

Super Air Knife™

Quiet, hard-hitting
curtain of air for
blowoff, cleaning,
drying and cooling.

- ✓ Surprisingly Quiet!
- Only 69 dBA!
- ✓ Reduced Air
Consumption!
- ✓ Uniform Airflow!
- ✓ 40:1 Air Amplification!



What Is The Super Air Knife?

EXAIR's Super Air Knife is the latest generation of air knife that dramatically reduces compressed air usage and noise when compared to other blowoffs. The Super Air Knife offers a more efficient way to clean, dry or cool parts, webs or conveyors. It delivers a uniform sheet of laminar airflow across the entire length with hard-hitting force.

Noisy blowoffs become a whisper when replaced with the compact Super Air Knife. Even at high pressures of 80 PSIG (5.5 BAR), the sound level is surprisingly quiet at 69 dBA for most applications! Air amplification ratios (entrained air to compressed air) of 40:1 are produced. Meets OSHA maximum dead-ended pressure and noise requirements.

Available from **316**
stock in Type stainless



See page 2 for complete details.



Applications

- Part drying after wash
- Sheet cleaning in strip mills
- Conveyor cleaning
- Part or component cooling
- Web drying or cleaning
- Environmental separation
- Pre-paint blowoff
- Bag opening/filling operations
- Scrap removal on converting operations

Advantages

- Quiet - 69 dBA for most applications
- Minimal air consumption
- 40:1 air amplification
- Uniform airflow across entire length
- Variable force and flow
- No moving parts - maintenance free
- Easy mounting - compressed air inlets on each end and bottom
- Compact, rugged, easy to install
- Stainless steel screws in all models
- Recessed hardware for easy mounting
- Stock lengths to 54" (1372mm) in aluminum, 303 stainless steel, and 316 stainless steel (ss - for temperatures up to 800°F (427°C), food processing or corrosive environments)
- Special lengths available
- Unlimited system lengths of uninterrupted airflow available

Super Air Knife

Dry

The laminar airflow of the Super Air Knife is perfect for removing moisture prior to packaging, painting, labeling, bar coding and assembly. Common applications include drying parts, rolled steel, circuit boards, webs, bottles, cans and more. Velocity is easily adjusted from a "blast" to a "breeze" with a pressure regulator.



Fast moving bottles are blown dry by (2) Model 110012 12" (305mm) Super Air Knives prior to labeling.



A Model 110024SS 24" (610mm) Stainless Steel Super Air Knife dries bolt covers exiting an electro-polishing tank.



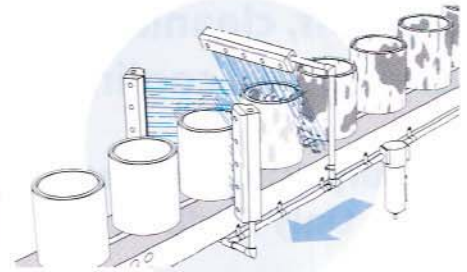
The new 54" (1372mm) Super Air Knife dries stamped parts that exit a washer.

Blowoff

The Super Air Knife is ideal for blowing off chips, dirt or water from parts, webs or conveyors. It delivers a uniform sheet of air that has the same force across the entire length. There are no interruptions or "dead spots", which means all surfaces are dried or cleaned. The Super Air Knife is available in aluminum or stainless steel for corrosive and high temperature applications.



(2) Super Air Knives help maintain the tolerances on machined differentials by blowing metal chips off the chain conveyor and clamping fixture.



(3) Model 110012 12" (305mm) Super Air Knives blow excess honing oil off machined engine sleeves.

Cool

Large volumes of airflow can be generated in very tight spaces due to the compact size of the Super Air Knife. Flow and force are easily controlled with a pressure regulator, allowing fast or gradual cooling. Shims can be installed if additional hard-hitting velocity is required.



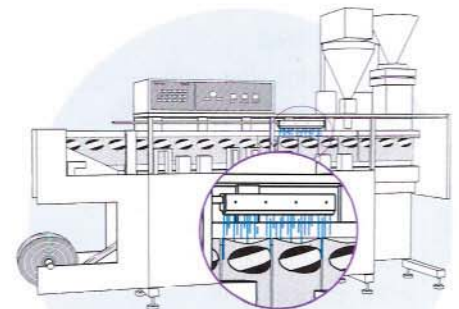
A Model 110018 18" (457mm) Super Air Knife cools molten plastic following dip molding.



High volume airflow from a Model 110006 6" (152mm) Super Air Knife keeps linear induction motors on an indoor roller coaster from overheating.

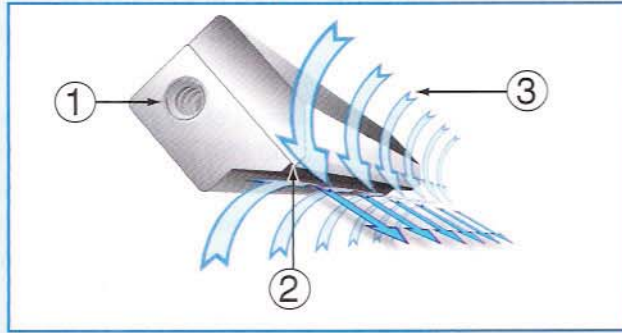
Open, Float, Separate

The uniform airflow exits the Super Air Knife in a perfectly straight line (does not deflect). It is ideal for opening bags and pouches, floating webs, and keeping environments separate.



A Model 110006 6" (152mm) Super Air Knife opens pouches on a form-fill-seal-bagger.

How The Super Air Knife Works



Compressed air flows through an inlet (1) into the plenum chamber of the Super Air Knife. The flow is directed to a precise, slotted orifice. As the primary airflow exits the thin slotted nozzle (2), it follows a flat surface that directs the airflow in a perfectly straight line. This creates a uniform

sheet of air across the entire length of the Super Air Knife. Velocity loss is minimized and force is maximized as the room air (3) is entrained into the primary airstream at a ratio of 40:1. The result is a well defined sheet of laminar airflow with hard-hitting force and minimal wind shear.

