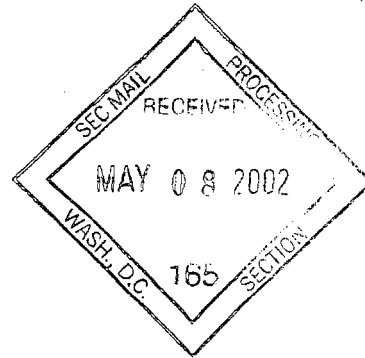




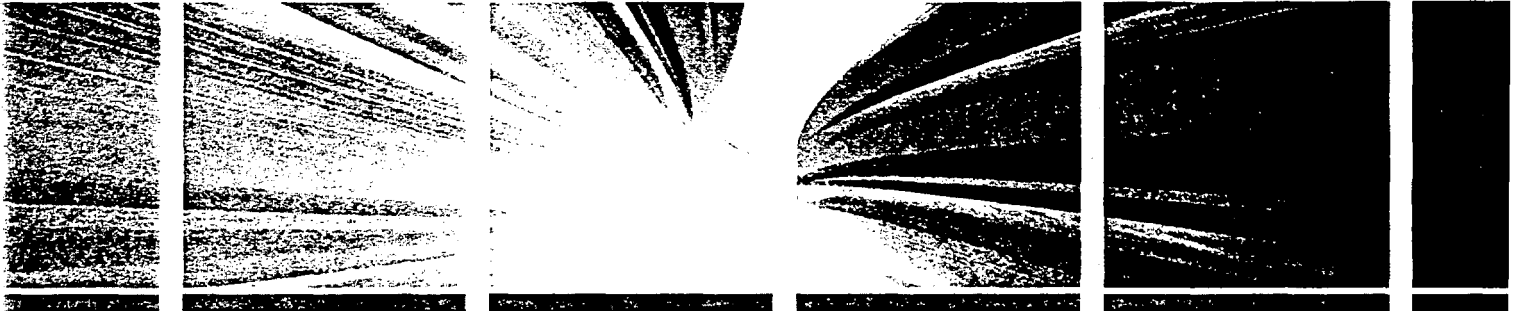
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NANOMETRICS INC



The Inside Information



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INSIDE INFORMATION.

Nanometrics' integrated metrology goes inside to arm users with the information necessary for increased profitability, productivity and predictability.

InTool™ technology empowers you.

WELCOME INSIDE.

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NANOMETRICS: Innovation is our future!

We are pleased to report that even during the industry's worst downturn, 2001 marked the second highest revenue in our 26-year history. Our financial position remains strong with \$80.2 million in working capital at the end of 2001. We retain a wide base of customers, with more than 5000 systems installed worldwide.

This was a year to remember. Our integrated metrology platform raised the technology bar for the industry by putting the chipmaker in control. This technology platform is already being used in hundreds of production tools, demonstrating the wide acceptance of our technology in the industry. We are dedicated to developing a broad range of new InTool™ integrated products networked with new, standalone metrology systems.

In July, we introduced our revolutionary optical critical dimension (OCD) technology. The development of these integrated InTool and standalone OCD metrology systems included the acquisition of key patents and development of key technology. The launch marked our entrance into the sub-micron critical dimension (CD) metrology market. This technology has greatly enhanced our product and intellectual scopes, thereby strengthening our competitive presence in all market areas. We also designed a highly competitive, improved performance overlay metrology system for next generation lithography. This tool was introduced during SEMICON Korea 2002.

Nanometrics is driving the trend towards integrated metrology for superior quality control. We are continuously and relentlessly pursuing the most advanced concepts for integrated metrology. The accelerated introduction of new materials and processes throughout the semiconductor fabrication cycle is a major driver of metrology, and Nanometrics is well-positioned to take advantage of this opportunity and take the lead in its market sector. It is vital that factories are upgraded to keep pace with the International Technology Roadmap for Semiconductors (ITRS). The ability to quickly adapt to emerging technology and business needs will define high volume 300mm factories, and Nanometrics' technology will play a critical role in the productivity and cost efficiency of these facilities.

It is our objective to take the prominent role in offering products that use innovative and unique solutions and continue to bolster customer capability in the next generation of semiconductor devices, flat panel displays and magnetic media. We expect that these products will lead the industry in the coming years. We maintain an extensive installed base with industry leaders around the world, including:

Applied Materials	Hyundai	Seiko Epson
Chi Mei	IBM	TSMC
1st Silicon	Read-Rite	UMC
Hitachi	Samsung	

In addition to generating customer cost savings, our leading edge integrated thin film metrology and OCD products offer essential means for actually achieving new customer breakthroughs in the future.

