



THE ROLE OF METROLOGY

In Changing Times

*Trends of manufacturing precision, miniaturisation and cost reduction are taking place across almost all industries. Asia Pacific Metalworking Equipment News speaks to Optical Gaging (OGP) president **Stephen Flynn** on the importance of utilising such trends in Asia's rapidly-developing industries.*

Q: What is the outlook for the multi-sensor measuring system industry in Asia?

Stephen Flynn (SF): The market for multi-sensor metrology in Asia continues to grow rapidly as products being manufactured become more sophisticated. The trends of precision, miniaturisation, cost reduction and rapid development continue across almost all industries, and these trends drive the needs for more and better metrology to manage and control manufacturing processes and improve quality.

Q: Can you give us the insight into which sectors of the metalworking industry in Asia that could see the demand for measuring products?

SF: Both subtractive and additive manufacturing

sectors are seeing increased use of high-end metrology. Traditional metal cutting such as grinding, milling and turning continue to rely on in-process metrology to set-up, monitor and control their processes.

Multi-sensor systems are ideal because they can handle more measurements in a single setup, saving time and lowering overall uncertainty. 3D metrology software is ideal for more sophisticated prismatic parts and the use of articulating probes and single or dual rotaries provide 5- and 6- axis capabilities.

Additive manufacturing systems are still in their infancy, but in general have similar needs for first article inspections and in-process monitoring of finished products to manage processes.

What is unique about 3D printing is the degree to which processes are material dependent. Multi-sensor measuring systems are particularly well-suited to characterising parts produced using 3D printing because the array of sensors offers choices to handle the demands of the various materials.

Q: Can you discuss OGP's goals in Asia for the next few years?

SF: Our company is well-positioned throughout Asia to welcome new manufacturing growth, particularly in countries such as Vietnam and Indonesia where OGP has had a strong presence for several years.

The influx of manufacturers in the automotive, aerospace, medical and electronics sectors are quickly adopting multi-sensor technology throughout their quality metrology operations.

Editorial

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South Korea, China and the Singapore, Malaysia and Oceania regions are also continuing to grow more manufacturing industries. We are adding staff, locations and partners to meet the additional needs of customers throughout the Asia-Pacific region.

In addition, OGP will introduce a raft of new sensor and software technologies worldwide over the coming two years—some in the mid-market and some in the very high end of the precision spectrum—but all with a focus on practical implementation and ease of use in everyday manufacturing.

Q: With accelerating advances in software and component design, how does OGP stay on top of such changes in discussions with customers?

SF: The acceleration of data-driven manufacturing models (Industry 4.0, Smart Manufacturing, etc) highlights the need to continually engineer our measurement systems and software so they are practical, useful and easy to use in everyday manufacturing settings.

Obviously more complex measurements require more complex solutions, but in general our range of measurement systems and software covers a broad spectrum of use cases, so that regardless of a component's design or manufacturing process, chances are we have a system that is a good fit with the needs of the user.

We use the full range of optical, sensor, software and mechanical configurations available from OGP to help solve each customer's process metrology needs.

Q: Is there an identifiable technology uptake pattern in Asia in regard to metalworking and sensor technology?

SF: Historically, the nature of manufacturing process in each country or region has been in proportion to the overall economic activity level of the region.

The more developed economies had the more sophisticated and high value added production, while the less developed regions had more basic industries.

That trend has changed due to many factors, and today we see advanced manufacturing being located closest to where consumer demand is expected to be the highest in the future. In effect, there are very few, if any boundaries, anymore as far as technology adoption is concerned.

Q: How do you go about building a customer base in Asia?

SF: Our view has always been that a quality



product that solves real problems, offered at a fair price with excellent locally-based customer support, will be successful. The key for us has been our local support team who are instrumental in serving our customers throughout Asia.

We located our Southeast Asia regional business centre in Singapore (and branched out from there) because of the ease of conducting trade in the region and its convenient access to major markets in Asia.

Q: Finally, can you discuss industry-wide manufacturing trends — such as factories of the future and how this may work in the global supply chains of areas of focus such as the automotive, aerospace, metalworking and other industries?

SF: The trend across all advanced manufacturing today is to reduce time to market. The vision of Industry 4.0 and other Smart Manufacturing models is to use manufacturing data (CAD, CAM, PMI, Inspection and Evaluation data) efficiently.

For OGP, that means providing ways to quickly integrate production metrology data upstream into the manufacturing and design workflows to enable manufacturers to qualify and stabilise processes more quickly.

We are developing software tools that do exactly that — integrate metrology data with both manufacturing CAM software, and upstream to CAD design workflows so that it is possible to model, simulate and adjust designs and machining programmes quickly on the basis of real data. ⚙️

Quicker integration of metrology data into manufacturing and design workflows can enable manufacturers to qualify and stabilise processes more quickly.