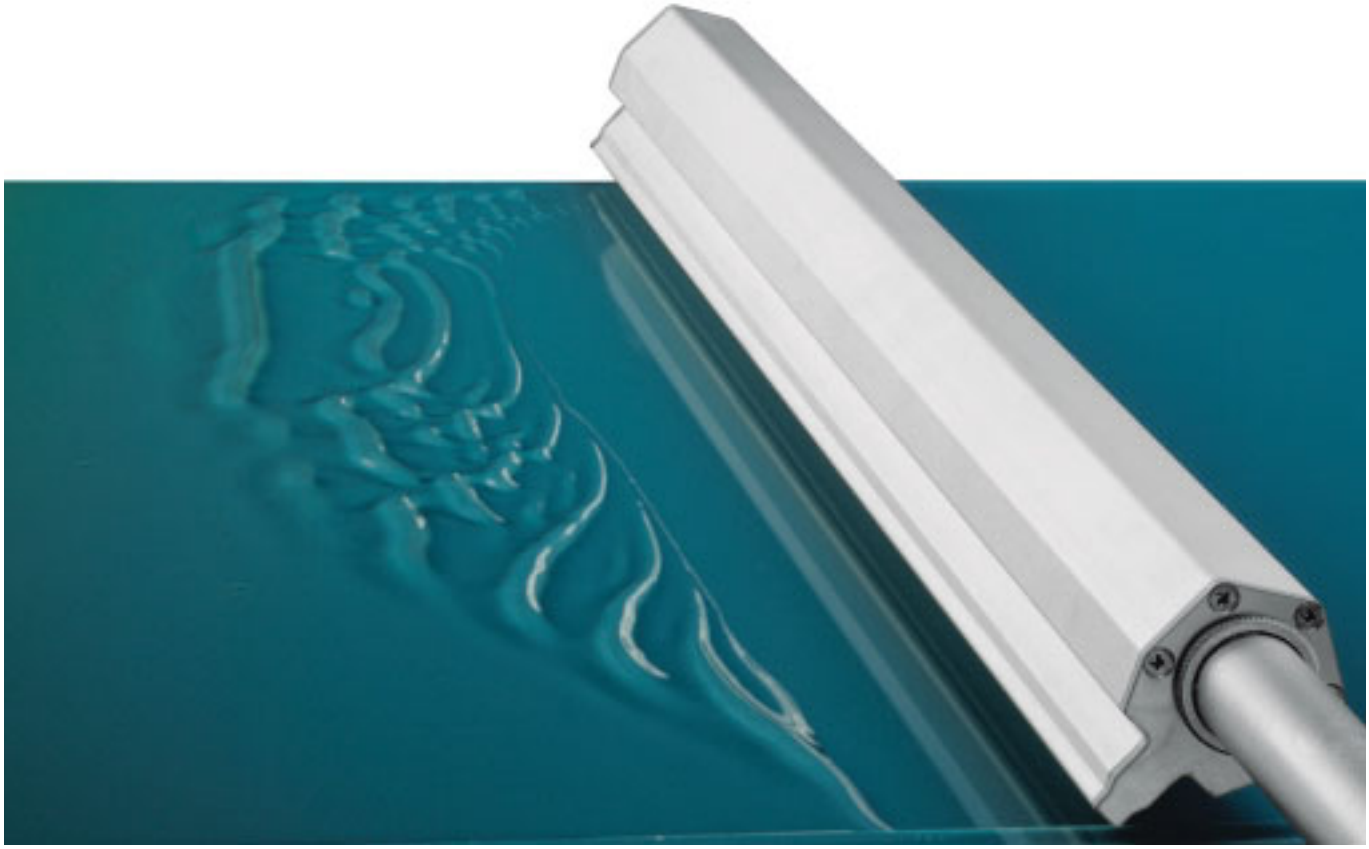

Secomak
Air at Work
Air Knife Solutions for Every Industry

Secomak . . . .

Secomak have been producing solutions for industrial process drying and cleaning for over 80 years.

During this time, we have developed the expertise, technology and products to solve almost any problem in this field.



An air knife in operation

A sheet of moisture laden material passes beneath the outlet of the Air Knife. The curtain of air pushes the approaching liquid back, forming a standing wave. Residual moisture is shattered into tiny droplets which are dispersed by the continuous stream of air.

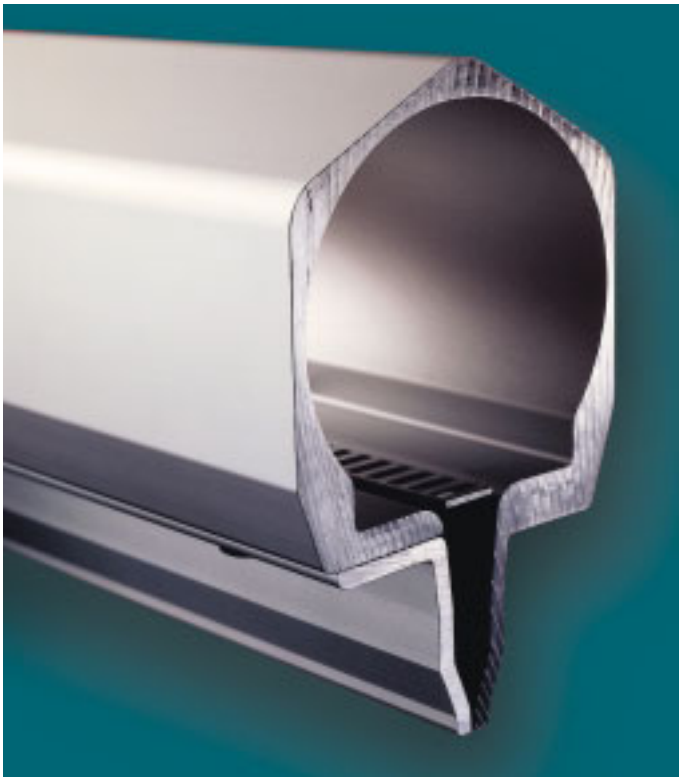
THE PROBLEM

In many manufacturing processes, moisture or particles can become deposited on plant or product.
These need to be continuously removed quickly and cleanly, but with minimal cost and maintenance requirements.
A further complication is that debris often becomes lodged within isolated areas of machinery.