To further enhance their product and intellectual scope and strengthen their competitive presence, many of our customers have designed our technology and systems into their 200mm and 300mm chemical mechanical processing (CMP), chemical vapor deposition (CVD) and etch process tools. One industry-leading OEM customer has already integrated our new OCD technology into one of its latest etch tools. These design-wins are a testament to our InTool technology and the benefits it offers to both our customers and their own respective customers.

Integrated metrology is a key enabler for advanced process control (APC) and is a relevant, critical benefit to chipmakers because it ensures predictability (thus profitability) of their process. Integrated metrology, when combined with APC, is particularly important as feature sizes shrink below the wavelength of light. These shrinking geometries demand tight process tolerances — this is where metrology has become the essential ingredient in supporting the production of devices.

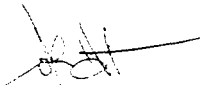
As our customers construct new or refurbish existing manufacturing facilities because of market demand for semiconductors, disk drives, flat panel displays, photonics and other devices, demand for our products will continue to grow. We are dedicated to continuing development of leading-edge metrology solutions to meet our customers' needs.

Financial Results:


For the fiscal year ending December 31, 2001, total net revenues were \$47.6 million, down 31.5% from \$69.5 million in 2000. Product sales were \$42.7 million in 2001, down 32.8% from \$63.5 million in 2000. This decrease resulted from reduced demand for semiconductor process control metrology equipment in 2001, especially in the U.S. and Asia. Net income for the year was \$960,000 or \$0.08 per diluted share compared to a net income of \$11,175,000 or \$0.94 per diluted share in 2000. Nanometrics' financial position continues to be strong, with cash and cash equivalents of \$47.2 million and working capital of \$80.2 million.

We would like to thank our shareholders, customers and employees for their continued support of Nanometrics. Together, we have increased Nanometrics' competitive presence in the marketplace and developed revolutionary technology. With the new technology introduced this year, we have greatly enhanced our product portfolio and are now poised to take the lead in our market sector and capitalize on the industry's expected upturn.

Sincerely,



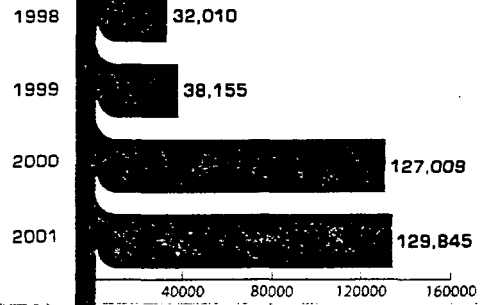
John D. Heaton
PRESIDENT & CEO



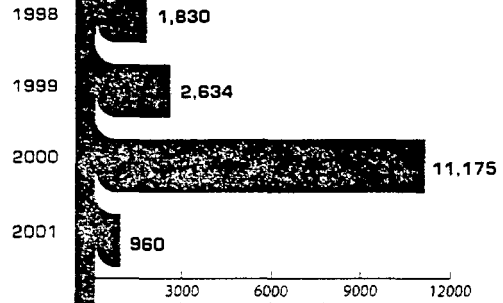
Vincent J. Coates
CHAIRMAN OF THE BOARD & SECRETARY

financial highlights

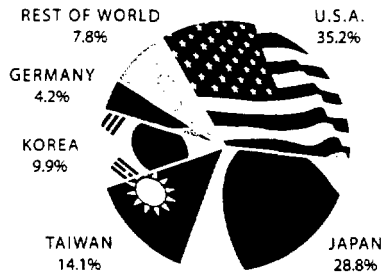
shareholders' equity
(in thousands)



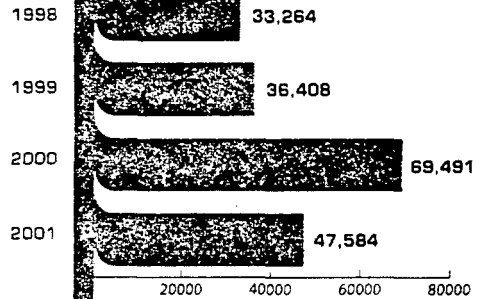
net income
(in thousands)



