

## Compressed Air Safety and Savings

Compressed air should be a concern in every manufacturing or processing facility. Compressed air is commonly referred to as the “fourth utility” because it is an everyday resource within manufacturing, mining and processing environments. Employees or contractors in every industrial setting are exposed to compressed air’s effects regularly and it should be handled with responsibility and care. Beyond safety concerns, compressed air should be used as efficiently as possible by using engineered products which optimize compressed air performance and save money.

The primary dangers from compressed air come from high pressure and noise exposure. Personnel being exposed to compressed air which exits an open-line or non-safety nozzle at a higher pressure than 30 PSIG risk the air entering the bloodstream and causing an air embolism, a serious health risk.

Improper use of compressed air commonly exceeds OSHA’s noise exposure standards and causes noise induced hearing loss (NIHL). The CDC reports NIHL is one of the most common occupational diseases and the second most self-reported occupational illness or injury. According to the National Association of Manufacturing there are 12.3 million people working in the manufacturing sector, which accounts for approximately 9% of the U.S. workforce. The bureau of Labor Statistics states occupational hearing loss is the most commonly recorded occupational illness in manufacturing, accounting for 1 in 9 recordable illnesses. More than 72% of these occur among workers in manufacturing.

Compressed air use is also regulated. In the U.S., OSHA has two important standards relevant to compressed air. Standard CFR 1910.242(b) is specific to compressed air use for cleaning and states – “Compressed air shall not be used for cleaning purposes except where reduced to less than 30psi and then only with effective chip guarding and personal protective equipment”. OSHA’s own interpretation goes on to state “the downstream pressure of the air at the nozzle (nozzle pressure) or opening of a gun, pipe, cleaning lance, etc., used for cleaning purposes will remain at a pressure level below 30psi for all static conditions. The requirements for dynamic flow are such that in the case when blockage of the air exit (dead-ending) occurs a static pressure at the main orifice shall not exceed 30psi”.



And because compressed air can be loud and result in hearing loss when it is used through poor nozzles, open tubes and pipe, or homemade blow-offs, their noise exposure standard is important. This standard 29 CFR 1910.95(a) outlines the allowable time a person can be exposed to a specific decibel level as follows:

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)

Limiting pressure and noise is effectively done by using EXAIR products which are purposefully designed to meet these strict OSHA safety standards. There are many different options for using compressed air within a machine or out on the plant floor but many of them do not take these two important OSHA standards into account. EXAIR products are made for end-use compressed air applications, possess the ability to prevent blockage of the compressed air orifice and keep noise below allowable thresholds. Intelligent use of compressed air also results in dollar savings. EXAIR products increase safety and save money.

### For Example:

- This specific example, from a bakery, used a homemade compressed air nozzle to de-pan rolls from their baking pans.
- They made their own nozzle by capping off a 3/8" pipe and drilling a 9/64" hole in the cap. It used 25.4 SCFM at 80 PSIG. A Model 1100 Super Air Nozzle replaced the homemade solution and the result was 17 SCFM at 80 PSIG, clear savings of 8.4 SCFM. There were ten nozzles used for removing rolls from the pans and it was a two shift per day operation.
- Savings = 8.4 SCFM per nozzle (ten total)  
 $8.4 \times 10 = 84$  SCFM total
- Two Shifts per day = 960 minutes  
250 working days per year = 240,000 minutes
- Yearly Air Savings = 20,160,000 ft<sup>3</sup> saved  
Using the average compressed air cost of \$0.25/1000 ft<sup>3</sup> we can further quantify the savings.
- $20,160,000 \text{ ft}^3 / 1000 = 20,160$
- $20,160 \times \$0.25 = \$5,040.00$  total savings per year (\$20.16/working day)
- The total investment for the engineered compressed air nozzles was \$370.00, for a simple ROI of 19 working days.

EXAIR products excel at using compressed air safely and efficiently for applications such as blowoff, cleaning, drying, cooling, ventilating, circulating, part ejection, part manipulation and environmental separation. Contact an Application Engineer today to see how our Intelligent Compressed Air Products can help you and your bottom line.

