UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

# FORM 10-Q

(MARK ONE)

[ X ] QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the quarterly period ended March 31, 2004

or

[   ] TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _______________ to _______________

Commission file number 0-23621

MKS INSTRUMENTS, INC.

(Exact name of registrant as specified in its charter)

| | |
|---|---|
| Massachusetts | 04-2277512 |
| (State or other jurisdiction of incorporation or organization) | (I.R.S. Employer Identification No.) |
| 90 Industrial Way, Wilmington, Massachusetts | 01887 |
| (Address of principal executive offices) | (Zip Code) |

Registrant's telephone number, including area code (978) 284-4000

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes [X] No [ ].

Indicate by check mark whether the registrant is an accelerated filer (as defined in Rule 12b-2 of the Exchange Act). Yes [X] No [ ].

Number of shares outstanding of the issuer's common stock as of April 28, 2004: 53,508,276

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PART I. FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS.

MKS INSTRUMENTS, INC.
CONSOLIDATED BALANCE SHEETS
(in thousands, except share data)

| | March 31, 2004 (Unaudited) | December 31, 2003 |
|---|---|---|
| **ASSETS** | | |
| Current assets: | | |
| Cash and cash equivalents | $ 91,932 | $ 74,660 |
| Short-term investments | 76,136 | 54,518 |
| Trade accounts receivable, net | 87,991 | 65,454 |
| Inventories | 94,878 | 82,013 |
| Other current assets | 8,151 | 5,631 |
| Total current assets | 359,088 | 282,276 |
| Long-term investments | 13,313 | 13,625 |
| Property, plant and equipment, net | 77,280 | 76,121 |
| Goodwill, net | 260,041 | 259,924 |
| Acquired intangible assets, net | 52,445 | 56,192 |
| Other assets | 4,083 | 4,724 |
| Total assets | $766,250 | $692,862 |
| **LIABILITIES AND STOCKHOLDERS' EQUITY** | | |
| Current liabilities: | | |
| Short-term borrowings | $ 20,158 | $ 17,736 |
| Current portion of long-term debt | 2,491 | 2,460 |
| Accounts payable | 34,341 | 25,302 |
| Accrued compensation | 11,809 | 7,711 |
| Other accrued expenses | 28,834 | 18,599 |
| Total current liabilities | 97,633 | 71,808 |
| Long-term debt | 8,460 | 8,924 |
| Other liabilities | 4,127 | 3,820 |
| Commitments and contingencies (Note 10) | | |
| Stockholders' equity: | | |
| Preferred Stock, $0.01 par value, 2,000,000 shares authorized; none issued and outstanding | --- | --- |
| Common Stock, no par value, 200,000,000 shares authorized; 53,482,844 and 52,040,019 issued and outstanding at March 31, 2004 and December 31, 2003, respectively | 113 | 113 |
| Additional paid-in capital | 622,334 | 587,910 |
| Retained earnings | 24,944 | 12,238 |
| Accumulated other comprehensive income | 8,639 | 8,049 |
| Total stockholders' equity | 656,030 | 608,310 |
| Total liabilities and stockholders' equity | $766,250 | $692,862 |

The accompanying notes are an integral part of the consolidated financial statements.

MKS INSTRUMENTS, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share data)
(Unaudited)

| | Three Months Ended March 31, 2004 | Three Months Ended March 31, 2003 |
|---|---|---|
| Net sales | $132,985 | $ 72,777 |
| Cost of sales | 78,756 | 47,371 |
| Gross profit | 54,229 | 25,406 |
| Research and development | 14,336 | 11,232 |
| Selling, general and administrative | 20,152 | 17,819 |
| Amortization of acquired intangible assets | 3,693 | 3,778 |
| Restructuring charges | 437 | --- |
| Income (loss) from operations | 15,611 | (7,423) |
| Interest expense | 152 | 288 |
| Interest income | 424 | 568 |
| Income (loss) before income taxes | 15,883 | (7,143) |
| Provision for income taxes | 3,177 | 287 |
| Net income (loss) | $ 12,706 | $ (7,430) |
| Net income (loss) per share: | | |
| Basic | $ 0.24 | $ (0.14) |
| Diluted | $ 0.23 | $ (0.14) |
| Weighted average common shares outstanding: | | |
| Basic | 53,255 | 51,380 |
| Diluted | 55,085 | 51,380 |

The accompanying notes are an integral part of the consolidated financial statements.