Smart Use Of Compressed Air

Almost every industrial facility has at least one compressor that is used for hundreds of different tools, equipment and operations. While most applications for compressed air present no real problems, some do. Improper use can translate into unnecessary energy costs, high noise levels and dangerous exposure of personnel to high pressure air.

Reduce Energy Costs

The best way to cut energy costs is through proper maintenance and use of the compressed air system. Leaks and dirty filters require maintenance on a regular basis. Energy savings can also be realized when replacing outdated motors and controls with high efficiency models that often pay for themselves in a short period of time. The most important factor to dramatically boost efficiency is proper use. **The Super Air Knife uses only 1/3 of the compressed air of typical blowoffs** used in cleaning, cooling and drying operations and can be instantly cycled on and off.

Reduce Noise Levels

High noise levels are a common problem for many plants. Compressed air noise often exceeds OSHA (Occupational Safety and Health Administration) noise level exposure requirements, resulting in hearing loss to those working in close proximity. The sound level of the Super Air Knife is quiet at 69 dBA, even at high pressures of 80 PSIG (5.5 BAR). Using the Super Air Knife, it is possible to obtain hard-hitting force without the high noise.

OSHA Maximum Allowable Noise Exposure

Hours per day (constant noise)	8	7	4	3	2	1	0.5
Sound level dBA	90	91	95	97	100	105	110

OSHA Standard 29 CFR - 1910.95 (a)

Eliminate Harmful Dead Ended Pressures

Air can be dangerous when the outlet pressure of a hole, hose or copper tube is higher than 30 PSIG (2 BAR). In the event the opening is blocked by a hand or other body part, air may enter the bloodstream through the skin, resulting in a serious injury. The Super Air Knife has been engineered for safety and cannot be dead ended. It is safe to operate at higher pressures and meets OSHA standard 1910.242(b).

Replacement For Expensive, Noisy Blowers

Energy conscious plants might think a blower to be a better choice due to its slightly lower electrical consumption compared to a compressor. In reality, a blower is an expensive capital expenditure that requires frequent downtime and costly maintenance of filters, belts and bearings. **Here are some important facts:**

- Filters must be replaced every one to three months.
- Belts must be replaced every three to six months.
- Blower bearings wear out quickly due to the motor that must turn at 17-20,000 RPM in order to generate effective airflows.
- Poorly designed seals that allow dirt and moisture infiltration along with environments above 125°F (52°C) decrease the one year bearing life.
- **Typical bearing replacement is at least once a year at a cost near \$1000.**
- Many bearings can't be replaced in the field, resulting in downtime to send the assembly back to the manufacturer.

Blowers take up a lot of space and often produce sound levels that exceed OSHA noise level exposure requirements. Air volume and velocity are often difficult to control since mechanical adjustments are required.

Super Air Knife

Compare These Blowoffs

There are a variety of ways to blow the water from the bottles shown in the photo below, but which method is best? The following comparison of drilled pipe, flat air nozzles, a blower and the Super Air Knife proves that EXAIR has the best choice for your blowoff, cooling or drying application.

Our goal for each of the blowoff choices was to use the least amount of air possible to get the job done (lowest energy and noise level). Compressed air pressure required for each was 60 PSIG (4.1 BAR) which provided adequate velocity to blow the water off. The blower used had a ten horsepower electric motor and was a centrifugal type blower at 18,000 RPM. The table at the bottom of the page summarizes the overall performance. Since your actual part may have an odd configuration, holes or sharp edges, we took sound level measurements in free air (no impinging surface).



Drilled Pipe

This common blowoff is very inexpensive and easy to make. For this test, we used (2) drilled pipes, each with (25) 1/16" (1.6mm) diameter holes on 1/2" (13mm) centers. As shown in the test results below, the drilled pipe performed poorly. The initial cost of the drilled pipe is overshadowed by its high energy use. The holes are easily blocked and the noise level is excessive - both of which violate OSHA requirements. Velocity across the entire length was very inconsistent with spikes of air and numerous dead spots.



Flat Air Nozzles

As shown below, this inexpensive air nozzle was the worst performer. It is available in plastic, aluminum and stainless steel from several manufacturers. The flat air nozzle provides some entrainment, but suffers from many of the same problems as the drilled pipe. Operating cost and noise level are both high. Some manufacturers offer flat air nozzles where the holes can be blocked - an OSHA violation. Velocity was inconsistent with spikes of air.



Blower Air Knife

The blower proved to be an expensive, noisy option. As noted below, the purchase price is high. Operating cost was considerably lower than the drilled pipe and flat air nozzle, but was comparable to the EXAIR Super Air Knife. The large blower with its two 3" (76mm) diameter hoses requires significant mounting space compared to the others. Noise level was high at 90 dBA. There was no option for cycling it on and off to conserve energy like the other blowoffs. Costly bearing and filter maintenance along with downtime were also negative factors.



EXAIR Super Air Knife

The Super Air Knife did an exceptional job of removing the moisture on one pass due to the uniformity of the laminar airflow. The sound level was extremely low at 69 dBA. For this application, energy use was slightly higher than the blower but can be less than the blower if cycling on and off is possible. Safe operation is not an issue since the Super Air Knife cannot be dead-ended. Maintenance costs are low since there are no moving parts to wear out.

The Super Air Knife is the low cost way to blowoff, dry, clean and cool.

Blowoff Comparison										
Type of blowoff	PSIG	BAR	Comp. Air SCFM	SLPM	Horsepower Required	Sound Level dBA	Purchase Price	Annual Electrical Cost*	Approx. Annual Maintenance Cost	First Year Cost
Drilled Pipes	60	4.1	174	4,924	35	91	\$50	\$4,508	\$920	\$5,478
Flat Air Nozzles	60	4.1	257	7,273	51	102	\$168	\$6,569	\$1,450	\$8,187
Blower Air Knife	3	0.2	N/A	N/A	10	90	\$5,500	\$1,288	\$1,500	\$8,288
Super Air Knife	60	4.1	55	1,557	11	69	\$480	\$1,417	\$300	\$2,197

*Based on national average electricity cost of 8.3 cents per kWh. Annual cost reflects 40 hours per week, 52 weeks per year.

