Master3DGage™
AFFORDABLE, PORTABLE CMM

MCD Machine Lowers Costs, Reduces Lead Times and Improves Inspection Reports With Master3DGage

Bloomington, IN MCD Machine is a job shop that runs prototype and production quantities for the military, medical, and aerospace industries. Founded in 2002, the shop has grown from two employees in a 900 square foot building to 12 employees in a 12,500 square foot building featuring a wide range of CNC milling and turning machines. The key to MCD Machine's success has been technical expertise.

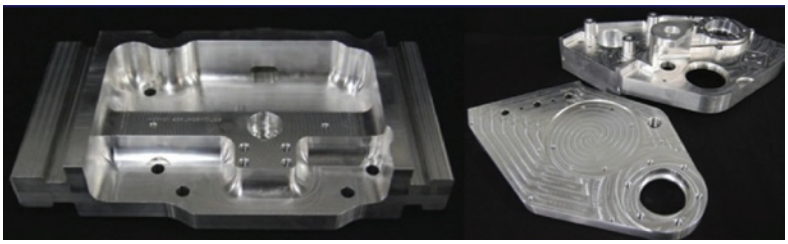
"We really needed an efficient way to check complex parts," CJ Davis, founder of MCD Machine. " so when the Master3DGage powered by Verisurf X came out, it just seemed like the easiest way."

Master3DGage is an affordable and portable rapid 3D inspection solution that significantly increases production and improves part quality. The complete solution automates the 3D inspection process and quickly verifies manufactured parts directly to 3D CAD models. It is sold and supported by select Mastercam resellers.

"Our Master3DGage is a very precise portable CMM arm with Verisurf X software that can quickly verify parts while they are still on the CNC machine or anywhere else in the manufacturing process," said Davis "Implementing portable inspection into the manufacturing process identifies issues quicker, reduces scrap, and significantly improves productivity."

MCD Machine uses the Master3DGage for parts with lots of surfaces, like layup tools for carbon fiber parts that can be easily checked before they are taken off of the machine. The shop likes the way Verisurf compares the part profile to the solid model in real time to quickly determine if it's necessary to re-machine an area or if it's okay to pull the part off of the machine.

"First article inspections for higher volume runs can also be done quickly using the same method," said Davis. "We set our tolerance on the Master3dGage to the tightest tolerance on the part and compare the part to the model. This doesn't necessarily give us actual dimensions, but it does tell us that all features are in tolerance so we can keep the machine going. In the mean time, we can create an automated inspection plan to get us good inspection reports."



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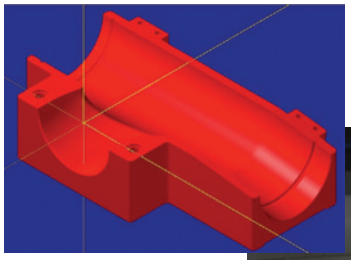

Master3DGage inspects the actual part directly against the cutomer's 3D CAD model.

Parts can be inspected while they are still on the machine, so there is no need to check the setup or risk moving the part if additional machining is necessary.

The Workflow

The Master3DGage makes it easier for MCD Machine to inspect parts, which leads to lower costs, shorter lead times, and much better inspection reports. Here's a look at how they use this portable rapid 3D inspection solution.

1. Obtain a 3D CAD model from the customer, usually in IGES or STEP format, and program the part using Mastercam. "This allows us to cut the part to the customers file," said Davis.
2. Take the Master3dGage and laptop computer to the machine and inspect the part once it is milled. The two communicate wirelessly, this makes moving the unit to the machine very easy.
3. Inspect the part to the customers file with the Master3DGage actually sitting on the work surface in the machine. "If all checks out, pull the part off the machine," said Davis. "If things don't look right, simply make adjustments and re-machine the part. The part never left the machine, so there is no need to check the setup or risk moving the part."