THE SOLUTION

Secomak's modular POWERSTRIP system can provide flexible solutions for virtually any application. Its essential components are unique Secomak Air Knives and the High Velocity Blowers developed specifically to power them.

Industrial Applications



WHAT IS AN AIR KNIFE?

Air Knives deliver a continuous sheet of precisely controlled high-velocity air for stripping away moisture and debris. To work successfully, they need a reliable supply of low-pressure air. To meet this need, Secomak has developed a unique range of Centrifugal Blowers with performance curves optimised for Air Knife applications.

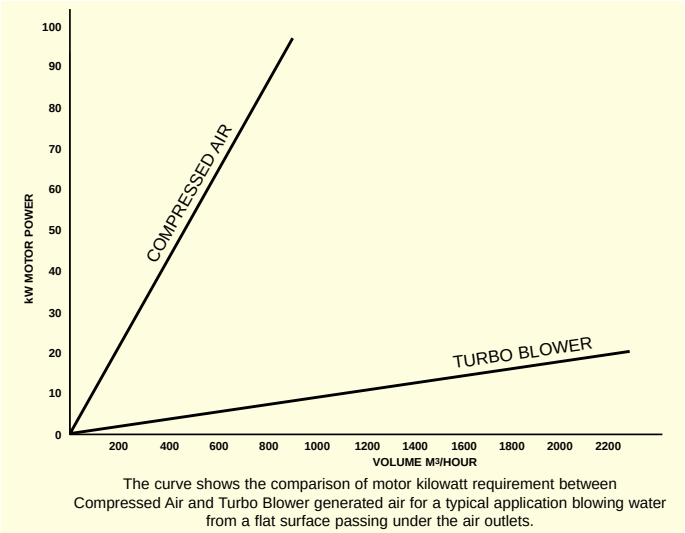
THE POWERSTRIP SYSTEM

Systems are available in modular packages. These range, in their simplest form, from Air Knife/Blower combinations, through to fully-engineered systems with universally adjustable frames for supporting the Air Knives with drip trays, enclosure panels and acoustic covers.

To determine the most appropriate solution for your particular problem, contact our team of specialist application engineers, who will provide a detailed proposal to suit your individual requirements.

THE BENEFITS

- Increased productivity
- Improved quality
- Improved environment
- Low running costs
- Energy saving
- Eliminates staining
- Low capital outlay
- Fast payback
- Easy to install
- Waste reclamation
- Low maintenance cost



The curve shows the comparison of motor kilowatt requirement between Compressed Air and Turbo Blower generated air for a typical application blowing water from a flat surface passing under the air outlets.

HOW YOU CAN REDUCE COSTS

Secomak drying systems can reduce the cost of drying by up to 90% compared with thermal drying and compressed air systems. There are also the benefits of substantially reduced maintenance costs using low stressed negative displacement Blowers which have no requirement for inline filters or pressure relief valves.

Food Beverages & Fresh Produce

A prerequisite for food and beverage production processes is that both the product and container need to be clean and, in the case of foodstuffs, dry. Hygiene standards also dictate that the product cannot be directly handled.

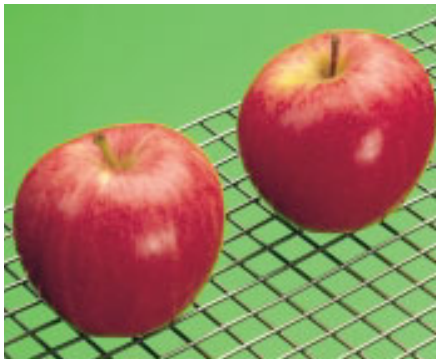
This is where an Air Knife comes into its own: a sheet of dry air is directed at the product, removing all surface debris and moisture, but without compromising product quality or appearance.