## Application Spotlight:

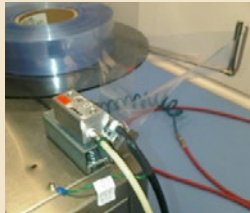
### Reducing Number of Rejects by Using Super Ion Air Knives

#### Application Goal:

Reduce the number of rejected bottles that will need to be repackaged, without requiring additional steps or processes from operators. The reject comes from the heat shrink sleeve not seating properly on the bottle. Also, maintain low noise level and minimal air consumption.

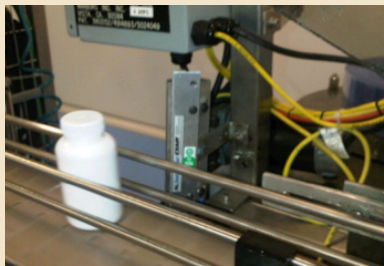
#### The Problem:

This company was experiencing an increase in poor quality product that needed to be repacked. This was due to the static that was present on the surface of the heat shrink, tamper proof sleeve and the static charge on the surface of the bottle that the sleeve was going over. This would cause the sleeve to not position correctly on the bottle and the product would get rejected for repack.



#### The Solution:

Immediately upon installation, the Super Ion Air Knives completely eliminated any repacking caused by static, while not requiring any additional effort or work from the operator. The company was also able to operate the knives at a low pressure of 20 PSIG. At 20 PSIG inlet compressed air pressure, the knives produce a very quiet 57 decibel and an exceptionally low air consumption of 9.9 SCFM to operate the units.



The Super Ion Air Knife Kits were installed to blow off both the bottle and the tamper proof sleeve. By installing EXAIR Super Ion Air Knife Kits, the

customer was able to increase production time and eliminate any repackaging of the product that was caused by improper application of the tamper proof sleeve. With the combination of the two Super Ion Air Knives, the customer has been able to operate for 7 months with no static caused down time.



**EXAIR unconditionally guarantees its cataloged products for 30 days.**

If you are not satisfied for any reason within that time, you may return the product for full credit with no restocking charge.



## New Application Checklist

EXAIR products solve a variety of problems. Please call our Application Engineers at 1 (800) 903-9247 or e-mail them at [techhelp@exair.com](mailto:techhelp@exair.com) for assistance with yours.



A weight inspection scale manufacturer has a customer packaging soup beans with a seasoning packet in the bag of beans. The bag is one pound and sometimes the seasoning packet misses being placed in the bag. The scale recognizes the weight difference without the seasoning packet and the bag needs to be discharged from the belt. A **Model 110009 9" (229mm) Super Air Knife** was successfully tested to eject the bag from the belt, saving the plant time and effort to manually remove the bags that are rejected.



A manufacturer utilizes a bank of ten Atomizing Spray Nozzles to coat parts with a solvent after a machining process. The parts are processed on an overhead conveyor and come through a doorway where there are five **Model AF1010SS Internal Mix Flat Fan Atomizing Spray Nozzles** on each side that spray the parts as they come through the doorway. The excess solvent is then blown off by two **Model 110012 12" (305mm) Aluminum Super Air Knives** to prevent any dripping outside of the process area.



A customer was generating a static buildup on a manual photocopying setup. After 200-300 sheets were scanned, the pages would build up a static charge, which would cause problems stacking the sheets neatly, and in the feed system of the photo copier. **Model 7012 12" (305mm) Ionizing Bars** were installed across the sheet intake and exit to remove the static as the copying was taking place.

## Static Eliminator PROMOTION!

**FREE AC SENSOR**  
With purchase  
\$53 Value



When the temperature outside drops and humidity plummets, static electricity problems are sure to make bad things happen, leaving you to deal with the associated production headaches. Order any Static Eliminator by March 31, 2017, and we'll include a **FREE Model 7929 AC Sensor**.



To learn more go to:

**[www.exair.com/05/sepromo.htm](http://www.exair.com/05/sepromo.htm)**