SIMCO ION™

An ITW Company

Type HS Shockless Ionizing Air Nozzles

with F167, F267, N167 and D167QG Power Supplies

INSTALLATION AND OPERATING INSTRUCTIONS

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1. SAFETY WARNINGS

NOTE – This equipment must be correctly installed and maintained. Adhere to the following notes for safe installation and operation:

1. Read instruction manual before installing or operating equipment.
2. Only qualified service personnel should perform installation and repairs.
3. All equipment must be properly grounded, including the machine frame to which the equipment is mounted.

CAUTION – Electrical Shock Hazard – Always disconnect power supply before connecting or disconnecting static neutralizing equipment. Avoid touching static neutralizing points when power supply is energized.

CAUTION – Fire Hazard – Do not install or operate equipment in close proximity to any flammable solvents, flammable materials, or in explosive atmospheres.

2. DESCRIPTION

Simco-Ion Type HS Ionizing Air Nozzles blow ionized air that simultaneously cleans while neutralizing static charges on parts and materials. Once neutralized, dust and dirt are no longer attracted to surfaces and materials are not attracted to each other. The nozzles are used in conjunction with a Simco-Ion power supply that delivers the high voltage necessary for operation.

Depending on the application, nozzles can be used individually, or a series of nozzles can be strung together on a single cable, or they can be strung together on an air header.

Simco-Ion's F167, F267, N167, N267 and D167QG power supplies are designed as a power source for the Type HS Ionizing Air Nozzles. This equipment is used to eliminate or significantly reduce static charges that disrupt manufacturing processes. The high voltage from the power supply causes the ionizing pin within each nozzle to generate both positive and negative ions from surrounding air molecules. The static charge on the material being processed will attract and combine with the oppositely charged ions, causing the material to be neutralized. The excess ions either recombine in air or dissipate to ground. The current limiting design of these power supplies assures a maximum short-circuit current of only 5 mA, providing a safety feature that prevents life threatening electrical shocks if there is accidental contact with the ionizing pins.

Receipt of Equipment

1. Carefully remove the equipment from its carton.
2. Inspect contents for damage that may have occurred during shipment. If any damage has occurred, the local carrier should be notified at once. A report should be forwarded to Simco-Ion, 2257 North Penn Road, Hatfield PA 19440, and (215) 822-6401.

3. Empty the carton to ensure that small parts are not discarded.

Return Shipments

Prior to returning goods, contact a Simco-Ion Customer Service Representative for a Return Authorization Number. This number should be included on the packing list. All correspondence should also reference the Return Authorization Number. Any item being returned should be shipped prepaid and packed to provide adequate protection.

3. SPECIFICATIONS

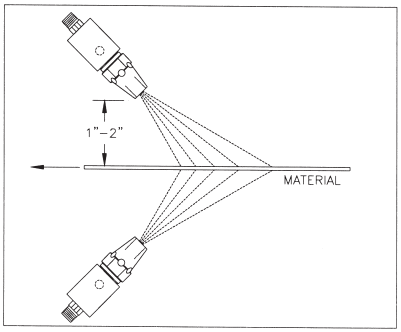
CAUTION – Do not operate in excess of specifications listed below or serious personal injury and/or equipment damage may result.

Type HS Ionizing Air Nozzle	
Operating Voltage	7 kV AC
Typical Discharge Time	0.6 sec at 6" and 30 psi (5000V to 500V)
Working Distance	Up to 10" from target
Operating Temperature	32-150°F Max (0-66°C)
Operating Humidity	70% RH max, no dewing permissible
Compressed Air Supply	15 to 100 psi max (clean, dry air)
Air Supply Connection	Nozzles – 1/8" NPT, Air Header – 3/8" NPT
Nozzle Output	4.5 scfm at 30 psi
Dimensions	1 ½" L x 15/16" W x 2 9/16" H

