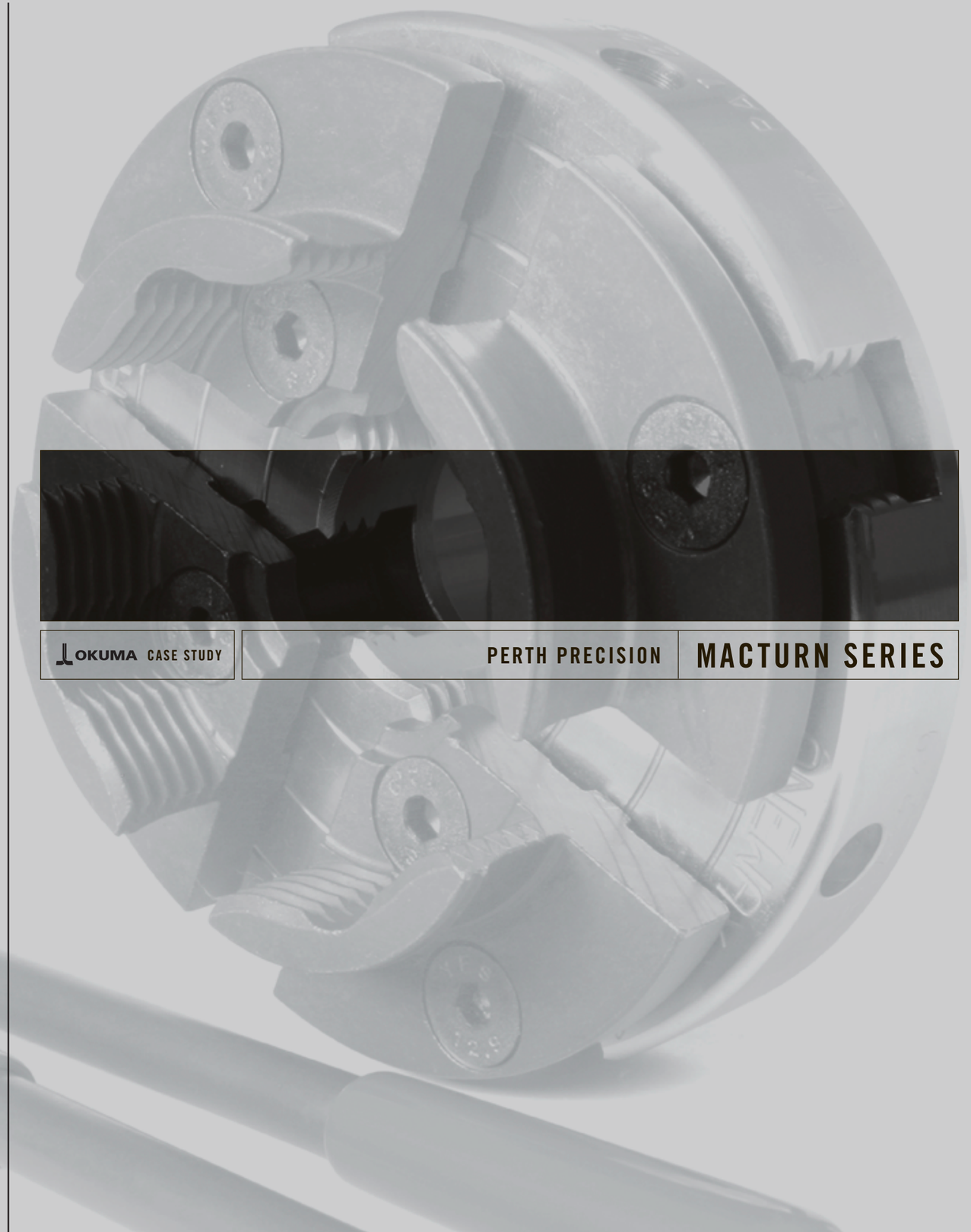

OKUMA CASE STUDY

PERTH PRECISION

MACTURN SERIES

Only Okuma has the ability to engineer, develop and deliver the entire cycle of tools, software, equipment and service that will keep your shop performing at the top of its game. The Okuma Standard delivers that seamless production – from concept to completion. Fully integrated, exquisitely engineered, The Okuma Standard is your one shop stop for mitigating risk. Process. Cut. Measure. Sustain. Okuma.

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PERTH PRECISION AND MACTURN

ONE OF THE FIRST MACTURN CUSTOMERS IN CANADA, EMEC MADE THE COMPLEX, MANAGABLE AND PROFITABLE FOR PERTH PRECISION WITH PROVEN EXPERTISE AND A HIGH TECH SOLUTION FROM OKUMA

Of all of the incentives to moving up to high technology machining, reducing cycle time, with its resulting reduction in costs and improved throughput capability, is perhaps the strongest.

At Perth Precision in Stratford, Ontario it was the impetus to an entirely new approach to production machining.

Perth Precision is a production machining facility that produces a family of precision chucks used for wood turning lathes manufactured by its sister company, Oneway Manufacturing, and by other high quality wood turning lathe manufacturers.

To meet market demand, Perth Precision produces some 10,000 chuck bodies annually using a minimum of four machines in the process. To help reduce machining cycle time and improve the overall dimensional accuracy of the chuck bodies, Perth management looked for a more efficient method of production.

