CNCdesign

CASE STUDY

Customer: Quickstep Technologies
Industry: Aerospace
Type: Machine Tool End-User
Project: CNC Retrofit for Breton Matrix 5-Axis Gantry Milling Machine

SINUMERIK ONE FOR BRETON 5-AXIS MILLING MACHINE AT QUICKSTEP TECHNOLOGIES

CNC DESIGN PTY LTD

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OVERVIEW

Completed electrical retrofit of a Breton Matrix 5-axis gantry milling machine

THE CHALLENGE

After many years of doing great work, the control system of this machine became outdated, and aligned with their constant goal to stay at the top of technology, Quickstep decided to upgrade this machine.

As a result, CNC Design was contracted to retrofit the CNC control system to the latest SINUMERIK ONE CNC from Siemens, the flagship CNC platform on the market for high-end machine tools.

The new SINUMERIK ONE CNC is complemented with the SINAMICS S120 AC drive system and high performance SIMOTICS 1FT7 AC servomotors.

THE END USER

Quickstep Group is a leading global manufacturer of composite solutions for the defence and commercial aerospace and advanced industry sectors. It is the largest Australian independent aerospace engineering and manufacturing company, providing the highest accreditation and global standards in advanced composite solutions to make aerospace products lighter, safer, stronger, cost-efficient and sustainable.

Quickstep services premier international defence and commercial aerospace, and other customers from their large aerospace composite manufacturing plant at Bankstown Airport in Sydney, NSW.

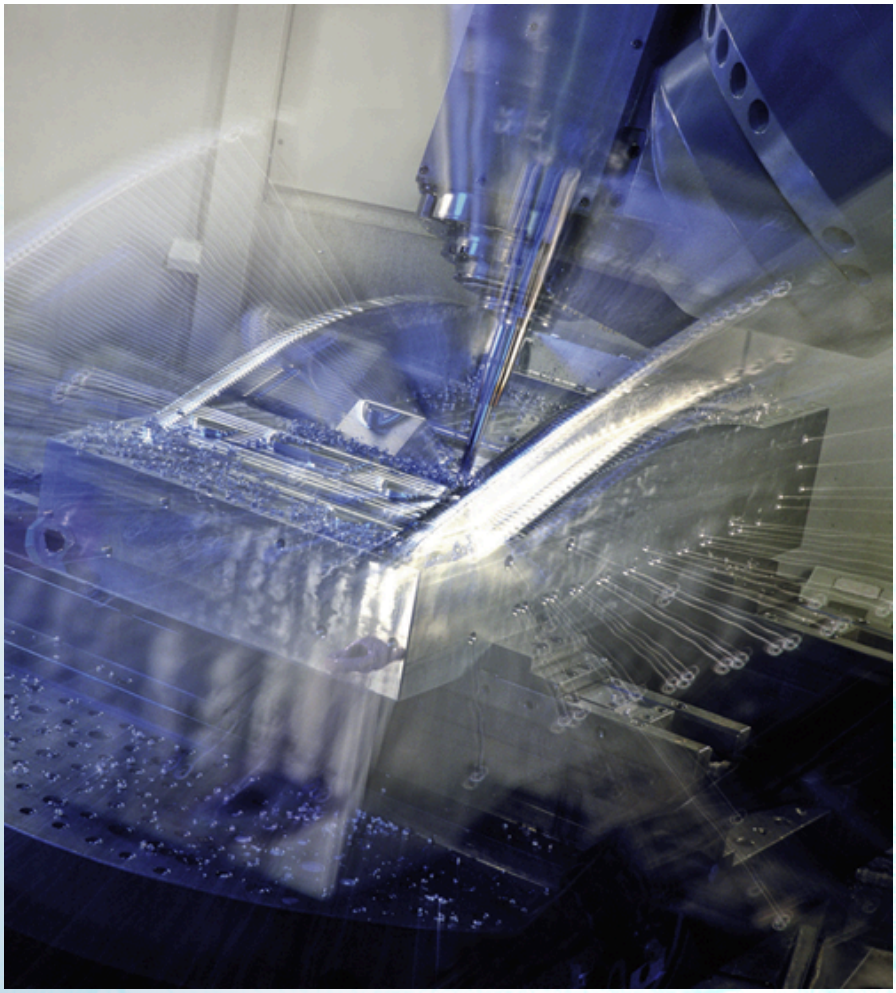
At this facility, Quickstep has engineering, manufacturing and testing capability for advance composite components, including precision milling, coordinate measuring, non-destructive testing, autoclaves, batch oven, clean rooms, ply cutting, and other machinery required for the complex manufacturing processes.

One piece of equipment is a Breton Matrix VM1000 5-axis gantry milling machine explicitly designed for this type of work.

THE EQUIPMENT

When redesigning the controls for the machine, CNC Design worked closely with the team from Quickstep in adapting the new CNC to better suit the specific of their work by:

- Optimizing the size and tuning the dynamics of the new servomotors.
- Taking advantage of the new functions for 5-axis high-speed milling available for SINUMERIK ONE, such as TOP SURFACE, TOP SPEED PLUS and Volumetric Compensation Software (VCS).
- Optimizing the safe functions for the machine for a safer environment during workpiece setup using SINUMERIK Safety Integrated®.
- Adapting the new SINUMERIK OPERATE Human Machine Interface and devices for this specific machine.
- Designing and implementing additional automation for simplifying the production setup process and making the operation of the machine easier.