House of Poops
12

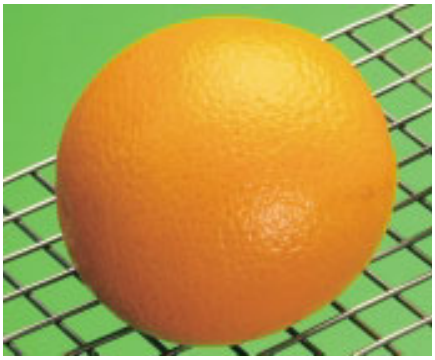

SOUP OF THE SEASON


CARDI
EEZER


Deep Fresh
Play Tub
BUBBLE BATH




Erin
LITTLE DINNERS
CHICKEN CURRY
Erin
LITTLE DINNERS
BEEF CURRY



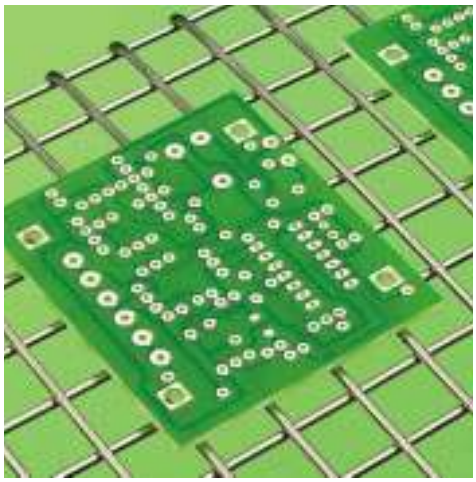
Industrial Processing & Manufacturing

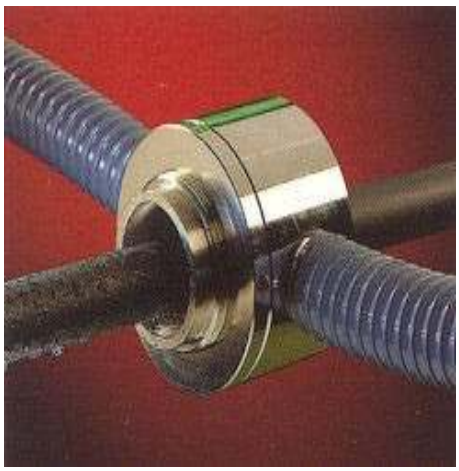
In many industrial processes, removing surface debris or liquid can be a major problem.

Our Air Knives have solved a diverse array of industrial problems, such as removing broken glass from conveyor lines or drying and cooling delicate glassine paper. They can be powerful enough to dry vehicles or sensitive enough to dry fine wire.

Whatever the application, we have the knowledge and experience to help.



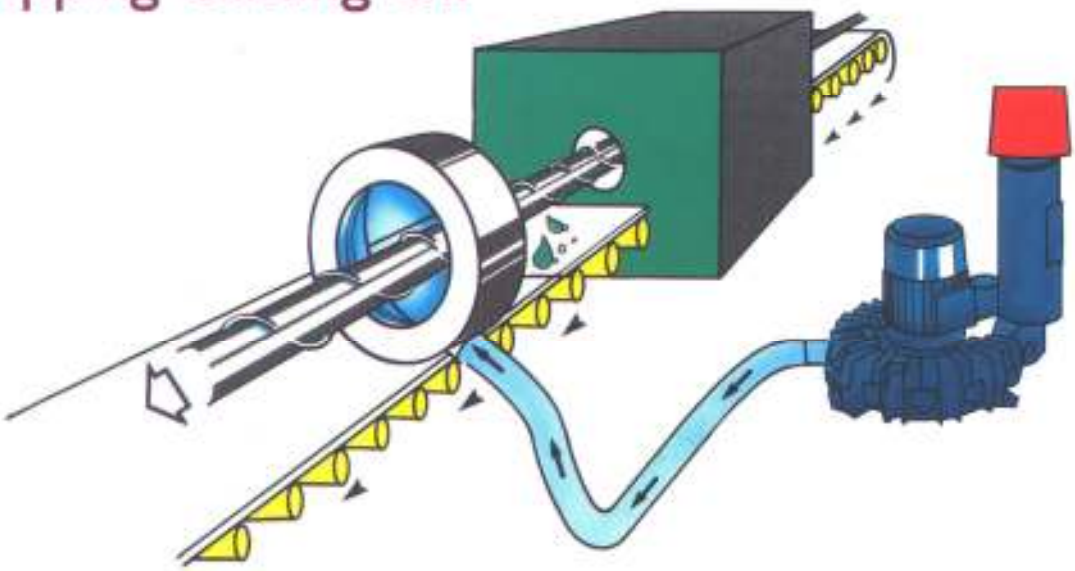


SPICES
Ground PAPRIKA




Stripping Cutting Oil

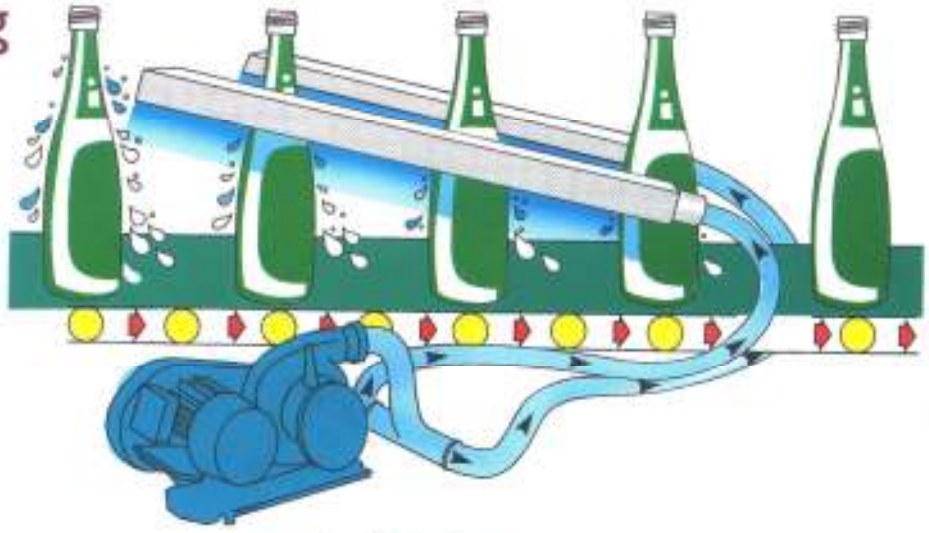


Problem
Cutting oil used in the manufacture of threaded bar is carried along conveyors and drips onto the floor around the factory. This wastes oil which can be re-used and is also a major safety hazard for those working around the conveyors. Manual labour was used to clean the bar by hand.

Solution
By fitting a circular air knife just before the bar exits the machinery, all excess oil is removed and fed back to the storage tank.