MKS INSTRUMENTS, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)
(Unaudited)

| | Three Months Ended March 31, 2004 | Three Months Ended March 31, 2003 |
|---|---|---|
| Cash flows from operating activities: | | |
| Net income (loss) | $ 12,706 | $ (7,430) |
| Adjustments to reconcile net income (loss) to net cash provided by (used in) operating activities: | | |
| Depreciation and amortization | 6,913 | 7,558 |
| Other | 126 | 221 |
| Changes in operating assets and liabilities: | | |
| Trade accounts receivable | (21,590) | (4,213) |
| Inventories | (12,276) | 765 |
| Other current assets | (2,520) | 1,059 |
| Accrued expenses and other current liabilities | 5,745 | (1,023) |
| Accounts payable | 8,991 | 2,023 |
| Income taxes payable | 8,631 | 311 |
| Net cash provided by (used in) operating activities | 6,726 | (729) |
| Cash flows from investing activities: | | |
| Purchases of short-term and long-term available for sale investments | (44,030) | (24,600) |
| Maturities and sales of short-term and long-term available for sale investments | 23,240 | 18,843 |
| Purchases of property, plant and equipment | (4,248) | (1,691) |
| Other | 802 | 159 |
| Net cash used in investing activities | (24,236) | (7,289) |
| Cash flows from financing activities: | | |
| Proceeds from short-term borrowings | 23,452 | 11,789 |
| Payments on short-term borrowings | (21,576) | (12,316) |
| Principal payments on long-term debt | (486) | (447) |
| Proceeds from issuance of common stock, net of issuance costs | 32,529 | --- |
| Proceeds from exercise of stock options | 1,895 | 90 |
| Net cash provided by (used in) financing activities | 35,814 | (884) |
| Effect of exchange rate changes on cash and cash equivalents | (1,032) | 609 |
| Increase (decrease) in cash and cash equivalents | 17,272 | (8,293) |
| Cash and cash equivalents at beginning of period | 74,660 | 88,820 |
| Cash and cash equivalents at end of period | $ 91,932 | $ 80,527 |

The accompanying notes are an integral part of the consolidated financial statements.

MKS INSTRUMENTS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(Tables in thousands, except per share data)

1) Basis of Presentation

The terms "MKS" and the "Company" refer to MKS Instruments, Inc. and its subsidiaries. The interim financial data as of March 31, 2004 and for the three months ended March 31, 2004 and 2003 is unaudited; however, in the opinion of MKS, the interim data includes all adjustments, consisting only of normal recurring adjustments, necessary for a fair statement of the results for the interim periods. The unaudited financial statements presented herein have been prepared in accordance with the instructions to Form 10-Q and do not include all of the information and note disclosures required by generally accepted accounting principles. The financial statements should be read in conjunction with the December 31, 2003 audited financial statements and notes thereto included in the MKS Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 11, 2004.

The preparation of these financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. On an on-going basis, management evaluates its estimates and judgments, including those related to revenue recognition, accounts receivable, inventory, intangible assets, goodwill, other long-lived assets, income taxes, deferred tax valuation allowance, and investments. Management bases its estimates and judgments on historical experience and on various other factors that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

2) Stock-Based Compensation

The Company has several stock-based employee compensation plans. The Company accounts for stock-based awards to employees using the intrinsic value method as prescribed by Accounting Principles Board ("APB") Opinion No. 25, "Accounting for Stock Issued to Employees," and related interpretations. Accordingly, no compensation expense is recorded for options issued to employees in fixed amounts with fixed exercise prices at least equal to the fair market value of the Company's common stock at the date of grant. The Company has adopted the provisions of SFAS No. 123, "Accounting for Stock-Based Compensation," as amended by SFAS No. 148, "Accounting for Stock-Based Compensation-Transition and Disclosure," through disclosure only.

