



CASE STUDY
TL AEROTEK

Delivering Precision Components Delivers Growth

TL Aerotek has a superb reputation for providing precision components for large aerospace companies. This small-job shop has been in business for five years and has continued to grow, requiring the company to move from its original 600 square foot space to a new shop with seven machine tools in over 2,000 square feet.

Clearly, business has been good, with orders flowing in faster than owner, Tai Le, could fill them. He wanted to keep up with accelerating demand and continue building his business, but didn't want to deal with labor uncertainty.

Looking for a solution, Tai consulted long-time supplier, Expand Machinery, a family-owned business that not only specializes in building cutting edge machine tool systems; they also specialize in building relationships.

Expanding With Expand Machinery

Tai had been working with Expand Machinery for several years, using a wide range of Expand milling machines, most of which use controls made by Mitsubishi Electric.

Over the years, Tai has slowly replaced all other machine brands with Expand and Mitsubishi Electric products, saying, "Both companies give me what I need; super support, performance, and reliability."



LoadMate Plus™ is an engineered robotic solution that can be used for machine tending, with an RV20, six-axis robot arm.

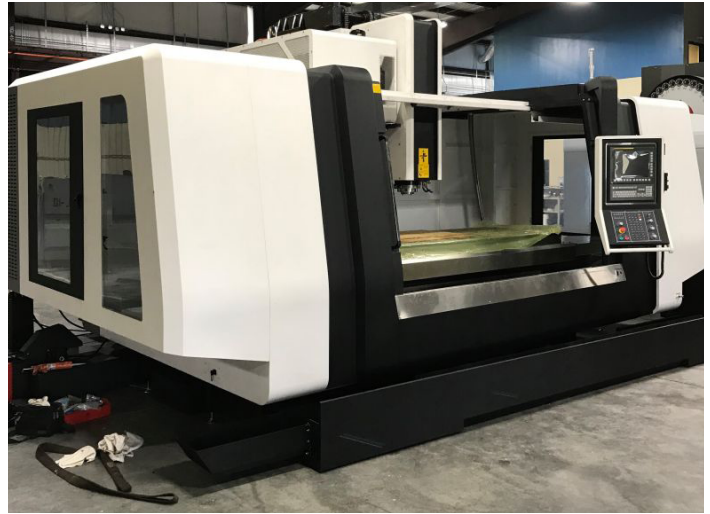


LoadMate Plus™

After working closely with Tai, Expand's General Manager, Ravjeet Singh, suggested automating the process of loading and unloading machines using the LoadMate Plus system from Mitsubishi Electric Automation.

LoadMate Plus is an engineered robotic solution that can be used for machine tending. Expand developed and integrated a 4'x4' LoadMate Plus with an RV20, six axis robot arm. It was easily connected to one of Tai's machine tools, the GenMill 5X-12. Because this five-axis milling system was already equipped with a Mitsubishi Electric CNC, getting everything to communicate was easy.

According to Mitsubishi Electric Account Manager David Contreras, "The LoadMate Plus has been specifically created for easy set up and use."

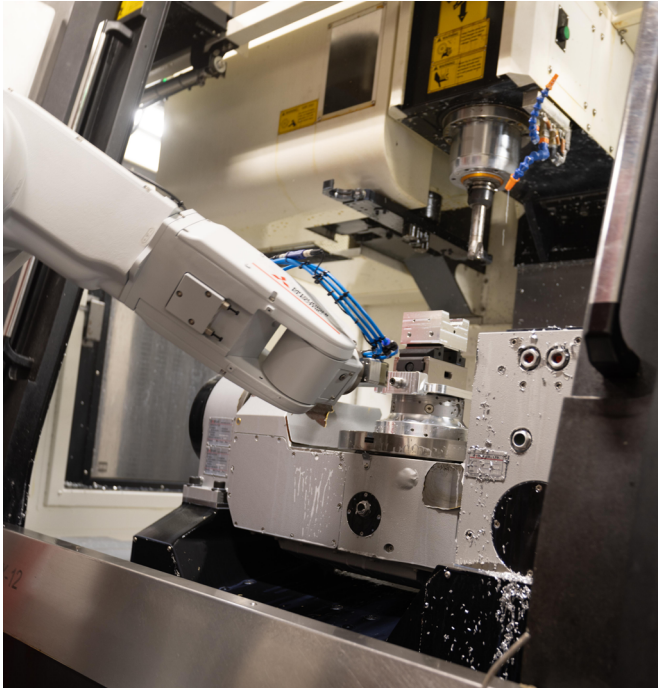


Plug and Play Machine Tending

In short, the LoadMate Plus offers flexible connectivity for plug and play Machine Tending. For communication, all that's required is a simple connection via Ethernet to integrate the LoadMate Plus with Mitsubishi Electric's M8 Series CNC.

In addition, the system offers easy programming of the robot movements thanks to Direct Robot Control with CNC software. That means Tai could *program and adjust on the fly* using menus and G-code from the same screen used for the machine tool. *There's no need for robot expertise.*

To ensure precise placement of the part to be milled, the robot arm works with a flexible Schunk quick-change pallet system. Ravjeet Singh said, "Working with Tai, we chose to focus on a pallet system that allows the robot to pick up parts from the same location each time so you don't have to reprogram the robot from part to part. We chose to use Schunk for our pallet system needs because of their well-known rigidity, accuracy, and durability."



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"I like to be self-sufficient. But because my machines are supported by Expand and Mitsubishi Electric, I know that if I do need help, I'll have it. However, because the machines and controls are so good, I don't think I'll need that help too often."

– Tai Le, Owner
TL Aerotek

Automatic Loading/Unloading Triples Output

It only takes fifteen minutes to place ten blanks on the loading shelves. From there, the system automatically loads and unloads the machine. That means Tai no longer has to stand by to remove a finished part and load new material. The LoadMate Plus does it all and will keep doing it until the loading shelf is empty. In fact, after implementation at TL Aerotek, the system ran unattended for 24 hours, tripling normal output. Tai Le is now able to complete a month's quota in just a week.

He was extremely pleased with his new level of productivity. As a result, he ordered two new five-axis machines to replace two of his four-axis units. These two new machines will be facing each other. In between them will be a new LoadMate Plus. Its robot arm will have a longer reach, making it possible to load both new milling machines with one LoadMate Plus.

"Tai Le is a great example to other small outfits," said Ravjeet Singh. "He knows that if you don't invest, you can't grow your business."



AUTOMATION SOLUTION INGREDIENTS

- M8 Series CNC
- LoadMate Plus™

NEXT STEPS

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

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**Automating
the World**

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