



Creating a Clear and Powerful Impression



Continuous Ink Jet Printing on Egg Shells

Founded in 2001, Sichuan Sundaily Village Co., Ltd is one of the top five poultry and egg enterprises in China. The company is headquartered in Sichuan province and has other factories located in Jiangxi, Anhui, and Hebei province. Sundaily employs over 500 people and has 4.5 million chickens on hand.

Sundaily has experienced significant growth while supporting important customers like Walmart, Carrefour, Metro Mall, and KFC. The company has two Moba Omnia egg grading machines which run 10 hours a day, 7 days per week, processing 7 million eggs per week.

Importance of Coding

China's regulations stipulate that the date must be printed on the carton of all eggs sold in supermarkets. There are no egg shell coding requirements. However, only about 40% of eggs are sold in cartons in Beijing, Shanghai, and Guangzhou. While this number continues to grow, most eggs are still sold in street markets without cartons.



In the streetside markets, eggs are sold by weight and are packaged in clear plastic bags. Without a carton to promote their brand, the only opportunity companies have to differentiate themselves is to print on the egg shell. Companies will print their name, product varieties, and the production date. A premium brand allows the company to increase revenue and charge

more for a premium product. Since the code is associated directly with the brand, it increases the importance of print quality. The code on the egg must be crisp, clear, and stand out when compared to the competition. Therefore, Sundaily's success depends on its ability to produce these clean and legible codes on the egg shells that draw the attention of consumers. According to Mr. Luo Gang, General Manager of Sundaily Manufacturing Center, "Overall product quality is very important to Sundaily. The printing of the code is a very large part of that."

New Process Creates Coding Challenge

Coding on eggs can be a challenge. The temperature and humidity in the environment makes it tough to adhere to the surface of the egg. Additionally, the egg shell material can vary, depending on the hens and their diet, altering how well the ink adheres to the shell. Even with these challenges, Sundaily was able to code on the egg shell with its older continuous ink jet (CIJ) printers from various companies. Their coding issues did not surface until the company changed its egg production process.

"The Videojet 1610 is the best printer. It is very stable, has few failures and is easy to operate."



Sundaily's customers were very happy with their product until they started washing their eggs. Once Sundaily changed their process, they were having difficulty producing the crisp and clear codes required by their customers and needed a solution fast. Washing the eggs is not a process that is unique to Sundaily. In most markets, the eggs will go through a washing process. The eggs are then dried once they leave the washer so that only dry eggs are packed. At Sundaily, the eggs will pass the printer at a high speed after being washed, sprayed with mineral oil, dried, inspected, weighed and graded.

“Our code on the eggs is now crisp and clear.”



Red ink specifically designed for eggs

In order to ensure quality of the printed codes, fast dry and non-diffusion features are required for inks used in this application. With its old combination of CIJ printers and ink from other manufacturers, Sundaily was unable to print a crisp and clear code. The ink would bleed on the egg, resulting in an almost illegible code that did not meet the strict standards of Sundaily's customers.

New Ink Provides Clear Solution

Sundaily immediately researched the market for a new printer to help solve this problem. One of the main reasons why Sundaily eventually decided to purchase the Videojet 1610 over the offerings of other manufacturers was Videojet's V497-D red ink.

Sundaily has been very satisfied with V497-D ink. They are now able to meet the demanding expectations of their customers with sharp and legible codes right on the surface of the egg. V497-D is a faster-drying, food-grade ink developed specifically to produce the most crisp and highly legible ink jet codes on egg shells. The ink's primary benefits are:

- Crisp, highly legible and consistent code quality across natural variations in egg surfaces
- Dark, high-contrast codes on white and brown eggs
- Fast dry time that helps the ink adhere to wet eggs which produces highly legible, “low bleed” ink codes
- Ability to produce smaller, yet still high color contrast drops for placing large code content in limited space
- Code quality is maintained even if condensation forms on eggs when they are transported from cool into warm and humid environments

New Printers Keep the Line Moving

In addition to having issues with its print quality, Sundaily's old printers were difficult to maintain and required a large amount of maintenance. The old printer had to be cleaned every day and required preventative maintenance at relatively short intervals. The line also had to be stopped during production almost every other day due to a printer fault.



