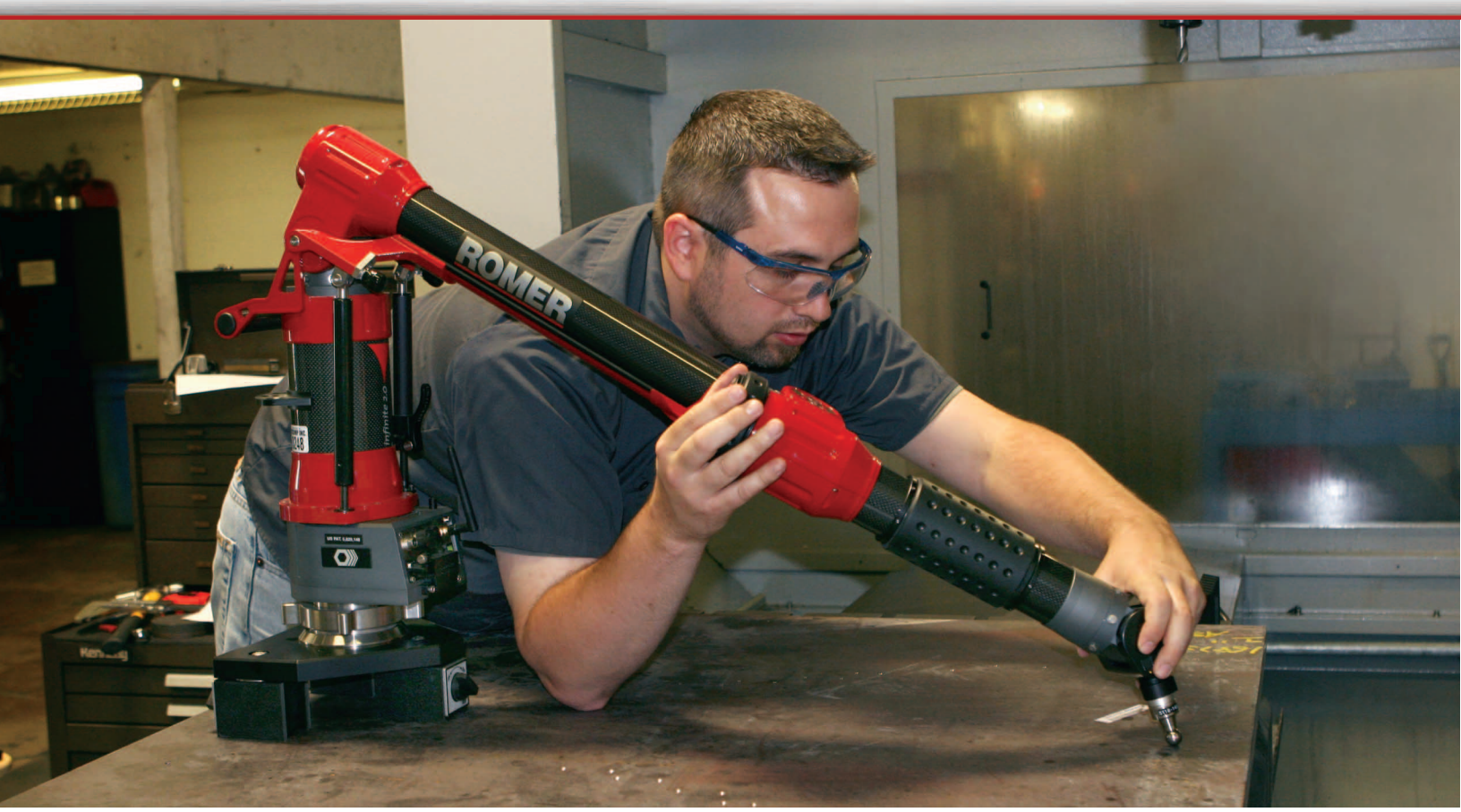
ROMER



Compressor Manufacturer Finds Positive Economics in Portable Arm

by Belinda Jones

Robert James had what it takes to start a manufacturing company focused in oil-free air and gas compressors — history, expertise, and the willingness to take a second chance on a business he knows well. Nearly forty years ago, his father William James began producing oil free air compressors under the trade name Aeroflow Industries. Aeroflow compressors quickly gained a reputation for longevity and dependability, and soon oil-free gas compressors were introduced to their product line. The company was sold by the James family in 1990.

