

Focus: Gear Measurement

Challenge: Shift gears have a large number of detailed features that require extensive setup and programming to fully characterize. These parts often make up very large part families and have a multitude of similar varieties (part numbers). Gears are best measured near the production line to provide fast feedback to the manufacturing process. High accuracy measurement and speed are critical in maintaining the production cycle.

The ITACA Advantage: The Itaca FlexGauge T-16 system is a small benchtop system, ideal for use right on the shop floor. The T-16 is designed as a flexible gauge for small parts such as gears, connecting rods, CV joints and similar tight tolerance parts. The T-16 uses high speed scanning probe technology to quickly gather a multitude of data points. T-16 enables a more complete and accurate characterization of complex shapes than would be possible using an ordinary touch-trigger probe, but without sacrificing the high throughput necessary for a production line solution. Tangram metrology software with the iGear™ parametric gear programming module allows a base program to be extended to a whole family of similar gears.

The Result: The ITACA FlexGauge quickly measures profile, flank, pitch, thickness and runout, and provides detailed graphical analysis per the DIN 3962 standard. The FlexGauge collects over 30% more data in the same measurement time as a traditional CMM. The T-16 FlexGauge provides high accuracy and production line throughput with built-in thermal compensation to operate right on the shop floor.



Tooth pointing of shift gear.



Tooth pointing of main shaft.