Super Ion Air Knife™

Powerful static eliminator prevents jamming, tearing, shocks and dust up to 20' away!

Uses The Super Air Knife

☑️ Low Air Consumption!
☑️ Surprisingly Quiet!
☑️ Uniform Airflow!
☑️ End and Bottom Air Inlets!

What Is The Super Ion Air Knife?
EXAIR’s Super Ion Air Knife removes static electricity from plastics, webs, sheet stock and other product surfaces where tearing, jamming or hazardous shocks are a problem. The laminar sheet of air sweeps surfaces clean of static, particulate, dust and dirt. Production speeds, product quality, and surface cleanliness can improve dramatically.

Why The Super Ion Air Knife?
The Super Ion Air Knife floods an area or surface with static eliminating ions - up to 20 feet (6.1m) away. A uniform airflow across its length will not cause misalignments to critical surfaces such as webs. Force can be adjusted from a “blast” to a “breeze”. The Super Ion Air Knife is electrically powered, is shockless and has no moving parts. It also requires only 3.7 SCFM of compressed air per foot of length at 5 PSIG (105 SLPM per 300mm of length at 0.3 BAR). Sound level is surprisingly quiet at 50 dBA for most applications.

Applications
- Web cleaning
- Molding machinery
- Sheeters and trimmers
- Cleaning parts
- Pre-paint dust removal
- Shrink wrappers
- Package cleaning
- Bag opening/fill operations
- Printing equipment

Advantages
- Low air consumption
- Uniform airflow across entire length
- Quiet
- Effective up to 20 feet (6.1m)
- Shockless, non-radioactive
- Compact, rugged, easy to install
- Unlimited system lengths of uninterrupted airflow
- Low maintenance
- Variable force and flow

The Super Ion Air Knife eliminates the static charge on labels being applied to PET soft drink bottles.

The Model 111118 18" (457mm) Super Ion Air Knife System eliminates dust from body care products prior to sealing the boxes in cellophane.

Bumpers, car bodies and fascia are cleaned of dust and fibers prior to painting.

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Super Ion Air Knife

How The Super Ion Air Knife Works

Compressed air flows through an inlet (1) into the plenum chamber of the Super Ion Air Knife. The flow is directed to a precise, slotted orifice. As the primary airflow exits, it creates a uniform sheet of air across the entire length that immediately pulls in surrounding room air (2). An electrically powered ionizing bar (3) fills the curtain of air with positive and negative charges. The airstream delivers these static eliminating ions to the product surface (4) where it is instantly neutralized and cleaned of dust and other particulates.

Added Features

- Compressed air inlets are provided on each end and the bottom of the Super Ion Air Knife. Multiple Super Ion Air Knives can be mounted end-to-end without an air gap.
- Shims can be installed easily if additional hard-hitting velocity is required.
- Primary air does not impact any surface of the Super Ion Air Knife which keeps the sound level low.
- Insertion molded emitter points eliminate potential dirt accumulation that could degrade performance or eventually short the ionizing bar.
- Emitter points are sharp, durable stainless steel.
- The power cable is shielded and has integral grounding. The threaded bayonet connector is fully assembled and ready to use.
- Super Ion Air Knife Kits, which include all components necessary for operation, are available.

Super Ion Air Knife Performance

<table>
<thead>
<tr>
<th>Pressure Supply</th>
<th>Air Consumption*</th>
<th>Sound Level</th>
<th>Dissipates 5kV**</th>
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<tbody>
<tr>
<td>PSIG BAR SCFM SLPM dBA SECONDS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>0.3</td>
<td>3.7</td>
<td>105 39</td>
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<td>10</td>
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<td>20</td>
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<td>40</td>
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<tr>
<td>100</td>
<td>6.9</td>
<td>42.0</td>
<td>1,188 72</td>
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</table>

* per foot (305mm) of length
** 6” (152mm) from target

For airflow pattern, see Super Air Knife page 15 of the Catalog.

Enhanced Performance and Reliability

Ionizing bars are less effective without an air delivery system. When used by itself, a bar must be mounted within two inches of the charged surface to fully neutralize it. This close mounting is impossible when the static is generated in confined areas of a machine. Ion coverage is minimal on oddly configured parts or when high production speeds are involved.