The following table illustrates the effect on net income (loss) and net income (loss) per share if the Company had applied the fair value recognition provisions of SFAS No. 123 to stock-based employee awards.

| | Three Months Ended March 31, | |
|---|---|---|
| | 2004 | 2003 |
| Net income (loss): | | |
| Net income (loss) as reported | $ 12,706 | $ (7,430) |
| Deduct: Total stock-based employee compensation expense determined under the fair-value-based method for all awards, net of tax | (6,074) | (4,902) |
| Pro forma net income (loss) | $ 6,632 | $ (12,332) |
| Basic net income (loss) per share: | | |
| Net income (loss) as reported | $ 0.24 | $ (0.14) |
| Pro forma net income (loss) | $ 0.12 | $ (0.24) |
| Diluted net income (loss) per share: | | |
| Net income (loss) as reported | $ 0.23 | $ (0.14) |
| Pro forma net income (loss) | $ 0.12 | $ (0.24) |

(Tables in thousands, except per share data)

There is no tax benefit included in the stock-based employee compensation expense determined under the fair-value-based method for the three months ended March 31, 2004 and 2003, respectively, as the Company established a full valuation allowance for its net deferred tax assets.

3) Goodwill and Intangible Assets

Intangible Assets

Acquired amortizable intangible assets consisted of the following as of March 31, 2004:

| | Gross Carrying Amount | Accumulated Amortization | Net Carrying Amount |
|---|---|---|---|
| Completed technology ........................ | $ 72,505 | $(30,732) | $ 41,773 |
| Customer relationships ...................... | 6,640 | (2,892) | 3,748 |
| Patents, trademarks, tradenames and other ... | 12,394 | (5,470) | 6,924 |
| | $ 91,539 | $(39,094) | $ 52,445 |

Acquired amortizable intangible assets consisted of the following as of December 31, 2003:

| | Gross Carrying Amount | Accumulated Amortization | Net Carrying Amount |
|---|---|---|---|
| Completed technology......................... | $ 72,563 | $(27,654) | $ 44,909 |
| Customer relationships...................... | 6,640 | (2,663) | 3,977 |
| Patents, trademarks, tradenames and other.... | 12,394 | (5,088) | 7,306 |
| | $ 91,597 | $(35,405) | $ 56,192 |

Aggregate amortization expense related to acquired intangibles for the three months ended March 31, 2004 and 2003 was $3,693,000 and $3,778,000, respectively. Estimated amortization expense related to acquired intangibles for the remainder of 2004 and each of the four succeeding fiscal years is as follows:

| Year | Amount |
|---|---|
| 2004 | $11,074 |
| 2005 | 13,864 |
| 2006 | 11,763 |
| 2007 | 11,129 |
| 2008 | 2,759 |

Goodwill

The change in the carrying amount of goodwill during the three months ended March 31, 2004 was not material.

(Tables in thousands, except per share data)

4) Net Income (Loss) Per Share

The following table sets forth the computation of basic and diluted net income (loss) per share:

| | Three Months Ended March 31, 2004 | Three Months Ended March 31, 2003 |
|---|---|---|
| Numerator | | |
| Net income (loss) | $ 12,706 | $ (7,430) |
| Denominator | | |
| Shares used in net income (loss) per common share - basic | 53,255 | 51,380 |
| Effect of dilutive securities: | | |
| Stock options and employee stock purchase plan | 1,830 | -- |
| Shares used in net income (loss) per common share - diluted | 55,085 | 51,380 |
| Net income (loss) per common share | | |
| Basic | $ 0.24 | $ (0.14) |
| Diluted | $ 0.23 | $ (0.14) |

For purposes of computing diluted earnings per share, weighted average common share equivalents do not include stock options with an exercise price greater than the average market price of the common shares, which totaled 2,543,000 shares in the three months ended March 31, 2004. All options outstanding during the three months ended March 31, 2003 are excluded from the calculation of diluted net loss per common share because their inclusion would be anti-dilutive. There were options to purchase approximately 9,111,000 and 8,242,000 shares of the Company's common stock outstanding as of March 31, 2004 and 2003, respectively.

5) Cash and Cash Equivalents and Investments

All highly liquid investments with an original maturity of three months or less at the date of purchase are considered to be cash equivalents.

Cash and cash equivalents consists of the following:

| | March 31, 2004 | December 31, 2003 |
|---|---|---|
| Cash and money market instruments | $56,407 | $60,869 |
| Commercial paper | 34,126 | 12,645 |
| Federal government and government agency obligations | 1,399 | 876 |
| Corporate obligations | -- | 270 |
| | $91,932 | $74,660 |

The fair value of short-term available-for-sale investments maturing within one year consists of the following:

| | March 31, 2004 | December 31, 2003 |
|---|---|---|
| Federal government and government agency obligations | $55,882 | $41,566 |
| Commercial paper | 18,463 | 10,449 |
| Corporate obligations | 1,791 | 2,503 |
| | $76,136 | $54,518 |

