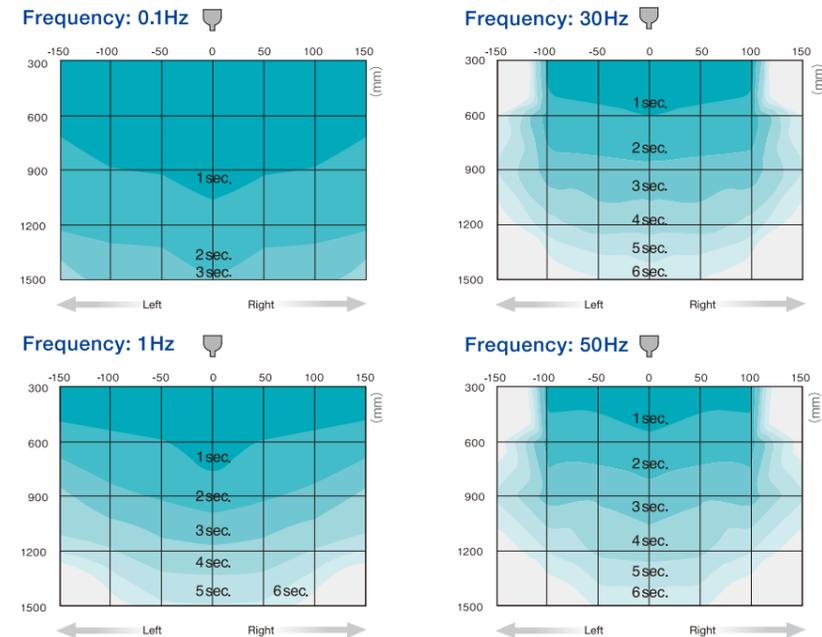
*Silicon discharge needles also available. For more detail please contact us.

High Voltage Transformer	Ion balance	Directive
Pulse AC	within ±30V (at 1000mm)	CE
Input voltage 24VDC	Air Pressure max. 0.3MPa	LCD Display
Needle electrode unit replaceable	Adjustable Ion Balance	Needle Cleaning Timer (1 to 60 days)※
ALARM H.V.	External output LAN Terminal	※ except C-40, C-60

- ▶ Ultra high speed discharge ports of ionized air are newly designed.
- ▶ Auto Balance Mode (Target distance: 50~100mm) ※ Except C-40, C-60
- ▶ Terminals are grouped on one side, enabling a daisy-chain connection.



Performance Measurement conditions •Product : C-150 •Voltage : 10.5kV(P-06 N-06) •Air pressure : 0.3MPa
•Decay time : ±1000V→±100V



Options

Adapter specification

AC Adapter
AD24-IT
Code No. 806051

AC Adapter
AD24-ITE
Code No. 806135

I / P : 100~240VAC 0.4A
O / P : 24VDC 0.75A
Operation : One bar

AC Adapter
AD24-IT19
Code No. 806081

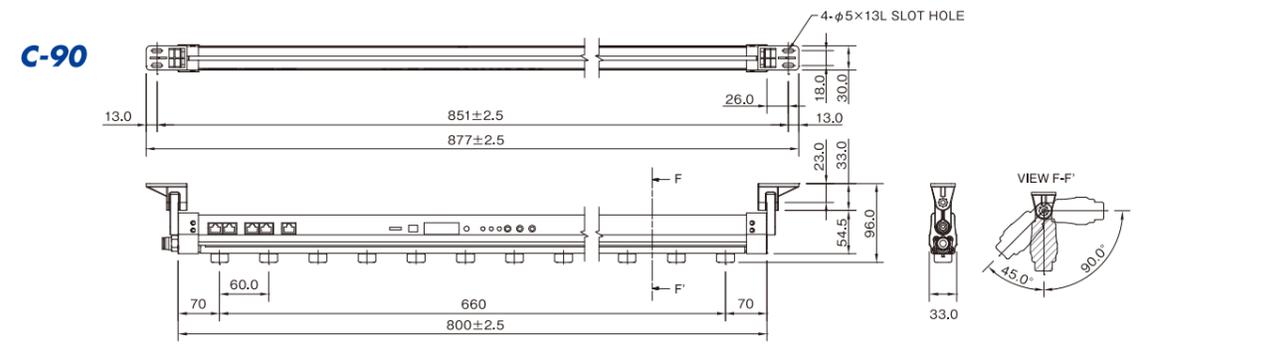
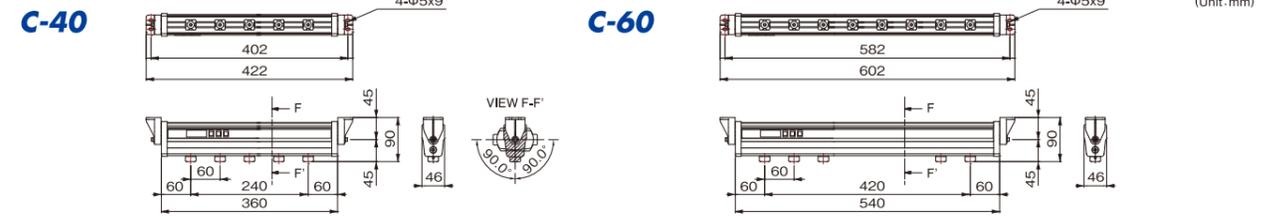
AC Adapter
AD24-IT19E
Code No. 806137

I / P : 100~240VAC 1.2A
O / P : 24VDC 1.9A
Operation : Up to 3 bars
(Please consult us for more detail)

Power Supply Cable (5m)
For AC adapter
CT-5
Code No. 621709

※When using AC adapter, Power Supply Cable (CT-5) is necessary.

Remote Control
RMC-01
Code No. 806104



C-100, 120, 150, 170, 200, 220, 250, 270, 300

Dimension / Needle Electrode / Middle Bracket

Model.No	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	Needle Electrode	Middle Bracket	Weight (kg)
C-40	240	360	402	422	60	5 pcs.	—	0.78
C-60	420	540	582	602	60	8 pcs.	—	1.08
C-90	660	800	851	877	70	12 pcs.	—	0.9
C-100	900	1001	1052	1078	50.5	16 pcs.	1 pc.	1.0
C-120	1140	1241	1292	1318	50.5	20 pcs.	1 pc.	1.2
C-150	1380	1481	1532	1558	50.5	24 pcs.	1 pc.	1.4
C-170	1620	1721	1772	1798	50.5	28 pcs.	2 pcs.	1.6
C-200	1860	1961	2012	2038	50.5	32 pcs.	2 pcs.	1.8
C-220	2100	2201	2252	2278	50.5	36 pcs.	2 pcs.	2.3
C-250	2340	2441	2492	2518	50.5	40 pcs.	3 pcs.	2.6
C-270	2580	2681	2732	2758	50.5	44 pcs.	3 pcs.	2.8
C-300	2820	2921	2972	2998	50.5	48 pcs.	3 pcs.	3.1

Pulse Ratio

The ion balance can be adjusted by changing the pulse ratio.

Voltage Level

The applied voltage can be changed (common). The one for the positive side and the negative side can be changed respectively (except C-40/60). The amount of ions varies by different output (10 steps: 8.0~12.5kVP-p).

