



Container CleanSpray[®] XT case study

Cleaning-up the process for greater production and reduced costs.

Performance by design



Cleaning-up the process for greater production and reduced costs.

CleanSpray XT system provides two leading can manufacturers with increased production time and decreased labor requirements

Can makers are constantly looking for ways to improve their manufacturing process by increasing efficiency and reducing waste. During the past decade the average coating weight used for the interior coating of cans has decreased dramatically, largely due to greater precision and accuracy in spray equipment and the ability to automatically monitor the process to detect changes in operation and, if necessary, take corrective action to bring the process back under control. This results in the manufacturing process being at a point in which there is little operating flexibility – either you are in or you are out of the required quality parameters.

One area where this is noticeably significant is with spray nozzle cleanliness and cleaning. A small amount of residual lacquer (blowing back from inside the can) will result in a significant change in the nozzle spray pattern, potentially resulting in quality defects such as metal exposure (especially in the upper neck area of the cans).

In addition, if spray machines are idle for a short time (approximately 15 minutes), coating material may start to dry on the tip of the nozzle. When the machine resumes operating, the nozzle may be partially blocked, resulting in a mis-spray or partial spray.

Manually brushing the nozzles helps minimize quality problems that may arise from these occurrences. But the manual process depends upon its frequency and effectiveness (skill). Several can manufacturers have found that automating the nozzle cleaning process using the Nordson CleanSpray XT system provides a more consistent, reliable method of maintaining properly spraying nozzles. The results: greater uptime of the spray machines, improved quality, and reduced labor requirements.

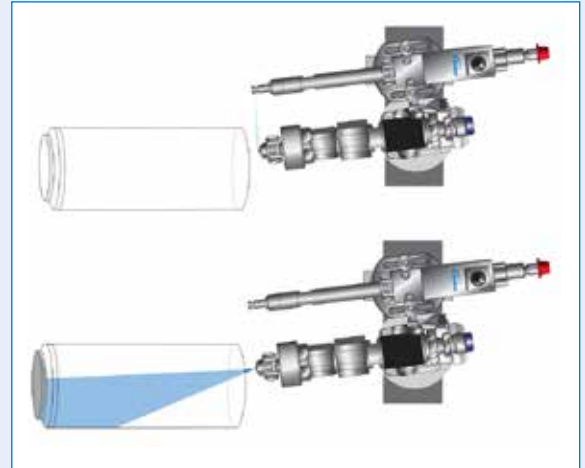


Can Manufacturer A is a major beer and beverage can maker. By installing MEG-II guns, Spray Pressure Control, and the iTrax Spray Monitor system they were able to lower their average coating weights by 20 to 25% and improve the quality of the cans – as long as the machines were running. To keep the machines running, they had to frequently and diligently brush the nozzle tips, every 90 minutes of operation and also whenever machines were idle for more than 15 minutes. If nozzles were not cleaned this frequently, pallets of cans would have to be held for inspection due to metal exposure. Previous to running the lower spray weights, nozzles were manually brushed twice per shift.

When the CleanSpray XT system was installed the can manufacturer's goal was to brush the nozzles twice per shift, as they had done when spraying at higher spray weights. However, they found they were able to operate successfully for one 12 hour shift without having to manually brush the nozzles at all. As a test, they were able to run up to 24 hours without manual brushing, but implemented a procedure of brushing nozzles every 12 hours. This resulted in over 800 hours additional production time per year and a comparable reduction in labor requirements.

Can Manufacturer B is one of the top three beer and beverage can makers. In all of their manufacturing plants they had significant problems with lacquer drying on the nozzle tip within 4 to 5 minutes when the spray machines were idle. When re-started, the drying or cap-over would result in the first 5 to 10 cans being mis-sprayed. The cans were insufficiently coated at the neck area, and the metal exposure eventually could have resulted in scratched necker tooling. To prevent this, a procedure was implemented requiring operators to clean the nozzles before start-up if the machine was down for more than 4 minutes. But this procedure was not always followed.

The CleanSpray XT system was evaluated by identifying how long the machines could be idle and resume successfully without metal exposure in cans. Testing showed that the CleanSpray XT system allowed the guns to spray properly without cap-over of the nozzles for up to 30 minutes of machine idle time (that was the duration of the test). When the CleanSpray XT system was turned off and the spray machine was idle for 5 minutes, the first 6 cans exhibited metal exposure.



CleanSpray sprays a low pressure, short-duration mist of water in between lacquer sprays to keep the nozzle face free of material build up



“At one can manufacturer, the CleanSpray XT system has resulted in over 800 hours additional production time per year and a comparable reduction in labor requirements.”

The “XT” features:

The Nordson CleanSpray system was first introduced in the can manufacturing industry almost 25 years ago. It now features several modifications that have made it more robust and precise, and this newer format is called the CleanSpray XT system:

- Integrated water treatment using reverse osmosis to purify the water. It enables use of tap water in most cases, provided the water pH is 6.5 to 7.5.
- Water in the system is filtered using 15 micron filters to further purify the water and remove sediments or particles.
- Typically the same type of pump being used for the lacquer spray is used for the CleanSpray. This provides commonality of parts and maintenance procedures.
- A proprietary ball and seat is uniquely designed for water use.
- Cleaning guns are mounted independently of the lacquer gun, rather than attached directly to the lacquer gun.
- A specially-designed nozzle is used that applies a stream of water directly to the lacquer nozzle tip. This prevents splashing of water and effectively cleans only the nozzle orifice area.



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