CT crown for on-machine scale calibration in Computed Tomography (25/12/2018)

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A novel artefact for on-machine calibration of the scale in 3D X-ray Computed Tomography (CT) is presented. The artefact comprises an invar disc on which several reference ruby spheres are positioned at different heights using carbon fibre rods. The artefact is positioned and scanned together with the workpiece inside the CT scanner producing a 3D reference system for the measurement. The artefact allows a considerable reduction of time by compressing the workflow of calibration, scanning, measurement, and re-calibration. Furthermore, the method allows a considerable reduction of the amount of data generated from CT scanning. A prototype was calibrated on a tactile CMM and its applicability in CT scanning demonstrated using a calibrated workpiece.

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