However, Hycomp was purchased back by Robert James in 1997. As a young boy, he worked on the shop floor of the family business and had a “feel” for the business. Robert began to reassess the marketplace, and moved to expand the business to include the production of air boosters. The company teamed up with key manufacturers of on-site nitrogen generation systems, and began a hard push to develop and add nitrogen boosters to their product line. Today, Hycomp has a global clientele, and serves a wide range of industries such as pharmaceuticals, oil and natural gas production, laser cutting, and food and beverage.

HEXAGON METROLOGY

So how does a small manufacturer located in Hyde Park, Utah compete in a $50 billion market with much larger players? The operative phrase is “attention to the customer’s fine details”. Hycomp has essentially transformed itself into an engineered solutions provider. Their compressor solutions are not pick-and-ship products as each customer has specific requirements, standards, and applications. Hycomp works closely with their clientele and their dealer channel to ensure the end user gets the right product…not just a product.

Finding the Right Fit

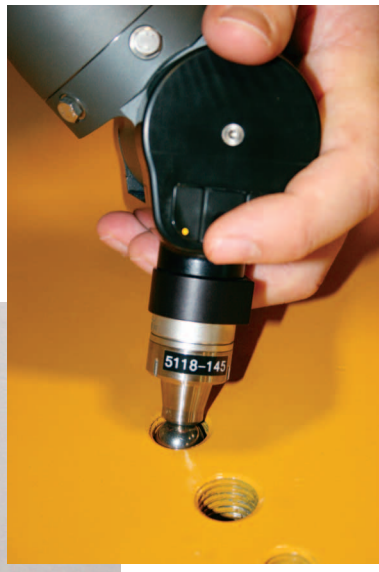
One of the thornier aspects of running a manufacturing business is quality…not just part quality, but consistent quality across all product lines. Hycomp wanted a metrology solution that provided greater flexibility and a high level of precision. The ROMER INFINITE 2.0 portable coordinate measuring machine (PCMM) met their requirements for multiple reasons.