Address

When using multiple units, an address allocation setting (1 to 16) is available to identify each ionizing bar. (except C-40/60)

Voltage level	1	2	3	4	5	6	7	8	9	10
Positive voltage (kV)	4	4.25	4.5	4.75	5	5.25	5.5	5.75	6	6.25
Negative voltage (kV)	4	4.25	4.5	4.75	5	5.25	5.5	5.75	6	6.25
kV p-p	8	8.5	9	9.5	10	10.5	11	11.5	12	12.5

Ion Parts Cleaner



IPC-A4

Ideal A4 size for cell workbenches



IPC-A3

Ideal A3 size for cell workbenches



IPC-250CR

New concept of neutralization



IPC-V4

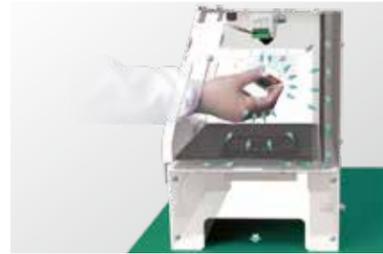
Foot-installed type
Static eliminator / Dust collector

Why is VESSEL's ion parts cleaner our customer's top choice?

1

Neutralization and dust elimination inside hoods

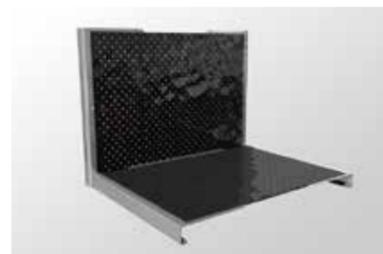
Dust adhered with static electricity is neutralized inside the ionized hood and eliminated with automatic powerful air blow.



2

Collect dust with self-adhesive urethane gel

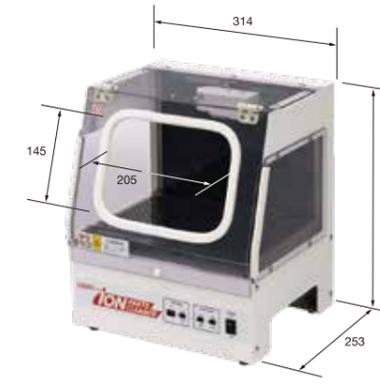
The adhesive surface of the urethane gel mat enables to catch dust blown away by the ionized air inside the booth. The washable gel sheet can be used repeatedly (IPC-A4/IPC-A3/IPC-V4)



Ion Parts Cleaner

A4 size is ideal for capturing dust with adhesive urethane gel at cell workbench

IPC-A4



Code No.621610

Sensor Diffused reflection type	Air blow Continuous/ Pulse	Off timer 1 to 30 sec. (5 steps)
Applied voltage 24VDC	Air Pressure max 0.6MPa	Ionizer N-3x1pc
AC adapter 100~240V included	Airflow adjustment	Gel sheet + fan filter
Integrated hood/dust collector		

- ▶ Since a dust collector is not needed, the current consumption is greatly reduced.
- ▶ Built-in ionizing nozzle emits air for removal of dust and static electricity in either continuous or pulse mode.
- ▶ Urethane gel sheet can be washed for repeated use.

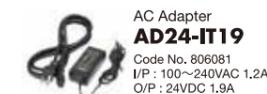


Self Adhesive GEL collects dust.

Specifications

Model No.	IPC-A4
Ionizing method/Applied voltage	High voltage AC corona discharge/ 5.6kVAC(p-p)
Input voltage	24VDC ±5%
Current consumption	700mA or less
Dust collection airflow	3.5 m³/min (Built-in fan)
Static pressure	105Pa (Built-in fan)
Dust collection filter	Self-adhesive polyurethane gel sheets and non-woven fabric filter
Dimensions	H361×W314×D253mm
Weight	6kg
Air supply house diameter	Tube fitting O/D8mm
Air consumption	147L/min(0.3MPa, Continuous mode)
Operating fluid	Clean dry air (0.1 ~ 0.6MPa)
Ozone production	0.05ppm or less(50mm)
Operating temp./ humidity	5~40°C / 35~65% RH (no dew condensation or freezing)
Accessories	Adhesive gel sheet plate (2 pcs.)(Already mounted), Non-woven simplified filter (Already mounted)/ AC adapter AD24-IT19

Accessories



Adapter specification

- AD24-IT19E is available on request.

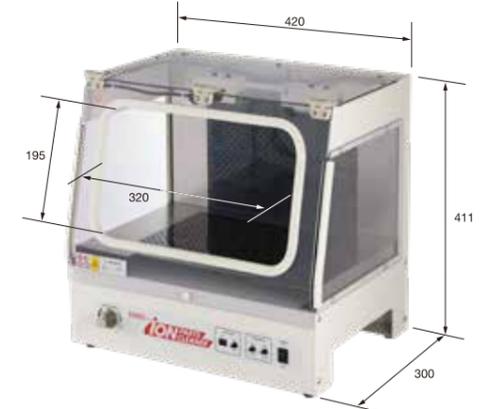
Options and replacement parts

⇒P.37

Ion Parts Cleaner

A3 size is ideal for capturing dust with adhesive urethane gel at cell workbench

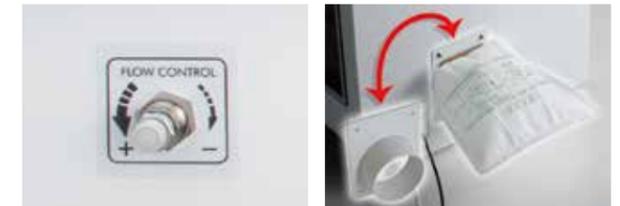
IPC-A3



Code No.621612

Sensor Diffused reflection type	Air blow Continuous/ Pulse	Off timer 1 to 30 sec. (5 steps)
Applied voltage 24VDC	Air Pressure max 0.5MPa	Ionizer N-3x2pcs
AC adapter 100~240V included	Airflow adjustment	Gel sheet + fan filter
Integrated hood/dust collector		

- ▶ Since a dust collector is not needed, the current consumption is greatly reduced.
- ▶ Built-in ionizing nozzle emits air for removal of dust and static electricity in either continuous or pulse mode.
- ▶ Either paper pack filter or duct can be attached.



Regulator Built-in

Specifications

Model No.	IPC-A3
Ionizing method/Applied voltage	High voltage AC corona discharge/ 5.6kVAC(p-p)
Input voltage	24VDC ±5%
Rated current	1.31A
Dust collection airflow	1.13 m³/min (Built-in fan)
Static pressure	460Pa (Built-in fan)
Dust collection filter	Self-adhesive polyurethane gel sheets and paper pack filter
Dimensions	H411×W420×D300mm
Weight	9.5kg
Air supply house diameter	Tube fitting O/D10mm
Air consumption	265L/min(0.3MPa, Continuous mode)
Operating fluid	Clean dry air (0.1 ~ 0.5MPa)
Ozone production	0.05ppm or less(50mm)
Operating temp./ humidity	5~40°C / 35~65% RH (no dew condensation or freezing)
Accessories	AC adapter AD24-IT19, Adhesive gel sheet plate (Already mounted) x 2 pcs., Duct flange (for φ75mm), Paper pack filter (6 pcs.)

Accessories



Adapter specification

- AD24-IT19E is available on request.