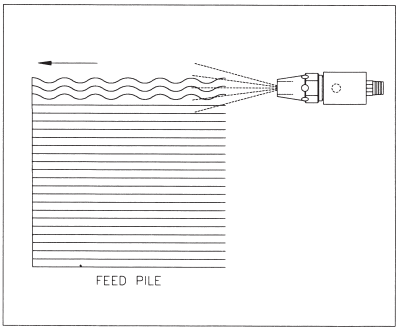
	F167	**N167**	**D167QG**	**F267**	**N267**
Input Voltage	120V	120V	120V	230V	230V
Frequency	50/60 Hz	60 Hz	60 Hz	50/60 Hz	60 Hz
Qty of Output Ports	2	4	2	2	4
Capacity	100 Nozzles	200 Nozzles	20 ft. Shielded Cable	100 Nozzles	200 Nozzles

Placement Recommendations

1. Locate nozzles just Prior to where static charges are causing problems. If the material is subject to ongoing friction, additional static control devices may be needed.
2. The target material should have a background of free air as it passes the nozzles, since static charges cannot be neutralized from between two surfaces in intimate contact. Partial contact of the material with a background surface may or may not interfere with effective static elimination and should be avoided whenever possible.
3. Nozzles may be located above and/or below a web, and may be mounted at any angle (provided they face the material to be neutralized).
4. Nozzles should be mounted approximately 1" to 2" from the target material. Make certain the ionized airstreams cover as much of the target as possible to ensure thorough neutralization and cleaning.
5. The material to be neutralized should not contact the nozzles.
6. Nozzles should be positioned so their airstreams travel in the opposite direction of the target material. This ensures that any dust or lint is blown back toward the untreated material.
7. Each nozzle must be properly grounded. When mounted to an air header, the header will provide a single common ground that must, itself, be properly grounded.



Well suited placement of HS Nozzles for cleaning and neutralizing sheets and webs



Typical placement of HS Nozzles for sheet separation on feed pile of printing presses

CAUTION – Fire Hazard – Do not install or operate equipment in close proximity to any flammable solvents or in explosive atmospheres.

1. If installing HS Nozzles pre-mounted on an Air Header, skip to step-6 below.
2. When two or more nozzles are supplied for use with a single high voltage cable, the dead-end nozzle (the last nozzle at the end of the cable farthest from the power

supply) is pre-attached to the cable. The intermediate (cable-through type) nozzles are supplied loose and must be placed onto the cable by the user.

3. Thread the high voltage cable from the dead-end nozzle, through each nozzle body, all the way back to the power supply. Once threaded onto the cable, each intermediate nozzle may easily be positioned anywhere along it.
4. After threading all the nozzles onto the cable, mount each nozzle in its desired location using the pipe nipple air connection (see placement recommendations above). Optional mounting brackets are available (refer to Section 8, Replacement Parts and Accessories).
5. Connect a wire from the ground lug on each nozzle to an earth ground (such as a cold water pipe or a well-grounded machine frame). The grounding of each nozzle is necessary for efficient operation.
6. If installing HS Nozzles pre-mounted on an Air Header, Mount the assembly in the desired position with the standard mounting brackets supplied. If the brackets cannot be attached to a well-grounded member or machine frame, install a wire from one of the brackets to an earth ground (such as a cold water pipe or a well-grounded machine frame).
7. Connect clean, dry compressed air at a maximum of 100 psi (customer to provide necessary mating connectors). It is essential that the air be filtered prior to the HS Nozzles, as contamination may clog the nozzles and result in electrical short circuit.

Power Supply Mounting

1. Mount power supplies to the machine frame (preferably away from operator contact) whenever possible. Alternatively, mount to a nearby wall or sturdy post.
2. The unit MUST be grounded for ionization to occur.
3. TURN OFF, or otherwise DEENERGIZE, all power supplies at this time.

Installing High Voltage Cables

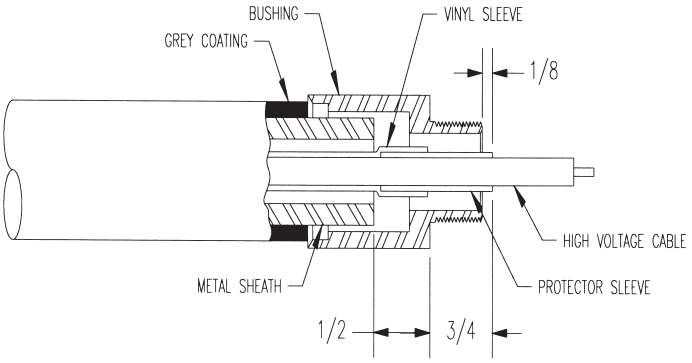
1. Route the high voltage cables along the machine frame or wall to the power supply.
2. Cable supports are used to guide the cables back to the power supply. All cables must be kept a minimum of 1/4" away from machine frame and parts, walls and ceilings. If this is not possible, encase cables in plastic insulating tubing (available from Simco-Ion).

