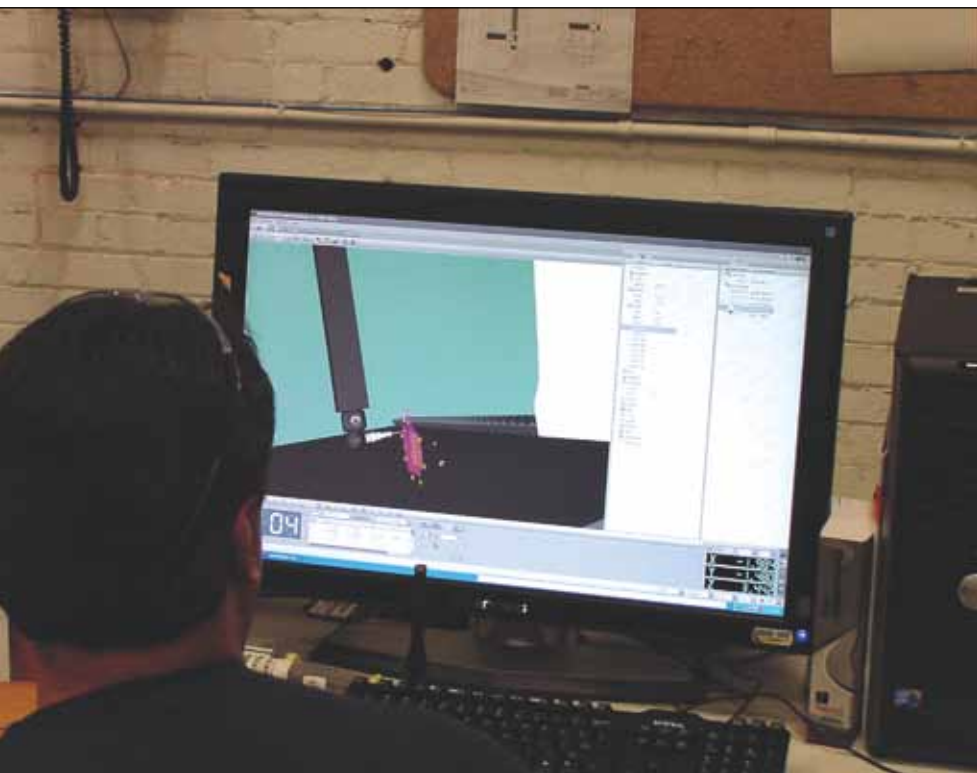


Cotta Transmission Installs CMM with Gear Checking Module

XSPECT SOLUTIONS PROVIDES WENZEL BRIDGE-TYPE CMM EQUIPPED WITH *OPENDMIS* SOFTWARE FOR BASIC GEAR MEASURING CAPABILITY WITH CMM FLEXIBILITY



The Wenzel LH 12.30.10 bridge-type CMM is equipped with *OpenDMIS* software that includes a basic gear measuring module.

Beloit, Wisconsin-based Cotta Transmission Company LLC, an industrial and specialty transmission manufacturer, recently purchased and had installed a new Wenzel LH 12.30.10 CMM, equipped with *OpenDMIS* software with a special gear checking module.

The organization had been using an older-model 1970s CMM, and the company was extremely dissatisfied with the results they were getting from the older machine, says Todd Wells, Cotta quality manager. In fact, the operators were using the machine manually because of fears it would crash.

"They would often re-inspect product multiple times because they had little confidence in the results," Wells says.

A team was assembled to rectify the situation. The 1970s CMM that Cotta was using had been rebuilt once already, and when the company conducted an accuracy study, it was obvious it was not repeatable anymore.

"For example, we performed one study where the same part was inspected several times on a program that was written to run in automatic mode," Wells says. "The measurement results varied more than 220 percent from the required design tolerance."

With this new knowledge of the CMM's inability to repeat, the team mandated sub-contracted CMM inspection for specific parts with tolerances too critical for the old CMM, and until a new CMM could be purchased.

"We estimated that our work level would require an expenditure of at least \$100,000 over the next 12 months to accommodate sub-contracting to an outside CMM service," Wells says. "We needed a new CMM to insure our commitment to meet the needs of our customers and to continue to deliver a competitively priced, quality product on time."