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Blower Air Knife

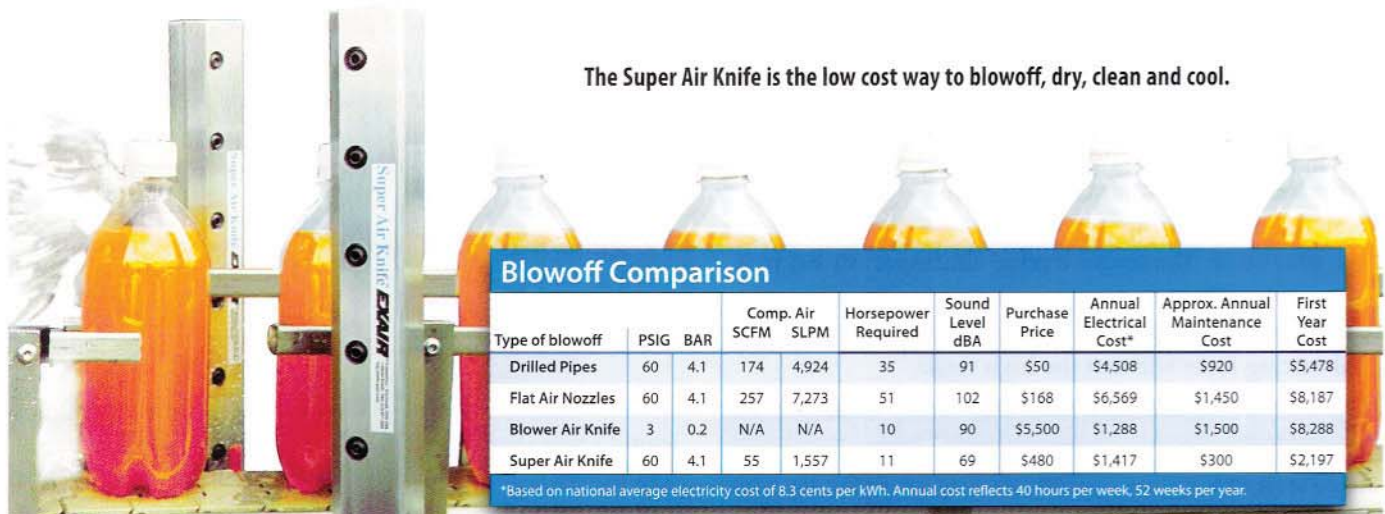
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Super Air Knife Performance with .002" (.05mm) thick shim installed

12" (305mm) Super Air Knife tested

Pressure Supply		Air Consumption per Inch (25mm)		Velocity @ 6" (152mm) from target		Sound Level @ 3' (914mm)	Force per Inch (25mm) @ 6" (152mm) from target	
PSIG	BAR	SCFM	SLPM	FPM	M/S	dBA	OUNCES	GRAMS
20	1.4	1.1	31	5,000	25.4	57	0.6	17
40	2.8	1.7	48	7,000	35.6	61	1.1	31
60	4.1	2.3	65	9,600	48.8	65	1.8	51
80	5.5	2.9	82	11,800	59.9	69	2.5	71
100	6.9	3.5	99	13,500	68.5	72	3.2	91

Holes Drilled In Pipe

Pressure Supply		Air Consumption 1/16" (1.59mm) dia. hole		Air Consumption 3/32" (2.38mm) dia. hole		Air Consumption 1/8" (3.18mm) dia. hole		Air Consumption 3/16" (4.76mm) dia. hole		Air Consumption 1/4" (6.35mm) dia. hole	
PSIG	BAR	SCFM	SLPM	SCFM	SLPM	SCFM	SLPM	SCFM	SLPM	SCFM	SLPM
20	1.4	1.4	40	3.5	99	6.4	181	14.5	410	25	710
40	2.8	2.2	62	5.4	153	10.2	289	22.9	648	40	1132
60	4.1	3.0	85	7.4	209	14	396	31	877	54	1528
80	5.5	3.8	108	9.4	266	17.5	495	39.5	1,118	69	1953
100	6.9	4.6	130	11.5	326	21.5	609	47.5	1,344	84	2363

How To Calculate Air Savings:

The chart at the top of the page shows the air consumption of a Super Air Knife **per inch of length** (25mm) at various pressures. Comparable data is given for holes drilled in pipe.

To Determine Air Consumption for the Drilled Pipe

1. Determine the size of existing holes and supply pressure. From the chart, find air consumption per hole.
2. Multiply air consumption per hole times the number of holes to obtain total air consumption.

To Determine Air Consumption for the Super Air Knife

1. From the chart, find the air consumption per inch (25mm) at supply pressure and multiply by number of inches required.

Example:

1. Existing blowoff is 18" long pipe with 1/16" diameter holes on 1/2" spacing (37 holes), 80 PSIG supply. Air consumption from chart is 3.8 SCFM per hole. Total air consumption is $37 \times 3.8 = 140.6$ SCFM (3996 SLPM).
2. Use 18" (457mm) Super Air Knife with standard .002" gap and 80 PSIG supply. Air consumption from chart is 2.9 SCFM per inch. Total air consumption is $18 \times 2.9 = 52.2$ SCFM (1476 SLPM).
3. Compressed air saved = 140.6 SCFM - 52.2 SCFM = 88.4 SCFM (2520 SLPM).
4. Most large plants know their air cost. If you don't know your actual cost, a reasonable average to use is \$0.25 per 1000 SCF (28,329 SL).
5. Dollars saved per hour = SCFM saved x 60 minutes x cost/1000 SCF = $88.4 \times 60 \times \$0.25/1000$
 = \$1.33/hour
 = \$53.20 per 40 hour week
 = \$2,766.40 per year savings

Super Air Knife Specifications

The Super Air Knife is available in standard lengths of 3", 6", 9" 12", 18", 24", 30", 36", 42", 48" and 54" (76, 152, 229, 305, 457, 610, 762, 914, 1067, 1219, and 1372mm) in aluminum, Type 303 stainless steel, and Type 316 stainless steel. **Special lengths and unlimited system lengths are available.** Any number of Super Air Knives may be installed across a given area.

