

Focus: Machined Optical Assembly Mounts

Challenge: Measurement of small precision parts, such as these machined optical assembly mounts, often requires the use of custom hard gaging. These dedicated gages can be costly and do not provide the flexibility of measuring multiple sizes of parts. If a specific part is changed or discontinued, a new custom gage would be required. Dedicated gaging also provides little or no information usable for process adjustment or capability analysis. Critical dimensions on this part include the top cylinder diameter and the side cylinder diameter.

The FlexPoint Advantage: The new FlexPoint™ from QVI® is a high accuracy flexible gaging system designed as an alternative to custom hard gaging. With its rigid granite support structure and precision air bearing stage, FlexPoint provides accurate measurement results rapidly. Equally at home on the shop floor or in a quality lab, its hardened worktable with fixturing holes and kinematic pallet mount allows for easy measurement of multiple parts.

FlexPoint is easily programmable and can be suited to measure many different parts, offering a unique cost saving advantage compared to hard gaging. The FlexPoint comes equipped with ZONE3® metrology software, allowing for full 3D CAD programming to be done fast and easily. Simply choose the feature to be measured and using Path Generation, a path of measured points on a feature along with safe points will be created automatically. Additional features such as Clearance Zone can be used to define a safe area around a part and any associated fixture, eliminating any risk of collision between the probe and the part and/or fixture.

The Result: Using the Part Repeat function, all three mounts were measured by programming only a single part and setting the system to repeat at a known Y offset. Along with the live kinematic model simulation of the machine and multi-tipped probe, CAD copies of the repeated parts are also shown in the model window. Using Multi-Run Reporting in ZONE3 allowed for cumulative measurement results, along with the associated statistics, to be reported on the critical dimensions of multiple parts.

