SIMCO ION™
An ITW Company

TYPE HE
Current Limited Ionizing Air Nozzle with D167Q and D-257Q Power Supplies

INSTALLATION AND OPERATING INSTRUCTIONS

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1. INTRODUCTION

Simco-Ion Type HI 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 D167Q and D257Q power supplies are designed as a power source for the Type HE 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 the carton.
2. Inspect contents for damage that may have occurred during shipment. If any damage has occurred during shipment, the local carrier should be notified at once. A report should be forwarded to Simco-Ion, 2257 North Penn Road, Hatfield, PA 19440 and call (215) 822-6401.
3. Empty the carton to insure 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.

2. SAFETY

NOTE – Statements identified with a NOTE indicate precautions necessary to avoid potential equipment failure.

CAUTION – Statements identified with a CAUTION indicate potential safety hazards.

NOTE – This equipment must be correctly installed and properly maintained as outlined in this manual.

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.

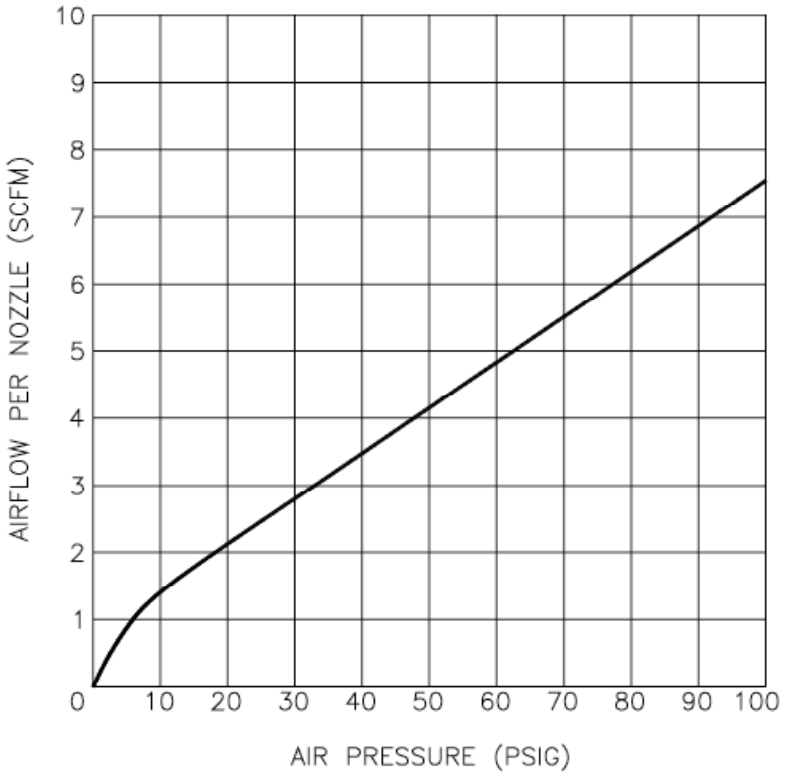
CAUTION – Fire Hazard – Do not install or operate equipment in close proximity to any flammable solvents or in explosive atmospheres.

3. SPECIFICATIONS

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

Type HE Ionizing Air Nozzle;	
Operating voltage	7 kV AC
Operating Temperature	32˚ – 150˚ F Max (0˚ – 66˚ C)
Operating Humidity	70% RH maximum, no dewing permissible
Dimensions	1" DIA x 2" H
Compressed Air Supply	15 to 100 PSI Maximum (clean, dry air)
Air Supply Connection	Nozzles – 1/8" NPT, Header – 3/8" NPT
Nozzle Output	2.8 SCFM at 30 PSI
Working Distance	Up to 6" from target
Typical Discharge Time	0.7 sec at 6-in and 30 PSI (5000V to 500V)

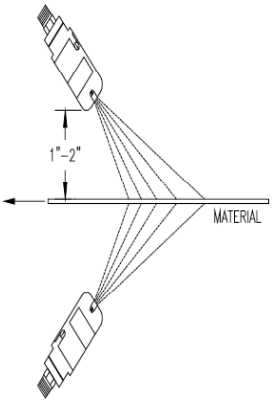
Power Supplies		
	D167Q	**D267Q**
Input Voltage	120 V	230 V
Frequency	60 Hz	50/60 Hz
Qty of Output Ports	2	2
Capacity	100 Nozzles	100 Nozzles



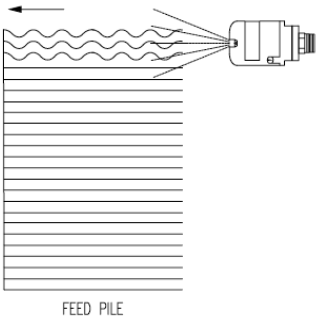
4. INSTALLATION

Placement Recommendations:

1. Locate nozzles just after the material has received its static charge. 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 tow 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 airstream covers 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. The nozzle header (if so configured) must be properly grounded.