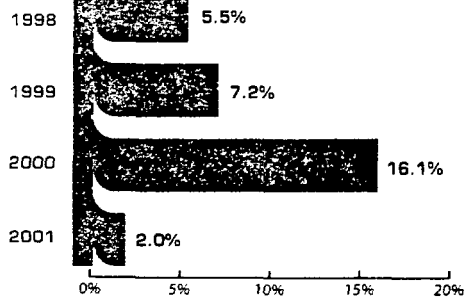
revenue by region



revenue
(in thousands)



income/revenue



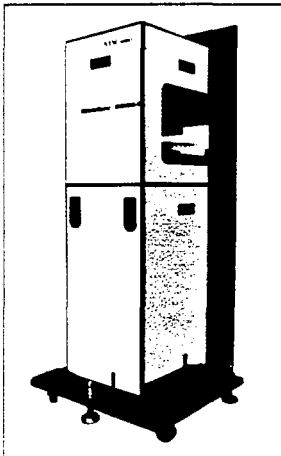
The industry is heading towards integration. Nanometrics is already there.

Nanometrics has gained a global leadership position over the last 26 years by innovating and designing advanced metrology systems. Nanometrics is increasing its presence as the industry's InTool metrology company. The widespread adoption of both integrated metrology and APC in the semiconductor arena is resulting from the need for extremely tight process tolerances and productivity improvements, especially as fabs migrate to 300mm production lines.

Nanometrics' metrology systems can be categorized as follows:

- ① Standalone, fully automated systems for high-volume manufacturing operations;
- ② Integrated systems for integration into semiconductor processing equipment that provide virtually immediate measurements and feedback to improve process control and increase throughput; and
- ③ Tabletop systems used to provide manual or semi-automatic measurements for engineering and low-volume production environments.

Growth in the market areas that we serve — semiconductor, flat panel display and magnetic recording head — is driven by the increasing need for advanced metrology solutions. Each of these markets require the precise



electronic, optical, magnetic and surface finish properties provided by our technology. Nanometrics' systems precisely measure a wide range of film types deposited on substrates during fabrication in order to control manufacturing processes and increase production yields.

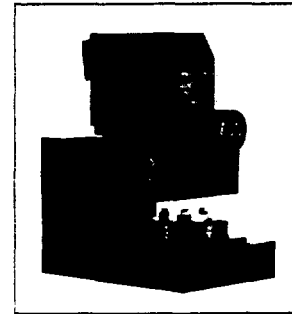
Nanometrics' equipment is predominantly used in three metrology areas: thin film, overlay and CD. Leveraging over two decades of thin film metrology experience, in 1998 we introduced our highly successful NanoSpec® 9000 integrated metrology series for InTool film analysis. In 2001 we continued beyond that milestone with the delivery of the industry's first InTool OCD measurement system.

Integration is particularly important as the semiconductor market shifts from expensive, time-consuming standalone equipment to integrated metrology systems. Nanometrics is already there in anticipation of these needs. Our InTool metrology solutions open the door to a new generation of semiconductor manufacturing. These integrated solutions increase productivity with higher throughput, smaller overall footprint, reduced wafer handling and faster process development.

Integration and Advanced Process Control

As semiconductor manufacturers continue to strive to improve overall fab efficiency, more and more of them are turning towards integrated solutions. Nanometrics is driving an industry revolution with its InTool metrology.

In July 2001, Nanometrics extended into the CD metrology market with the introduction of its revolutionary and patented OCD technology. Leveraging Nanometrics' proven integrated platform, our most recent offerings signal our ongoing commitment to the development of the most innovative *integrated solutions*. Developed internally and solidified by a patent acquired from IBM, the technology is a faster and more cost-effective solution than current CD-SEM technology because it enables the integration of CD measurement capabilities directly onto photolithography track and etch tools.



Nanometrics

Our integrated OCD solution is an enabling technology for APC and a solution for CD measurement in a market segment previously dominated by e-beam based SEM systems, which are now reaching their performance limit for smaller circuit dimensions. The compact size and speed of our new OCD technology also supports the full integration of the measurement system directly onto photolithography track and etch process tools, providing a complete feed-forward and feedback APC solution for wafer-to-wafer closed loop control.

Nanometrics' InTool metrology systems are the culmination of 26 years of expertise and experience built on developing both tabletop and standalone systems and deliver a competitive level of accuracy and precision.

