

# MORLEY

**Precision Measurement Solutions for Manufacturers**

## **Mini Case Study: Why check a new machine?**

**Project: 3-Axis Machining Center with Rotary Attachments**

**Location: Oregon**

Why would you need to check a brand new machine for accuracy? If you ask one of our customers in Oregon, they could tell you. Morley had been certifying machines for this undisclosed medical device manufacturer for several years when they called to have two new machines checked for linear and rotary accuracy. It turned out the machines had an underlying problem that needed to be resolved prior to putting the machines into production.



Renishaw XL-80 Laser Interferometer

## **The Problem**

In most cases, machines have been checked at the factory and compensated to achieve the best accuracy. When a machine is moved to its new location it needs to be installed and leveled, and if a machine is not in the exact geometry as at the factory, accuracy may be at risk. In most cases, Morley Machine Tool Alignment is able to improve the accuracy of new machine tools with Pitch error compensation and Backlash values.

After checking and compensating the X, Y and Z Axis with the Renishaw XL-80 Laser Interferometer, a problem was found when we checked the attached Rotary A and B Axis with the Renishaw RX10 rotary axis kit attachment. We found over 600 arc seconds of error in the Rotary axis on both machines. How could this be? The rotary department at the machine manufacturer explained, "...there is no way that they could have that much error..." and that they are always "bench tested twice" prior to being shipped to the customer.

## **The Answer**

It turns out that the controls on the machines had been upgraded and that they had not been tested with the interface to the rotary table. Morley had uncovered a problem that if not fixed prior to releasing the machine to production would have put valuable parts at risk and may have affected our customer's commitments to customers. The company was very grateful that they had called Morley to check their brand new machines.



Renishaw RX10 Rotary Axis Kit