
WORLD CLASS MACHINING OF COMPLEX PARTS

Qsine Combines High End Okuma Machining Centers with Esprit Software to Deliver Exceptional Quality in Precision Machined Parts



Qsine offers a high end machining service focused on complex parts or parts that require complex setup. This service will interest clients who need machining of metal parts that require multiple setups in turning and milling centers and demand high precision, rapid turnaround or high throughput.

Our service is based on an Okuma MacTurn 9-Axis, multifunction center and DP Technology's Esprit CAM software. These tools enable Qsine's engineering & manufacturing team to deliver exceptional results for the most demanding projects.

*See the 9 Axis Okuma MacTurn in operation-
Visit our website for online videos*

www.qsine.ca

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“Whether you are building a new product or refining a single component, maximizing the functionality of every part is critical”

Competition is driving our clients to produce new or more competitive products and to get them to market faster. Their designers are faced with technical challenges to create parts that are far more complex, often required to perform in tight spaces or under extreme conditions of pressure, temperature and vibration. They are driven to produce exceptional performance and reliability from every component in their system.

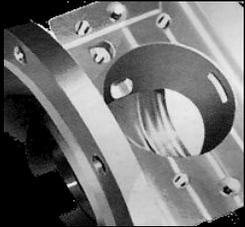
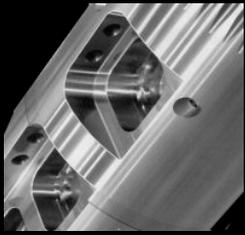
Reducing parts count and improving performance is driving the need for greater integration and higher precision. Designers are meeting these needs with the help of sophisticated 3D CAD programs, which is increasing the complexity of machined components exponentially. Many parts now require multiple turning and milling operations, including facing, slotting, drilling, threading, and pocketing, often on odd or compound angles, and must be performed within very tight tolerances. When completing a part requires multiple machine tools, the setup and processing can become very complicated even if the part is not.

“Standard machine shops are faced with a range of problems when asked to build complex parts”

- Complex parts can require 2 to 30 or more manual handling stages.
- Prototyping and test runs are costly and time consuming.
- Considerable time and skill are required to develop work holding that is rigid and properly aligned.
- It takes significant time to design, test and refine the various machining processes to ensure that you get part you were expecting, in the time frame needed.
- Changing worn tooling is manual and required for all different machines, often requiring them to be shut down at inopportune times.
- Each move from fixture to fixture creates a margin of error.
- Using different people with different skill levels for various processes leads to inconsistent results.

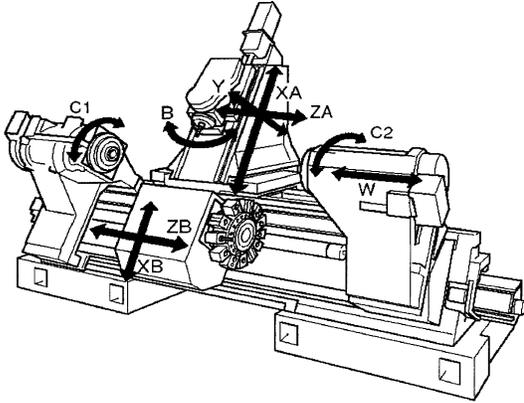
“The ideal situation is to perform all machining processes in one continuous operation on a single machine in a completely controlled environment”

If you need precisely machined complex parts with quick turnaround times Qsine can help



INTEGRATED SYSTEMS TO MANAGE THE PROCESS

The MacTurn 250 completes complex parts in a single integrated operation



Our Okuma MacTurn, 9-Axis, Multifunction, Machining Center delivers a single run capability that dramatically improves throughput, virtually eliminates fixturing and significantly enhances the quality and precision of every part that goes through it.

Our machine is equipped with twin spindles (C1 & C2 have 0.001° contouring), a tilting milling head (B has 0.001° indexing) a robotic parts loader/ unloader, an in-process measuring probe and 200 tools onboard. This very rich feature set, all under CNC control, makes our MacTurn perfect for complex operations and unattended operation. In short, we take as much human element out of the operation as possible.