The benefits to APC offered by Nanometrics' integrated portfolio provide a *powerful boost in profitability and productivity* (through flexibility and significant cycle time reduction). APC is a relevant, critical benefit to chipmakers as it ensures predictability of process.

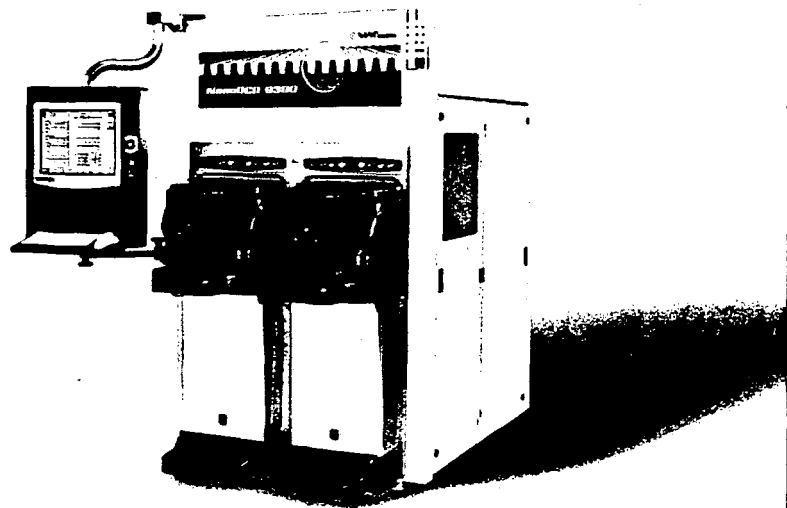
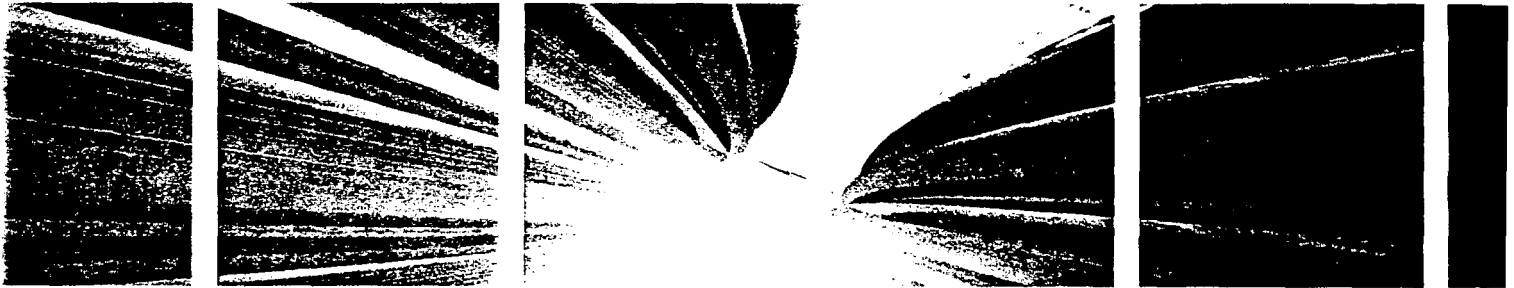
For chipmakers, integrated metrology enables APC with:

- ⊖ Reduced potential for wafer contamination, damage, defects and, thus, rework.
- ⊖ Increased speed, efficiency and decision-making.

Nanometrics has raised the technology bar for the industry by putting the chipmaker in control with its integrated solutions. After its introduction at the SEMICON West 2001 tradeshow, the NanoOCD™ was successfully integrated into process tools that will result in the next generation of controlled manufacturing for customers.

Nanometrics has aggressively introduced this new technology for measuring CDs while securing key enabling patents to protect the technology. As a result, Nanometrics continues to add significant OEM design wins to its list of key tool suppliers.

The story would not be complete, however, without the continued development of our standalone metrology technology and NanoNet™, a proprietary networking technology that was also introduced in July 2001 at SEMICON West. NanoNet enables users to synchronize our standalone and integrated metrology systems through remote process setup and monitoring. All this is accomplished without disrupting tool production for increased process control and overall equipment efficiency.



