



Shop-floor Metrology Explainer

Components made using additive manufacturing processes need their form (shape) and surface texture to be inspected to assure quality and conformance. The potentially complex geometry of 3D printed parts means that existing measurement techniques, both contact and non-contact, will be compromised in terms of accuracy, speed and data integrity. Taraz Metrology systems are designed to deliver the performance demanded by today's additive manufacturing applications, and to do so as part of an on-machine or in-process solution.

Taraz systems use information-rich metrology (IRM) software capability to deliver measurement cycle times (including calibration, set-up, measurement, post-processing and analysis) which match the throughput of the 3D printing process. Software-driven automation allows components to be identified and measured with minimal operator input, or via integration with existing manufacturing cell systems.

Significant numbers of large data files can be processed, analysed and stored efficiently by Taraz IRM Software. Outputs can be customised to suit individual requirements and digital manufacturing systems. Feedback data can be sent to the printer directly, allowing problems to be flagged quickly, avoiding the generation of unnecessary scrap.

Taraz IRM Software is designed to work with a broad spectrum of optical and mechanical hardware suppliers, allowing shop-floor appropriate systems to be designed without compromising on performance, ruggedness and cost. Camera and projector systems can be multiplexed to deliver high resolution outputs as well as faster throughput. Technology licenses are available to specialist integration partners who prefer to specify the complete manufacturing process solution.

Taraz Metrology has its roots within the Manufacturing Metrology Team (MMT) at University of Nottingham, UK. A significant part of MMT's globally recognised research has been dedicated to the adaptation (and in some cases complete redesign) of existing laboratory-based measurement techniques for use as part of in-line, factory solutions, with a specific focus on the uniquely demanding requirements of 3D printing processes. The development of new optical measurement techniques allied with high-speed data processing for optimised data acquisition and post-processing has resulted in a core technology that Taraz Metrology is now bringing to the additive manufacturing sector.