Compressed Air Inlets: A Super Air Knife has compressed air inlets on each end and the bottom. Lengths 24" (610mm) and longer should be supplied with compressed air at opposite ends to maintain uniform airflow.

Filtration: The use of clean air is essential. Kits include an automatic drain filter with a 5 micron filter element that is sized properly for flow.

Materials of Construction: The Super Air Knife is available in aluminum, Type 303 stainless steel, and Type 316 stainless steel. Other materials are available on special order.

Mounting: See page 19 for complete details on the Universal Air Knife Mounting System. The Super Air Knife can be supported by the compressed air pipe. Tapped holes (1/4-20) on the bottom are also provided.

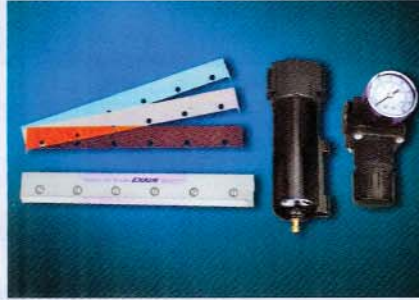
Regulation: A pressure regulator on the compressed air supply provides infinite control of flow, force and air consumption. Kits include a pressure regulator that is sized properly for flow.

Shim Sets: The compressed air exhausts through a gap which is set with a shim positioned between the cap and the body of the Super Air Knife. Force and flow through the Super Air Knife may be easily increased by adding shims to open the gap. Kits include a shim set (three additional shims). Shim sets for aluminum Super Air Knives include a .001" (0.03mm), .003" (0.08mm) and .004" (0.10mm) thick plastic shim. Shim sets for stainless steel Super Air Knives include (3) .002" (0.05mm) thick stainless steel shims.

Super Air Knife

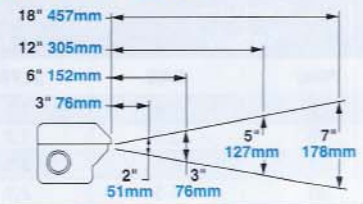
Changing Performance By Adding Shims

The Super Air Knife is shipped with a .002" (0.05mm) thick shim installed which works best for most applications. There are, however, some situations that require more force and flow. Thicker shims will increase the gap opening which offers higher velocity and harder hitting force. Air consumption and noise will be slightly higher. Shim sets are included with all kits or can be purchased separately.



Kits include a Super Air Knife, shim set, filter separator and pressure regulator (with coupler).

Airflow Pattern



A special curved stainless steel Super Air Knife holds test tubes in place on a rotating index table.



A PVC Super Air Knife designed to withstand a phosphorus environment.



A PVDF Super Air Knife resists a highly acidic environment.



A flat Super Air Knife, only 11/16" thick, blows plastic fibers from a mold used to make integrated circuit chips.



The double-sided Super Air Knife provides two uniform sheets of laminar airflow.

Special Super Air Knives

EXAIR manufactures special Super Air Knives suited to specific application requirements. The shape, dimensions and materials of construction can be modified to fit existing machines and environments.

The curved stainless steel Super Air Knife (*shown top right*) was manufactured for a laboratory that uses the force of the airflow to hold test tubes in place on a rotating index table. They were able to eliminate the mechanical clips and latches that slowed the test tube removal. This holding method minimized risk of tube breakage and eliminated any chance of puncturing the technician's rubber gloves.

EXAIR manufactures special Super Air Knives made of plastic. These products are engineered to work under normal operating pressures, providing the same performance as their aluminum and stainless steel counterparts.

The PVC Super Air Knife (*shown 2nd from top right*) was manufactured for a picture tube plant. The softer material was less likely to scratch the picture tube surface and was chemically resistant to the phosphorus which coated the inside.

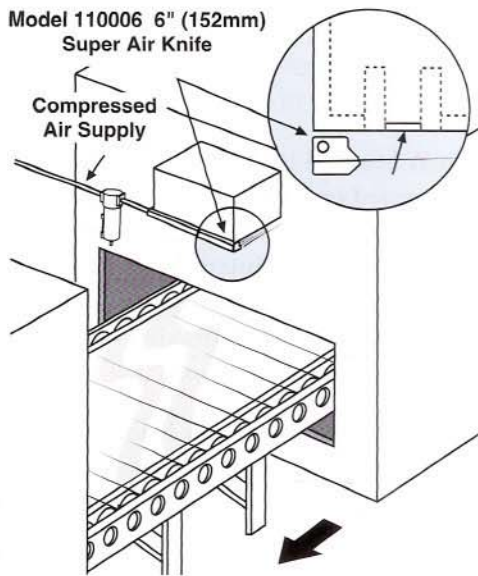
The special Super Air Knife (*shown 3rd from top right*) made of PVDF resists a highly acidic environment where silicon solar cells are made. When the raw silicon is purified, it releases toxic gases that are aggressively corrosive (Type 316 stainless steel would quickly pit and corrode). In this case, the PVDF Super Air Knife uses PTFE shims and Hastelloy® C-276 alloy screws that can withstand the very harsh environment.

The flat Super Air Knife (*shown 4th from top right*) is used in a molding machine for integrated circuit chips. Prior to molding the black plastic shells around the silicon wafers, they blow the mold cavity clean of any fine plastic fibers left by the previous cycle. The flat design constructed of corrosion resistant stainless steel was made to fit the tight space of the molding machine.

The double-sided Super Air Knife (*shown bottom right*) provides two uniform sheets of air in opposite directions. It is ideal for blowing water from two or more columns of stacked parts (like printed circuit boards) as they are lifted out of a bath or the open halves of a mold. Each side operates independently.

* HASTELLOY is a registered trademark of Haynes International, Inc.

Air Shielding a Scanner Lens



The Problem: Automotive glass is tempered by subjecting it to a series of heating and quenching operations. An infrared scanner maintains a uniform temperature across the glass surface by sending signals to a PLC

that automatically adjusts conveyor speeds and oven temperatures. Dust and other airborne particulates coated the sapphire lens of the scanner and caused it to generate false temperature readings. The result was hundreds of feet of rejected glass.

The Solution: A Model 110006 6" (152mm) Super Air Knife was mounted on one side of the lens, directing a boundary layer of air in front of it. The sheet of air created an invisible barrier that kept contaminants off the surface. Process time was reduced and the waste was eliminated.