The right type of air delivery is critical. Blowers produce an uneven, turbulent airstream that can cause the positive and negative ions to recombine before hitting the charged material. The large, heavy and mechanical design makes them difficult to maintain and modify. A small amount of compressed air to produce a balanced, laminar sheet of air to carry the ions to the charged surface, even when it is far away. Flow and force are easily controlled and there are no moving parts to wear out.

The 48” (1219mm) Super Ion Air Knife neutralizes the static electricity and cleans the surface of the paper.
**Super Ion Air Knife Specifications**
The Super Ion Air Knife is available in standard lengths of 3", 6", 9", 12", 18", 24", 30", 36", 42", 48", 54", 60", 72", 84", 96" and 108" (76, 152, 229, 305, 457, 610, 762, 914, 1067, 1219, 1372, 1524, 1829, 2134, 2438, and 2743mm). Special lengths and unlimited system lengths are available (please contact our factory). A 5’ (1.52m) shielded power cable with ground and assembled bayonet connector are included.

**EXAIR Model 7901, 7907, 7940 or 7941 Power Supply (5kV) is required for bar operation.** Power supplies are equipped with a 6’ (1.83m) power cord, lighted power switch and (2) or (4) high voltage outlets.

**Certifications:** Ionizing Bars are UL Component Recognized to U.S. and Canadian safety standards. Power supplies are UL Listed to U.S. and Canadian safety standards, and are CE and RoHS compliant.

**Compressed Air:** 1/4 NPT inlets are provided on each end and the bottom.

**Electrical:** For use with 5 kVrms, 5 milliamperes (max.) power supply.

**Electrical Hazard:** Ionizing bars are shockless (less than 40 microamperes short circuited). Do not use near flammable materials or gases.

**Materials of Construction:**
- **Super Air Knife:** Aluminum
- **Ionizing Bar Channel:** Aluminum
- **Plastic Parts:** UL rated 94 HB
- **Emitters:** Stainless Steel

**Maximum Ambient Temperature:** 165°F (74°C)

**Shims:** Thicker shims can be installed easily if additional hard-hitting velocity is required. For more information, see “shim sets” on page 15 of the Common Catalog.

**Power Supplies**

The Model 7901 and 7907 Power Supply has a lighted power switch and (2) 5kV outlets.

The Model 7940 and 7941 Power Supply has a lighted power switch and (4) 5kV outlets.

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**Model 9060 Universal Air Knife Mounting System provides secure, precise positioning for the Super Ion Air Knife. See page 20 of the Catalog for details.**

The two and four outlet Power Supplies require an input of 115 VAC, 50/60 Hz. Two other variations for 230 VAC are also available. A 6’ (1.83m) power cord and lighted power switch are included. Power Supplies are UL Listed to U.S. and Canadian safety standards, and are CE and RoHS compliant.

**Power Supplies**

<table>
<thead>
<tr>
<th>Model #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7901</td>
<td>2 Outlet Power Supply (115V, 50/60Hz)</td>
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<tr>
<td>7907</td>
<td>2 Outlet Power Supply (230V, 50/60Hz)</td>
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<tr>
<td>7940</td>
<td>4 Outlet Power Supply (115V, 50/60Hz)</td>
</tr>
<tr>
<td>7941</td>
<td>4 Outlet Power Supply (230V, 50/60Hz)</td>
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</tbody>
</table>
Dust Removal From Car Bodies

The Problem: Car bodies are primer coated, then sanded before entering the paint booth. Priming dust, attracted to the car body by a static charge, creates imperfections that are captured and magnified in the painting process.

The Solution: An “archway” of Model 111024 24" (610mm) Super Ion Air Knives was installed upstream of the paint booth. As the car bodies pass through, a high velocity sheet of ionized air neutralizes the static charge to release the dust and blow it toward a collection system.

Comment: Non-turbulent airflow was the reason this cleaning system worked so well. The compact, Super Ion Air Knife has the ability to move the bulk of the static eliminating ions to the car surface. It can be adjusted from a gentle breeze of air to a pounding blast, with instant “on/off” capability. Uniform airflow across the entire length assures that all car body surfaces are neutralized and dust free. Best of all, the Super Ion Air Knife is easy on the compressed air system and workers’ ears. They use much less compressed air than standard blowoffs and are around 69 dBA in most applications.

