



Inspiration Strikes

Millennium Packaging wanted to grow. That's why they tasked chief process engineer Keith Weber with finding new opportunities. And he did. Looking into every nook and cranny, he came across what he considered to be an exciting opportunity. What he found was a need for a more affordable machine that would be used to fill vape cartridges. He discovered that the normal cartridge filling process is either manual, tedious and slow, or automated, big, and incredibly expensive.

He was sure that his company could compete. So his goal was to design and develop a cartridge filling system that was smaller, faster, better, and more affordable than what was already out there. But for Millennium to enjoy the growth they were looking for, this packaging supplier would have to become an OEM. And to do that Keith would have to find the ideal automation partner. And he did...eventually.

Finding the right partner makes all the difference

Millennium collaborated with several groups that just didn't cut it. Keith Weber, says, "They were difficult to work with. They had programming problems. They were unresponsive and they left us out to dry."



From standalone use to networked system application, MELSEC iQ-F series PLCs achieve high-speed and high-accuracy control

Enter Affiliated Control Equipment, a Mitsubishi Electric Automation distributor. Their expertise helped Millennium rapidly move from programming, to problem resolution, component selection, data extraction, and the compatibility of different parts of the system. The project presented a wide range of unusual challenges for the Affiliated team to tackle.

“They helped us conquer the monster challenge of viscosity,” said Keith Weber, process engineer at Millennium Packaging. “Being able to fill a cartridge with anything from water to a resin the thickness of a caramel candy.”

Sales Engineer Ryan Krajecki from Affiliated Control added, “We participated in every phase of development; start to finish.” Keith acknowledged Affiliated’s contribution saying, “It was a brilliant relationship. We couldn’t have done it without them.”

But they did it. And the result was The Vulcan!

The Vulcan fills the need for growth

The Vulcan Series is a modular cartridge-filling system that improves upon existing systems. The Affiliated team worked with Millennium to make the tabletop Vulcan scalable within the same modular framework. This allows it to grow from manual, to semi-automated, to fully automated.

Thanks to the seamless integration of Mitsubishi Electric Automation products, the Vulcan system does everything required to go from raw materials to sellable cartridges.

It handles the entire process — end-to-end — including heating the resin and cartridge, and then filling, capping, and sealing.

Integrated components from Mitsubishi Electric Automation

The Vulcan System uses essential automation components, including:

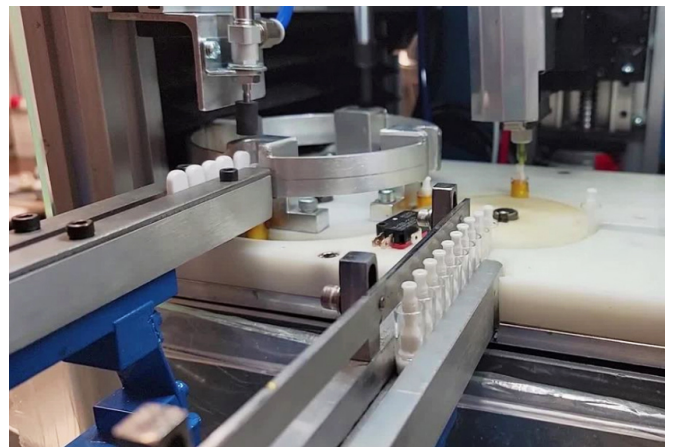
- Servos
- PLCs
- HMI
- Data collection equipment

Using Mitsubishi Electric was important to Millennium because in the past, they’d had some compatibility issues with other suppliers. According to Keith, “With our previous supplier, we had problems with upgrading, backlogs, and trouble getting the support we needed.” This wasn’t the case with Mitsubishi Electric.

A winning partnership

Perhaps one of the best moves made by Millennium was to accept Mitsubishi Electric’s invitation to join their Diamond Partner OEM Program. As a program participant, Millennium has access to a wealth of resources including training to reduce learning curves, and experts who can help accelerate design and achieve greater programming efficiency. In addition to support in engineering and manufacturing, Diamond Partner OEMs can also tap into Mitsubishi Electric expertise in sales and marketing.

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"We're excited about the Vulcan as well as any other products that we may dream up in the future. It's amazing how an idea can come to life when you have the right team and the right partners."

Keith Weber, Process Engineer
– Millennium Packaging Inc.

The Vulcan benefits

Thanks to automation solutions from Mitsubishi Electric and support from Affiliated Control, Millennium engineers were able to deliver a system that delivers:

- **Scalability:** Manual, semi-automated, automatic
- **A Tabletop Footprint:** Dimension in inches vs. many feet
- **Everything in One Process:** Raw materials turned into salable product in one single process

Growth! All due to building a better mousetrap

According to Keith Weber, "The current system can go from manual to automatic. But in the future, you'll see the rise of the S-series; that is, the SCARA machine tender series, in which Vulcan does it all, freeing workers to do other jobs."

AUTOMATION SOLUTION INGREDIENTS

- MELSERVO-J4 Series
- MELSEC iQ-F Series
- MELSOFT iQWorks Software Suite

NEXT STEPS

For more information or a free consultation with an automation engineer, please

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**Automating
the World**