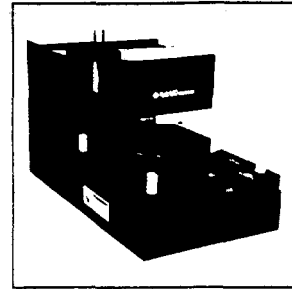
NanoOCD 9300

Commitment to Innovative Technology and IP

Nanometrics is a company driven by engineering and ideas. We attribute the success of the company to the innovative vision of its engineering teams. The breadth of our technology portfolio grew during 2001 and the year ended with highly competitive product positions in thin film thickness, overlay registration and OCD. Nanometrics also has a strong presence in the flat panel display and magnetic head markets.

It is estimated that in 2001, the served available market for optical metrology was approximately \$134M and for CD-SEM it was approximately \$467M (Dataquest). Nanometrics has gained access to both of these markets with the development and introduction of our new OCD technology.

Dedicated to engineering advanced technology, our success depends in large part on the technical innovation of our products. Our patent portfolio reflects the years of metrology know-how and captive machining technology that have led to rapid and continuous product design improvements. Nanometrics actively pursues a program of filing patent applications to seek protection for the technologically sensitive features of our metrology systems. The company holds 16 patents in the United States with 23 applications filed, 15 of which are from filings in 2001.



NANOMETRICS 10001

In 2001, Nanometrics added three patents to its IP portfolio:

- The polar coordinate stage and continuous image rotation patent provides Nanometrics with additional competitive advantages in the integrated metrology market. This new technology enables us to offer an integrated metrology solution that is faster, has a smaller footprint, and ultimately, is more efficient. The system provides many benefits over a standard x-y stage, which is used by competitors.
- The patent acquired from IBM outlines a method for nondestructively determining the topographical cross-section of repeating lines on a substrate. The patent adds to the core technical capabilities of our existing reflectometer technology, and thereby helps establish a stronger competitive position in the CD metrology market. The technology was subsequently used in our OCD technology platform, also introduced in 2001.
- The patent for a miniaturized reflectometer system is a key enabling technology that forms the foundation for the InTool series of film thickness measurement systems. This technology implements an exceptionally compact metrology system that is easily integrated into any process tool with virtually zero impact on either the tool throughput or footprint.

Intelligent Growth

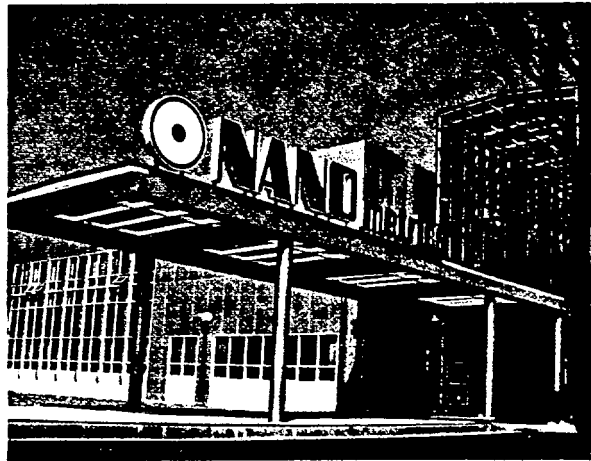
Nanometrics' commitment to innovation is evident in our facilities around the world. We are dedicated to expanding in order to keep pace with the tremendous growth that will accompany the next industry upturn. This proactive approach guides our expansion strategies for both the space and material arenas, and led to the major expansion that Nanometrics made in 2001.

Our materials inventory strategy is based on the fact that Nanometrics is the sole source supplier on many sub-systems for our customers. The inventory stock level that we maintain ensures that we are able to quickly meet customer demands.

Our expansion efforts were evident in 2001 with the opening of Nanometrics Korea's new facility in Pyungtaek City, Korea. This engineering design, manufacturing and support facility allows us to accommodate the rapid growth in the region and develop new products for the specific needs of this market.

Nanometrics Korea has distinguished itself by designing and manufacturing the improved overlay tool developed in 2001 and introduced at SEMICON Korea. Nanometrics Japan's facility in Narita-Shi, Japan continues to develop and manufacture thin film metrology products that are specifically designed for Korea's, Taiwan's and Japan's large flat panel display industry.

Over the past two years, Nanometrics has increased efforts to move product development, manufacturing, marketing and direct sales capabilities closer to each of its regional markets in order to better serve the specific needs of each. By closely addressing the sales and technical needs of our regional markets while improving response time, Nanometrics raises its ability to respond to customer support issues around the world.



NANOMETRICS KOREA



NANOMETRICS JAPAN