ogp®
Optical Gaging Products
A Division of Quality Vision International

Focus: Femoral Component Implants

Challenge: Femoral component implants present a unique manufacturing challenge. This type of implant is custom made to precisely duplicate an individual patient's knee structure. Femoral structures consist of a number of contours, surfaces and curves that are not easily defined as standard measurements. Further challenges with femorals are the unusual topography and the highly polished surface. A variety of sensors and software are needed to correctly measure and evaluate the part.
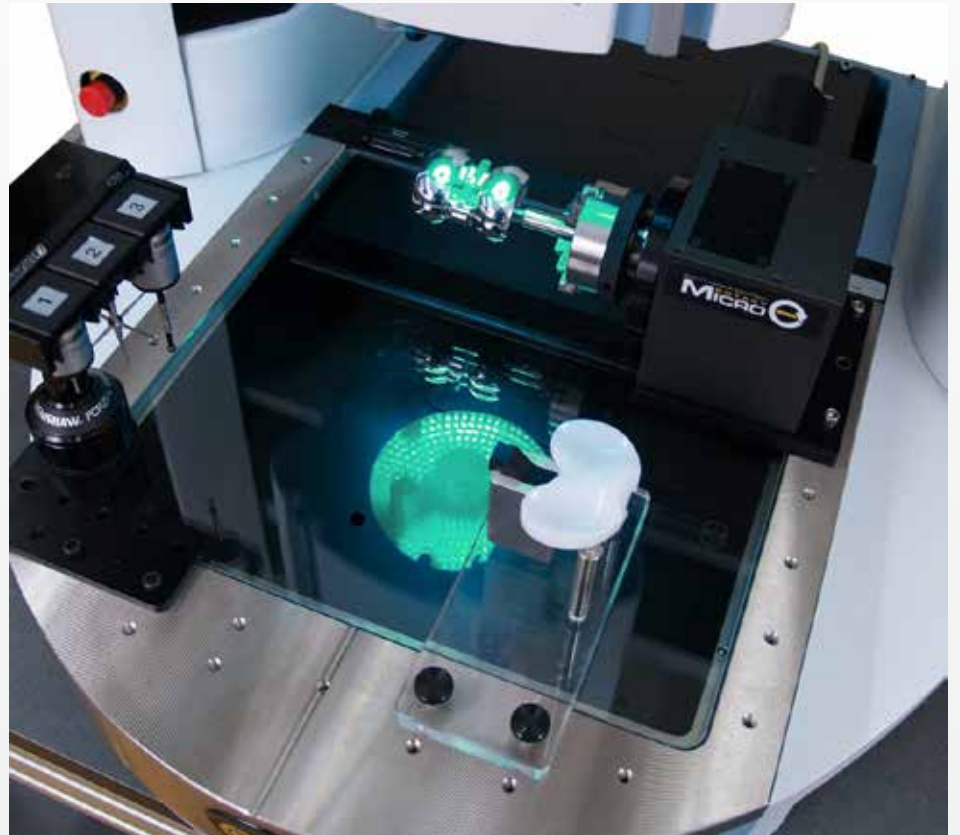
Femoral component on an MTR rotary.

The Multisensor Advantage: The OGP SmartScope® Vantage 300 combines the accuracy and versatility needed for complex and difficult measurements such as these. Large measurement volume, state-of-the-art optics, a through-the-lens laser and a range of tactile sensors deliver high productivity measurement. A precision rotary indexer allows the femoral to be automatically rotated to present all surfaces for measurement. Datums are established using tactile probing. The MicroTheta rotary (MTR) is used to orient individual cross sections of interest. A 2D profile is then established from each cross section. These sections can be measured using a combination of SP-25 scanning probe, patented TeleStar® laser and TeleStar zoom optics in a single routine. Measurement results can be exported to MeasureFit® software for evaluation and fitting.

The Result: Traditionally, this type of part would be inspected using a profile projector with custom fixturing to establish datums, and an overlay chart for Go / No-Go evaluation of the contours and surface profiles. Using fully automated multisensor technology, OGP eliminated operator induced variability, acquired a large body of measurement points, and compared those points properly to the part's designed datums - all in less time than it took for manual inspection on a comparator. The evaluation of the data using QVI's MeasureFit software allowed complete analysis of all fitted data and tolerances simultaneously. Multisensor measurement yields ample data to allow fast feedback into the manufacturing process for comprehensive process control.