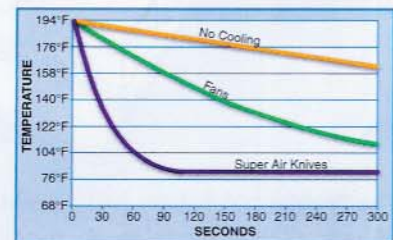
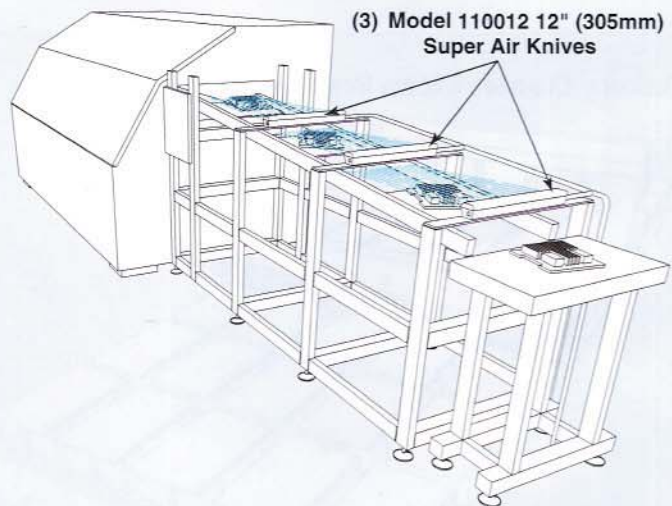
Comment: The ability to screen the lens without a wiper or other obstruction was the key to success in this application. The uniform airflow produced by the Super Air Knife makes it an ideal way to separate one environment from another. This same arrangement has been used to keep lasers and other lenses clear of smoke and debris. Similar applications include trapping fumes in an open container, retaining heat in an oven or deflecting mist from a machine tool.

Super Air Knife Replaces Fan Cooling

The Problem: A manufacturer of automotive electronics had a problem cooling computers as they exited a wave solder machine. In order to be handled and tested, the computers had to first be cooled to 81°F (27°C). Initially, they had tried banks of 6" (152mm) diameter axial fans across the 8' (2.5m) length of the cooling conveyor. It consisted of 16 fans blowing down from the top and 16 fans blowing up from the bottom at 7" (178mm) away from the surface. After traveling the full length of the conveyor with the fans running at full force (a five minute duration), the computers were still 108°F (42°C). Quality control personnel sat with an unacceptable backlog of computers waiting to be tested.

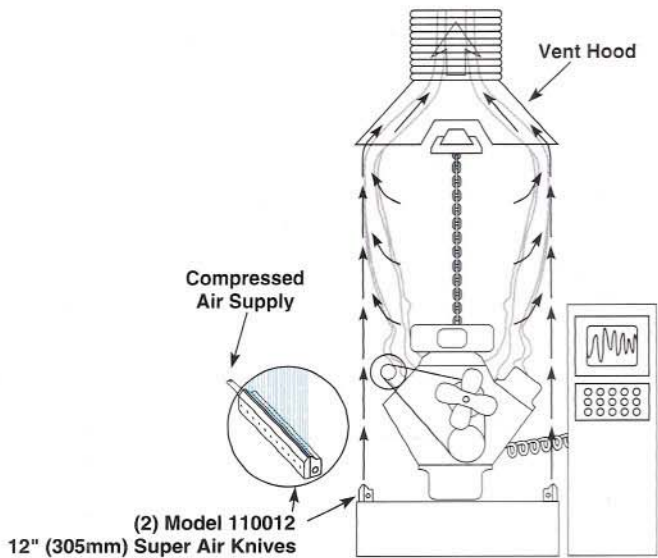
The Solution: The company removed the top and bottom fan banks and replaced them with (3) Model 110012 12" (305mm) Super Air Knives that were evenly spaced across the cooling section. Each Super Air Knife was angled so the computer and heat sink received the constant rush of airflow. **With the conveyor at the same speed (1.6 FPM), and Super Air Knives at only 40 PSIG, the computers were cooled to 81°F (27°C) in 90 seconds!**

Comment: The laminar airflow of the Super Air Knives was the key to success in this application. Fan cooling could only provide random spikes of air at moderate velocities. **The uniform sheet of air from the Super Air Knife quietly swept the heat away within the first 2' (610mm) of the conveyor.** Low air consumption and the compact size of the Super Air Knife were an added bonus.



Super Air Knife

Smoke Containment During Engine Test



The Problem: The last step in an engine assembly process is “burn-in” on a test stand. Each engine is connected to a dynamometer and run for a period of one to five minutes. Residual machining oil on the head produced smoke

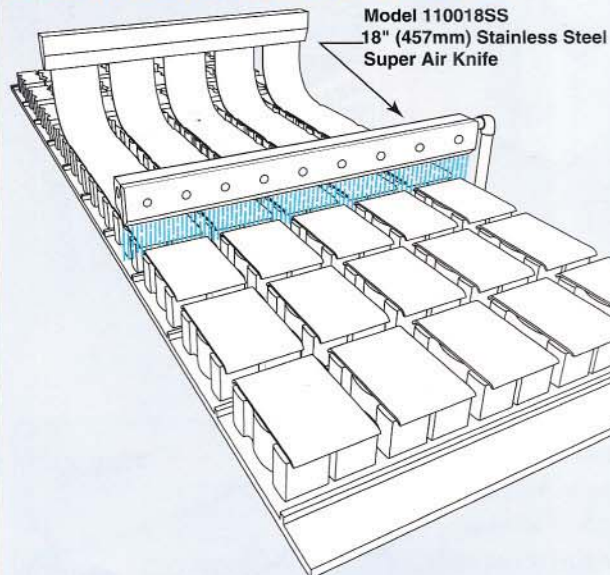
during the test, and the vent hood at the top of the stand had insufficient capacity to contain it.

The Solution: A Model 110024 24" (610mm) Super Air Knife was mounted on both sides of the test stand. The sheet or “wall” of air produced by the Super Air Knife, captured, contained and diluted the smoke while directing it towards the vent hood. The environmental problem was solved without obstructing the technician’s observation of, or access to the stand.

