

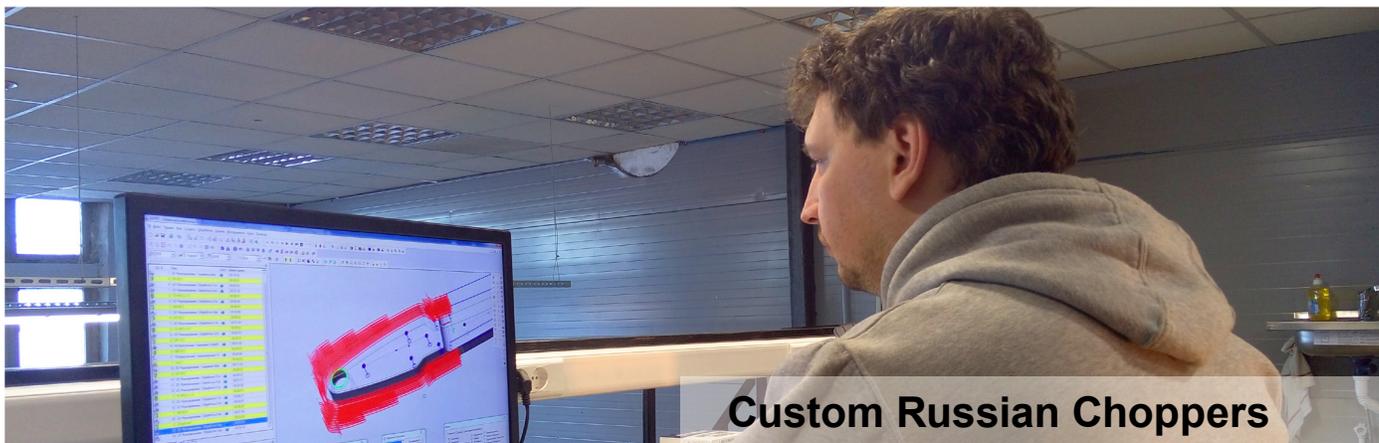


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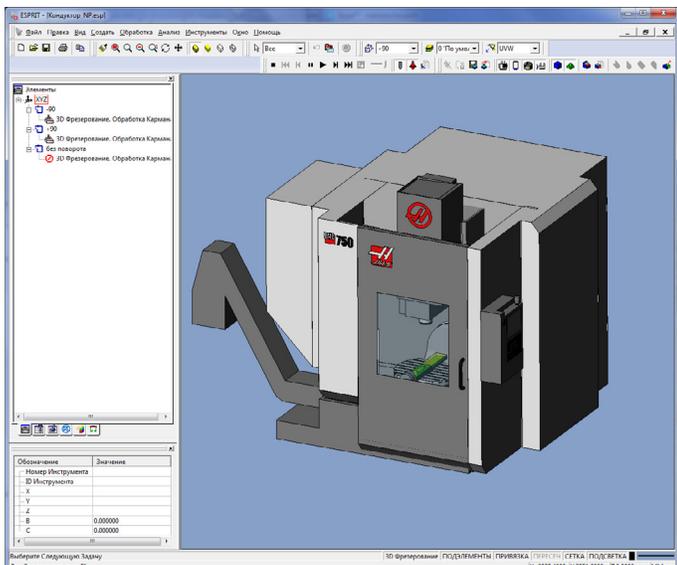


Custom Russian Choppers

BOX39 Uses ESPRIT in Programming 5-Axis Machine to Build Custom Motorcycle Components

Vladislav Belyakov, CEO of BOX39, St. Petersburg, Russia, has long been driven by the idea of putting together a dream motorcycle. After researching the motorcycle tuning market in the Russian Federation, he discovered that most components for custom bikes had to be imported which drove up their cost and also their delivery time. The problem was there were very few companies in the country that had the CNC equipment needed to product high quality custom components at a reasonable cost.

Belyakov felt that an opportunity existed for a company to apply modern manufacturing methods to custom motorcycle components. "I took a big risk in making a career switch from financial services to motorcycle parts manufacturing in 2011," Belyakov said. "Our first production facility was a rental garage. We designed and put into production our first product within six months of opening our doors on a very tight budget."



ESPRIT provides HAAS UMC-750 virtual model and certified post processor



BOX39's first production facility

Since then, BOX39 has developed three more unique products and also developed a thriving business in tuning motorcycles, which involves installation of accessories and painting to change the concept, appearance and performance of a stock bike into a custom bike. The business has grown rapidly.

"Marketing research told us that local custom motorcycle products were made by companies that could not meet high tolerance requirements," Belyakov said. "In most cases, these companies had to perform time-consuming and expensive manual finishing operations. They were also in many cases unable to produce complex parts with irregular shapes such as more than one undercut, surface openings and transitions in different planes."

"Last year, we decided to automate our production facility and purchase our first CNC machine," Belyakov said. "It allowed us not only to improve the quality and efficiency of producing our existing products but also makes it possible in the future for us to develop parts with more complex geometries that can't be produced by conventional methods. After spending a long time evaluating different machine tools, we purchased the Haas UMC-750 5-axis universal machining center. We believe that

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using modern equipment and software in the production cycle will reduce the cost and delivery time and also improve the quality and artistic value of the product. This in turn will help to expand the overall market for custom motorcycles.”



BOX39's HAAS UMC-750 produces a part with a program created with ESPRIT CAM software.

Multi-axis machining reduces setup time and increases processing precision of complex parts that are machined at multiple angles. The Haas UMC-750 is a versatile 5-axis universal machining center with 762 x 508 x 508 mm axis travel and an integrated dual-axis trunnion table. The machine is equipped with an inline direct-drive 40-taper spindle (8,100 or 12,000 rpm) and comes standard with a 40+1 tool side-mount tool changer. The trunnion allows manufacturers to orient parts to almost any angle for 5-sided machining or provide simultaneous 5-axis motion for contouring and complex machining. The machine provides +110 and -35 degrees of tilt and 360 degrees of rotation for excellent tool clearance and large part capacity.

Igor Bystrov, who is a Designer and Technologist for BOX39, recalls the process of choosing CAM software: “After we ordered the machine, cutting tools, and equipment, we started to search for the optimal CAM software. We looked for software capable of programming 3-axis and 5-axis milling that is compatible with our SolidWorks CAD software at a reasonable price. Obviously, we needed a post-processor for our CNC machine. Only two CAM software packages offered in Russia met these requirements. We selected ESPRIT by DP Technology because it includes a Haas-certified post processor

and HAAS UMC-750 virtual model. Another factor in our decision is the strong training and technical support provided by DP Technology in Russia.”

In late 2014, BOX39 received its ESPRIT licenses. “We had some experience with our CAD system, but we were not familiar with G-codes and M-codes nor with CAM software,” Belyakov said. “Our engineers attended a weeklong training course and immediately began creating CNC programs for the 5-axis machine. We were able to get up and running almost immediately because the post-processor worked perfectly from the start. Since that point we have produced many CNC programs and continue to increase our programming skills. Today, we can offer our customers dramatic improvements in quality and productivity relative to other companies in the custom motorcycle components market.”



Vladislav Belyakov, founder of BOX39 and his product from ESPRIT and HAAS UMC-750

The BOX39 team has set ambitious goal of bring the latest CNC manufacturing methods to custom motorcycle component manufacturing. “The combination of a modern CNC machine and powerful CAM software is helping us to create beautiful and powerful bikes,” Belyakov concluded.



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