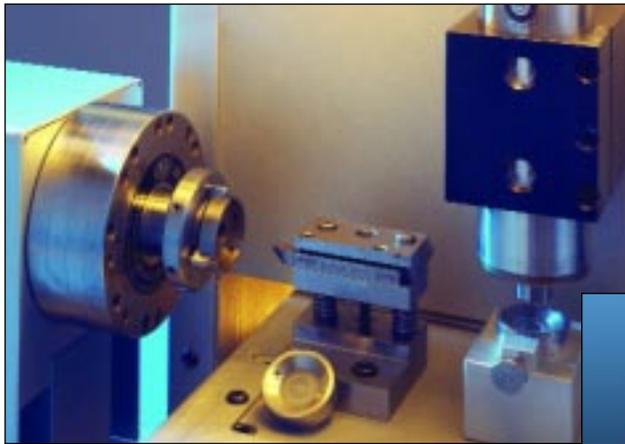
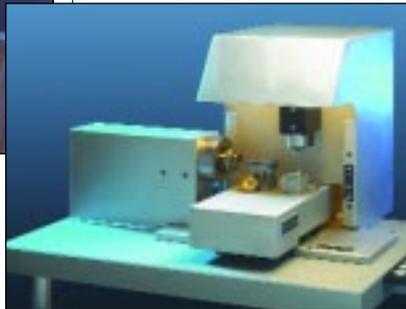


Galil's Precise Controller Helps IOL Restore Eyesight



Galil controller enables Optical Generator to precisely manufacture any make of interocular lens.



It's no small issue when one's vision becomes radically impaired due to a cataract. While cataracts affect all ages, they are the leading cause of vision loss among adults 55 and up.

When ophthalmologists' prescriptions for stronger glasses or medication don't work, then surgically replacing the afflicted natural lens with an artificial one made from plastic has become the most viable and successful option. Helping to create these eye savers is IOL International of Largo, FL, developer of the Optical Generator for making intraocular lenses of all styles—from foldable to multifocal.

Gary Goins, president of IOL, designed the Optical Generator to incorporate his patented carrier for holding the initial blank lens, and to combine lathing and milling capabilities in the same machine. Priced from \$80,000 to \$90,000 with options, it costs far less than conventional operations that spend 2–3 times as much for separate lathes and milling systems.

With cost reduction a major issue, and because of the pinpoint, repeatable accuracy required in a small 2" x 2" area of travel, Goins turned to Galil's DMC-1832 3-axis PCI bus controller to handle the motion coordination. In addition to replacing the other controller he had been using, it cut his costs by half, saved space and significantly improved the accuracy.

Goins explained, "The x-y table that the DMC-1832 controls is located under the machine to give us a short, tight work space, which is most effective in consistently producing

high quality optics. The controller provides repeatability, very precise 0.1 micron resolution, and smoothness of the slides which allows us to cut optics in less than 45 seconds per side. The same is true for the milling operation." If required, Goins says he can incorporate a different slide and encoder and get the resolution down to 0.01 microns.

Ease of use is a key driver why Goins specified the DMC-1832. "I prefer to design things that are simpler, straightforward and have fewer problems."

That's why the Optic Generator incorporates AutoCAD technology to draw the lens, and uses the controller's CAD-to-DMC translator to convert DXF files to a DMC program. The controller also provides linear and circular interpolation for precise x-y motion, easy and

accurate PID tuning of the high-resolution linear encoders, and a user-friendly software interface and programming.

The Optical Generator also increases production rates by being able to automatically cut both sides without a changeover, and have it milled within 30 minutes to get a completed lens. Before, research labs, universities and surgical centers would have to cut and mill one side, then have to take the time to turn it over to do the other side.

Essentially, the compact Optical Generator is comprised of a tray device which holds the carriers of the initial blank; a lathe with a 30,000 rpm, air-bearing spindle for putting the optics into the blank; and a air-bearing spindle profile milling station in which the haptics (used for securing the lens to the center of the eyeball) are left attached to the optic portion of the lens.

"Due to the extreme accuracy of the Galil controller, along with the slides and air bearing spindles, this machine produces virtually any type or style of intraocular lens, ophthalmic implant, or other medical device that requires small, high precision parts," adds Goins.

Goins also says other lathe and milling machines typically have too many bells and whistles and that when one goes down, the whole machine goes down. "With Galil's ease-of-operation, we've eliminated that. The Optical Generator is so simple to run, it's unbelievable." ■

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