EXAIR’s EFC (shown on page 4 of the Catalog) is an electronic flow control for compressed air. It can sense when there is no car present and will automatically turn off the compressed air until the next car is moved into position. It is a perfect addition to this type of application.

A Manufacturer Of Perfumes And Fragrances Eliminates Dust From Their Packages

The Problem: A manufacturer of perfumes and fragrances had a problem with the packaging of their fine perfumes. The conveyor belt used to transport the boxes to the cellophane sealer rubbed against the box surface. This induced a sizable static electricity charge that made it a “dust magnet”. The cardboard dust and particulates in their facility would land on the perfume boxes that were sent through the cellophane sealer. The trapped dust gave a poor appearance to the finished package. The company refused to let the boxes with the poor appearance leave their facility. Attempts to clean them using ordinary air guns produced poor results.

The Solution: The company installed a Model 111018 18” (457mm) Super Ion Air Knife prior to the box entering the sealer. The charged surface was completely neutralized with the ionized airflow and the dust and particulates were blown away. The cellophane covered boxes were perfectly clean.

Comment: EXAIR’s Super Ion Air Knife is used for applications just like these where appearance is vital to the sale of the product. The Super Ion Air Knife is commonly used for pre-package cleaning, bag opening and filling operations, cleaning automobile bodies prior to painting, web cleaning, as well as eliminating jams, tears and those painful static electricity shocks.
The Problem: A manufacturer of fine porcelain dinnerware products had a problem with dust ruining the finish on their dishes. Dust particles were adhering to the surface of the dishes which created imperfections that were greatly magnified once the glaze was applied. Prior to glazing, they made attempts to blow the dust particles away using ordinary air nozzles which had little effect, if any. There were abundant rejects.

The Solution: They installed (3) Model 111018 18" (457mm) Super Ion Air Knives to surround each dish, neutralize the static charge and remove the dust particles. Any airborne particulate was immediately vacuumed away by their dust collection system. The dishes were completely smooth to the touch with no imperfections.

Comment: A similar problem used to plague automotive manufacturers. The static charge generated by the tack off operation would cause the car body to attract stray particles of priming dust. Once the paint hits a dust particle, it sticks out like a sore thumb and ruins an otherwise perfect paint job. The Super Ion Air Knife neutralizes the charge and blows the dust away. To minimize compressed air use for these applications, we recommend the use of an EXAIR EFC Electronic Flow Control (see page 4 of the Catalog) that automatically turns off the compressed air when no part is present.

### Super Ion Air Knife Models

<table>
<thead>
<tr>
<th>Length</th>
<th>Super Ion Air Knife Model</th>
<th>Super Ion Air Knife Systems Model</th>
<th>Super Ion Air Knife Kits Model</th>
<th>Deluxe Super Ion Air Knife Kits Model</th>
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</table>
EXAIR offers Long Super Ion Air Knives with Plumbing Kits in 60" (1524mm), 72" (1829mm), 84" (2134mm), 96" (2438mm) and 108" (2743mm) lengths that are shipped fully assembled. All components have been properly sized to obtain the best performance from the Super Ion Air Knife.

### Super Ion Air Knife Models with Plumbing Kit

**Long Super Ion Air Knife with Plumbing Kit** - includes Super Air Knife, plumbing kit, and Ionizing Bar installed.

**Long Super Ion Air Knife Systems with Plumbing Kit** - includes Super Air Knife, plumbing kit, and Ionizing Bar installed. Includes Model 7901 Power Supply (115V, 50/60Hz).

**Long Super Ion Air Knife Kits with Plumbing Kit** - includes Super Air Knife, plumbing kit, and Ionizing Bar installed. Includes Model 7901 Power Supply (115V, 50/60Hz), shim sets, filter separator, and pressure regulator (with coupler).

<table>
<thead>
<tr>
<th>Length</th>
<th>Long Super Ion Air Knife Model</th>
<th>Long Super Ion Air Knife Systems Model</th>
<th>Long Super Ion Air Knife Kits Model</th>
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**Order EXAIR’s EFC™ electronic flow control to minimize compressed air use. See page 4 for details.**

**Special length Super Ion Air Knives and unlimited system lengths are available. Please contact our factory.**

The Super Ion Air Knife eliminates static on a sheeter, so it picks up one sheet at a time.