Multi-function machining, a process in which a finished part is produced using one continuous turning, milling and drilling operation/handling on a single machine, appeared to be the answer.

"Multi-function machining is relatively new technology and multi-function machines represent a significant capital investment," said Kevin Clay, Perth Precision General Manager. "Our experience had been with more traditional forms of 2 and 4 axis machining rather than in multi-function machining and we were a little anxious moving in this direction," he said.

The company approached EMEC Machine Tools, located in Mississauga, Ontario, the exclusive Okuma distributor for Manitoba, Ontario, Quebec and the Maritimes to help them handle the transition to this advanced machining approach. EMEC recommended that the company install an Okuma MacTurn-250, a 9-axis multi-function machine – an all-new product at the time – recently introduced to the market by Okuma.

> "We felt that **we could rely on EMEC's technical engineering staff** to not only recommend a solution, but to help us along the learning curve for this new technology," Clay said.
>
> *Kevin Clay*
> *General Manager, Perth Precision*

The MacTurn Series machines from Okuma are designed specifically to improve the machining throughput of complex parts. The MacTurn virtually eliminates the need to handle and fixture parts by enabling the completion of complex parts on a single machine. The result is a reduction in cycle time and reduced part handling time. A wide range of options, including an expandable automatic tool changer, a large tool storage, lower turret with optional milling and 9-axis machining/turning functions make the MacTurn ideal for high technology operations like the production of precision chucks and represents the most advanced multi-function machining capability on the market.

MAKING THE RIGHT CHOICE

Since Okuma introduced the next generation of MacTurn Series machines in 2002, EMEC has invested in sales and technical training to become highly proficient in identifying MacTurn applications and knowing when the investment can result in overall cost savings.

"We felt that we could rely on EMEC's technical engineering staff to not only recommend a solution, but to help us along the learning curve for this new technology," Clay said.

Producing a part as complex as a precision chuck from start to finish in a continuous operation presents some unique challenges to machine tool operation. EMEC engineers met with Perth Precision management to map out a plan that detailed how the company could save time and money, and improve upon the already high quality of the chuck bodies, by applying high technology machining techniques.

"Not every shop is a candidate for a high technology machining solution," said Brendan Cunningham, EMEC Sales Representative. "More speed, more precision, more detailed programming is only warranted when a cost/benefits analysis can prove that the expenditure will result in a reasonably fast return on investment, while solving the production problem."

The MacTurn solution did work for Perth Precision. Machining cycle time has been reduced significantly. Using multiple machines and multiple machining operations, it took approximately 23 minutes cutting time to produce one chuck. With the MacTurn, it takes approximately 11 minutes to produce one chuck. Machining cycle time savings for a year is 3,366 hours.

Perth Precision was also able to reduce the need for skilled operators to monitor machining. The company has been able to move from four operators to one and uses the MacTurn on two shifts. Since the MacTurn is producing fully machined parts in a continuous operation, the operator can simply check the machine from time to time, freeing time to pursue other duties in the shop. In addition, Perth Precision is using an Okuma Gantry to load and unload parts from the MacTurn without the need for human intervention.

The overall result has been a significant reduction in production costs of manufacturing these precision components.

PRECISION PRODUCTION

As an added benefit to cost reduction, Perth Precision has been able to manufacture chuck bodies even closer to blueprint specifications than in the past. By machining the parts in a continuous operation on a single machine, multiple setups are eliminated, reducing the risk of error build-up during part handling and re-fixturing.

"We are able to hold very tight tolerances – 4 and 5 ten thousandths – with the MacTurn," said Glenn Voyce, Perth Precision machine operator. Being able to hold tight tolerances also eliminates the need for most secondary operations, further reducing cycle time."

The company was also concerned about machine rigidity and its influence on maintaining tight tolerances. The MacTurn design features Okuma's linear roller guide system. This system combines the best of traditional linear ball guides and newer box systems for speed and rigidity.

BEFORE MACTURN SOLUTION:
Producing one chuck took 23 minutes using multiple machines.

AFTER MACTURN SOLUTION:
Producing one chuck now takes only 11 minutes using one machine.

CYCLE TIME SAVED:
3,366 hours a year

"The MacTurn is the first machine we've purchased with a linear roller guide system," Voyce said. "We were apprehensive about this at first, but our experience has shown that this system provides extremely good machine rigidity."

TECHNICAL PARTNERS

Although the MacTurn provided the solution that Perth Precision was searching for, the installation was not without its start-up difficulties. Part programming was complex and sometimes the machine "acted as if it had a mind of its own" Clay said. Throughout the entire installation, start-up and ramp-up process, EMEC technicians worked side by side with Perth Precision engineers to fine tune the machine operation.

"This application was not only new to Perth Precision, but, at the time, also new to EMEC," Cunningham said. "EMEC technicians have a broad range of applications experience and we were able to apply this experience to getting this system up and running and dealing with the inevitable challenges as they occurred."

EMEC, like other Okuma distributors, sells more than just equipment. They sell the expertise behind it. EMEC and Perth Precision became technical partners working toward achieving Perth Precision's business goals.

The result is a successful investment in high technology machining that will help Perth Precision achieve tighter control of its production costs and will contribute significantly to the company's bottom line.

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