Comment: The use of the Super Air Knife for containment and separation is becoming increasingly common. The advantage, as illustrated here, is the ability of the Super Air Knife to create a screen or barrier with no obstruction. Other typical applications in this mode are:

- Retaining heat in curing and drying oven
- Protecting workers from coolant splatter
- Isolating industrial camera lenses from airborne contaminants

Bakery Creates Clean Break In Icing



The Problem: A bakery had a problem applying the icing to their snack cakes. As the baked sponge cakes moved down the conveyor, a continuous ribbon of icing was applied to the individual cakes. Trying to

make a clean break in the icing was next to impossible. Mechanical blades required constant cleaning. Compressed air through a series of holes in drilled pipe used too much air, was noisy and didn’t make a clean break in the icing.

The Solution: A Model 110018SS 18" (457mm) Stainless Steel Super Air Knife was installed across the conveyor. A photo eye used to detect the space between the cakes turned the compressed air on at the precise moment to apply uniform airflow and velocity against the ribbon of icing, creating a nice, clean break.

Comment: The Stainless Steel Super Air Knife was the best choice for this application. Since there was no contact with the icing, no additional cleaning was required. **The laminar flow of the Super Air Knife has uniform velocity across the entire length and broke the ribbon of icing evenly.** This would never have been possible with the spikes of air from a drilled pipe, nozzles or a blower.

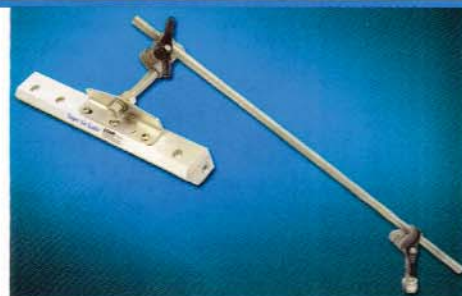
Air Knife Mounting

Provide Precise Positioning For Your Air Knife!

The Model 9060 Universal Air Knife Mounting System is used to provide secure, precise positioning for any of the EXAIR Air Knives. The Air Knife can quickly and easily be moved within close proximity of the part to improve effectiveness. It can be mounted on either the top or bottom of most Air Knives (Super Air Knife, Standard Air Knife and Full-Flow Air Knife). The Universal Air Knife Mounting System has a durable, stainless steel construction that is suitable for a variety of industrial applications.

The mounting system can also be used with EXAIR Static Eliminators. For the Super Ion Air Knife, it can be mounted on the top. Bottom mounting is possible on Super Ion Air Knives that are 18" (457mm) or longer. For the Standard Ion Air Knife, it can be top mounted on any length. Bottom mounting is possible on Standard Ion Air Knives that are 9" (229mm) or longer.

The Universal Air Knife Mounting System can be articulated into any position and provides a maximum extension of 30" (762mm). A 1/2" diameter hole is required for mounting. Alternatively, the bolt can be threaded directly into a 1/2"-13 tapped hole. For any style air knife that is 24" (610mm) or longer, it is recommended that (2) Universal Air Knife Mounting Systems be used to obtain a secure mounting.



Model 9060 Universal Air Knife Mounting System

Mounting System	
Model #	Description
9060	Universal Air Knife Mounting System

Air Knife Plumbing Kit

Super Air Knives that are 24" (610mm) to 42" (1067mm) long must be supplied with compressed air at both ends to maintain uniform airflow across the length. When lengths exceed 42" (1067mm), the compressed air must be supplied at both ends and the center. The new Universal Air Knife Plumbing Kit provides properly sized Nitrile/PVC compressed air hose and brass fittings to interconnect the bottom or end compressed air inlets for best performance. A pressure gauge to monitor pressure at the Super Air Knife is included. The inlet is 1/2" NPT.

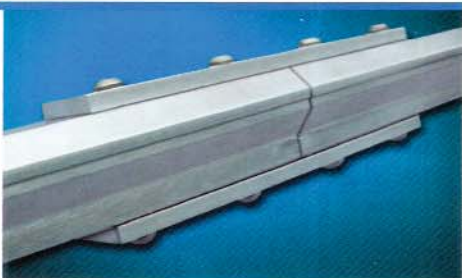


The Universal Air Knife Plumbing Kit provides the hose and fittings to couple the inlets for best performance.

Air Knife Plumbing Kit	
Model #	Description
9076	Universal Air Knife Plumbing Kit - for lengths up to 42" (1067mm)
9077	Universal Air Knife Plumbing Kit - for lengths over 42" (1067mm)

Coupling Bracket Kits

Some applications require a Super Air Knife that is longer than our 54" (1372mm) length. Coupling Bracket Kits that join two Super Air Knives together are available. The kit includes two rigid plates along with the assembly screws. The bottom plate is supplied with a hole to access the bottom compressed air inlets. All models include stainless steel screws.

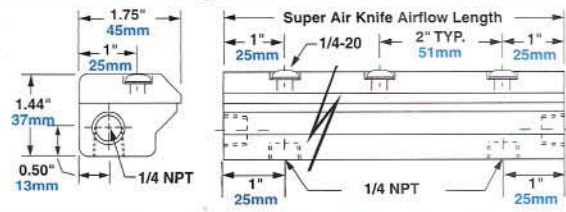


The Model 110900 Coupling Bracket Kit is used to join two aluminum Super Air Knives.

