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**Renishaw improves consistency in additive manufacturing**

To allow additive manufacturing (AM) users a greater understanding of their processes, Renishaw has developed new process monitoring software, InfiniAM Spectral, for use on Renishaw systems. After its successful launch at formnext 2017, Renishaw released the software package to help manufacturers overcome the barriers to AM in critical applications, process stability and part quality.

Laser powder-bed fusion (LPBF) builds components from millions of laser exposures. This process must be highly accurate to produce a functional part. However, there are sources of variation that can occur during the build process, which can produce anomalies that impact the longevity of the part. Real-time spectral monitoring technology enables manufacturers to gather melt-pool data to enable traceable production and process optimisation.

InfiniAM Spectral is part of a developing family of products that helps users capture, evaluate and store process data from Renishaw LPBF technologies. The software enables data capture, presentation and analysis, representing a powerful tool for developing a deep understanding of the AM process.

The new software offers two measurement functions in the sensor modules. The first module, LaserVIEW, uses a photosensitive diode to measure the intensity of the laser energy. The second module, MeltVIEW, captures emissions from the melt pool in the near-infrared and infrared spectral ranges. These two sensor signals can be compared to help identify discrepancies.

MeltVIEW and LaserVIEW stream data across a conventional computer network on a layer-by-layer basis, so manufacturers can analyse process monitoring data in real-time. As the build progresses, the data is rendered live in 3D for viewing in InfiniAM Spectral. The engineer can compare the data from each sensor to identify any deviations, which may indicate the presence of anomalies that could lead to defects.

“For additive manufacturing to become a truly ubiquitous manufacturing technology, users and practitioners require a deep understanding of the process,” explained Robin Weston, Marketing Manager at Renishaw’s Additive Manufacturing Products Division. “The software will be hugely beneficial to manufacturers looking to achieve consistent processing with AM.”

“The amount of process data generated during an AM build is immense, which means it can be difficult to make practical use of it without the correct interpretation tools,” continued Weston. “InfiniAM Spectral enables manufacturers to easily interpret data and gain a more detailed understanding of their AM processes. Access to real-time data opens the door to future developments in process control – detecting and correcting problems in real-time.”

InfiniAM Spectral will be a huge asset to those producing a series of identical parts in high-value applications. When producing the first part in a series, data from LaserVIEW and MeltVIEW can be compared with existing X-Ray or Computed Tomography (CT) data from a known good part. The manufacturer can use this gold standard signal data and can compare it against data from subsequent parts to judge quality and consistency.

For more information visit <http://www.renishaw.com/en/software-for-laser-powder-bed-fusion-metal-3d-printing-systems--15255>

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Notes to editors

UK-based Renishaw is a world leading engineering technologies company, supplying products used for applications as diverse as jet engine and wind turbine manufacture, through to dentistry and brain surgery. It has over 4,000 employees located in the 35 countries where it has wholly owned subsidiary operations.

For the year ended June 2017 Renishaw recorded sales of £536.8 million of which 95% was due to exports. The company’s largest markets are China, the USA, Japan and Germany.

Throughout its history Renishaw has made a significant commitment to research and development, with historically between 14 and 18% of annual sales invested in R&D and engineering. The majority of this R&D and manufacturing of the company’s products is carried out in the UK.

The Company’s success has been recognised with numerous international awards, including eighteen Queen’s Awards recognising achievements in technology, export and innovation.

Further information at [www.renishaw.com](http://www.renishaw.com)