

quality



## Digital optical comparators improve MANUFACTURING

VisionGauge digital optical comparators at SGS Specialty Group's 9,500ft<sup>2</sup> facility in Columbia City, Indiana.

By switching from traditional, analog technology to a digital, optical comparator, SGS Specialty Group has improved its quality control process, accuracy, reliability, and throughput.

EDITED BY ARIELLE CAMPANALIE

**S**GS Specialty Group, formerly known as Oak View Tool Co. located in Columbia City, Indiana, manufactures its own line of carbide tools for machining titanium, cobalt, chrome, and stainless steel. Founded in 1996 as a carbide cutting tool regrind shop, the company also works with medical OEM product engineers to design custom geometries required in surgical cutting devices, setting them apart in the cutting tool industry.

### Higher resolution inspections

To provide high quality products, the part inspection process must be precise and reliable. SGS was dissatisfied with its inspection accuracy and the limitations of using overlays, also called templates or Mylars.

"As the company was growing and expanding its manufacturing capabilities,

we were finding that the traditional optical comparator we had been primarily using to check parts was not suited to meet our increasing requirements," SGS Specialty Group President David Eizelman says.

Overlays that verify part tolerances are not well-suited for quick turnover jobs, require physical storage and management, use only a single magnification, require periodic re-calibration, and have a large footprint. Optical comparators also aren't accurate enough for SGS Specialty Group, which typically meets tolerances of 0.001" or less.

In addition, optical comparators can only inspect parts that fit within their optical field of view. A 10 magnification, 30" comparator can only check parts that measure 3" or less against an overlay. This presented a problem because manufacturing reamers require a larger field of view.

### Digital technology for productivity

To better check parts, SGS Specialty Group purchased a VisionGauge digital optical comparator. Developed by VISIONx in Pointe-Claire, Quebec, Canada, and distributed in North America by Methods Machine Tools Inc., the drop-in replacement for traditional optical comparators is available with the same range of magnifications and can accommodate the same part fixtures.

The SGS Specialty Group's system configuration includes 10x/20x/50x multi-mag optics capable of an accuracy of  $\pm 0.0001$ " and an extended 24" travel stage for longer parts. The VisionGauge parts range from sub-micron based solid carbide substrate tool for cutting cobalt, chrome, titanium, and stainless steel, to taper ball end mills.

"In one of our jobs, first article inspection was reduced from up to 1.5 hours to only 10 to 12 minutes with the digital comparator. Since our machines aren't running during first article inspection, every minute counts," Eizelman says.

The system works directly with CAD data, eliminating all of the problems having to do with the production, storage and management of overlays.

Eizelman says, "The use of electronic overlay versus Mylar overlay is extremely efficient. We are able to compare a

part to its CAD data in real-time and are completely automated by using the CAD auto-align and auto pass/fail tools. The results are repeatable, accurate and completely operator independent, drastically reducing our inspection times." **tmd**

### SGS Specialty Group

[www.sgsspecialtygroup.com](http://www.sgsspecialtygroup.com)

### Methods Machine Tools Inc.

[www.methodsmachine.com](http://www.methodsmachine.com)



A technician is using the VisionGauge digital optical comparator to quickly, easily, and accurately check a part.

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