We use DP Technology's ESPRIT CAM software to manage the overall process

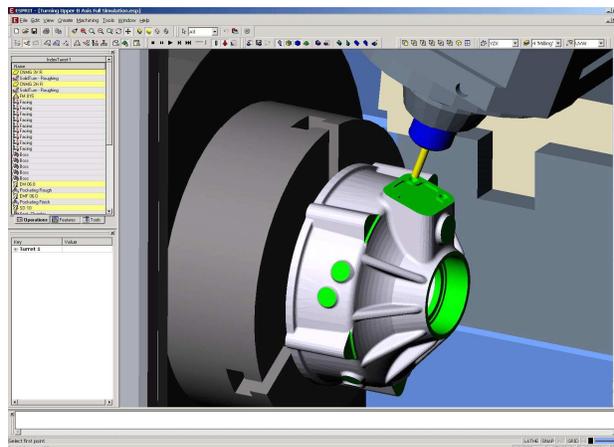
ESPRIT software is an integrated programming environment specifically designed to exploit the multitasking, multi-function capabilities of high end equipment like the Okuma MacTurn series.

It excels by automating the complete procedures - choosing the most suitable process to machine each given feature, including machining cycles, cutting tools, speeds and feeds, and all associated machining parameters.

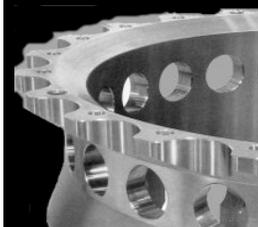
ESPRIT's seamless CAD to CAM interface directly imports any native part model from any source, fully intact. ESPRIT employs a powerful CAD-to-CAM feature exchange, which goes beyond the exchange of part geometry to include design intent and geometric tolerances. Starting with complete and accurate part geometry eliminates nearly all of the difficulty in programming complex parts and dramatically reduces programming time.

“ESPRIT let's us take most native CAD files and automatically convert them into optimized machining instructions and even run a visual simulation program ”

Using ESPRIT's Visual Verification tool, we see exactly what will happen on the MacTurn before we ever cut a chip. The software generates dynamic computer graphics that realistically simulate the machining environment, including stock materials, fixtures and clamps. Every stage and action of the machine is displayed in "real time", giving incredibly accurate verification of the entire machining process. Using ESPRIT's built-in part inspection we can easily compare your original "as-designed" part to our "as-machined" work piece to assure part accuracy and eliminate the need for expensive dry runs. The realistic images let us see the part as if we were holding it in our hand.



*Qsine
Experience
+
9 Axis
MacTurn
+
Esprit
CAM
=
Winning
Solution*



AT QSINE, WE MAKE THE COMPLEX ORDINARY

Since 1968, Qsine has been providing design and product development services to clients in a wide range of industries. We are often the “troubleshooter” called in to solve complex or vexing mechanical problems. The manufacturing of metal products has become increasingly important to the solutions we provide and we are seeing a growing need to improve the production of complex machined parts. To expand the capabilities we offer our clients, we have invested in leading edge machining technology, advanced software and engineering processes so that we can deliver the most precise, well engineered solutions available.

With extensive engineering support, experienced 3D CAD/CAM design services, wide ranging knowledge and creativity of our machine programmers and metal workers, Qsine has been able to add tremendous value to the projects it undertakes with its clients.

“Qsine has developed dozens of products for clients ranging from simple door hinges to internationally deployed Land Mine Detection Vehicles”



“Qsine ingenuity has significantly advanced the market share of many of our customers”

We specialize in Machine Design, Integrated Hydraulic Systems, Electronic Control Systems, Precision Machining and Welding. This range of services allows us to provide comprehensive results, often leading to new solutions that help our clients dominate the industries they serve.

“Whether you have a straightforward part to be machined, a difficult problem to solve or an idea waiting to be created we can help”

QSINE CORPORATION LIMITED

HYDRAULIC, ELECTRONIC AND MACHINE DESIGN
3250 - 46 AVENUE S. E. • CALGARY, ALBERTA, CANADA • T2B 3K7
TELEPHONE: (403) 248-9066 www.qsine.ca FACSIMILE:(403) 273-8133

