



LASER QC SYSTEM IN PLACE

Being busy is usually a good thing, but when bottlenecks develop within your workflow, change is demanded. As production requirements steadily increased during the year, it became evident that we needed to improve the flow of product through our inspection processes. First piece inspections became a bottleneck to manufacturing, as our customers were demanding more documentation with first article submissions. Coupling this with an increase in part redesigns, it was clear we needed to make some improvements. Our research took us to the Virtek Laser QC system. The Laser QC is capable of quickly performing 100% inspections accurate to $\pm 0.002"$ (0.05mm) in typical production environments.



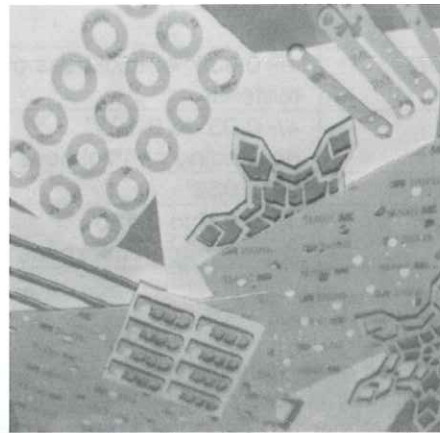
QC Technician Elsy Bedard positions a medical device gasket onto the scanner for accurate comparison to its CAD reference image.

The system consists of a Class IIIa/Class 3R laser projector mounted over a retro-reflective scanning table, powered by Virtek's proprietary LaserQC software. The system automatically self-calibrates and a visible laser beam scans the part. For gaskets, seals and other parts made of flexible materials LaserQC is equipped with a part stabilizer to flatten parts. This integrated cover system sandwiches the part between the glass cover and the support glass to force the part to conform to the flat surface. As a result, the accuracy of the scan is independent of the flatness of the original part.

continued on next page...

ADHESIVE PREFORMS

As many of our customers know, ORION® has been providing die cut and kiss cut adhesive backed parts since our beginning in the early 1970's. The adhesive on these parts has taken many shapes from full adhesive coverage on one or both sides, to adhesive strips, to specially designed areas of adhesive.



The use of adhesive preforms has seen tremendous growth in recent years. Adhesive preforms are typically die cut or kiss cut adhesive film with protective release liners on both sides.

ORION has had long standing relationships with adhesive manufacturers such as 3M who produce an extensive variety of adhesive products. ORION's wide range of manufacturing capabilities allows us to produce parts from most of their materials. For example, our high speed Preco flatbed die cutting presses are well suited for kiss cutting free film adhesives, such as 3M 467 and 468, as well as their VHB tapes such as 3M 4952. Our Preco Flexpro Laser converting system can kiss cut these same materials with increased intricacy of design and no costly tooling.

In many lens and bezel attachment applications, a gasket of 3M VHB tape is used around the entire perimeter of the bezel to attach it to the case and provide a strong, durable, weatherproof seal. When typical 1/16" tapes are die cut, they can easily revulcanize, making it difficult or sometimes impossible to remove the parts from surrounding scrap. The process of choice would be waterjet or laser cutting to avoid this problem.

Whatever your attachment needs, ORION's experienced sales staff can help you choose the most appropriate adhesive preform for your application.

ORION is a registered trademark of Orion Industries Incorporated. ORION provides custom designs and manufacturing for EMI/RFI shielding, insulating, screening and sealing needs.



Q. Ryan, I'm designing a new part. What range should I allow for cutting tolerances?

[Design questions may be emailed to RMccrillis@orionindustries.com]

A. This is a truly complex question. Tolerances on a finished part are a combination of four things: tool or cutting method tolerances, part geometry, material stability, and material thickness. Sometimes these can be difficult to determine before parts are made.

With die cutting, thicker and more rigid materials tend to deflect the tool blades during cutting. Softer materials tend to show hour glassing deformation. The best approach is to match the part to the best process. *Digital die cutting* processes such as laser cutting, CNC routing and water jet cutting have the advantage that their programs may be altered to account for some of the factors which may lead to wide tolerance ranges. The chart below helps identify which processes work best for some common materials:

	Tolerances			
Material	Die Cut	Waterjet Cut	Laser Cut	CNC Routed
Plastic Film < 0.02" thick	+/- 0.015"	+/- 0.010"	+/- 0.010"	Not recommended
Plastic Sheet >0.030"	+/- 0.030" or thickness of material	+/- 0.015"	+/- 0.010"	+/- 0.010"
Foam	+/- 0.03" to 0.125" depending on thickness	+/- 0.015"	Not recommended	Not recommended
Dense Rubber	+/- 0.030"	+/- 0.015"	Not recommended	Not recommended
Gap Filling Materials	+/- 0.02" to 0.125" depending on thickness	+/- 0.015"	Not recommended	Not recommended

Laser QC continued.....

LaserQC captures over 500 data points per second, which it relays and images on the computer screen in real time. The software displays the scanned image superimposed on the CAD reference image, and the tolerances are color coded to instantly reveal any variances. This means that what we once measured with our older automated inspection system in several minutes, now takes less than one minute. In addition, the inspection routines are quickly created by our quality engineers offline, saving the inspector time from writing tedious inspection programs on the floor.

ORION purchased a 30x30 Virtek Laser QC system which is capable of measuring parts up to 60" wide by merging multiple scans together. This new system now allows us to satisfy any quality control and documentation requirements.

ORION TAKES PART IN SPACE EXPLORATION!

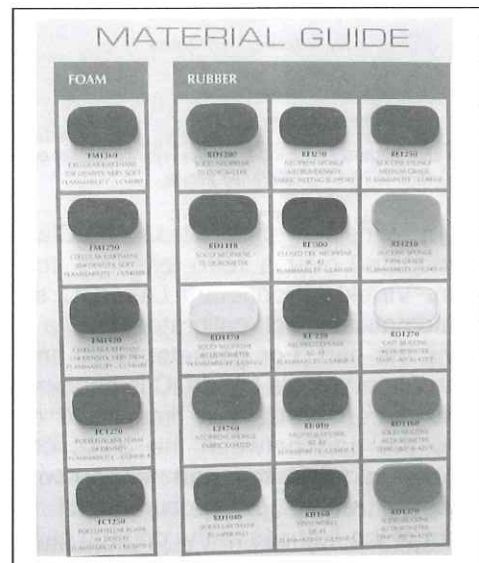


ORION is excited to *blast into space* in the very near future. NASA has asked us to supply a thermal interface material (Bergquist® Q-Pad 2), for a processor experiment that will fly for several years on the International Space Station. Similarly, Q-Pad 3 is being used on an experimental processor set to fly on the Hubble Space Telescope Servicing Mission 4. ORION is a major fabricator and distributor of Bergquist thermally conductive materials.

MATERIAL SELECTION GUIDE

We have an inventory of a wide range of materials, many of which are featured in this selection guide. ORION is ready to help you choose the most appropriate material for your application that can be provided in sheets or rolls, laminated and die cut to customer specifications.

If you would like to receive a Material Selection Guide, please give our sales office a call.



ORION uses quality materials to produce high quality parts.

