

It's A Wrap:
Advanced Labeling Technology
Saves Time, Money and Resources

Nordson Corporation



Food, beverage and packaged goods companies around the world are discovering that 30-year-old labeling technology can't deliver the process control or sustainability needed to remain competitive in today's marketplace. New non-contact labeling solutions cut operating costs and energy use, while increasing productivity.

Identifying a Sticky Situation

For decades, most labeling was considered acceptable and well executed if labels had an appealing design and adhered to the container properly. Adhesive was only a small fraction of operating costs, and there was little concern about its price or excess use. Today, this no longer holds true.

Placing any amount of adhesive onto a label or container is an economic and environmental issue for manufacturers worldwide. Because adhesive is made with petroleum, energy and water – all in high demand – its cost has recently increased 10 to 25 percent. More specifically, petroleum-based resin has become decreasingly available, creating additional challenges. As a result, adhesive has become a significant cost, a trend that's not likely to change anytime soon.

In addition, as more companies "go green," efficient recycling initiatives are being sought after with increasing frequency. Labels with excessive amounts of adhesive take additional time and energy to remove, and can negatively impact container material recycling.

Today, manufacturers are seeking new technologies and strategies for minimizing adhesive and energy use and costs – enabling more efficient operations that benefit both the environment and the bottom line.

Traditional Labeling System Bottlenecks

It's a bad day when a production line comes to a screeching halt, and reject containers must be scrapped or re-worked due to faulty labeling. In addition to creating much frustration, energy, time, resources and adhesive are wasted.



Traditional glue-pot-and-roller system

Operations using traditional wheel-pot labeling systems experience these line stops all too frequently. Open wheel-pot-and-roller systems that employ 30-year-old technology are notorious for dented containers, misapplied labels, charred adhesive and the need for frequent cleaning due to adhesive slinging and stringing. In fact, glue application problems can represent as much as 50 percent of line downtime.

Adhesive degradation and usability alone is one of the biggest challenges associated with traditional labeling systems. Following are factors that can lead to adhesive breakdown:

- The open, circulating system exposes molten adhesive in the pot to ambient plant air and debris, and is vulnerable to moisture and oxygen.
- Because heat easily dissipates from an open system, more energy is expended to keep the molten adhesive at the required application temperature.
- Charring, or burned adhesive residue, results from constant reheating.



Open systems expose adhesive to contaminants and faster degradation

Traditional systems also often limit line speed. Increasing the speed on a traditional wheel-pot system commonly results in narrowing of the adhesive pattern, skewed labels or label flagging.



Misapplied, skewed labels and continual cleaning are common with wheel-pot labeling systems

Constant cleaning associated with wheel-pot systems increases downtime and limits productivity and throughput. Unusable adhesive must be removed and disposed of, creating more waste. Adhesive stringing, or "angel hair," builds up on machinery and components, negatively affecting labeling integrity, product quality and machine productivity. Many operations spend eight hours or more each month cleaning.

Operators routinely replace the system's numerous moving parts, which wear with age and contribute to label application issues, such as wrinkling and folded-back labels. Changeovers – the process of changing the labeling system to fit a different container size – can take up to two hours to complete.

Operator safety is easily compromised in operations using wheel-pot systems. Adhesive fumes and exposure to molten adhesive can create a hazardous work environment.

The bottom line? Traditional wheel-pot systems consistently lack process control, produce more waste and result in higher production and maintenance costs.

A Solution: Closed, Non-Contact Labeling Systems

Labeling operations can eliminate much of the inefficiency and cost associated with open glue-pot-and-roller systems. New “closed,” non-contact labeling systems deliver hot melt adhesive from the adhesive melter through a delivery hose and onto the container or label via a choice of spray or slot dispensing guns. These first-in first-out, non-circulating systems prevent heat loss and adhesive exposure to ambient air. Spray and slot guns apply adhesive without contact, enabling the use of thinner, lighter bottles and containers. Non-contact adhesive application also expands the range of container shapes and sizes that can be accommodated on a single labeling machine.

The precise application of adhesive – using fiberized spray and slot gun technology – provides a stable and consistent bond while also minimizing the amount of adhesive needed on each label. Look for systems that allow you to choose from a variety of applicators or guns matched to your operation's requirements. These applicators can dispense spiral-shaped swirls, mini swirls or mini dots to container labels and label cross seams/lap seams – whichever works best for your product.