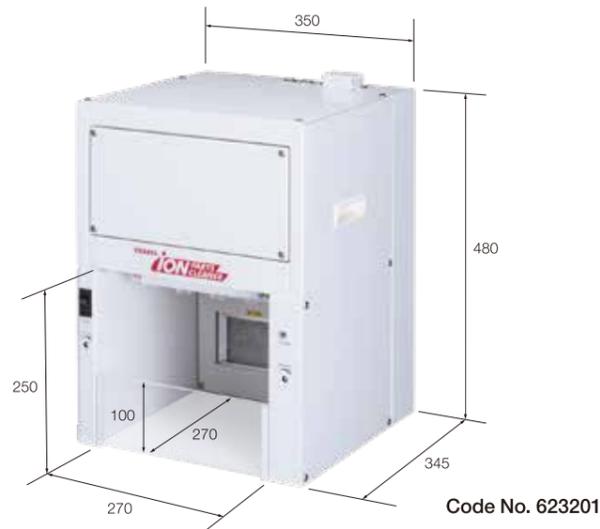
Options and replacement parts

⇒P.37

Ion Parts Cleaner

Effective ion cleaning with HEPA filter and built-in ionizer

IPC-250CR



Code No. 623201

Air blow
Continuous

- Applied voltage 24V DC
- DC type ionizer
- AC adapter 100~240V (Option)
- Air discharge port
- Air volume regulator built-in
- HEPA filter

- ▶ Built-in HEPA filter emits clean air that removed 99.97% of particles 0.3µm and larger.
- ▶ Compressed air is not needed.
- Air circulation system does not exhaust air to the outside of the machine.



Built-in HEPA filter unit. Replaceable.

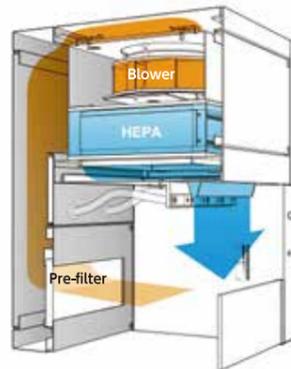
Specifications

Model No.	IPC-250CR
Ionizing method/Applied voltage	DC corona discharge / +6 kV, -3 ~ -7 kV
Input voltage	24V DC ±5%
Current consumption	4.5 A max. (except inrush)
Air volume	Max.1.5m³/min. (blower output value, provided that the built-in filter is not clogged)
Fan speed	Max.25m/sec. (blower output value, provided that the built-in filter is not clogged)
Dust collection filter	HEPA filter
Dimensions	H515 x W350 x D345 mm
Weight	Approx. 22kg
Noise	74 dBA (Maximum air flow, no clogging of built-in filter or deterioration of blower)
Operating temp./ humidity	5~ 40°C 35 ~ 65% RH (no dew condensation or freezing)
Accessories	Warning/caution label sticker

The generated ions are blown off downward with the air through the wide air discharge port.



Air circulation type, with no exhausted air.



Option

Adapter specification



AC Adapter
AD24-150-PD4
● EDP No.806146
I/P : 100V to 240 V AC, 50/60 Hz
O/P : 24V DC 5A

Options and replacement parts

⇒P.38

Ion Parts Cleaner

Dust Box Type Ion Cleaner
Small footprint design saves the desk space

IPC-V4



Code No. 621611

Sensor	Air blow	Off timer
Diffused reflection type	Continuous/pulse blow selection	1 to 30 sec. (5 steps)
Applied voltage 24VDC	Air Pressure max 0.6MPa	Ionizer N-3x1 pc
	AC adapter 100~240V included	Gel sheet + fan filter
		Integrated hood/dust collector

- ▶ Insert the charged item through the opening at the top, and the ion air is automatically blown out.
- ▶ The transparent hood makes the internal side look bright to see well contamination.
- ▶ Adhesive gel sheet increases efficiency in dust collection.
- ▶ Compact design for easy installation/relocation of the machine.

Specifications

Model No.	IPC-V4
Ionizing method/ Applied voltage	High voltage AC corona discharge (No.N-3 ionizer)/5.6kVAC p-p
Input voltage	24VDC±5% (when using the enclosed power adapter 100~240VAC, 50/60Hz)
Power Consumption	18W
Dust collection speed	1.13 m³/min (Built-in fan)
Static pressure	460 Pa (Built-in fan)
Dimensions	W200 x D289 x 297mm (without protrusions)
Weight	3.8 kg
Air joint	Tube fitting O/D8mm
Operating fluid	Clean dry air (0.1~0.3MPa)
Air consumption	161L/min (0.3MPa, Continuous mode)
Noise	88.3 dBA (0.3MPa, at 600mm)
Ozone production	0.05 ppm or less (50mm)
Operating temp./ humidity	5~40°C/ 35~65% RH (no dew condensation or freezing)
Accessories	AC adapter AD24-IT19 or AD24-IT19E, Adhesive gel sheet for internal wall side (w/magnet sheet) IPC-V4GB (already mounted), Adhesive gel sheet plate for bottom side, Paper pack filter (6pcs.) IPC-A3F, 2P-3P conversion adapter, Tilt adjustment spacer (2pcs.), Instruction manual (IPC-V4, N-3)



Less dust reattachment

Place the machine between the legs or between 2 workers to share.



Small footprint design saves the desk space.

Accessories



AC Adapter
AD-24-IT19
Code No. 806081
I/P : 100~240VAC 1.2A
O/P : 24VDC 1.9A

Adapter specification

- ... AD24-IT19E is available on request.

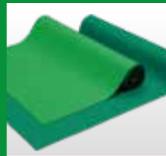


Tilt adjustment spacer (2 pcs.)

Options and replacement parts

⇒P.38

EPA Products



Mat

Ideal for workbenches needing static-erasing measures



Wrist Strap

For ESD measures



Grounding Kit

For ESD mats



Anti-Fatigue Mat

Alleviate fatigue caused by standing for a long time



Surface Resistance Checker

Easy checking of surface resistance on floor or mat



Electrostatic Field Meter

Essential item for static electricity measurement
Visualize the static charge and discharge state

Why is VESSEL's EPA Working Mat our customer's top choice?

1

Creating an optimum EPA environment from a working table, a floor, to a human body with one-stop solution.

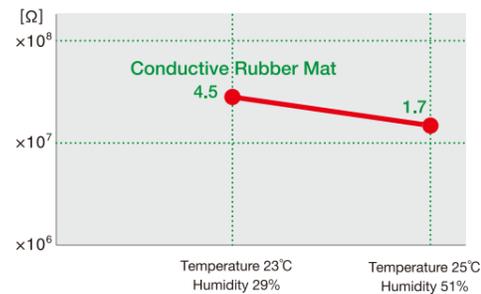
Our IEC61340-5-1 compliant products include the ESD protection items, the EPA working mats for workbenches, storage shelves, or trolleys, the EPA floor material for vinyl or painted floors, and the anti-static wrist straps.



2

Stable conductivity performance

Conductivity rates fluctuate frequently according to changes in humidity in the working environments. VESSEL's conductive rubber mats realize a "conductive performance" that complies with strict criteria.



3

RoHS

Environmental Measures

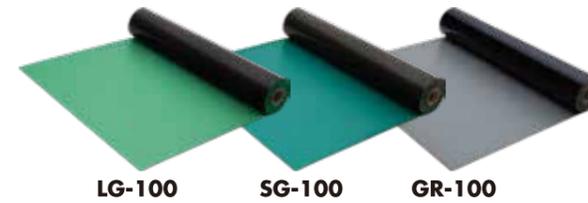
Pb (lead) / Cd (cadmium) / Hg (mercury) / Hexavalent chromium / PBB (polybrominated biphenyl) / PBDE (polybrominated diphenyl ether) / DEHP, BBP, DBP, DIBP (phthalate esters)

The products with this mark in this catalogue are compliant with the RoHS directives (EU) (usage limit of the above 10 substances).

Note: For the updated information on RoHS compliant products, visit our homepage, because some products or sizes are under investigation or are not compliant at the time of publication of this catalogue.