Benefits • Removal of a major safety hazard • Reduced labour costs • Reduced material costs

Bottle Drying

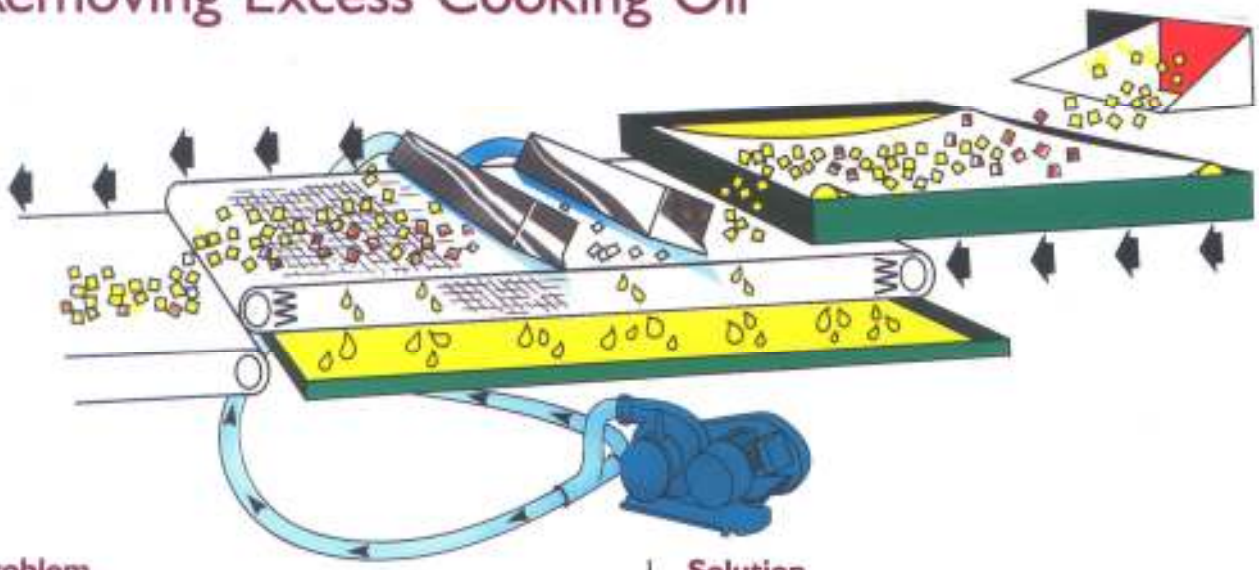


Problem
After washing and filling, bottles on a production line were too wet to label satisfactorily. Surface moisture ruins the appearance of the label and affects the adhesion onto the bottle. It also affects the cardboard crates into which the bottles are packed and can encourage the growth of fungal spores. This means slow line speeds to allow some natural drying, poor product appearance and cases rejected by customers.

Solution
One air knife fitted on either side of the conveyor belt strip the water from the bottle. These can usually be easily added to an existing production line.

Benefits • Improved drying at high speeds means increased production
- Enhanced product appearance
- Low running costs • No rejects
- Increased customer satisfaction

Removing Excess Cooking Oil



Problem

In the final stages of manufacture, croutons are removed from the fryer and passed along a vibrating conveyor to remove as much oil as possible. This was only partially successful and led to customer complaints because

(a) Croutons are sold by weight and excess oil increases the weight
(b) Excess oil solidifies and spoils the crispiness of the crouton
(c) Shelf life is decreased
(d) Customer rejects product

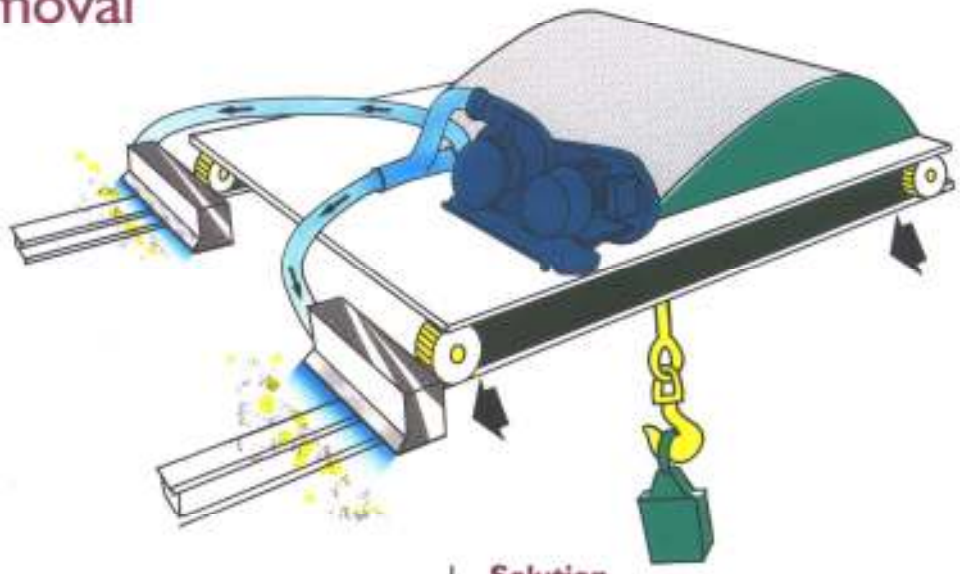
Solution

By enclosing the vibrating conveyor and fitting two stainless steel air knives across the conveyor, twice the amount of oil was removed.