(Tables in thousands, except per share data)

The fair value of long-term available-for-sale investments with maturities of 1 to 5 years consists of the following:

| | March 31, 2004 | December 31, 2003 |
|---|---|---|
| Corporate obligations | $ 7,039 | $ 5,499 |
| Federal government and government agency obligations | 6,274 | 4,807 |
| Commercial paper | -- | 3,319 |
| | $13,313 | $13,625 |

The appropriate classification of investments in securities is determined at the time of purchase. Debt securities that the Company does not have the intent and ability to hold to maturity are classified as "available-for-sale" and are carried at fair value. Unrealized gains and losses on securities classified as available-for-sale are included in accumulated other comprehensive income in consolidated stockholders' equity. Gross unrealized gains and gross unrealized losses on available-for-sale investments were not material at March 31, 2004 and December 31, 2003.

6) Inventories

Inventories consist of the following:

| | March 31, 2004 | December 31, 2003 |
|---|---|---|
| Raw material | $40,998 | $36,834 |
| Work in process | 21,067 | 15,786 |
| Finished goods | 32,813 | 29,393 |
| | $94,878 | $82,013 |

7) Stockholders' Equity

Comprehensive Income (Loss)

Components of comprehensive income (loss) were as follows:

| | Three Months Ended March 31, 2004 | Three Months Ended March 31, 2003 |
|---|---|---|
| Net income (loss) | $12,706 | $(7,430) |
| Other comprehensive income, net of applicable taxes of $0: | | |
| Changes in value of financial instruments designated as hedges of currency and interest rate exposures | 510 | 1 |
| Foreign currency translation adjustment | 54 | 770 |
| Unrealized gain (loss) on investments | 26 | (97) |
| Other comprehensive income, net of taxes | 590 | 674 |
| Total comprehensive income (loss) | $13,296 | $(6,756) |

Common Stock Offering

On January 21, 2004, the Company issued 1,142,857 shares of its common stock at $26.25 per share through a public offering. Estimated proceeds of the offering, net of underwriters discount and estimated offering expenses, were approximately $28,231,000. On January 23, 2004, the underwriters exercised their over-allotment option and therefore, the Company issued an additional 171,429 shares of its common stock, which generated net proceeds of approximately $4,298,000.

(Tables in thousands, except per share data)

8) Income Taxes

The Company records income taxes using the asset and liability method. Deferred income tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective income tax bases, and operating loss and tax credit carryforwards. The Company evaluates the realizability of its net deferred tax assets and assesses the need for a valuation allowance on a quarterly basis. The future benefit to be derived from its deferred tax assets is dependent upon its ability to generate sufficient future taxable income to realize the assets. The Company records a valuation allowance to reduce its net deferred tax assets to the amount that may be more likely than not to be realized. To the extent the Company establishes a valuation allowance, an expense will be recorded within the provision for income taxes line on the statement of income.

As a result of incurring significant operating losses from 2001 through 2003, the Company determined that it is more likely than not that its deferred tax assets may not be realized. During the fourth quarter of 2002, the Company established a full valuation allowance for its net deferred tax assets. At March 31, 2004 and December 31, 2003, the Company continued to believe that it is more likely than not that all of its deferred tax assets may not be realized. If the Company generates sustained future taxable income against which these tax attributes may be applied, some portion or all of the valuation allowance would be reversed. If the valuation allowance were reversed, a portion would be recorded as a reduction of goodwill, an additional amount would be recorded as an increase to additional paid in capital, and the remainder would be recorded as a reduction to income tax expense.

During the first quarter of 2004, the U.S. taxable income was offset by U.S. operating loss carryforwards. The Company did not record a deferred tax benefit from the net operating loss incurred in the three months ended March 31, 2003. The provision for income taxes for the three months ended March 31, 2004 and 2003 is comprised of tax expense from foreign operations and state taxes.

9) Segment Information and Significant Customer

The Company operates in one segment for the development, manufacturing, sales and servicing of products that measure, control, power and monitor critical parameters of semiconductor and other advanced manufacturing processes. The Company's chief decision-maker reviews operating results to make decisions about allocating resources and assessing performance for the entire Company.