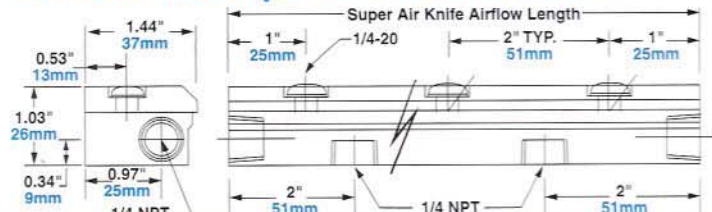
Air Knife Coupling Bracket Kit	
Model #	Description
110900	Aluminum Coupling Bracket Kit
110900SS	Type 303 Stainless Steel Coupling Bracket Kit
110900SS-316	Type 316 Stainless Steel Coupling Bracket Kit

Super Air Knife

Aluminum Super Air Knife Dimensions



Stainless Steel Super Air Knife Dimensions



Aluminum Super Air Knife Only		
Model #	110003	110006
Airflow Length	3" (76 mm)	6" (152 mm)
110009	110012	110018
9" (229 mm)	12" (305 mm)	18" (457 mm)
110024	110030	110036
24" (610 mm)	30" (762 mm)	36" (914 mm)
110042	110048	110054
42" (1067 mm)	48" (1219 mm)	54" (1372 mm)

303 Stainless Steel Super Air Knife		
Model #	110003SS	110006SS
Airflow Length	3" (76 mm)	6" (152 mm)
110009SS	110012SS	110018SS
9" (229 mm)	12" (305 mm)	18" (457 mm)
110024SS	110030SS	110036SS
24" (610 mm)	30" (762 mm)	36" (914 mm)
110042SS	110048SS	110054SS
42" (1067 mm)	48" (1219 mm)	54" (1372 mm)

316 Stainless Steel Super Air Knife		
Model #	110003SS-316	110006SS-316
Airflow Length	3" (76 mm)	6" (152 mm)
110009SS-316	110012SS-316	110018SS-316
9" (229 mm)	12" (305 mm)	18" (457 mm)
110024SS-316	110030SS-316	110036SS-316
24" (610 mm)	30" (762 mm)	36" (914 mm)
110042SS-316	110048SS-316	110054SS-316
42" (1067 mm)	48" (1219 mm)	54" (1372 mm)

Aluminum Super Air Knife Kits		
Kits include an Aluminum Super Air Knife, shim set, filter separator and pressure regulator (with coupler).		
Model #	110203	110206
Airflow Length	3" (76 mm)	6" (152 mm)
110209	110212	110218
9" (229 mm)	12" (305 mm)	18" (457 mm)
110224	110230	110236
24" (610 mm)	30" (762 mm)	36" (914 mm)
110242	110248	110254
42" (1067 mm)	48" (1219 mm)	54" (1372 mm)

303 Stainless Steel Super Air Knife Kits		
Kits include a 303 Stainless Steel Super Air Knife, shim set, filter separator and pressure regulator (with coupler).		
Model #	110203SS	110206SS
Airflow Length	3" (76 mm)	6" (152 mm)
110209SS	110212SS	110218SS
9" (229 mm)	12" (305 mm)	18" (457 mm)
110224SS	110230SS	110236SS
24" (610 mm)	30" (762 mm)	36" (914 mm)
110242SS	110248SS	110254SS
42" (1067 mm)	48" (1219 mm)	54" (1372 mm)

316 Stainless Steel Super Air Knife Kits		
Kits include a 316 Stainless Steel Super Air Knife, shim set, filter separator and pressure regulator (with coupler).		
Model #	110203SS-316	110206SS-316
Airflow Length	3" (76 mm)	6" (152 mm)
110209SS-316	110212SS-316	110218SS-316
9" (229 mm)	12" (305 mm)	18" (457 mm)
110224SS-316	110230SS-316	110236SS-316
24" (610 mm)	30" (762 mm)	36" (914 mm)
110242SS-316	110248SS-316	110254SS-316
42" (1067 mm)	48" (1219 mm)	54" (1372 mm)

Deluxe Aluminum Super Air Knife Kits		
Kits include an Aluminum Super Air Knife, EFC, Universal Mounting System, shim set, filter separator and pressure regulator (with coupler).		
Model #	110203DX	110206DX
Airflow Length	3" (76 mm)	6" (152 mm)
110209DX	110212DX	110218DX
9" (229 mm)	12" (305 mm)	18" (457 mm)
110224DX	110230DX	110236DX
24" (610 mm)	30" (762 mm)	36" (914 mm)
110242DX	110248DX	110254DX
42" (1067 mm)	48" (1219 mm)	54" (1372 mm)

Deluxe 303 St. St. Super Air Knife Kits		
Kits include a 303 Stainless Steel Super Air Knife, EFC, Universal Mounting System, shim set, filter separator and pressure regulator (with coupler).		
Model #	110203SSDX	110206SSDX
Airflow Length	3" (76 mm)	6" (152 mm)
110209SSDX	110212SSDX	110218SSDX
9" (229 mm)	12" (305 mm)	18" (457 mm)
110224SSDX	110230SSDX	110236SSDX
24" (610 mm)	30" (762 mm)	36" (914 mm)
110242SSDX	110248SSDX	110254SSDX
42" (1067 mm)	48" (1219 mm)	54" (1372 mm)

Deluxe 316 St. St. Super Air Knife Kits		
Kits include a 316 Stainless Steel Super Air Knife, EFC, Universal Mounting System, shim set, filter separator and pressure regulator (with coupler).		
Model #	110203SSDX-316	110206SSDX-316
Airflow Length	3" (76 mm)	6" (152 mm)
110209SSDX-316	110212SSDX-316	110218SSDX-316
9" (229 mm)	12" (305 mm)	18" (457 mm)
110224SSDX-316	110230SSDX-316	110236SSDX-316
24" (610 mm)	30" (762 mm)	36" (914 mm)
110242SSDX-316	110248SSDX-316	110254SSDX-316
42" (1067 mm)	48" (1219 mm)	54" (1372 mm)

Aluminum Super Air Knife Shim Sets		
Shim Sets include (1) each of a .001" (.03mm), .003" (.08mm) and .004" (.10mm) thick plastic shim.		
Model #	110303	110306
Airflow Length	3" (76 mm)	6" (152 mm)
110309	110312	110318
9" (229 mm)	12" (305 mm)	18" (457 mm)
110324	110330	110336
24" (610 mm)	30" (762 mm)	36" (914 mm)
110342	110348	110354
42" (1067 mm)	48" (1219 mm)	54" (1372 mm)

