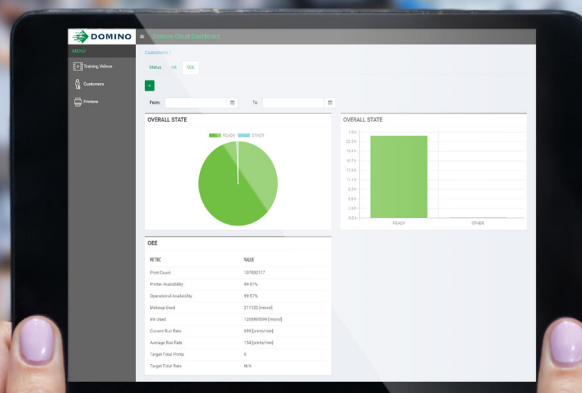


Forming a Sustainability Partnership with Your Coding and Marking Supplier

WEBINAR BRIEF



Manufacturers are embracing sustainability initiatives in response to legislation, consumer preferences, and a desire to operate more responsibly. For beverage manufacturers, new can-coding technologies present a unique opportunity to operate more sustainably, reduce waste, and become more efficient. Traditional continuous ink jet coding systems are falling out of favor due to maintenance issues, code quality, and environmental concerns like volatile organic compound (VOC) emissions. Fiber laser coding solutions offer a greener and more efficient alternative. Beverage manufacturers that have made the transition to fiber laser coding appreciate the positive impact on quality, productivity, and sustainability.

Ryan Petty discussed challenges that face beverage manufacturers as they pursue sustainable manufacturing. He shared why fiber laser coding solutions are a more sustainable alternative to traditional continuous ink jet technology.



Packaging sustainability is a growing challenge for manufacturers.

According to the PMMI 2020 Packaging Sustainability Report, manufacturers must evaluate the individual components that make up a larger packaging strategy in a holistic and in-depth manner. OEMs and suppliers have a unique opportunity to help manufacturers establish and meet packaging sustainability goals.

Sustainable packaging initiatives in the consumer packaged goods (CPG) industry are influencing machines, materials, and packaging formats. Sustainability encompasses alternative ingredients, greener package designs, and cleaner business models. Companies must innovate to stay ahead of both legislation and consumer preferences.

Sustainable manufacturing means focusing on equipment efficiency, lead times, and waste.

Three ways manufacturers can improve their packaging sustainability are:

1. **OEE (overall equipment effectiveness) management through technology.**

Manufacturers need smarter machines with comprehensive monitoring to optimize production planning and support successful sustainability models. OEE management through technology enables manufacturers to identify production problems and quickly manage on-the-fly changeovers. When defects and failures arise, vision systems stop the line and prevent waste. Coding control systems are also essential for preventing production errors.

2. **Lead times.** Shorter packaging lead times support production flexibility and responsiveness, as well as reduce packaging waste. Many manufacturers cooperate closely with supply chain partners to prevent decreased quality or waste associated with production, parts, and products.

3. **Elimination of waste.** Traditional sustainability audits suggest that the only way to implement sustainable manufacturing processes is by overhauling the entire facility. Socially responsible manufacturers have recognized, however, that examining the root causes of waste and engaging in continuous improvement are the best ways to identify economically viable solutions. Sustainable manufacturing minimizes or eliminates production and processing waste through eco-efficient practices and adoption of new environmental technologies.

Most manufacturers want to eliminate waste from their technologies, especially hazardous substances. New approaches that lower or eliminate emissions of VOCs from the manufacturing process are particularly attractive. Human error and wasted time are other important forms of waste.

Domino has addressed these challenges by automatically deploying label information during product changeovers, which eliminates human error. Domino uses industry standards to enable direct integration of printers for simple control and data acquisition. No previous knowledge of proprietary printing protocols or third-party adapters is required.

Figure 1: Domino Supports Industry Standard Communication Protocols

We're currently members of:



Supported standards:



In development:



Progressive manufacturers are using the IoT to bring coding capabilities into the Industry 4.0 era.

The Internet of Things (IoT) represents the next major advancement in manufacturing automation. It enables machinery and equipment to transmit real-time information to applications. Yet, IoT is more than just connecting things. It also allows operators to better understand equipment efficiency, identify maintenance needs, and prevent failures and loss.

Domino helps manufacturers enhance their efficiency by improving the interconnectivity between date coders and other equipment through:

- **Ethernet/IP connectivity (EIP).** When it comes to interconnectivity, the Industrial Ethernet is a hot topic. By 2025, 52% of all new installations are expected to use the Industrial Internet. Domino equipment supports the proprietary, standard communication protocol for Allen-Bradley programmable logic controllers (PLCs). This is the most common CIP in North America and Asia.

Domino has also entered into an exclusive partnership with Rockwell Automation. Partnering with OEM integrators like Rockwell eliminates the need for the Domino Protocol and provides manufacturers more plug-and-play features.

EIP is an option available with Domino's D/F Series lasers. This functionality eliminates the need to understand Domino Protocol and provides standard integration/communication without middleware. It offers independence to customers who want remote communication.

- **Coding automation.** Domino's coding automation experts understand efficient print practices that achieve optimal uptime and true interconnectivity. Minimizing operator errors is the most effective way to drive coding improvements. Coding automation technologies enable manufacturers to conquer stoppages and expensive product recalls, and reduce waste.

