

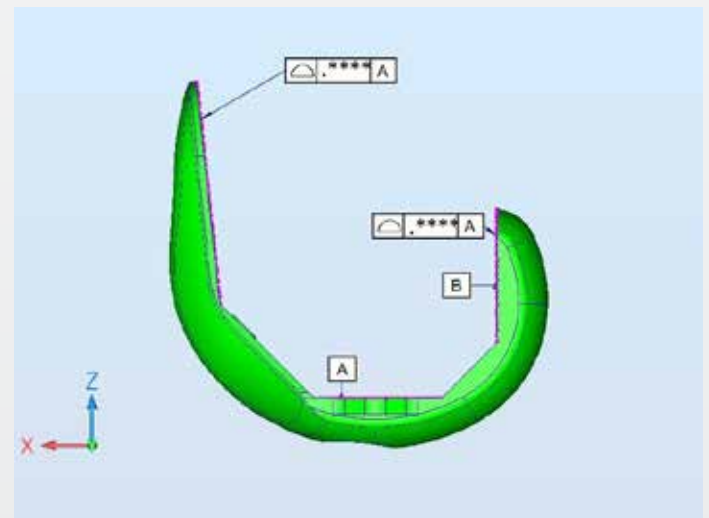
Focus: Stem Tibia and Femoral Components

Challenge: Stem tibia and femoral components are complex shaped parts with exacting tolerances. In this case study, a high proportion of parts were found to be out of tolerance when measured on a high quality CMM, despite measuring within spec using traditional gaging. Parts marked non-compliant by the CMM were scrapped at significant cost, while time was spent recalibrating the CMM and investigating the manufacturing process.

Root Cause: The CMM software correctly measured the parts, but did not correctly analyze the measured data according to the ASME GD&T standard. The design specified profile tolerances constrained by a single datum surface only, while the CMM software unnecessarily constrained two datum surfaces. As a result many good parts were scrapped.

The KOTEM Advantage: SmartProfile® 3 from KOTEM properly applied the profile tolerance as specified in the part's design, according to the GD&T standard. As a result, the previously rejected parts were confirmed to be in conformance with the design.

The Result: The addition of SmartProfile to the measurement process resulted in increased yield of over 20%. Due to the high value of the components, and the number of parts being scrapped, the cost savings realized in the first 12 months of using SmartProfile were in excess of \$500,000. SmartProfile improved process performance, reduced inspection costs and eliminated high cost scrap by properly analyzing CMM data per the ASME GD&T standard.



The facts in this case study are courtesy of:

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