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



Typical placement of HE 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 HE Nozzles pre-mounted on an Air Header, skip to step 7 below.
2. When two or more nozzle are supplied for use with a single high voltage cable, the dead-end nozzle (the last nozzle at the end of the cable furthest from the power supply) is pre-attached to the cable. The intermediate (cable-through type) nozzles are supplied loose and must be attached to the cable by the user.
3. Mount each nozzle body in its desired location using the pipe nipple air connection (see placement recommendations above).

NOTE – Do not mount nozzles with a metal clamp on the plastic body.

4. After mounting all the nozzle bodies, lace the high voltage cable along the grooves of each body, all the way back to the power supply.
5. Beginning at the dead-end Nozzle and working toward the power supply, assemble each Nozzle by placing the inner assembly onto the Nozzle body. Press the inner assembly until it bottoms on the high voltage cable. The parts are keyed with a pint that must pierce the high voltage cable insulation and make contact with the conductor. Place the nozzle top over the whole assembly, making sure to align the slots in the top with the cable. Press firmly to seat all parts.
6. Install a wire to an earth ground (such as a cold water pipe or a well-grounded machine frame) to properly ground any metal parts used for air connections.
7. If installing HE 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.
8. 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 HE 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 DE-ENERGIZE 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.

Cable supports are used to guide the cables back to the power supply. All cables must be kept a minimum of ¼" away from machine frame and parts, walls and ceilings. If this is not possible, encase cables in plastic insulating tubing (available from -Ion).

5. OPERATION

Before energizing any power supply:

1. Ensure that the nozzle is properly grounded.
2. Ensure that the power supply is properly grounded
3. Ensure that the nozzle has been properly located, positioned and installed.

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

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.

6. MAINTENANCE

NOTE – Maintenance must be performed by qualified service personnel.

CAUTION – Electrical Shock Hazard – De-energize 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 the nozzle inoperative until the particles are removed. The ionizer must be cleaned periodically to prevent deposits from accumulating.
2. Turn OFF the power supply and clean each point with a stiff nylon brush to remove any buildup from the ionization point.

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. Place a 3/16” flat-blade screwdriver in the gap between the nozzle top and body and release the top by SLOWLY turning the screwdriver.

3. Lift off the nozzle top and remove the inner assembly of the nozzle. The nozzle body may now be removed from the high voltage cable.
4. Use a wrench to remove the inlet pipe nipple or stopcock if assembled onto an air header.
5. A complete nozzle consists of three parts: the nozzle top, the inner assembly and the nozzle body.

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 inner assembly of the nozzle, make certain that the sharp point properly pierces the high voltage cable. If reusing the high voltage cable, make sure that the piercing point enters the cable in the same location as when removed.
3. After reassembly is complete, perform an operational check as described in the Troubleshooting section of this manual.

7. TROUBLESHOOTING

Operational Check:

1. Rub a small strip of plastic film until a static charge is developed (cellophane works well). The charge can either be measured with an electrostatic fieldmeter or will be evidenced by the film's attraction to a grounded metal surface.
2. Pass the film in front of the nozzle for five seconds at a distance of one foot. Check for any charge remaining on the film as in step 1.
3. If the static charge has been neutralized, then the device is working properly.

If Equipment Fails to Function Properly:

1. Turn OFF the power supply.
2. Ensure all ground connections are intact.
3. Check that all cable connections are tight
4. Energize the power supply (if equipped with an ON/OFF switch, ensure that it is in the ON position).
5. IONIZER TEST: To determine if the ionizer point is functioning properly, place a Static Bar Checker (-Ion part number 4000004) on each of the ionizing points.
   - If the Static Bar Checker glows at only some of the points, check the points where it did not glow for metal fragments or other contamination. If found, the contamination should be removed (refer to Section 6 – Maintenance).
   - 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 at 215-822-6401 or 800-203-3419.

8. REPACEMENT PARTS

Description	Part Number
Nozzle Body – Thru Type Nozzle Body – Dead end w/10 ft. cable Nozzle Body – Dead end w/20 ft. cable Nozzle Body – Dead end w/30 ft. cable	4530260 4103522 4103523 4103524
Inner Assembly Nozzle Top – Thru Type Nozzle Top – Dead End Type Pipe Nipple	4103520 4103526 4103527 4750067
Stopcock Pipe Plug Pipe Bushing Cable Support SLCC Kit	4750333 4250050 4250051 4104946 5050002
Header Tube – 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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