Benefits

- Increased quantity of product in a given weight
- Longer shelf life • Improved product quality
- Removes customer complaints
- Eliminated rejects

Dust Removal



Problem

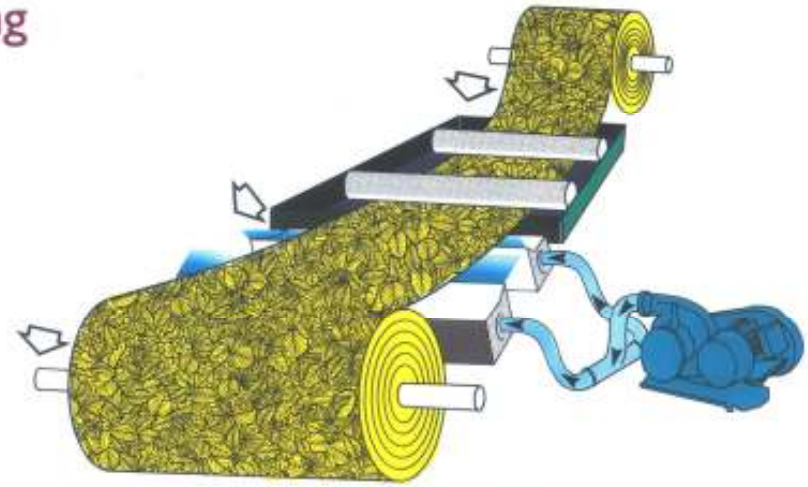
A large gantry crane in a cement works is used to remove slag from the cement kilns. Dust builds up on the crane tracks causing premature failure of the crane wheels and unreliable operation.

Solution

Two short air knives fitted close to the wheels remove cement dust from the tracks each time the crane is moved.

Benefits • Increased life from crane wheels • Greater reliability • Lower maintenance costs

Cooling

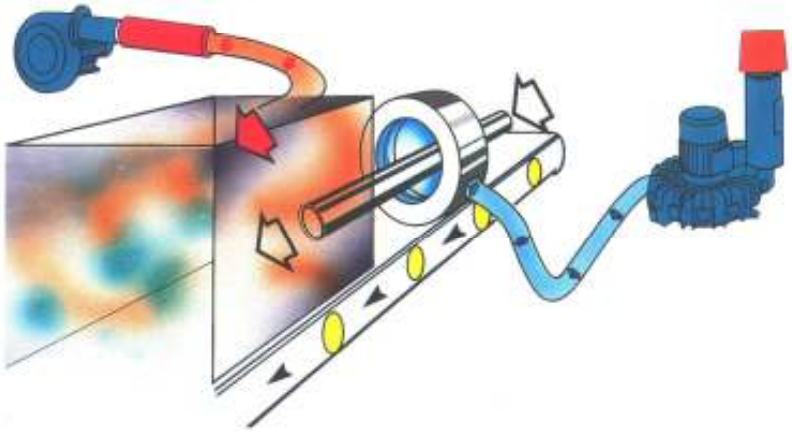


Problem
During manufacture, carpet is passed through a bath of hot molten rubber at 200°C to provide a rubber backing which improves wear and comfort. Ambient air cooled the rubber before being wound onto a roll for transport and storage. Some adhesion occurred between the layers on the roll particularly near the centre, and resulted in a few feet of waste carpet on each roll.

Solution
Two air knives blowing onto the rubber back of the carpet cooled it down to below 100°C and prevented the layers from sticking together.

Benefits
- Faster production
- Reduced wastage (increased revenue)
- Improved quality

Drying Rods and Tubes

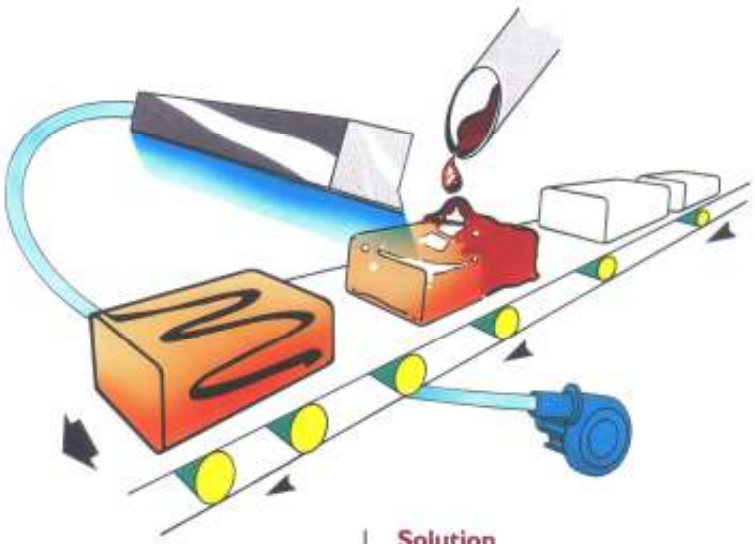


Problem
Graphite fuel rods after washing and rinsing need to be dried before being transferred to a storage area. Because of the radio-active nature of the product, no human contact is allowed and the process must be fully automatic.

Solution
Fuel rods are passed through a circular air knife which removes 99% of the surface water. The rods are then passed through a drying oven to "flash off" the remaining moisture.

Benefits • Fully automatic safe drying method • Increased throughput • Maintenance free

Coating



Problem

During the manufacture of confectionery, chocolate is fed over the product to coat it. Gravity alone does not produce an even coating of chocolate which gives unsatisfactory appearance and is wasteful of chocolate.