EPA Working Mat · Conductive Rubber Mat

Controlling electroconductivity between 10⁶Ω and 10⁷Ω, unsusceptible to the working environment. Ideal for workbenches requiring anti-static measures.



RoHS

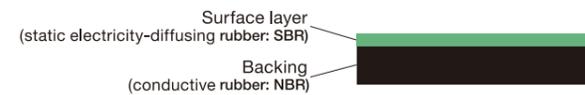
10m ROLL
LG-100 Code No. 621464
SG-100 Code No. 621461
GR-100 Code No. 621490



Applications	Conductivity	Material	Directive
Work benches	10 ⁶ ≤ R ≤ 10 ⁷ Ω	NBR+SBR	EPA RoHS

- Offers uniform, consistent conductive performance.
- Features a matte surface finish, reducing reflections and preventing eye fatigue.
- Heat resistant to solder drops.

Structure



Common Specifications

Model No.	LG-100	SG-100	GR-100
Color	Light green	Green	Gray
Size	W1.0m×L10m×t2.0m		
Conductivity	10 ⁶ ≤ R ≤ 10 ⁷ Ω		
Weight	29kg/roll		
Material	NBR+SBR		

Grounding Cord

Connect to mat-connecting gel with a single touch

EPC-18



Code No. 621393

Model No.	EPC-18
Cord length	Max.1.8m (0.5m when shrunken)
Resistance value	1MΩ
Accessories	Alligator clip

Wrist strap

Anti-Static Wrist Strap (10pcs/box)

EPS-05



RoHS

Code No. 621471

- Anti-static product, complying with JIS C 61340-4-6: 2016
- Contractile band with rubber woven, adjustable to the wrist
- Ground cord with 1M ohm current-limiting resistor

Specifications

Model No.	EPS-05	
Weight	38g per piece, including alligator clip	
Band length	Approx.190mm	
Resistance	Approx. 1MΩ between the body and the ground cord	
Contents	Wrist strap, Ground cord, Alligator clip, Instruction manual	
Box size	H140xW115xD140mm(10pcs./ box)	

Replacement

Wrist Strap Cord	Weight	24g including alligator clip
No.EPS-05-C	Embedded resistor	Approx.1MΩ
Code No. 621472	Cord length	Max.2.5m (0.72m when shrunken)

ESD Mat Grounding Kit

From the floor or mat to the working bench, provides an optimal EPA environment

EPS-GK



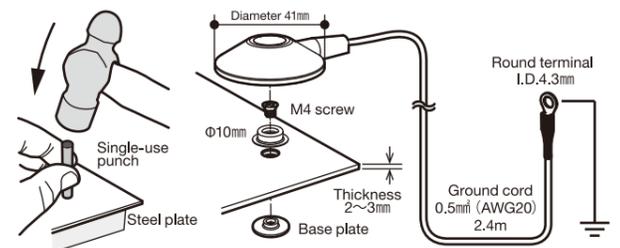
RoHS

- Grounding kit for a conductive rubber mat.

Code No. 621484

Specifications

Model No.	EPS-GK	
Ground cord	Approx.240cm (with crimp terminal)	
Weight	45g	
Resistance	1MΩ between the body and the crimp terminal of the ground cord	
Contents	Ground cord with snap, Snap hardware/ Screw, Single-use punch, Instruction manual	

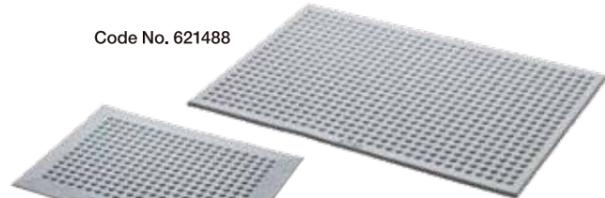


Conductive Anti-Fatigue Mat

Alleviate Fatigue caused by standing for a long time

AF-90/ AF-45

Code No. 621488



Space-saving type good for a cell production table

Code No. 621489



RoHS

Applications	Conductivity	Material	Directive
For floor	$R_p \leq 10^9 \Omega$	NBR	EPA RoHS

- ▶ Conductive mat for fatigue alleviation from long standing work.
- ▶ Non-slip mat with embossments on the surface.
- ▶ Air pockets on the reverse side for spreading the body weight to alleviate fatigue.
- ▶ Light gray mat for easy detection of dirt, which may cause the conductive failure.
- ▶ 900mm x 600mm convenient size for the working stand for cell production.
- ▶ Space-saving 600x477mm good for one person. (AF-45)
- ▶ Inclined marginal area prevents workers from stumbling or falling. (AF-45)



Fall Prevention
The inclined marginal area prevents workers from stumbling or falling. (AF-45 only)

AF-45 sectional view

Comfortable and which make you feel like jumping up

Air pocket on the reverse side spread the body weight to alleviate fatigue.



Specifications

Model No.	AF-90	AF-45
Size	W900mm×L600mm×t15mm	W600mm×L447mm×t15mm
Color	Gray	Gray
Conductivity	$R \leq 1.0 \times 10^9 \Omega$	$R \leq 1.0 \times 10^9 \Omega$
Weight	4.2kg	2.0kg
Material	NBR	NBR

*Grounding wire is not included in the product.

Surface Resistance Checker

Easy measurement of surface resistance on a floor or mat

SRC-01



Code No. 621604

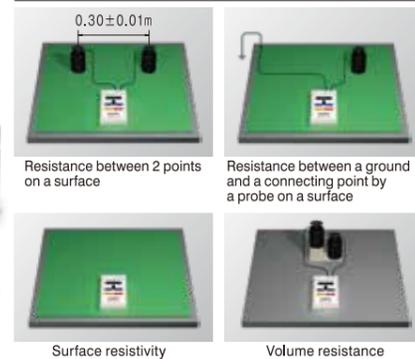
Measurement
4 types

- One 9V battery
- With probes
- With a carrying case
- Auto-off

- ▶ All necessary for 4 types of measurement in one package.
- ▶ This can also measure temperature and humidity. (The values are for reference)
- ▶ Applied voltage selector switch enables to measure either the range from $1.0 \times 10^3 \sim 10^5 \Omega$ or from $1.0 \times 10^6 \sim 10^{12} \Omega$.

4 types of measurement

With a carrying case
Useful to carry all necessary items for measurement



Specifications

Conformity standards	IEC61340-4-1, JIS-C2170
Measurement range	$10^3 \sim 10^{12} \Omega (\Omega/\text{sq})$
Applied voltage	10V ($R < 1.0 \times 10^6 \Omega$ or Ω/sq), 100V ($R \geq 1.0 \times 10^6 \Omega$ or Ω/sq)
Display	Triple-digit LCD (□.□□ e□□) ex.: 3.14 e10 → 3.14 × 10 ¹⁰
Power source	9 V battery x 1 (Type: 006P, recommended alkaline battery)
Dimensions	L190 × W101.5 × D54.7mm
Weight	Body: Approx. 340 g (including a battery); gross weight: Approx. 6.2 kg (including the carrying case)
Operating temp./ humidity	15 ~ 40°C / 60% RH or less
Material	Body case: ABS resin
Accessories	Probe (outer diameter: about $\Phi 66$ mm, about 2.3 kg): 2 Curled cord for a body earth (banana plugs at both ends): 1 Curled cord for measurement for the point-to-point resistance and resistance to ground (banana plug/mono plug): 2 Crocodile clip: 1, Large crocodile clip: 1, Stainless plate (142mm×67mm): 1 Carrying case: 1, 9 V battery (006P type: manganese dry battery): 1 Manuals

The calibration certificate can be issued (option).