Whether you are applying magazine-fed (cut and stack), in-line roll-fed, or carousel roll-fed labels, the right non-contact labeling applicators or guns can deliver the perfect amount of adhesive with the utmost precision, every time. Adhesive dispensing can also be fully adjustable to fit specifications. Here are some examples:

- The best-quality magazine-fed labeling systems can reduce adhesive use by up to 90 percent, compared to traditional wheel-pot systems. Accurately dispensing precise volumes of adhesive to the container at label pick-up and to the label seam, clean adhesive cutoff and more uniform patterns provide manufacturers with fewer product rejects and less adhesive waste.
- Non-contact roll-fed labeling systems (both in-line and carousel types) are designed for high-speed labeling of containers in various shapes and sizes. Guns dispense an array of beads or mini dots on the leading and trailing edges without touching the vacuum drum or label. This eliminates the need for drum resurfacing, and minimizes setup and maintenance operations. These non-contact systems can also be easily retrofitted into existing roll-fed labeling machines.

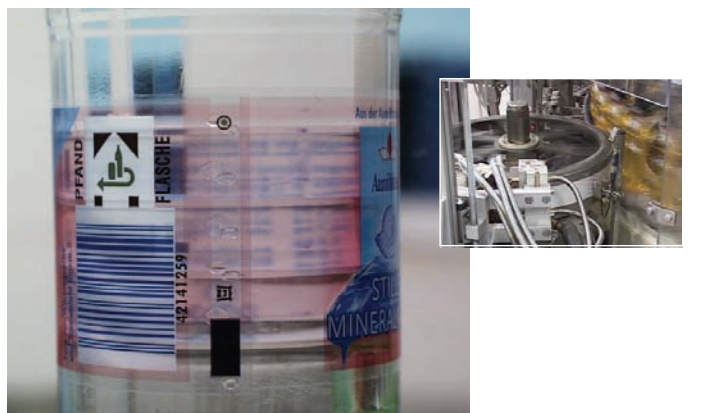
PatternJet™ Systems for Magazine-Fed Labelers



PatternJet Plus Systems for In-Line Roll-Fed Labelers



e-dot+™ Systems for Roll-Fed Carousel Labelers



Non-contact labeling systems also feature pattern controls that have the capacity to store up to 99 programs for individual label sizes, reducing changeover time. At the push of a few buttons, a program can change the pressure and timing parameters needed for each label. So, instead of taking up two hours of line downtime – as is the case with traditional systems – the whole changeover process can take less than 20 minutes.

Innovative System Brings Significant, Measurable Benefits

Labelers will be hard-pressed to find cleaner, more efficient labeling technology than non-contact labeling machines. The closed system protects adhesive from contaminants and char. Temperatures are more constant, resulting in more efficient energy use. Stringing and fumes – commonly associated with traditional technologies – become a thing of the past.

Among the non-contact labeling system's many benefits is its ability to help increase productivity. Line stops, misplaced labels, unusable adhesive and dented containers become few and far between.

Cleaning is a cinch because operators can simply remove nozzles at the end of the week and clean it while a second set is in operation. Even then, it only takes 15 minutes to remove any debris. In fact, some manufacturers say that their downtime has been reduced by 50 percent since they began using a non-contact labeling system.

Remember how traditional wheel-pot systems can limit labeling line speeds? With non-contact technology, this becomes a non-issue because systems can be geared to your line speed. The same, precise amount of adhesive is applied every time, regardless of line speed. This has enabled some operations to apply their labels at the rate of 1,000 containers per minute.

Talk about cost savings. Consistent, accurate application of miniscule amounts of adhesive to every container, every time, at any speed results in glue savings of up to 90 percent.



Non-contact application (right) dramatically reduces adhesive use, compared to traditional wheel-pot systems (left)

A Sustainable, Positive Impact

Combining closed, non-circulating adhesive delivery with precise adhesive application improves process control, saves adhesive and improves container recycling. Energy usage, maintenance, downtime and reject containers are all significantly reduced. Working conditions for operators are improved and safer. Manufacturers can save money and valuable resources while also increasing productivity. The result is a long-term, sustainable solution that will boost the bottom line for years to come.

For more information about non-contact labeling solutions, call Nordson at (800) 683-2314, visit www.nordson.com or [click here](#).

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