Cotta engineers explored the possibility of purchasing a new Wenzel CMM. The team liked its *OpenDMIS* software, Wells says, so they contacted Xspect Solutions, Wenzel's North American operation, where regional sales manager Nick Mocerri and president Keith Mills put together a program that gave Cotta the machine they wanted within their budgeted cost and delivered on time.

"It actually ended up being ahead of time and included an offer that many other CMM manufacturers failed to beat," Wells says.

Keith Mills explains: "Equipment suppliers like Xspect Solutions understand that manufacturers are pinching pennies just like everyone else. They're looking for the best quality product at a reasonable cost. Wenzel CMMs are considered by many to be the best constructed and most mechanically accurate CMMs in the world. Precision manufactured impala black granite bases and bridges, intrinsic precision and hemispherical-cylindrical air bearings and standard Renishaw probing systems offer volumetric accuracy of 2.5 microns. As a result, Wenzel machines are typically not the cheapest CMM on the spreadsheet. However, for Cotta, we were able to put together a proposal that involved a special CMM that we had loaned to another customer while waiting for a larger

Wenzel machine to be built for them. Because we already had the 'loaner' CMM being returned, we were able to make the necessary arrangements to tie in the logistics and machine exchange, as well as customize the CMM to meet Cotta's accessories and software needs. The new machine and software would be able to handle the entire range of products Cotta is producing."

Wells adds, "We had been looking at machines equivalent in size to the Wenzel 12.30.10 that were 1995 vintage. We ended up with a 2008 Wenzel structure with new controller, probing,

continued



New Wenzel LH 12.30.10 bridge-type CMM installed at Cotta Transmission to inspect a wide range of industrial and commercial transmission components.



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PC and software for a very attractive package price. In addition, we received software that included the gear measuring module, allowing us to develop basic gear data right on our CMM."


The gear measuring module allowed Cotta to move its small gear measuring machine out of the inspection lab and into a location closer to the gear manufacturing department. Within a week of installation, technicians had successfully created part programs from CAD and inspected a number of part designs.

"We duplicated the study we conducted on the old CMM on the new Wenzel and the results showed a 213 percent improvement in the measurement variation," Wells says.

"We did another interesting thing," Wells says. "Because our old CMM was not worth rebuilding again, we decided to dismantle it and use the granite base and bridge and turn them into inspection surface plates. We had them lapped and calibrated and have them in use again in our shop. Xspect Solutions also offered to take our old Renishaw PH9 probe in trade for the new PH10M that was supplied with the CMM, and also gave us a useful styli change rack that mounts directly on the base plate."

The Wenzel LH 12.30.10 is a bridge-type CMM with a measuring envelope of 1200 x 3000 x 1000 mm, which provides adequate table capacity for some of the larger transfer cases that Cotta produces. With this machine design, the Y-axis guideway is machined directly into the granite base plate, providing optimal long-term accuracy and stability. The machine has a maximum 3-D measuring speed of 700 mm/sec with maximum acceleration of 2,000 mm/sec². It is equipped with a Renishaw PH10M probing system and a HT400 teach pendant, which eliminates the tedious keyboard interaction necessary with conventional CMM teach pendants.

"The installation and calibration of the Wenzel CMM was well within our needed time frame, which was notable because the machine was configured when the installation was taking place," Wells says. "Communication with Xspect Solutions' administrative and technical personnel has been seam-

less, including the coordination of any of the loose ends that normally occur with a project like this. We were even allowed to tour one of Wenzel's other customers to get familiar with the same CMM prior to the arrival of our new machine. This has been a very successful supplier/customer project." 

For more information:

Cotta Transmission Company
1301 Prince Hall Drive
Beloit, WI 53511
Phone: (608) 368-5600
www.cotta.com

Xspect Solutions
47000 Liberty Drive
Wixom, MI 48393
Phone: (248) 295-4300
Fax: (248) 295-4301
www.xspectolutions.com



Cotta Transmission used the granite base of the old CMM as an inspection surface plate in its shop.