Electrostatic Field Meter

Visualizing invisible static electricity
Peak hold supports long-time measurements

Eye-02



Code No. 621603

Measurement
Charge potential

Measurement
Ion balance

- ▶ Cross mark LED for easy adjustment of the best measurement distance.
- ▶ Displays the max value (peak value), and the temporal suspending value.
- ▶ Backlight, making the screen easy to read even in the dark.
- ▶ Mountable on a tripod.

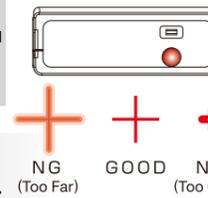


Charged Potential Measurement
Check anywhere with this handy tester.



Wide Display
The measured potential is displayed with a bar graph and values for quick confirmation

Red Cross-mark
Guide for 25mm measurement distance.



Specifications

Model No.	EYE-02
Charge potential measurement	$\pm 0 \sim \pm 1.50 \text{ kV}$ (LO range) / $\pm 1.0 \sim \pm 20.0 \text{ kV}$ (HI range)
Ion balance measurement	0 ~ $\pm 200 \text{ V}$
Response time	within 1sec
Accuracy	10% (Indicated value)
Power	9VDC (006P battery x 1pc)
Charged potential measurement distance	25mm±0.5mm
Dimensions	L123×W70×D25mm
Weight	170 g / ion balance measurement plate 30g
Operating temp./ humidity	0 ~ 50°C / 80% RH or less
Accessories	Ion balance measurement plate, Grounding cord, alligator clip, Soft case

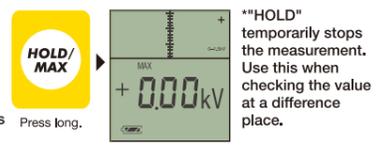
◆Complies with ISO 9000 traceability standards.

Calibration tables and certificates can be issued for this instrument. (Option)

Maximum (peak) value display

MAX

This function is efficient for measurement of the "charge of workpieces traveling at a high speed", in which the value changes rapidly, and also efficient for "continuous" measurement, in which changes are monitored over time.



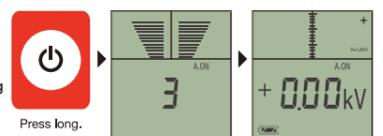
HOLD

**"HOLD" temporarily stops the measurement. Use this when checking the value at a difference place.

Automatic power OFF / continuous measurement

A.ON

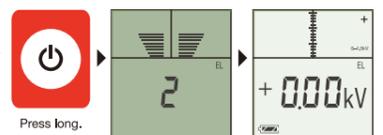
The power turns OFF in five minutes to save the battery (default). This automatic power OFF function can be disabled during "continuous" measurement.



Backlight

EL

Illuminate the display to see clearly even in a dark place. Hold down the power button to switch the modes (EL/A.ON).



Clean Walker



CW-900B
5mm thick
Capture dust off shoe soles

Why is VESSEL's Clean Walker our customer's top choice?

1

Non-peeling type adhesive mat

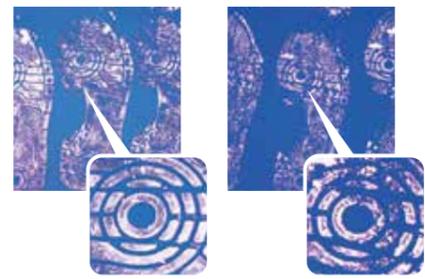
There's no need sacrifice cleanliness by limiting the number of sheets peeled to save costs.



2

Reliable dust removal

Self-adhesiveness of polyurethane resin is the key. The thick mat flexibly contacts against shoe treads and carefully catches dust between them.



Clean Walker Conventional peel-off mats

3

Wash & dry to restore adhesiveness

Wet the surface with water, alcohol or diluted household detergent, and the dirt will lift right up. Wash and dry the mat well to restore the original adhesiveness.



Clean Walker

High elasticity.
Outstanding dust collection performance

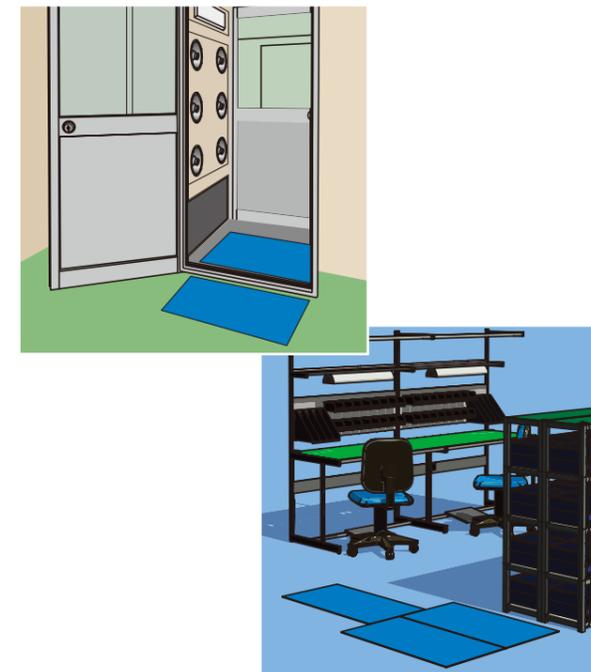
CW-900B



Code No. 621485

Applications	Material	Washable	Directive
For indoor use (especially in front of clean rooms)	Polyurethane	✓	RoHS

- ▶ The 5mm high elasticity mat.
- ▶ Powerfully catches dust from shoe soles.
- ▶ Collected dust can be easily wiped off with a wet cloth. (Wash with water containing alcohol or neutral detergent, if dust remains.)



Specifications

Model No.	CW-900B
Color	Blue
Size	W900mm×L500mm×t5mm
Conductivity	Insulator
Weight	2.4kg
Material	Polyurethane

High Power Ionizing Nozzle

Good for Highly Charged Products
Nozzle type ionizer suitable for installation in an automated production line

HPN-1



Code No. 623043



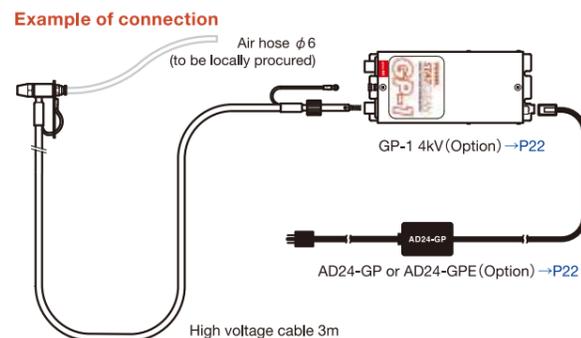
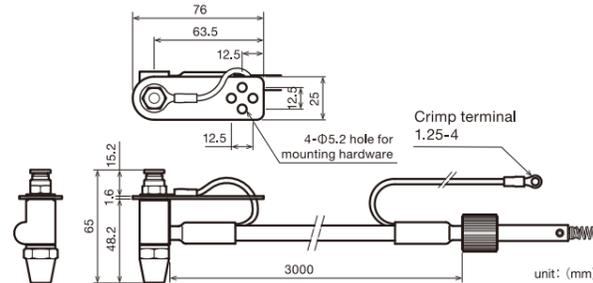
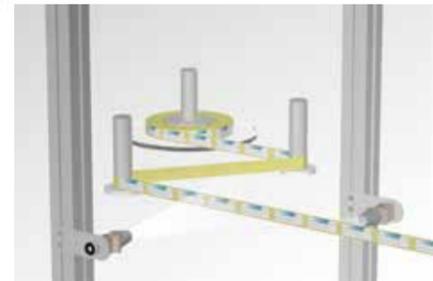
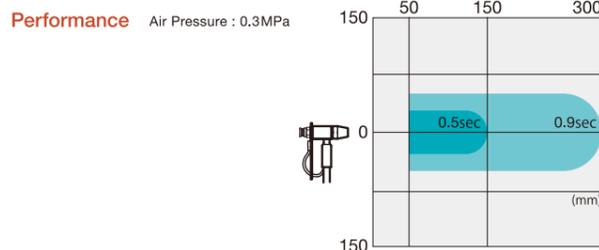
High Voltage Transformer	Ion balance	Decay time
Coiled, AC (GP-1)	Adjustable on the GP-1	0.5 sec. or less
Applied voltage 3.5kVAC	Air Pressure max 0.7MPa	GP-1 Option
	AC adapter Option	

