

Although ideally suited for many factory uses, the most inefficient process for which compressed air can be applied is blow-off nozzles / windjet style nozzles and Airknives. Adding the problems of oil and condensate filtration, the increased maintenance costs of a continually running compressor can be substantial.

The use of compressed air in blow-off nozzles can also cause severe fluctuations in the main line supply and even cause other equipment to not function correctly - by not using compressed air, the compressors capacity is vastly reduced thereby freeing it up for more important tasks. Currently, electric energy is used for nearly all production of compressed air which consequently means that enormous amounts of energy are wasted, especially when blowing operations are performed with open pipe or windjet style nozzle arrangements.

Benefits of using blower-driven drying/blow off systems:

ACI's blower driven technology is simply more efficient than using compressed air. Implementation of ACI Drying System will provide savings of up to 90% when compared to compressed air costs, meaning that an investment in an ACI solution pays for itself in a very short time period - a 5 or 6 month payback is not uncommon.

ACI blowers provide a dedicated, uninterrupted source of air to the Drying Systems with no fluctuations in pressure - the air is also clean, oil free and dry.

Cost comparisons

The following analysis clearly demonstrates the running cost advantages of using blower-driven systems over using compressed air nozzles.

Compressed air

16 off 48mm wide nozzles (Wind Jet or Whisper Jet type) used in an array covering 4 widths of 200mm supplied at a pressure of 5 Bar. (The average cost to produce 1000 litres of compressed air = £0.0042 on UK tariff).

16 nozzles at 5 Bar	11,000 ltrs/min
Cost per hour	£2.70/hour
Cost per working week (8 hours, 5 days)	£110.88/week
Costs per year (48 working weeks)	£5,322/year

ACI Drying Systems

An ACI Drying System to cover the same width would consist of 4 off 200mm long Airknives, giving an improved and continuous unbroken jet of air, supplied by a 7.5kW powered blower.

The typical cost of this system would be approximately £3,600 including flexible hose and manifold arrangement. (Average UK electrical tariff is £0.06 per kW hour [includes CCL tariff])

1 x 7.5kW blower	£0.45/hour
Cost per working week (8 hours, 5 days)	£18.00/week
Costs per year (48 working weeks)	£864/year

Running cost differential £4,458
Pay back period is therefore less than 10 months with
continuous savings thereafter.

"Significant savings have been made through improvements in the use and management of compressed air and through the installation of dedicated ACI blower-driven systems. Overall we have saved £128K per annum."

Simon Whyte, Project Electrical Engineer
Superglass Insulation Ltd, UK

"The ACI Drying System has exceeded expectations in terms of delivering a perceived noise reduction of over 50%, with the added benefit of running cost savings of approximately 90% equating to around £30,000 per annum."

John Naughton, Paint Area Manager
Jaguar Cars, UK

"We developed a rusty crown cork issue on our beer filling lines. The compressed air nozzle system was unable to eliminate the rusting. ACI Drying Technology provided the solution to Kaluga's drying problems."

Nikolay Zlatev, Maintenance Manager
Kaluga Brewing Company, Russia

"With the investment in an ACI Drying System, we have cut down on water contamination and are now 100% assured that all moisture is removed from the surface of individual bumper systems."

Bryan Staines, Production Engineer
Decoma International, UK

"Initially we had some reservations whether or not there would be enough heat in the system to achieve effective drying. However, we have found air flow through the ducting generates enough without adding a secondary heat source, saving us money."

Steve Allison, Packing Technologist,
Swan Brewery Company Pty, Australia

ACI systems clean the machining debris from the panels before progressing via an index table. (This operation previously disturbed dust which in turn activated laser safety sensors and stopped operations.) That problem has now been eliminated and production times have been improved around 15% as a result."

Dave Talbot, Works Engineering Manager
Mitras Automotive Ltd, UK