Information about the Company's operations in different geographic regions is presented in the tables below. Net sales to unaffiliated customers are based on the location in which the sale originated. Transfers between geographic areas are at negotiated transfer prices and have been eliminated from consolidated net sales.

| | Three Months Ended March 31, | |
|---|---|---|
| | 2004 | 2003 |
| Geographic net sales: | | |
| United States | $ 84,976 | $ 43,125 |
| Japan | 21,355 | 13,676 |
| Europe | 11,521 | 9,336 |
| Asia | 15,133 | 6,640 |
| | $132,985 | $ 72,777 |

(Tables in thousands, except per share data)

| | March 31, 2004 | December 31, 2003 |
|---|---|---|
| Long-lived assets: | | |
| United States ........ | $ 66,518 | $ 65,977 |
| Japan ................ | 6,109 | 5,978 |
| Europe ............... | 5,397 | 5,541 |
| Asia ................. | 3,339 | 3,349 |
| | $ 81,363 | $ 80,845 |

The Company had one customer comprising 20% and 17% of net sales for the three months ended March 31, 2004 and 2003, respectively.

10) Commitments and Contingencies

On January 12, 2004, Gas Research Institute ("GRI") brought suit in federal district court in Illinois against the Company, On-Line Technologies, Inc., which was acquired by MKS in April 2001, and another defendant for breach of contract, misappropriation of trade secrets and related claims relating to certain infra-red gas analysis technology allegedly developed under a January 1995 Contract for Research and incorporated into certain of the Company's products. GRI has made claims for damages, exemplary damages, attorney's fees and costs and injunctive relief. The Company is currently evaluating the merits of the claims. MKS cannot be certain of the outcome of this litigation, but plans to oppose the claims against the Company vigorously.

On April 3, 2003, Advanced Energy Industries, Inc. ("Advanced Energy") filed suit against MKS in federal district court in Colorado ("Colorado Action"), seeking a declaratory judgment that Advanced Energy's Xstream product does not infringe three patents held by the Company's subsidiary Applied Science and Technology, Inc. ("ASTeX"). On May 14, 2003, MKS brought suit in federal district court in Delaware against Advanced Energy for infringement of five ASTeX patents, including the three patents at issue in the Colorado Action. The Company seeks injunctive relief and damages for Advanced Energy's infringement. On December 24, 2003, the Colorado court granted the Company's motion to transfer Advanced Energy's Colorado suit to Delaware and on February 9, 2004, the Delaware court denied Advanced Energy's motion to dismiss or transfer the Company's Delaware case back to Colorado. Fact discovery has now closed, and the case is scheduled for trial in July 2004.

On November 3, 1999, On-Line Technologies, Inc. ("On-Line), brought suit in federal district court in Connecticut against Perkin-Elmer, Inc. and certain other defendants for infringement of On-Line's patent related to its FTIR spectrometer product. The suit sought injunctive relief and damages for infringement. Perkin-Elmer, Inc. filed a counterclaim seeking invalidity of the patent, costs, and attorneys' fees. In June 2002, the defendants filed a motion for summary judgment. In April 2003, the court granted the motion and dismissed the case. The Company has appealed this decision and is awaiting a date for argument in the federal circuit court of appeals.

The Company is subject to other legal proceedings and claims, which have arisen in the ordinary course of business.

In the opinion of management, the ultimate disposition of these matters will not have a material adverse effect on the Company's results of operations, financial condition or cash flows.

(Tables in thousands, except per share data)

11) Restructuring, Asset Impairment and Other Charges

During the first quarter of 2004, the Company completed its planned consolidation of acquisitions initiated in 2002 to accelerate product development, rationalize manufacturing operations and reduce operating costs. The Company recorded restructuring charges of $437,000 related to lease costs of exited facilities.

The following table sets forth the activity in the restructuring reserves from December 31, 2003 to March 31, 2004:

| | Workforce Reductions | Facility Consolidations | Total |
|---|---|---|---|
| Balance as of December 31, 2003 ............ | $ 199 | $ 1,831 | $ 2,030 |
| Restructuring provision in first quarter ... | -- | 437 | 437 |
| Charges utilized in first quarter .......... | (15) | (226) | (241) |
| Balance as of March 31, 2004 ............... | $ 184 | $ 2,042 | $ 2,226 |

The remaining accruals for workforce reductions are expected to be paid by the end of 2004. The facilities consolidation charges will be paid over the respective lease terms, the latest of which ends in 2008. The accrual for severance costs and lease payments is recorded in Other accrued expenses and Other liabilities.

