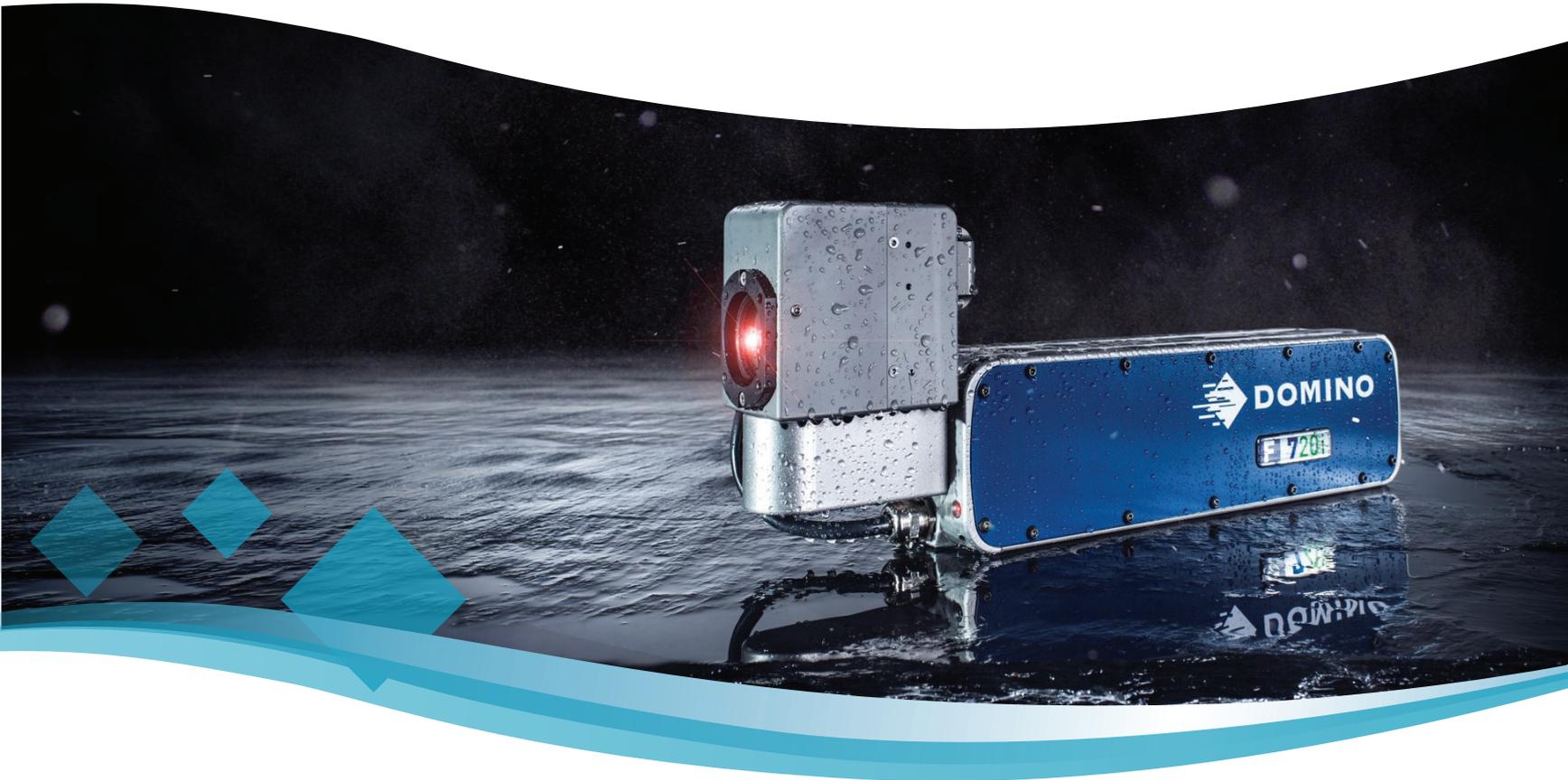




The Domino F-Series Fiber Laser

Ideal Can Coding Solutions for the Real World



As any design engineer will tell you, the distance between the real world and the ideal world is only as large as built-in tolerances. We've heard the same day-to-day challenges and ingenious engineering solutions time and again from beverage facilities all over the world.

As much as we'd love to, none of us live in the ideal world and all of us in industry must plan for the real world. When a printing product built for the ideal world collides with real world conditions, it can lead to line stoppages, costly rework, pallets of product loss, lack of precision and in worst case scenarios, millions of dollars of lost revenue from product waste.

Hot & Bothered

As you know, here in the real world, beverage canning factory floor environments are hot and humid, standing in contrast to the chilled product base. When hot and cold interact, condensation isn't far behind.

While Inkjet has been successfully deployed on floors for years, today, there are better options in the can coding space. Ideally, Inkjet is a

wonderful solution for bottle labels and chipboard cases, where condensation is never an issue. Using it for can coding is like passing the football to the fullback – it'll get the job done, but there are just better options.

Heat is a simple fact of life on factory floors. In summer months, ambient temps can get up into the 100°-plus Fahrenheit range – and that's before the equipment's activated. In an ideal world, a 104° spec limit would be more

than enough for the factory floor but in the summer—with over 1,500 cans being processed per minute and all of that machinery dumping out BTUs of heat—is 104° enough of a redline?

If your machinery does overheat, you are left shutting your line down over something as common as hot temperatures on the factory floor, meaning massive lost revenue out of your bottom line.