Special Instruction for Shielded High Voltage Cables

1. Follow the steps outlined below to reduce the overall cable length (shielded cables only).
2. Disassemble shielding from the nozzle assembly by loosening the setscrew at the nozzle bushing and power supply bushings. Then remove the shielding and power supply bushings.

3. Carefully cut the shielding to desired length with a new hacksaw blade. Strip the grey coating back ½" and deburr inside and out.
4. Slide the shielding back over the high voltage cable and into the nozzle bushing. Install the power supply bushing and tighten both setscrews.
5. Cut the high voltage cable to desired length.

NOTE – Use extreme care not to nick or otherwise damage the high voltage cable.



5. OPERATION

Before energizing any power supply:

1. Ensure that the nozzles are properly grounded.
2. Ensure that the power supply is properly grounded.
3. Ensure that the nozzles have been properly located, positioned and installed.

After the above checks have been performed, simply energize the power supply and open the supply of compressed air to the nozzles.

NOTE – Do not allow dust, dirt or debris to block or obstruct the nozzle outlet.

CAUTION – Electrical Shock Hazard – Always disconnect power supply before cleaning static neutralizing equipment. Avoid touching static neutralizing points when power supply is energized.

- If the Static Bar Checker fails to glow at any of the points, either the cable or the power supply is defective. To identify the fault, perform the following steps:

a. Turn off power to the Power Supply.

b. Disconnect all static control equipment from the Power Supply.

c. Connect one end of an insulated test wire to the power supply's ground stud.

d. Energize the power supply. Slowly insert the free end of the test wire into one of the high voltage receptacles. As the insulated wire approaches the contact within the terminal, a spark should occur and arcing should be heard. If a spark occurs and arcing is heard, then the high voltage cable is the cause of the fault. Otherwise, the power supply is the cause. If either is faulty, contact Simco-Ion Customer Service or your local Simco-Ion Representative.

7. MAINTENANCE

NOTE – Only qualified service personnel are to perform maintenance tasks.

CAUTION – Electrical Shock Hazard – Turn off all power supplies before performing any maintenance tasks.

Ionizing Emitter Points

1. Dust or dirt around the ionization points will reduce the effectiveness of the nozzle. If metal filings or fragments fall into/onto a nozzle, it is apt to short-circuit and render it inoperative until the particles are removed. The ionizer must be cleaned periodically to prevent deposits from accumulating.
2. Simply turn OFF the power supply and clean each point by gently twisting an ordinary pencil eraser over the ionization point to remove any buildup.

NOTE – Never use hard or sharp objects to scrape ionization points.

3. Ink and resistant coatings may be removed with isopropyl alcohol applied with a clean cloth or cotton swab.

NOTE – The alcohol must not contain additives.

NOTE – Do not pour alcohol directly onto the nozzle and do not soak any of its components in alcohol.

CAUTION – Fire Hazard – Ensure all traces of alcohol have been removed and the nozzle is completely dry before energizing the power supply.

4. Frequency of cleaning should be at least once monthly, or as determined by inspections based on operating conditions.

To Disassemble

1. Turn the power supply OFF.
2. Disconnect the airline and the ground wire from the nozzle.
3. Simply remove the nozzle from the high voltage cable by sliding it toward the power supply and off (first, remove the spring-loaded connector if used).

NOTE – If shielded cable is used, the shielding must first be removed from the cable before each nozzle can be removed. The shielding can be disconnected from the nozzle by loosening the setscrew that retains the cable in the connector at the nozzle.