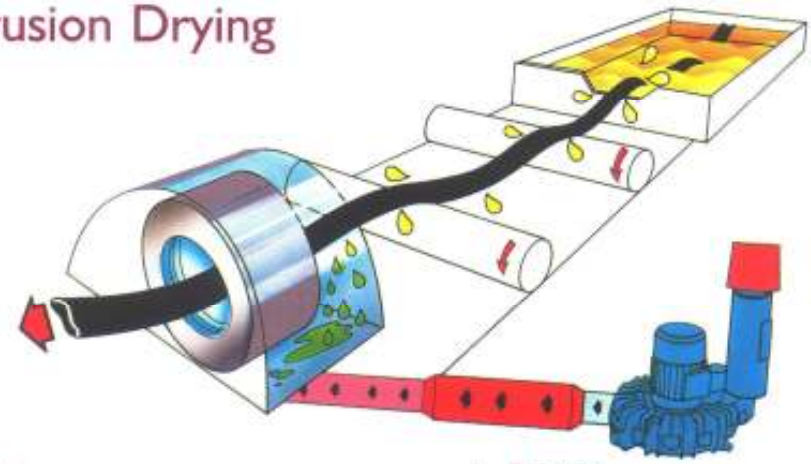
Solution

A single air knife blowing over the product removes excess chocolate producing an even coating and helps to cool the product. The excess is blown through to a recovery unit and is reused.

Benefits

- Improved product quality and appearance
- Reduced usage of chocolate
- Increased productivity due to faster cooling

Extrusion Drying



Problem

Rubber extrusion used in the manufacture of door and window seals is passed through a salt potassium nitrate bath to cure it and produce a gloss finish. Salt adheres to the strip spoiling the appearance of the product and causing maintenance problems when it sticks to conveyor rollers. In addition, topping up the salt bath is a hazardous operation and needs to be kept to a minimum for safety reasons.

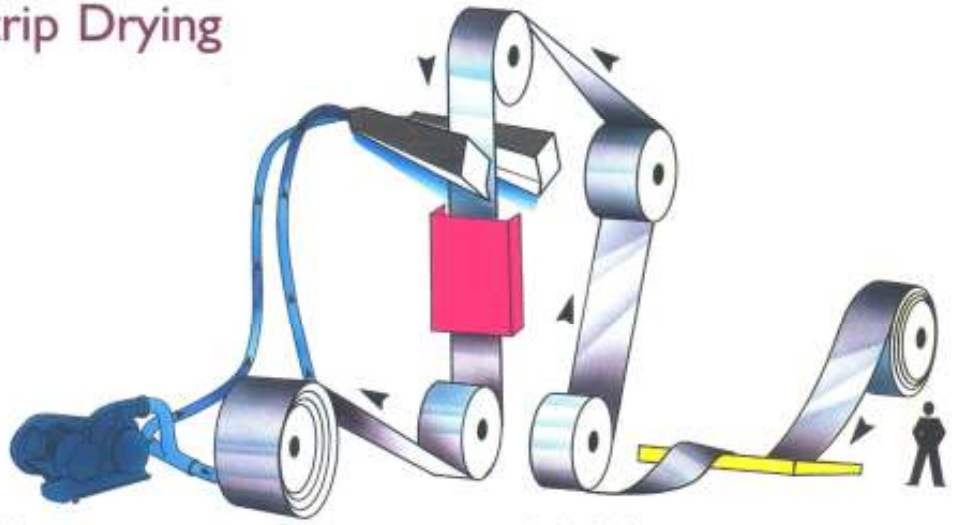
Solution

The extrusion is passed through a circular air knife as it leaves the salt bath. The air from the knife is heated to 250°C which enables the salt to flow back into the bath without solidifying.

Benefits

- Reduced salt usage
- Reduced maintenance
- Increased safety
- Improved product quality
- Payback on investment in six months

Strip Drying

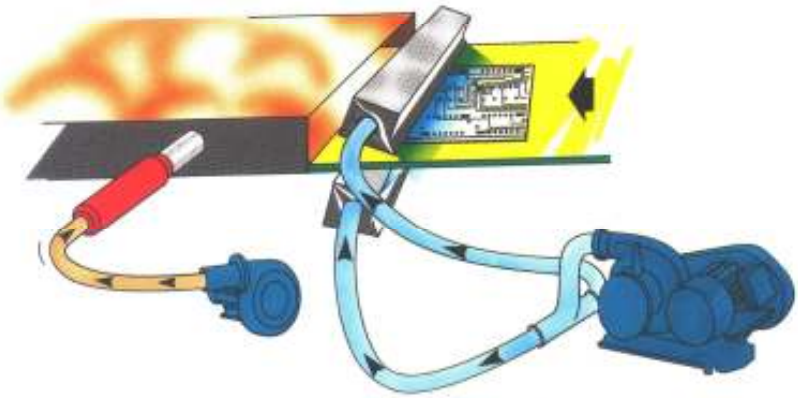


Problem
Aluminium foil is washed after an anodising process and was dried using radiant heaters. This left moisture behind which produced staining when rolled onto a reel. Slowing the process down cured the problem but with an obvious loss in production.

Solution
Air knives were fitted on either side of the foil prior to the radiant heaters to remove 98% of the water. The radiant heaters "flash off" any remaining moisture.

Benefits • 30% increase in production (£40,000 per annum) • Increased product quality

Printed Circuit Board Drying



Problem
After circuits have been etched onto the board it passes through various chemical baths and is then washed and rinsed. Air drying in racks is both wasteful of time and space and hinders productivity.

Solution
Two air knives placed top and bottom of an open conveyor strips off water lodged in the channels and holes. The board is then passed through a heated chamber to "flash off" the final trace of moisture. Boards can then be transferred to the next stage of the manufacturing process immediately.