Small Mistakes, Big Consequences

Coding mistakes aren't simple at all. Instead, they can lead to shortfalls thanks to scrapped product losses, line stoppages from inaccurate pre-coded cans and more. Over the course of a year, product losses from line stoppages and mislabeled cans can cost millions in lost revenue for large operations.

As traceability specialists, Domino's specialists visit multiple manufacturing sites in several different industries on a daily basis. As a result, we've seen many ingenious attempted remedies to hurdles that inkjet coding introduces. In order to combat inaccurate and unreliable coding, companies have resorted to checking inkjet coding at regular intervals to prevent buildup of product with bad codes. However, with a well-oiled production line, even a short, 10-minute run with coding

mistakes would lead to more than 15,000 cans of scrapped product. Often, spot check intervals are even longer than 10 minutes, leading to even more scrapped product when an issue presents itself.

Scrapped product isn't the only issue. Domino's industry experts have seen manufacturers miss customer commitments, lose their own customers, and bear the burden of overtime costs to replace lost product. In other words, small mistakes in coding mean big, real world issues. One leading beverage company, one of many, shared a cost to the business in excess of \$50,000 for improper coding for their one facility, per year, per line. Do the math across multiple factory locations and that number gets insurmountable in a hurry. And while this figure is an estimate, the conversations Domino has with similar customers in the beverage world indicate this is one of the smaller costs to the business we have seen.

Industrial Remedies

Across the beverage industry, there has been a lot of clever solutions thrown at this issue in addition to spot-checking. Typically, these remedies have centered around installing more equipment and spending resources to attack the problem. Unfortunately, none of these has truly been the cure for the root issue.

One of these solutions is the usage of heated blowers to remove condensation to create a more ideal environment for inkjet printers. However, the heated blower solution is not without its own drawbacks. In addition to the built-in cost of adding these blowers to the line, they can also defeat their own purpose because the air cannot be introduced at the exact time of printing and can even blow droplets of ink off course causing mislabeling, and again, leading to potential line stoppages and product scrap. Once the blower is running, there are also the hidden additional costs of powering and maintaining the blower unit itself.

Chicken or the egg

In order to combat scrap and avoid the condensation problem altogether, some companies have resorted to printing on cans before the beverage is even introduced. Unfortunately, even this imaginative solution has its own set of issues.

Both the can production amount and the beverage amount must be forecasted. If there is a miscalculation in either forecast, there is a mismatch production resources, potentially creating expensive bottlenecks in the process, and again, leading to expensive line stoppages and production scrap.

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Double Lines, Double the Trouble

One of the best solutions has been the deployment of redundant equipment. In order to limit downtime, parallel lines have been deployed, so if a line must be switched, the other is brought online. In theory, this is an excellent, if costly, solution because there are fewer downs thanks to built-in expense of the equipment redundancy.



However, having multiple parallel lines can also open you up to the same issues as fewer Inkjet lines ... but at faster speeds. Essentially, the same checkups are deployed including spot-checking, air blowers, etc. but now, there is more equipment to maintain, not to mention the enormous monetary and spatial expense of installing an entire redundant line in the first place. Then, when there is a mismarking issue, it can lead to exponentially more lost product.

Inkjet, Exit Stage Left

All of these solutions, when considered in a perfect world would make Inkjet perfect for the beverage industry. After all, in theory, centralized heating and air conditioning is plentiful on the factory floor. It's always a beautiful 70° Fahrenheit outside, machinery creates no heat, there's no product condensation, and all is right with the world.

But we don't live in an ideal world, do we?

Built for Strength, Built for Reality

When Domino's product engineers started designing the F-Series Fiber Laser lineup, they started with the original concerns from real production lines from the real world. In fact, it was designed hand-in-hand with an international beer producer known for pumping out hundreds of millions of cases of beer each and every year. Their pain points are the same ones that we've seen again and again ... heat, condensation, production downtime ... and did we mention heat?

Our F520i and F720 were specifically built to run in a hot, wet environment. Our product designers knew that condensation was going to be a fact of life, so we build every F720i in stainless steel to prevent corrosion over time. In addition, its electronics are purpose-built to handle temps of up to 113° Fahrenheit (46° Celsius), making it an ideal solution in true-to-life situations in hot climates and with equipment pumping out its own heat.

High Humidity? No Blower? No Problem.

Without the worry of shutdowns from overheating, lasers also remove another obstacle for inkjet industrial printers – condensation. Lasers do not use ink at all, so there's no longer the worry of dealing with ink drops blowing off course. Frankly, there's no longer any need for ink at all.

No blowers, no extra electricity, no worries when there's a high temperature differential or high relative humidity.

Lasers etch the needed information directly into the material without any worry about condensation and removing the need for forecasting pre-etched empty cans. Our lasers are tailored according to the aluminum

can substrate itself. They specifically etch only as deep as needed and according to the can's exact conditions.



Finally, with lasers, there is less of a need for line redundancy because there's no need for inkjet head cleaning, alignment or fluid replenishment. In essence, the laser is aligned upon installation and set on its way, cutting through condensation and working through the heat.

The Right Product for the Right Situation

Inkjet is a wonderful solution for several industries and absolutely has its place within the beverage industry's toolbelt. However, if there is condensation, Inkjet Printers just aren't up to the task. That's where lasers come in – removing power waste and redundant equipment, boosting code readability and eliminating wasteful line stoppages.

Lasers are the preferred solution for beverage manufacturers ready to turn their real world into an ideal world, and both the F520i and F720 Fiber Lasers have set the benchmark for reliable, consistent and accurate codes.

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