WHY CNC DESIGN?

CNC Design is an Australian company established in 1984 and celebrated its 40th anniversary on October 3rd, 2024. As of today, the company has more than 150 people located in our offices in Australia, New Zealand, Thailand, Indonesia, Malaysia & Singapore. The company has core competencies in Machine Tools, Production Machinery and associated Motion Control products, and has been the exclusive Siemens Solution Partner in this region for Machine Tool products and services for more than 30 years. CNC Design has experience working with our customers to develop customised solutions tailored to their applications with more than 1,800 projects completed in over thirty countries.

All of us at CNC Design are proud to have our contribution in keeping Quickstep Australia at the leading edge of machine tool technology and helping them in shaping the future of aerospace in the decades to come.

CLIENT FEEDBACK

TESTIMONIAL

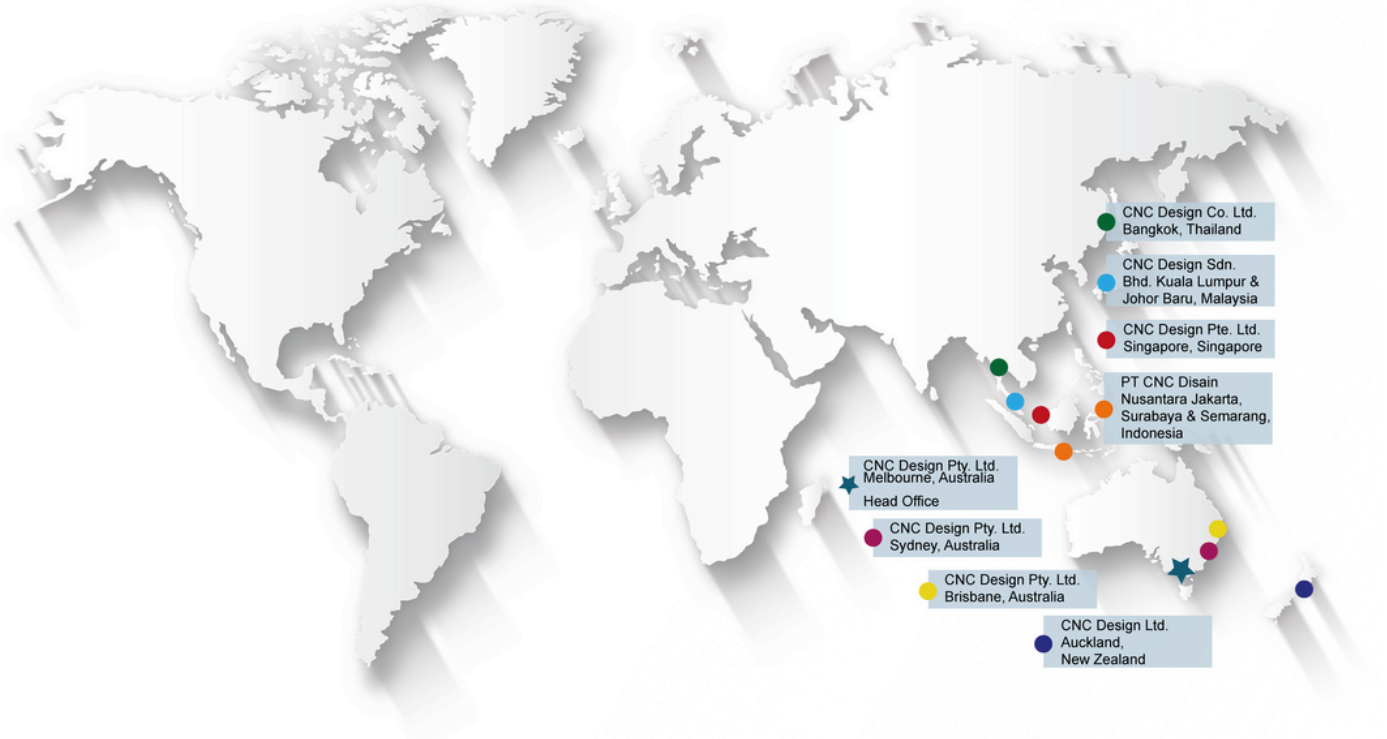
THE RESULTS WERE OUTSTANDING, AS ALSO CONFIRMED BY THE WORDS OF MR. MICHAEL BAKER, QUICKSTEP'S OPERATIONS MANAGER:

"The Matrix is an old machine and was equipped with a SINUMERIK 840D Powerline, SIMODRIVE 611D drive system, and no head-calibration software. Quickstep was concerned that spare parts would become harder to source, so we undertook the upgrade to install the SINUMERIK ONE NCU 1760 and SINAMICS S120 Control & Drive System, new SIMOTICS X-axis, Y-axis, Z-axis and C-axis servomotors with new power and encoder cables, and installation of the latest head-calibration software. We also installed RFID's on all our pallets to streamline program selection, and worked with CNC Design to develop a range of custom screens to make machine operation more intuitive. Our goal was to give the Matrix a new lease on life and reduce the risk of collisions, and with CNC Design's expertise, we have achieved this."

THANK YOU

Our technicians are by your side all over the world

- Upgrades & Retrofitting
- On-site Support
- Installation
- Spare Parts
- Maintenance
- Training
- Remote Customer Care (RCC)



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