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## ROY-G-BIV Teams With OKUMA to Help Lean Manufacturing Vision Become Reality

Today's manufacturing organizations are continually seeking ways to speed production, simplify their processes and cut costs. One particular challenge has been the proprietary nature of CNC machine tools. Most facilities use a number of different kinds of machine tools, each with its own operational and integration idiosyncrasies.

Because the machines are complex and the learning curve can be steep, operators often specialize in just one machine, making it difficult to accommodate changing production demands and staffing levels. In addition, custom connectivity and HMI software written for one machine can't currently be ported to another machine without significant reprogramming, making communication throughout the enterprise cumbersome if not impossible.

Now, ROY-G-BIV has teamed with OKUMA America, a world leader in machine tool and CNC manufacturing, to deliver an open-architecture machine tool that will enable manufacturing organizations to more easily equip their new and existing machine tool assets with a common operator Human Machine Interface (HMI) and a common enterprise communications interface. A more flexible manufacturing environment is just one of many benefits.

In a recent pilot program with a major aircraft manufacturer, ROY-G-BIV's XMC software was seamlessly embedded onto OKUMA's new open-architecture CNC on an OKUMA MC-V4020 3-axis Vertical Machining center. The software provides a general communication interface to the OKUMA OSP-P100M controller. This increased the machine's functionality by adding new capabilities such as enterprise connectivity and a common operator interface, eliminating the need for custom software development and integration code to be written by OKUMA or the end user's IT staff. The XMC Common HMI provides a machine operator interface that supports the latest OMAC Common HMI guidelines.

### Needs

An industry-standard software solution that provides a single interface between a machine tool, its operator interface software, and the end-user's enterprise data collection and manufacturing execution systems.

### Solution

ROY-G-BIV's XMC software for machine tool connectivity is a single solution for common access to CNC and motion-based machines. The XMC Common HMI software is a Windows-based operator interface application that is easy to learn and use, runs on machine tools from different vendors with a sufficiently robust API set such as the one supplied by OKUMA for this project, and supports current OMAC guidelines.

### Benefits

Speeds operator training, dramatically cutting training costs and increasing productivity. Enables improved operational efficiency and preventive maintenance practices by providing machine information to enterprise information systems.



XMC benefits many groups within an end-user's organization:

<b>Operations</b>	Improved data access to measure machine tool effectiveness and utilization
<b>Maintenance</b>	Automated machine data collection reduces manual data entry
<b>IT</b>	Eliminates vendor-specific machine integration enterprise software
<b>Machine Operators</b>	Reduces training costs associated with vendor-specific machines

While XMC wasn't the first common HMI project tested by the aircraft manufacturer, it was the first one that actually worked. "I was a bit leery at first," said Chris Stedman, a 15-year CNC Machine Operator who is involved in product testing. After putting it through its paces, however, Stedman was impressed with the simplicity of the common interface. "Some of these machines can be pretty intimidating, and if you don't have operators trained to use them, you've got half a million dollars in equipment just sitting there. XMC makes it easy to use and will definitely cut back on training time."

Machine tool vendors and CNC suppliers also benefit from the value-added XMC connectivity and common HMI. According to Brian Sides, Engineering Manager for OKUMA America, "As the designer and manufacturer of both the CNC system and the machine tool, OKUMA has a unique perspective on the market's expectations. The P100 was conceived to open new possibilities for our customers. XMC enhances our new open-architecture machine tools and allows our customers to realize part of the open-system vision. ROY-G-BIV's complementary software expertise, active involvement with OMAC, and commitment to satisfying both the machine tool supplier and the end user ensure that all parties benefit."

Today the entire solution is used as an evaluation platform for the OMAC Common HMI standard. "XMC provides common connectivity from a machine tool to our enterprise information systems, and it supports an OMAC-compliant operator interface that improves machine usability," said Sid Venkatesh, the end-user's Lead Engineer, Manufacturing R&D. "We look forward to working with ROY-G-BIV to deploy XMC and the Common HMI across more machine tools."

"Many NC machines are difficult to learn and can require up to a week of training — even for an experienced operator. The XMC interface was a big improvement. In 10 minutes we were up and running."

Chris Stedman  
CNC Machine Operator



"XMC has proven to be a very versatile commercial software solution that increases the value of our open-architecture machine tools with OMAC support for an enhanced operator interface, data monitoring capabilities and true enterprise system communications."

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