Domino coding automation software mines data in an ERP SCADA or automated system through a single network-friendly connection. It can populate a label and push it to the printer without manual intervention. This translates into fewer costly operator errors and greater potential for improved process efficiency.

Although continuous ink jet coding has been the standard in the beverage industry, this technology presents environmental challenges.

Beverage manufacturing is a tough environment for can coding. Challenging aspects of beverage production lines include:

- **Production speeds.** As technology has advanced, production line speeds have increased and higher numbers of cans can be processed. A typical soft drink canning line is capable of running as many as 2,000 cans per minute. Coding systems must keep pace.
- **Harsh conditions.** Beverage production lines are often wet and sugar laden, with temperatures reaching as high as 113°F. These conditions can adversely affect code quality.
- **Print surfaces.** Most codes are printed on the bottom of cans, which have an uneven and concave surface.
- **Space constraints.** Coding systems must integrate easily on the canning line. This requires optimal printhead design and a small machine footprint. Systems must also be installed in locations that won't cause bottlenecks or downtime on the production line.

Over the last 25 years, continuous ink jet (CIJ) technology has been the only coding option available to beverage manufacturers. The inks are designed to dry quickly on aluminum cans and the technology can print multiple lines of code at a fairly fast rate. However, CIJ technology also suffers from production and environmental issues. For instance:

- **Production line downtime.** Component parts must be replaced at various maintenance intervals and unexpected downtime is a reality.
- **Code quality.** Harsh production conditions can compromise code quality. Ink jet printers often struggle to code reliably as production line speeds increase above 1,800 cans per minute and as the amount of code information grows.
- **Sustainability concerns.** CIJ systems require consumables (ink and make-up) and these often generate hazardous fluid waste. Although ink jet coding isn't a significant contributor to VOC emissions at most facilities, reducing CIJ emissions can help reduce total plant emissions. This is particularly true at beverage facilities with large CIJ installations.

Water-based ink formulas may seem safe, but they are rarely VOC free. To improve dry time and code quality, solvents are often added to formulations. It is important to verify the VOC contents on water-based coding and marking solutions, since they may not be as environmentally friendly as initially believed.

“Progressive IoT-focused organizations are using Domino to bring their coding capabilities into the Industry 4.0 era, leaving behind the daily battles caused by labeling errors.”

Ryan Petty, Domino Amjet

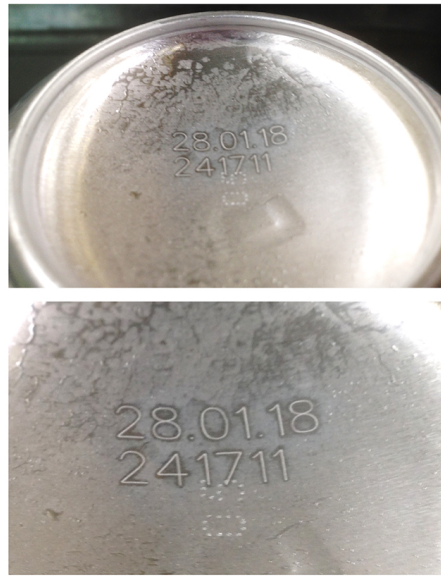
Fiber laser coding solutions are a new, more sustainable alternative to continuous ink jet technology.

Fiber laser technology is a green alternative to continuous ink jet solutions. Fiber laser systems provide ink-free coding. They require no fluids and generate no waste. Thanks to their high-pulse peak power, laser fiber solutions can code bare aluminum, as well as coated or anodized aluminum. They leave an indelible mark on containers by etching the surface.

Fiber laser solutions can generate high-resolution codes and logos, even on concave surfaces. They are also high efficiency, supporting the highest uptime on canning lines and the lowest impact on OEE. Fiber laser coding reduces the opportunity for product “holds” which typically result in disposal of cans and it reduces air consumption in the plant.

Figure 2: Beverage Can Marking Using Fiber Laser Technology

Samples at 55,000 cans per hour through condensation:



“Domino fiber laser solutions can help you hit your production line targets, as well as your CSR requirements, without losing print quality or speed. It’s possible to have both ethics and performance.”

Ryan Petty, Domino Amjet

Leading beverage manufacturers like Pepsi are adopting fiber laser coding solutions.

Last year, Domino partnered with Pepsi Bottling Ventures in Winston Salem, North Carolina to explore a laser can-coding solution. The benefits of transitioning to fiber laser systems are substantial as organizations assume greater accountability for environmental and social performance of their supply chains.

Pepsi Bottling Ventures switched to Domino F7210i fiber lasers. According to Sabri Kundakcioglu, vice president of engineering at Pepsi Bottling Ventures, the company made the transition for three reasons: quality, productivity, and sustainability.

Founded in 1978, **DOMINO PRINTING SCIENCES** has established a global reputation for the development and production of coding, marking and printing technologies, as well as for its worldwide aftermarket products and customer service. Domino’s Digital Printing Solutions Division serves the commercial printing sector in providing digital inkjet printers and control systems that deliver solutions for a complete range of labeling and variable data printing applications.

The Domino Group employs more than 2,800 people and operates in over 120 countries. The company has manufacturing facilities in the UK, US, China, Germany, India, Sweden and Switzerland.