303 St. St. Super Air Knife Shim Sets		
Shim Sets include (3) .002" (.05mm) thick 303 stainless steel shims.		
Model #	110303SS	110306SS
Airflow Length	3" (76 mm)	6" (152 mm)
110309SS	110312SS	110318SS
9" (229 mm)	12" (305 mm)	18" (457 mm)
110324SS	110330SS	110336SS
24" (610 mm)	30" (762 mm)	36" (914 mm)
110342SS	110348SS	110354SS
42" (1067 mm)	48" (1219 mm)	54" (1372 mm)

316 St. St. Super Air Knife Shim Sets		
Shim Sets include (3) .002" (.05mm) thick 316 stainless steel shims.		
Model #	110303SS-316	110306SS-316
Airflow Length	3" (76 mm)	6" (152 mm)
110309SS-316	110312SS-316	110318SS-316
9" (229 mm)	12" (305 mm)	18" (457 mm)
110324SS-316	110330SS-316	110336SS-316
24" (610 mm)	30" (762 mm)	36" (914 mm)
110342SS-316	110348SS-316	110354SS-316
42" (1067 mm)	48" (1219 mm)	54" (1372 mm)

Accessories		Accessories	
Model #	Description	Model #	Description
9001	Auto Drain Filter Separator, 3/8 NPT, 65 SCFM (1841 SLPM)	9020	Solenoid Valve, 120V, 50/60Hz, 1/4 NPT, 40 SCFM (1133 SLPM)
9032	Auto Drain Filter Separator, 1/2 NPT, 90 SCFM (2548 SLPM)	9034	Solenoid Valve, 120V, 50/60Hz, 1/2 NPT, 100 SCFM (2832 SLPM)
9002	Auto Drain Filter Separator, 3/4 NPT, 220 SCFM (6230 SLPM)	9036	Solenoid Valve, 120V, 50/60Hz, 3/4 NPT, 200 SCFM (5664 SLPM)
9066	Auto Drain Filter Separator, 1-1/4 NPT, 400 SCFM (11,327 SLPM)	9065	Solenoid Valve, 24VDC, 50/60Hz, 1 NPT, 350 SCFM (9911 SLPM)
9005	Oil Removal Filter, 3/8 NPT, 15-37 SCFM (425-1048 SLPM)	9060	Universal Air Knife Mounting System
9006	Oil Removal Filter, 3/4 NPT, 50-150 SCFM (1415-4248 SLPM)	9076	Universal Air Knife Plumbing Kit - for lengths up to 42" (1067mm)
9008	Pressure Regulator, 1/4 NPT, 50 SCFM (1416 SLPM)	9077	Universal Air Knife Plumbing Kit - for lengths over 42" (1067mm)
9033	Pressure Regulator, 1/2 NPT, 100 SCFM (2832 SLPM)	110900	Aluminum Coupling Bracket Kit
9009	Pressure Regulator, 3/4 NPT, 220 SCFM (6230 SLPM)	110900SS	Type 303 Stainless Steel Coupling Bracket Kit
9067	Pressure Regulator, 1-1/4 NPT, 600 SCFM (16,990 SLPM)	110900SS-316	Type 316 Stainless Steel Coupling Bracket Kit

Universal Air Knife Mounting System



EXAIR's Universal Air Knife Mounting System allows easy positioning of all EXAIR Air Knives. See page 19 for details.

Special length Super Air Knives and unlimited system lengths are available. Magnetic bases with Stay Set™ flexible hoses are also available for smaller Super Air Knives.

Please contact our factory.

Need A Control?



EXAIR's EFC is an electronic flow control that limits compressed air use. See page 3 for details.

Which Air Knife Is Best For Your Application?

EXAIR manufactures the Super Air Knife, Standard Air Knife and Full-Flow Air Knife. The table below provides a quick comparison of the three styles.

The Super Air Knife provides the best performance with a 40:1 air amplification ratio, making it the most efficient. It is the best choice for all applications. The Super Air Knife has a laminar airstream that is uniform, forceful and quiet. Velocity is the highest of all three air knives. Air consumption is lowest of all three air knives. Compressed air inlets are provided on each end and on the bottom. Multiple Super Air Knives can be mounted "end to end" for longer lengths of uninterrupted airflow.

The Standard Air Knife provides good performance with a 30:1 air amplification ratio that is less efficient than the Super Air Knife. It is a good choice when a less expensive alternative is required. The Standard Air Knife has an airflow that is also uniform and forceful. It is louder and uses more compressed air than the Super Air Knife. Compressed air inlets are provided on each end. Overall length is 1" (25mm) longer than the airflow length.

The Full-Flow Air Knife provides good performance with a 30:1 air amplification ratio. The Full-Flow Air Knife is the least expensive and is a good choice for tight spaces. Force is less than the other two styles. Air consumption and sound level falls between that of the Super Air Knife and the Standard Air Knife. Compressed air inlet(s) are provided on the rear. Inlets are available on each end at a small additional charge, however they are not recommended for applications where uniform flow across the length is required.



? Super Air Knife? Standard Air Knife? Full-Flow Air Knife?

Super Air Knife (shown left)
Standard Air Knife (shown middle)
Full-Flow Air Knife (shown right)

Super Air Knife

- Best choice for all applications
- Lowest operating cost
- Highest efficiency (saves most air)
- Quietest
- 40:1 air amplification ratio
- Compressed air inlets on each end and the bottom
- Airflow length and overall length are the same

Standard Air Knife

- Good choice, lower purchase price
- Highest operating cost of the three
- Good velocity
- Higher dBA rating
- Compressed air inlets on each end
- Overall length is 1" (25mm) longer than the airflow length

Full-Flow Air Knife

- Good choice, lowest purchase price
- Higher operating cost than the Super Air Knife
- Smallest size
- Airflow length and overall length are the same

	Air Consumption		Velocity		Force per Inch (25mm)		Sound Level	Amp.
	SCFM	SLPM	FPM	M/S	Ozs	Grams	dBA	RATIO
6" Super Air Knife	17.4	492	11,800	57.9	2.5	71	69	40:1
6" Standard Air Knife	20.4	577	11,000	55.9	2.7	77	83	30:1
6" Full-Flow Air Knife	18.6	526	10,000	50.8	2.3	65	80	30:1

Velocity and force measured at 6" (152mm) from target. Sound level measured at 3' (914mm). All measurements taken at 80 PSIG (5.5 BAR).