4. Remove the nozzle tip using a ¾" wrench.
5. Carefully remove the ionizing point using a deep-well 3/16" nut driver.
6. The ionizing point is capacitively coupled to the high voltage cable. The ionizing point contacts a brass ring that surrounds the cable inside the nozzle body. After the point has been removed, the brass ring may be removed from the nozzle body by pushing with a 9/32" dowel. Be careful not to damage the ends of the brass ring or the cable may not pass through easily upon reassembly.

To Reassemble

1. Reverse above steps. Do not over tighten any parts or threads in the plastic body may become stripped.
2. When installing the ionizing point, make certain that it is seated against the brass ring inside the nozzle body. Also, make certain both the nozzle tip and the pipe nipple are fully seated against the grounding spring that runs through the nozzle body.

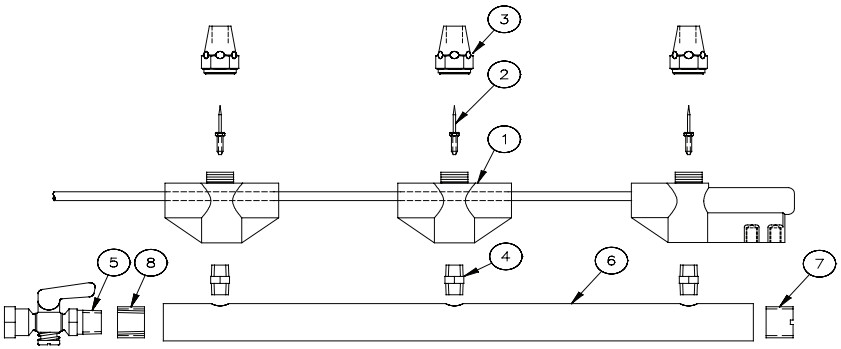
NOTE – If shielded cable is used, make certain all shield connections are clean and secure, since the shielding provides the ground connections necessary for proper nozzle operation.

3. After reassembly is complete, check that the ionizing point is centered within the nozzle tip, and then perform an operational check as described in the Troubleshooting section of this manual.

8. REPLACEMENT PARTS AND ACCESSORIES

1.	Nozzle Body (thru type, standard) Nozzle Body (Dead end type, standard) Standard Cable (per foot)	5050049 5050052 4810004
2.	Point Assembly	4100023
3.	Nozzle – Plated Nozzle – Stainless Steel Nozzle – Plated without holes Nozzle – Stainless Steel without holes	4750068 4370122 4750254 4370121
4.	Pipe Nipple – plated ring included Pipe Nipple – stainless steel ring included Pipe Nipple – plated terminal included Pipe Nipple – stainless steel terminal included	5050056 5050057 5050058 5050059
5.	Aircock	4750333
6.	Header Tube	*see below
7.	Pipe Plug	4250050
8.	Pipe Bushing	4250051
9.	Cable Support	4610010
10.	Spring Loaded Connector Kit	5050001
11.	Bracket Nozzle Mount (sold separately)	4510157

*Nozzle spacing on header to be specified by customer. (2" minimum) Contact Simco-Ion for part numbers



9. WARRANTY

This product has been carefully tested at the factory and is warranted to be free from any defects in materials or workmanship. Simco-Ion will, under this warranty, repair or replace any equipment that proves, upon our examination, to have become defective within one year from the date of purchase.

The equipment being returned under warranty should be shipped by the purchaser to Simco-Ion, 2257 North Penn Road, Hatfield PA 19440, transportation prepaid and insured for its replacement cost. Prior to returning any goods for any reason, contact Simco-Ion Customer Service at (215) 822-6401 for a Return Authorization Number. This number must accompany all returned items.

This warranty does not apply when the equipment has been tampered with, misused, improperly installed, altered, has received damage through abuse, carelessness, accident, connected to improper line voltage, or has been serviced anyone other than an authorized factory representative.

The warranty does not apply when Simco-Ion parts and equipment have been energized by other than the appropriate Simco-Ion power supply or generator, or when a Simco-Ion power supply or generator has been used to energize other than Simco-Ion parts and equipment. Simco-Ion makes no warranty, expressed or implied, nor accepts any obligation, liabilities, or responsibility in connection with the use of this product other than the repair or replacement of parts stated herein.

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