Benefits • Increased productivity • Reduced storage/drying space • Improved quality

Customised Solutions

SecomakPOWERSTRIP Air Knives are available in lengths to suit the application and there are two cross sectional sizes each having the facility for either air entry at the end or at the rear in a position to suit customers requirements. We manufacture our Air Knives in either extruded aluminium or stainless steel with an adjustable blade that has been designed and developed to give a controlled air exit velocity. The ability to adjust the slot gives greater precision.

Secomak Circular Air Knives are used when drying rods, cables, tubes and extrusions.

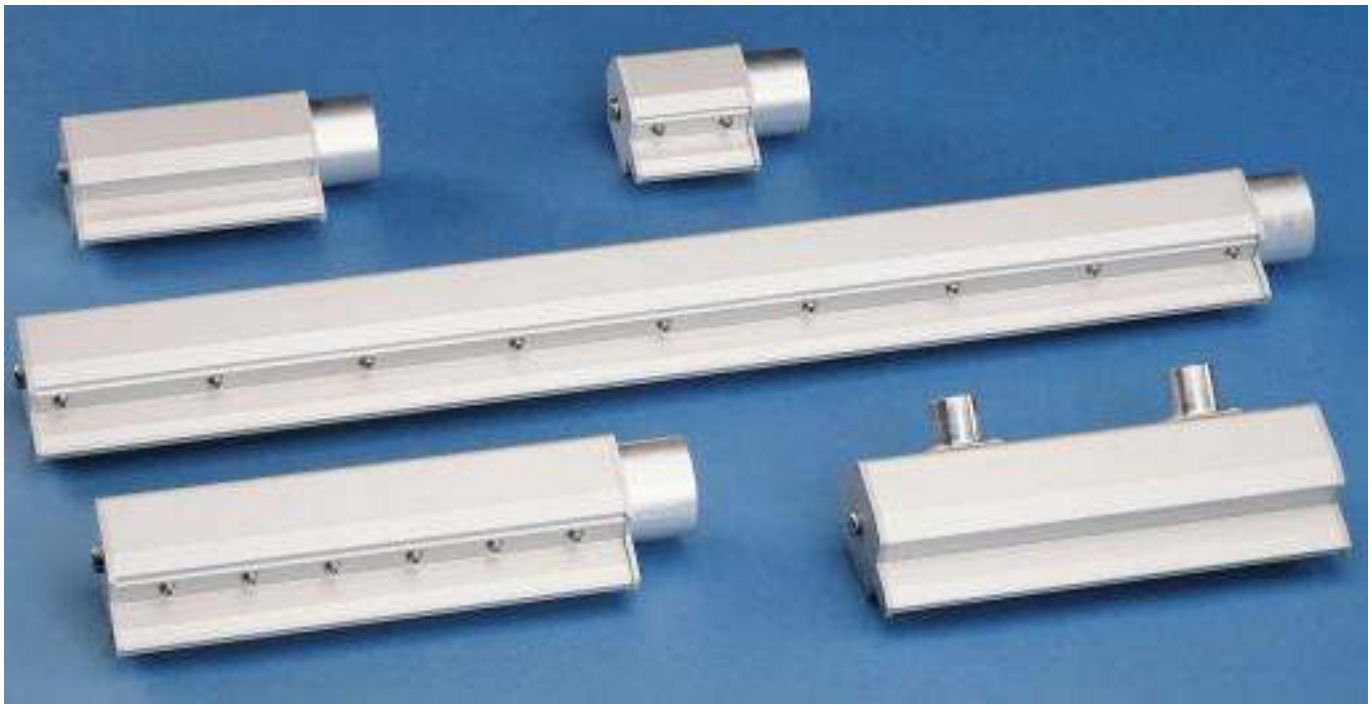
For situations where a localised delivery of high velocity air is necessary, Secomak offer Air Cannons. Air Cannons come in two sizes and are made from aluminium with a specially designed aerofoil at the exit to optimise the power of the blower.

The POWERSTRIP System

Our modular system offers the user the option of the basic Air Knife and Blower with mounting brackets, hose and hose splitter or, by stages, progressing to a full system consisting of support frame, Air Knives, Plenum chamber, side enclosure panels and drip tray. The blower delivers air to the plenum chamber which feeds the universally adjustable air knives.

HOW TO SELECT A SYSTEM

There are many factors that determine the selection of the correct POWERSTRIP system. Consideration must be given to the size and shape of the product and its material and texture, also to be taken into account is the location of moisture or particles and their volume. To make this selection process easier Secomak have a team of Applications Engineers to advise you.