Eggs entering processing

Keeping their lines running is critical to the company's success. It costs the company approximately \$1,000 per hour that their lines are down. In

Sundaily's case in particular, downtime issues are exacerbated if a service technician is required to fix the printer. The company is somewhat isolated from transportation and it can take 8 to 12 hours or longer to get a technician on site. Therefore, any problem with the printer can potentially cost Sundaily thousands of dollars.

It was critical then for Sundaily to find a printer that was stable and had a longer maintenance free period. With the Videojet 1610, Sundaily purchased a printer that has been engineered for extended uninterrupted runs and increased uptime. The printhead also does not need to be cleaned as often explains Mrs. Goling, Factory Manager of Sundaily.

“We cleaned the old printer every single day. However, with the 1610, we only have to clean the printer every 4 to 7 days.”

Since the installation of the printer, Sundaily's downtime has drastically decreased and their bottom line has been greatly impacted. The Videojet 1610's key uptime features include:

- Easy and predictable maintenance with the longest published maintenance interval in the industry that allows Sundaily to run longer between preventative maintenance activities and schedule maintenance time appropriately

- CleanFlow™ printhead technology reduces ink buildup that can cause traditional CIJ printers to shut down. Therefore, the 1610 requires less cleaning and helps ensure longer runs. Positive air is also used to prevent dust in the environment from contaminating the printhead



2 Videojet 1610 printers integrated into Sundaily's production line

- The Smart Cartridge™ fluid delivery system not only prevents spillage and contamination, but also ensures that the correct fluid is being used
- While the printer is not located in an area with extensive sanitation cleanings, Sundaily's Videojet 1610 is located in a wet environment. The IP65 rated printer easily withstands these tough conditions and continues to run smoothly

Uptime Savings Quantified:

**Over \$10,000 savings
per year on one line!**

Easy Entry for Crisp Codes

Printing non-Latin characters on eggs can be challenging, merely entering the data is difficult. On its older printers from other manufacturers, Sundaily was only able to make its codes by using Microsoft® Paint. This process was tedious and took an unnecessary amount of time. Since there are no computers on the production floor, all codes had to be made off the production floor and then transferred to the printers. This was a major headache for Sundaily. The company makes over 10 code changes per day and continues to add new customers. In addition, Sundaily's customers make frequent changes to the contents of their codes. With downtime at a premium, Sundaily cannot afford to wait to create codes away from the production line.



Operator starts the printer at the beginning of the day

Sundaily no longer has this headache with the Videojet 1610. Entering Chinese characters has been much simpler with the new printer. Now a process that used to take them minutes to do with their old printer, now only takes them seconds. The Videojet 1610 printer has better Chinese language support with Pinyin input. Now all code changes and new codes are entered directly at the printer. The printer will also store up to 100 messages, with additional memory via USB.

Seamless Integration

One of the last but crucial considerations for Sundaily was how the Videojet 1610 would be integrated with their Moba line. In most cases, printing equipment that is integrated directly with the installed grading equipment will maximize the results of the significant grader investment. Tight grader integration is beneficial, because the grader will control the printing equipment directly and will ensure the right code is on the right egg, leading to fewer disruptions. Videojet worked closely with Moba-China to successfully integrate the Videojet 1610 with the Moba line.

“Starting from the Sundaily project, Moba-China and Videojet have already worked together on 7 more lines and we believe that Videojet is one of the best partners.”

“The Sundaily project is actually the first time Moba has worked together with Videojet in China,” says Mr. Alan Chen, Sales Manager of Moba-China. “The new printers are being used for the first time in the Moba line and we are very pleased with the outcome.”

What’s next for Sundaily and Videojet?

The Videojet 1610 with V497-D Ink has greatly surpassed the expectations of Sundaily. Since it purchased its first 1610, Sundaily has bought another 4 printers. Production has more than doubled from 7 million to 14 million eggs per week. Sundaily will purchase another 3 to 5 egg grading lines in the next year and plans to buy Videojet printers for those lines.

“We are very happy with the Videojet 1610 printer due to its coding ability and high stability. Therefore, we have continued to buy 1610 printers for our second Moba line and for updating our older printers. We are looking forward to working with Videojet in the future as we continue to grow,” says Mr. Luo Gang.



Final quality inspection

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