- ▶ Titanium discharge needle (discharge electrode). Less-wearing titanium provides the long-term stable ionizing performance.
- ▶ The high voltage cable is shielded so that it is less affected by the external electrical noises.
- ▶ High speed ionizing performance with compressed air. Ultra-compact and light-weight model suitable for installation in equipment.

Specifications

Model No.	HPN-1
Applied high voltage	high voltage Power Supply Unit GP-1 4kV
Ionizing method	AC corona discharge (Structure: Direct-coupled *1)
Applied voltage / Frequency	3.5kVAC / 50/60Hz *2
Operating fluid / Input pressure	Clean air/Max.input pressure:0.7MPa *3
Operating temp./ humidity	0~45°C/10~90%RH(no dew condensation or freezing)
Installation distance	Approx.50~300mm (between the charged product and the nozzle tip of the ionizer)
Decay time	Approx. 0.5 sec. (Air pressure:0.3MPa, Distance:150mm)
Ion balance	Adjustable on GP-1 4kV *4
Installation place	Indoor
Protective circuit	High Voltage Power Supply GP-1 4kV has high voltage anomaly detection function and automatic stop circuit.
High voltage cable	3m (standard), silicon shielded cable *5 (High voltage connector CON-4)
Air connection	One-touch joint (Applicable tube O/D 6mm)
Weight	Approx.350g, including high pressure cable (3m), standard mounting hardware, and high pressure connector.
Noise	Approx. 95dBA (Air pressure:0.3MPa, Distance: 1m)
Air consumption	Approx. 100L/min (Air pressure:0.3MPa)
Accessories	High voltage warning sticker, Instruction manual

*1: Do not touch the electrode when applying current; otherwise it may bring electric shocks. *2: Use the high voltage power supply unit GP-1 4kV. *3: DO NOT SUPPLY AIR WITH MORE THAN THE DESIGNATED PRESSURE, BECAUSE OF SERIOUS RISK OF DAMAGE OR BREAKAGE ON THE BODY AND OTHER PARTS. *4: Charged plate monitor or an equivalent is required for ion balance adjustment. *5: The length of the cable can be customized. But the total length of the multiple high voltage cables with the GP-1 should be 9m or less.



High Power Ionizing Flexible Nozzle

Good for Highly Charged Products
Pin-point static electricity removal even in a place difficult for installation

HPF-1



Code No. 623048



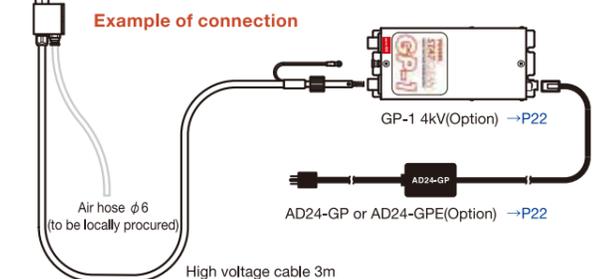
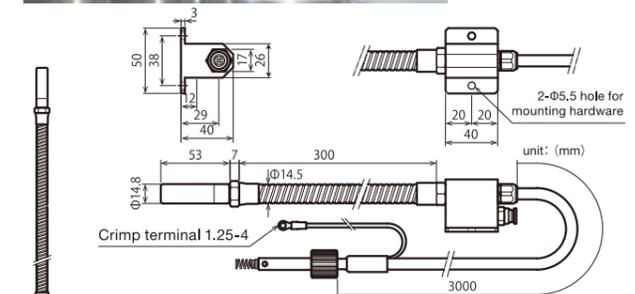
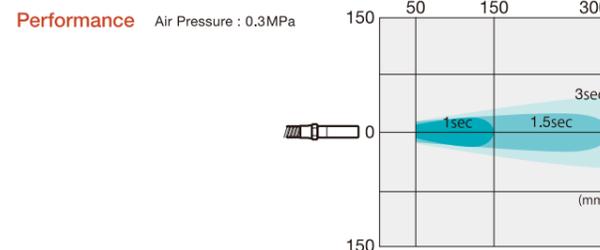
High Voltage Transformer	Ion balance	Decay time
Coiled, AC (GP-1)	Adjustable on the GP-1	1sec. or less
Applied voltage 3.5kVAC	Air Pressure max 0.4MPa	GP-1 Option
	AC adapter Option	

- ▶ Titanium discharge needle (discharge electrode). Less-wearing titanium provides the long-term stable ionizing performance.
- ▶ The high voltage cable is shielded so that it is less affected by the external electrical noises.
- ▶ Free angle adjustment and pin-point ionizing from a distant place. 300mm flexible tube enables to adjust the ion emission angle freely. It is possible to perform the pin-point neutralization on a charged product. * Fix the tip of the HPF-1 with a hardware or alike, so that it does not slip, when using it by bending approximately 30° or more. (Minimum bending radius: inside dimension radius 60mm)
- ▶ High speed ionizing performance with compressed air. Ultra-compact and light-weight model suitable for installation in equipment.

Specifications

Model No.	HPF-1
Applied high voltage	high voltage Power Supply Unit GP-1 4kV
Ionizing method	AC corona discharge (Structure: Direct-coupled *1)
Applied voltage / Frequency	3.5kVAC / 50/60Hz *2
Operating fluid / Input pressure	Clean air/Max.input pressure:0.4MPa *3
Operating temp./ humidity	0~45°C/10~80%RH(no dew condensation or freezing)
Installation distance	Approx.50~300mm (between the charged product and the nozzle tip of the ionizer)
Decay time	Approx.1sec. (Air pressure:0.3MPa, Distance:150mm)
Ion balance	Adjustable on GP-1 4kV *4
Installation place	Indoor
Protective circuit	High Voltage Power Supply GP-1 4kV has high voltage anomaly detection function and automatic stop circuit.
High voltage cable	3m (standard), silicon shielded cable *5 (High voltage connector CON-4)
Air connection	One-touch joint (Applicable tube O/D 6mm)
Weight	Approx.690g, including high pressure cable (3m), and high pressure connector.
Noise	Approx. 86dBA (Air pressure:0.3MPa, Distance: 1m)
Air consumption	Approx. 110L/min (Air pressure:0.3MPa)
Accessories	High voltage warning sticker, Instruction manual

*1: Do not touch the electrode when applying current; otherwise it may bring electric shocks. *2: Use the high voltage power supply unit GP-1 4kV. *3: DO NOT SUPPLY AIR WITH MORE THAN THE DESIGNATED PRESSURE, BECAUSE OF SERIOUS RISK OF DAMAGE OR BREAKAGE ON THE BODY AND OTHER PARTS. *4: Charged plate monitor or an equivalent is required for ion balance adjustment. *5: The length of the cable can be customized. But the total length of the multiple high voltage cables with the GP-1 should be 9m or less.