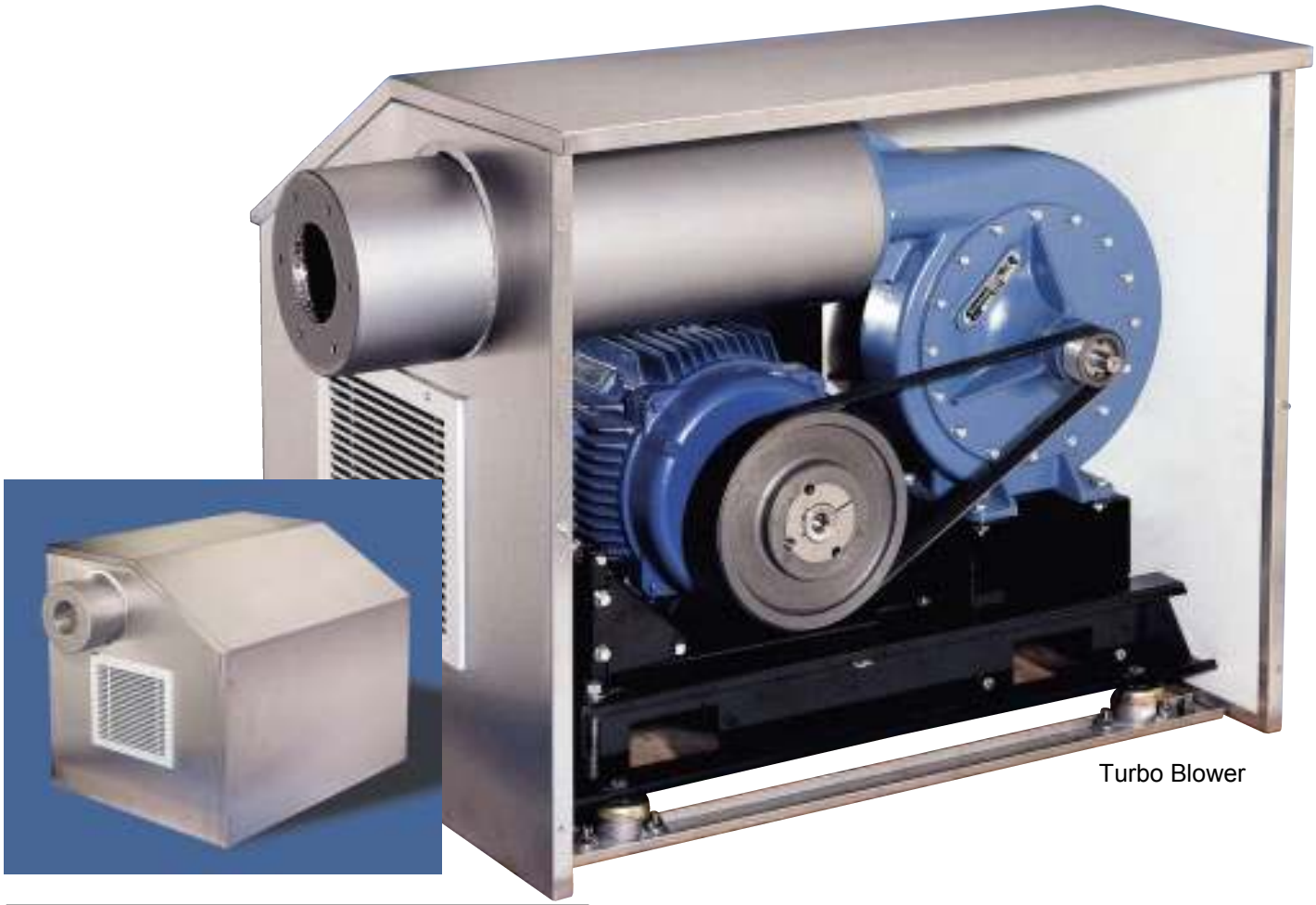


POWERSTRIP Systems

Secomak's POWERSTRIP bottle drying system is complete with air knives, turbo blower, frame, drip tray and enclosure panels. It has all the equipment you need in one complete package.

High Velocity Blowers

Secomak manufacture an extensive range of Turbo Blowers, High Velocity Fans and Accessories which ensure optimum performance for any Air Knife application.



Turbo Blower

High
Velocity Blower

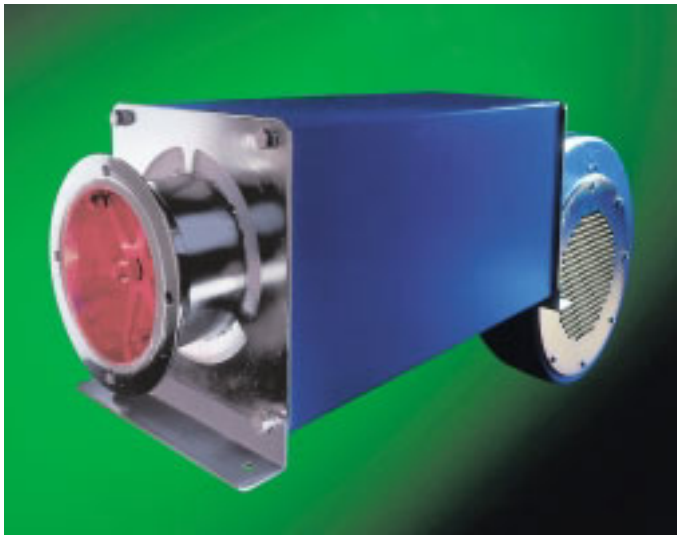
Turbo Blowers and High Velocity Fans provide an instant source of independent air for POWERSTRIP systems, at a cost far below that of compressed air.

The Secomak Turbo Blower has been developed to deliver maximum performance to our Air Knife range. It ensures smooth, pulsation-free air delivery across the whole of the performance curve. Its well-proven drive system ensures virtually maintenance-free operation and, when fitted with a stainless steel enclosure, noise levels are reduced to a minimum.

Ionizing Air Knife

There are many industrial situations where an Air Knife is ideal for removing particles, but this is complicated by the particles being attracted to the surface due to static electricity. This problem can be overcome by the addition of an anti static bar at the air exit point. The bar produces ions, which are captured by the airflow from the knife, which impinges on the target surface. This neutralises the static and leaves a clean dust free surface.

Process Air Heaters



Secomak Hot Air equipment provides a continuous stream of clean, dry hot air at up to 600°C and is suitable for applications such as drying, curing, heating, softening, melting, heat shrinking and high temperature testing.

Designed for use with Secomak fans, the hot air can be distributed exactly where it is required resulting in lower running costs and increased productivity.

Controls are available to provide accurate temperature control and, in many applications, recirculation of the hot air is possible for reduced power consumption.

Mobile units offer greater flexibility of use and deliver the hot air exactly where it is needed.

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