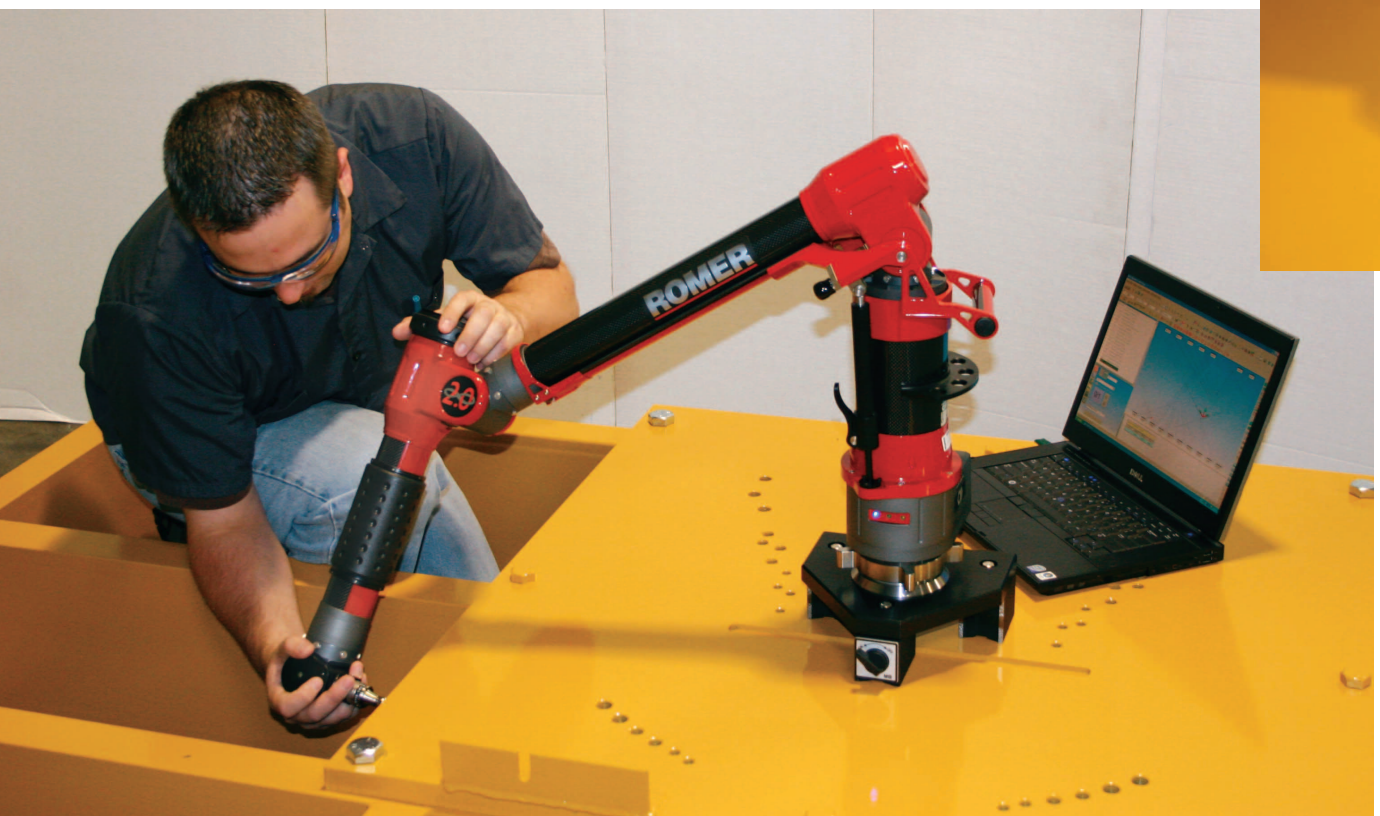
“I first started looking in the CMM market for a standard CMM tabletop setup. Our choices were limited due to the size of a few of our castings,” states James. “When you have a casting that is 24 to 30 inches tall, it is very difficult to measure on a standard CMM. We would require a larger height CMM with a hefty price tag. Then we backed off and reconsidered whether we could live without measuring these seven or eight large parts on the CMM. At this time, I was put in touch with a local ROMER dealer who showed us the articulating arm. It was the flexibility of the PCMM that interested me most. The arm gave us a very good solution for what we were trying to accomplish.”

PCMM Takes Pain Out of Quality

The arm’s six joints of fully articulated movement and patented infinite rotation enables the operator to track and record measurements from a wide range of parts. The PCMM operates like a human arm and has a light touch due to its carbon fiber construction and Zero-G counterbalance. The arm combined with integrated inspection software ushered in newfound efficiencies for Hycomp’s quality inspection. Delivered with multiple probe selections, Hycomp gets maximum usage from an extended probe that allows the quality inspector to reach inside parts that would have been nearly impossible to measure through conventional means.

James states the biggest driving factor of implementing the arm is to measure “product”. Hycomp can now inspect many products without multiple setup times. “We can set up a vertical bore, and in the same setup, check a cross bore to verify if they are perpendicular to each other and if their centerlines are aligned. We could not do that as quickly on





a standard CMM. You can reach around the part to check feature after feature. It is literally that simple," said James.

"The ROMER PCMM allows us to measure complex parts in a greatly simplified manner. Measurements that were often time consuming and difficult are now fast and easy," said Greg Steele, Quality Inspector. "When we are able to inspect parts faster, it affects our overall productivity. When a machinist brings me a complete part, I can get back to them very quickly to tell them if their setup is good, so they can continue running the part. You do not want a machine or an operator sitting idle for long."