High Power Ionizing Gun

Good for Highly Charged Products

For neutralization of charged products or dust removal before painting

HPG-1



HPG-1 Code No. 623046
(High voltage cable 3m)

HPG-1-4.5M Code No. 623050
(High voltage cable 4.5m)

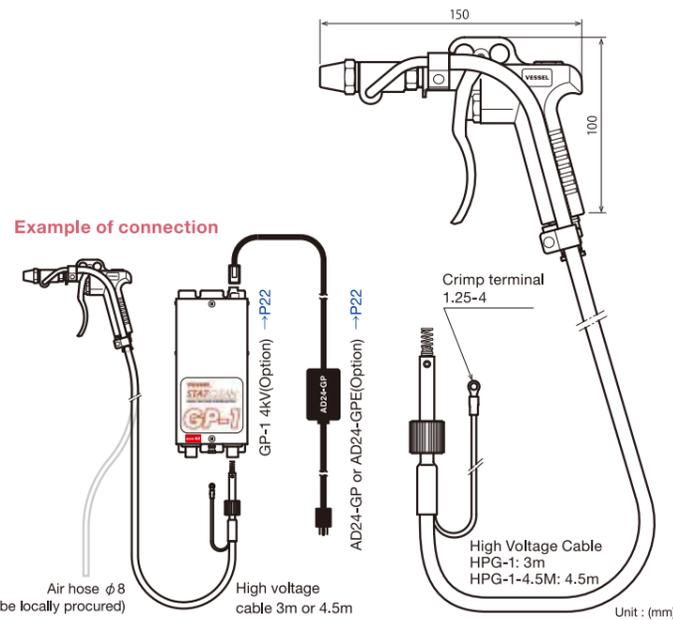
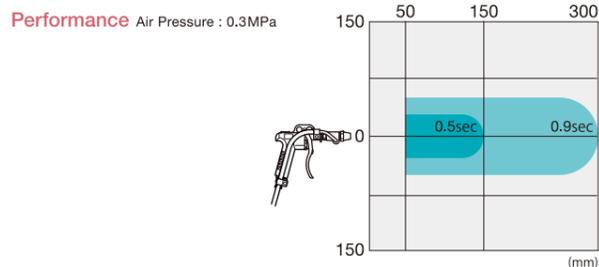
High Voltage Transformer	Ion balance	Decay time
Coiled, AC (GP-1)	Adjustable on the GP-1	0.5 sec. or less
Applied voltage 3.5kVAC	GP-1 Option	AC adapter Option
Air Pressure max 0.7MPa		

- ▶ Titanium discharge needle (discharge electrode). Less-wearing titanium provides the long-term stable ionizing performance.
- ▶ The high voltage cable is shielded so that it is less affected by the external electrical noises.
- ▶ Robust and easy handling ionizing gun. The body of the ionizing gun is made by robust aluminum die-casting. Easy handling large trigger for superior operability. Compact model for elimination of both static electricity and dust.

Specifications

Model No.	HPG-1
Applied high voltage	High voltage Power Supply Unit GP-1 4kV
Ionizing method	AC corona discharge (Structure: Direct-coupled *1)
Applied voltage / Frequency	3.5kVAC / 50/60Hz *2
Operating fluid / Input pressure	Clean air/Max.input pressure:0.7MPa *3
Operating temp./ humidity	0~+45°C/10~90%RH (no dew condensation or freezing)
Installation distance	Approx.50~300mm (between the charged product and the nozzle tip of the ionizer)
Decay time	Approx. 0.5 sec. (Air pressure:0.3MPa, Distance:150mm)
Ion balance	Adjustable on GP-1 4kV *4
Installation place	Indoor
Protective circuit	High Voltage Power Supply GP-1 4kV has high voltage anomaly detection function and automatic stop circuit.
High voltage cable	3m (standard), silicon shielded cable *5 (High voltage connector CON-4)
Air connection	One-touch joint (Applicable tube O/D 8mm)
Weight	Approx. 560g, including high voltage cable (3m) and high voltage connector.
Noise	Approx. 95dBA (Air pressure:0.3MPa, Distance: 1m)
Air consumption	Approx. 110L/min (Air pressure:0.3MPa)
Accessories	High voltage warning sticker, Air consent, Instruction manual

*1: Do not touch the electrode when applying current; otherwise it may bring electric shocks. *2: Use the high voltage power supply unit GP-1 4kV. *3: DO NOT SUPPLY AIR WITH MORE THAN THE DESIGNATED PRESSURE, BECAUSE OF SERIOUS RISK OF DAMAGE OR BREAKAGE ON THE BODY AND OTHER PARTS. *4: Charged plate monitor or an equivalent is required for ion balance adjustment. *5: The length of the cable can be customized. But the total length of the multiple high voltage cables with the GP-1 should be 9m or less.



High Power Ionizing Bar

Good for Highly Charged Products

Super slim model, designed for installation in a cramped space

HPB-series



- HPB-300** Code No. 623316
- HPB-600** Code No. 623336
- HPB-810** Code No. 623350
- HPB-1005** Code No. 623363
- HPB-1200** Code No. 623376
- HPB-1500** Code No. 623396
- HPB-1800** Code No. 623416



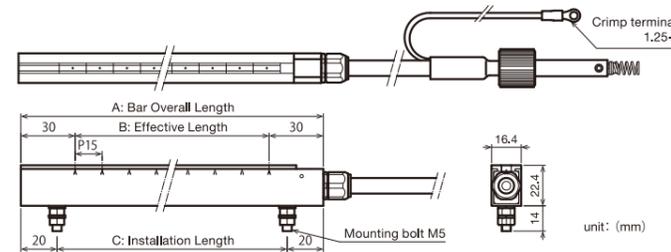
- ▶ Titanium discharge needle (discharge electrode). Less-wearing titanium provides the long-term stable ionizing performance. The needles are allocated every 15mm on the bar, allowing to generate many ions effectively. Optimum for a high speed film transfer application.
- ▶ The high voltage cable is shielded so that it is less affected by the external electrical noises.
- ▶ Super slim ionizing bar: 16.4x22.4mm (sectional dimensions). Suitable for a cramped space.
- ▶ Option: Air Assist Bar (Model No. AAB) can be used for more quick and farther dust removal and static elimination. The size can be customized in 15 mm increments of 75 mm or more in length according to the size of the HPB bar.

High Voltage Transformer	Ion balance	Decay time
Coiled, AC (GP-1)	Adjustable on the GP-1	2 sec. or less
Applied voltage 3.5kVAC	GP-1 Option	AC adapter Option

Specifications

Model No.	HPB-300/600/810/1005/1200/1500/1800
Applied high voltage	High Voltage Power Supply Unit GP-1 4kV
Ionizing method	Pulse AC corona discharge (Structure: Direct-coupled*1)
Applied voltage / Frequency	3.5 kVAC /50/60 Hz *2
Operating temp./ humidity	0~+45°C/10~85%RH(no dew condensation or freezing)
Installation distance	Approx.50~100mm (between the charged product and the nozzle tip of the ionizer)
Decay time	Approx. 2 secs. (No compressed air, Distance: 100mm)
Ion balance	Adjustable on GP-1 4kV *3
Installation place	Indoor
Protective circuit	High Voltage Power Supply GP-1 4kV has high voltage anomaly detection function and automatic stop circuit.
High voltage cable	3m (standard), silicon shielded cable*4 (High voltage connector CON-4)
Weight	See below (the weight of the cable is not included)
Accessories	Instruction manual, High voltage cable (already mounted), Mounting bolt M5 (already mounted)

*1: Do not touch the electrode when applying current; otherwise it may bring electric shocks. *2: Use the high voltage power supply unit GP-1 4kV. *3: Charged plate monitor or an equivalent is required for ion balance adjustment. *4: The length of the cable can be customized. But the total length of the multiple high voltage cables with the GP-1 should be 9m or less.

