



HARD DISK INDUSTRY

HARD DISK DRIVE MEDIA METROLOGY AUTOMATION

■ The Situation

Candela Instruments, the leading supplier of Optical Surface Analyzers (OSA's) to the global data storage industry, needed to quickly move their disk surface scanning technology from the laboratory to full production.

They had successfully proven the technology with a manually loaded machine, and now wanted to quickly expand the sensing capability within the hard disk industry. This meant that a fully-automated in-line configuration had to be rapidly developed. The potential to improve yields with full-scale production in this market was enormous.

■ The Challenge

In order to address the emerging market for fast, highly-sensitive reliability testing and failure analysis of magnetic disks, Candela decided to partner with an equipment manufacturer experienced in the HDD market and capable of rapid development. Automation parameters such as cassette feeding and integration to factory systems needed to be defined and addressed. Disks had to be loaded with precision, scanned on both sides, and handled at high speed. These challenges were compounded by space constraint issues and aggressive cost targets.

■ The Solution

Owens Design collaborated with Candela to develop the automation specifications. We bridged the gap between Candela and the end HDD customer by participating in joint meetings with the end user and developing the specifications to meet their needs.

(Cont'd on reverse)

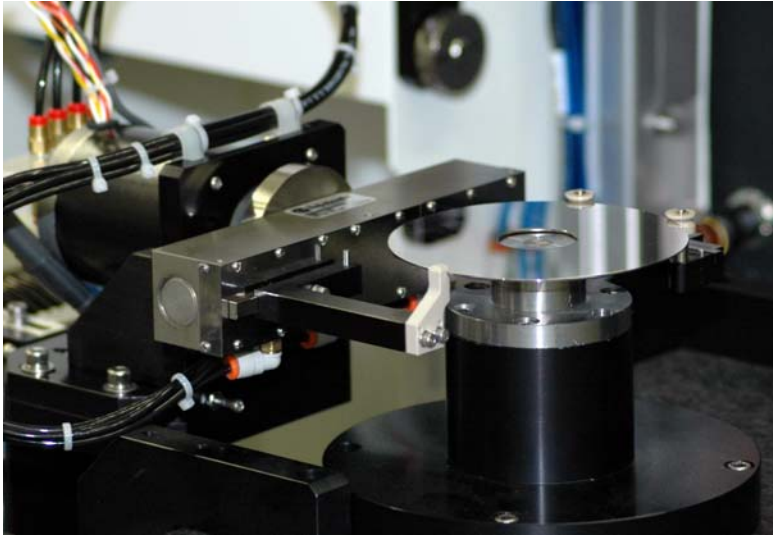


"We have chosen Owens Design as our partner to help reduce product development times. Owens Design provides a complete outsourcing solution."

*Rusmin Kudinar, President
Candela Instruments*



Owens Design
Capital Equipment Design & Manufacturing



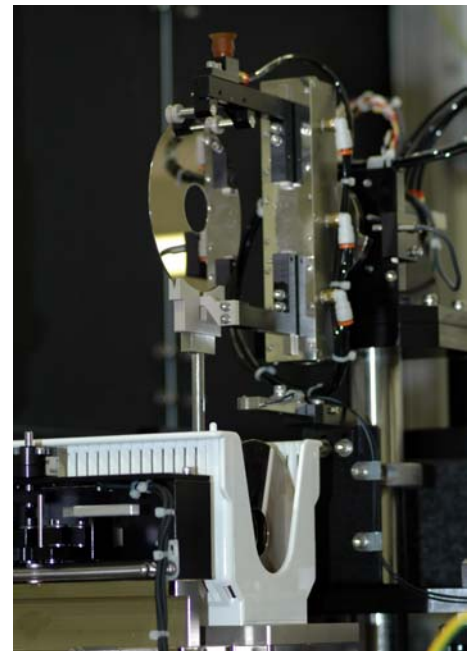
Mechanism Flips Disk to Measure Both Sides

■ The Solution (cont'd)

Owens Design developed a custom robotic manipulator agile enough to allow precise loading of the disk to the vacuum chuck, a mechanism that accepts and secures the disk for high speed rotation. A robotic arm incorporating a direct-drive rotational axis, which enables high speed disk flipping and allows for dual sided measurement, was designed to navigate within the machine's confines while making fast and efficient process characterization and control.

The first system was ready for high-volume production in 12 weeks and market acceptance of the product configuration has grown ever since.

The key to transferring the technology smoothly from the lab and into high-volume production as fast as possible was the close collaboration between Owens, Candela, and their end-user. When dealing with instruments this precise, the automation integration as desired by the end-user must be defined very early in the manufacturing process.



Innovative Mechanism Handles Media in all Formats