"Going the extra mile pays off as our warranty rate is incredibly low. Our metrology capabilities put us one step closer to achieving even higher goals."
Robert James

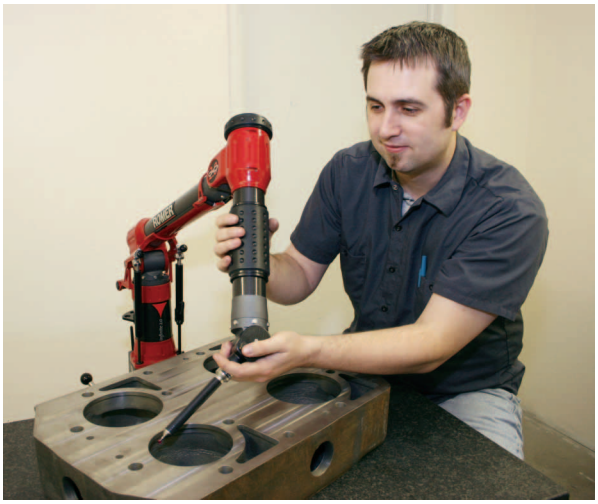
Steele uses the PCMM every day to inspect just about every part produced on Hycomp's production floor. He typically has three or four setups a day, and spends most of his time checking critical bore locations and features. Parts are carried into the metrology room for inspection, but the mobile arm gives him the versatility to work anywhere in the facility, from checking machine alignment on the production floor, to compressor inspection in the assembly area.

Inspection timelines have been dramatically reduced using the PCMM. For example, a cylinder head casting would usually take about a half hour for a single inspection using traditional equipment such as calipers, a bore gauge and a height gauge. However, after just 20 minutes of programming, every subsequent cylinder head casting will only take 5 minutes. For Hycomp, decreasing a 30 minute measurement process down to 5 minutes has major bottom line ramifications.

Inspection Software

The potential of standardizing part measurement was also an important factor for implementing the new measurement system. The company uses Solidworks for computer-aided design and the CAD models are easily imported into PC-DMIS, the inspection software interface to the arm. Steele can create inspection programs without even having a physical part. The software also enables him to compare measurements taken from a part directly to its corresponding CAD model.

With standard training, Steele is already programming inspection programs for parts that will be produced again in the future. These archived inspection routines have the potential to make the dimensional control process more efficient with each use. "Using PC-DMIS software, I can build an inspection routine as I measure a part. I can drill down into the data to get the information needed. This software in general was designed to be highly customizable."



Looking Down the Road

According to Steele, Hycomp's product development team will also yield benefits from this measurement resource. "The PCMM expands our ability to produce and inspect. As our engineers are designing new parts and product lines, they can take advantage of our on-demand inspection capability to check their progress along the way. The quality system opens the means to incorporate more complex requirements into our drawings and hold tighter tolerances. Our engineers can feel assured that our manufacturing inspection procedures can keep up with what they are doing."

"No matter how well you serve the customer, as a small company competing with larger manufacturers, it is an absolute must that we produce a quality product. From the time my father started this business in 1969, we have had a quality mentality. At Hycomp, every compressor built goes through 4 to 8 hours of rigorous testing before it ships to the customer, and we build a lot of compressors as complete systems. Going the extra mile pays off as our warranty rate is incredibly low. Our metrology capabilities put us one step closer to achieving even higher goals," concludes James.

ROMER

Responding to needs throughout industry for portable, flexible solutions to measurement and inspection applications, ROMER's co-founder patented and marketed the first multi-axis articulated arm for tube inspection in 1973. Today's ROMER® arms are direct descendants of that first innovation.

Since then, ROMER has continued to lead the field with technological innovations such as our infinite rotation arm design (patented in 1998), WiFi wireless connectivity, integrated USB camera and battery operation. Advanced dimensional inspection products have included the 1000 Series portable CMM, Linear Rail System, 3000i™ portable CMM, GridLOK® 3D large volume measurement system, STINGER II™ and INFINITE® series CMMs.

The Hexagon Metrology group of Hexagon AB (Sweden) is the world's largest manufacturer of precision dimensional measurement equipment and software, with ten manufacturing facilities on four continents and more than forty sales and support locations worldwide. The group consists of metrology brands Sheffield Measurement®, Brown & Sharpe®, CogniTens, DEA®, Leica Geosystems, Leitz™, PC-DMIS®, ROMER®, and TESA®. Together, the group is the world market share leader in coordinate measurement systems.

ROMER, a brand of
Hexagon Metrology, Inc.
51170 Grand River Avenue
Wixom, MI 48393 USA

Phone: 800-218-7125
Fax: 248-449-9445

E-mail: sales@ROMER.com
http://us.ROMER.com

HEXAGON METROLOGY

 Printed in USA - August, 2009 #99xxxx