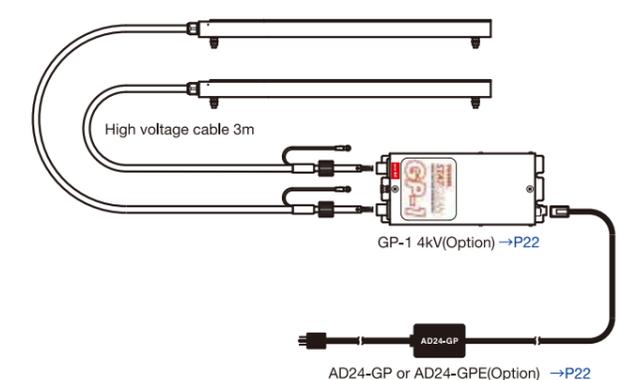


Dimensions/No. of Needle Electrode

Model No.	A (mm)	B (mm)	C (mm)	No. of needle electrode	Weight (kg)
HPB-300	300	240	260	17	0.16
HPB-600	600	540	560	37	0.32
HPB-810	810	750	770	51	0.44
HPB-1005	1005	945	965	64	0.54
HPB-1200	1200	1140	1160	77	0.65
HPB-1500	1500	1440	1460	97	0.81
HPB-1800	1800	1740	1760	117	0.97



Example of connection



Options and Replacement parts

Subject to change without prior notice

Adapter specification

Needle Electrode Unit / Front Cover

 F-6BFH Code No.806097 Use with: F-6BFE	 F-6H Code No.806094 Use with: F6RCLE, F6RST-E	 F-120RCH Code No.806129 Use with: F120R-E	 F-120SCH Code No.806128 Use with: F120S-E	 L-90CH Code No.806132 Use with: L-90-E
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Filter

 SDJ-08F Code No.806039 Use with: F6RCLE, F6RST-E	 F-120FS Code No.806123 Use with: F120R-E, F120S-E	 L-90F Code No.806133 Use with: L-90-E, F120R-E, F120S-E	 L-90FS Code No.806134 Use with: L-90-E	 CF-300F Code No.806141 Use with: CF-300/600
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AC Adapter

 AD24-ITF6 ● Code No.806095 AD24-ITF6E ● Code No.806138 Use with: F6RCLE, F6RST-E I / P : 100~240VAC 0.4A O / P : 24VDC 0.75A	 AD24-IT ● Code No.806051 AD24-ITE ● Code No.806135 Use with: F120R-E, F120S-E, CF-300 I / P : 100~240VAC 1.5A O / P : 24VDC 0.75A	 AD24-IT37 ● Code No.806131 AD24-IT37E ● Code No.806139 Use with: L-90-E I / P : 100~240VAC 1.5A O / P : 24VDC 3.75A	 AD24-IT19 ● Code No.806081 AD24-IT19E ● Code No.806137 Use with: CF-600 I / P : 100~240VAC 50/60Hz O / P : 24VDC 2.7A
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For Gun / Nozzle Type

 G-7SN Code No.806057 Use with: G7R-E	 G-7THN Code No.806063 Use with: G7R-E	 G-9HFN Code No.806154 Use with: G-9
 BB-ZSN Code No.621708 Use with: G7R-E, N-1, N-3, G2-E*, G-9* *When mounted, there is a gap between the option nozzle and the body due to the difference in the thread area length.	 G-9WN Code No.806151 Use with: G7R-E, N-1, N-3, G2-E*, G-9* *When mounted, there is a gap between the option nozzle and the body due to the difference in the thread area length.	 N-1SN Code No.806120 Use with: N-1, N-3, G2-E
 G-7B Code No.806059 Use with: G7R-E	 G-7SB Code No.806062 Use with: G7R-E	 G-9UTP Code No.806148 Use with: G-9
 G-9MC Code No.806147 Use with: G-9	 G-7DR Code No.806061 Use with: G7R-E, N-1, N-3, G2-E, G-9	 G-7SC Code No.621373 Use with: G7R-E, N-1, N-3, G2-E
 G-7F Code No.621702 Use with: G7R-E, N-1, N-3, G2-E Filter eliminates at least 99% of particles with a diameter of 0.01 μm or greater. Install a 1 μm to 10 μm air filter and mist separator on your air compressor before using this item.	 GN-H Code No.806124 Use with: G7R-E, N-1, N-3, G2-E, G-9	 AD24-ITC (2.5m) ● Code No.806060 AD24-ITC-E (2.5m) ● Code No.806067 Use with: G7R-E, G2-E I / P : 100~240VAC 0.4A O / P : 24VDC 0.75A
 AD24-ITCS (1.5m) ● Code No.806083 AD24-ITCS-E (1.5m) ● Code No.806084 Use with G2-E I / P : 100~240VAC 0.4A O / P : 24VDC 0.75A	 G-7EC5 Code No.621703 Use with: G7R-E (Should be used together with AD24-ITC or AD24-ITC-E)	 G-7EC10 Code No.621704 Relay cables are used to connect the G7R-E to its dedicated power supply transformer (AD24-ITC-E).

Adapter specification

For C-series

 C-00HR8 Code No.806150	 CT-5 Code No.621709 When using AC adapter, Power Supply Cable (CT-5) is necessary.	 RMC-01 Code No.806104
 AD24-IT ● Code No.806051 AD24-ITE ● Code No.806135 I / P : 100~240VAC 0.4A O / P : 24VDC 0.75A Operation : One bar	 AD24-IT19 ● Code No.806081 AD24-IT19E ● Code No.806137 I / P : 100~240VAC 1.2A O / P : 24VDC 1.9A Operation : Up to 3 bars (Please consult us for more detail)	

For SL-series

 SH-SP2 Code No.621552 (Connecting cable is required.)	 GP-EC2.5 Code No.623053	 GP-EC5 Code No.623054		
	 SL-EC2.5 Code No.621884	 SJ-EC5 Code No.623052		

For Ion Parts Cleaner

 IPC-A4F Code No.806092 Use with: IPC-A4	 IPC-A3F Code No.806126 Use with: IPC-A3	 IPC-A4G Code No.806091 Use with: IPC-A4, IPC-A3 (two sheets required per unit)	 GN-H Code No.806124 Use with: IPC-A4, IPC-A3
 AD24-IT19 ● Code No.806081 AD24-IT19E ● Code No.806137 Use with IPC-A4, IPC-A3 I / P : 100~240VAC 1.2A O / P : DC24V 1.9A	 IPC-250CRPF Code No.623203 Use with : IPC-250CR	 IPC-250CRHF Code No.623202 Use with : IPC-250CR	 SDJ-05RH Code No.806044 Use with : IPC-250CR
		 AD24-150-PD4 ● Code No.806146 I / P : 100~240VAC, 50/60 Hz O / P : 24V DC 5A Use with : IPC-250CR	

Others

 CF-300B Code No.806140 Use with: CF-300/600	 F-6C Code No.806098 Use with: F-6BFE, F-6RCLE, F-6RST-E
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