12) Product Warranties

The Company provides for the estimated costs to fulfill customer warranty obligations upon the recognition of the related revenue. While the Company engages in extensive product quality programs and processes, including actively monitoring and evaluating the quality of its component suppliers, the Company's warranty obligation is affected by product failure rates, utilization levels, material usage, and supplier warranties on parts delivered to the Company. Should actual product failure rates, utilization levels, material usage, or supplier warranties on parts differ from the Company's estimates, revisions to the estimated warranty liability would be required.

Product warranty activity for the three months ended March 31 were as follows:

| | 2004 | 2003 |
|---|---|---|
| Balance at beginning of year ....................................... | $ 5,804 | $ 6,921 |
| Provisions for product warranties during first quarter ............. | 1,704 | 315 |
| Direct charges to the warranty liability during the first quarter ... | (1,146) | (1,052) |
| Balance at the end of the first quarter ............................ | $ 6,362 | $ 6,184 |

## ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS.

We believe that this Quarterly Report on Form 10-Q contains "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. When used herein, the words "believes," "anticipates," "plans," "expects," "estimates" and similar expressions are intended to identify forward-looking statements. These forward-looking statements reflect management's current opinions and are subject to certain risks and uncertainties that could cause results to differ materially from those stated or implied. We assume no obligation to update this information. Risks and uncertainties include, but are not limited to, those discussed in the section entitled "Factors That May Affect Future Results."

### OVERVIEW

We are a leading worldwide provider of instruments, components, subsystems and process control solutions that measure, control, power and monitor critical parameters of semiconductor and other advanced manufacturing processes.

We are managed as one operating segment which is organized around three product groups: Instruments and Control Systems, Power and Reactive Gas Products, and Vacuum Products. Our products are derived from our core competencies in pressure measurement and control, materials delivery, gas and thin-film composition analysis, control and information management, power and reactive gas generation and vacuum technology. Our products are used to manufacture semiconductors and thin film coatings for diverse markets such as flat panel displays, optical and magnetic storage media, architectural glass, and electro-optical products. We also provide technologies for medical imaging equipment.

Our customers include semiconductor capital equipment manufacturers, semiconductor device manufacturers, industrial manufacturing companies, medical equipment manufacturers and university, government and industrial research laboratories. For the three months ended March 31, 2004 and the full year ended December 31, 2003, we estimate that approximately 78% and 69% of our net sales, respectively, were to semiconductor capital equipment manufacturers and semiconductor device manufacturers.

The semiconductor capital equipment market experienced a significant downturn from the beginning of 2001 through the third quarter of 2003. As a result, we experienced a significant reduction in demand for products from our semiconductor capital equipment manufacturer and semiconductor device manufacturer customers during this period. In the fourth quarter of 2003 and first quarter of 2004, we experienced a significant increase in orders and shipments. The semiconductor capital equipment industry has been very cyclical, and we cannot determine how long this recent improvement will last.

A portion of our sales is to operations in international markets. International sales include sales by our foreign subsidiaries, but exclude direct export sales. For the three months ended March 31, 2004 and 2003, international sales accounted for approximately 36% and 41% of net sales, respectively.

### CRITICAL ACCOUNTING POLICIES AND ESTIMATES

The preparation of financial statements and related disclosures in conformity with accounting principles generally accepted in the United States of America requires management to make judgments, assumptions and estimates that affect the amounts reported. There have been no material changes in our critical accounting policies since December 31, 2003. See the discussion of critical accounting policies in our Annual Report on Form 10-K for the year ended December 31, 2003.

## RESULTS OF OPERATIONS

The following table sets forth for the periods indicated the percentage of total net sales of certain line items included in MKS' consolidated statement of operations data.

| | Three months ended March 31, 2004 | Three months ended March 31, 2003 |
|---|---|---|
| Net sales | 100.0% | 100.0% |
| Cost of sales | 59.2 | 65.1 |
| Gross profit | 40.8 | 34.9 |
| Research and development | 10.8 | 15.4 |
| Selling, general and administrative | 15.2 | 24.5 |
| Amortization of acquired intangible assets | 2.8 | 5.2 |
| Restructuring charges | 0.3 | -- |
| Income (loss) from operations | 11.7 | (10.2) |
| Interest income, net | 0.2 | 0.4 |
| Income (loss) before income taxes | 11.9 | (9.8) |
| Provision for income taxes | 2.3 | 0.4 |
| Net income (loss) | 9.6% | (10.2)% |

Net Sales. Net sales increased $60.2 million or 82.7% to $133.0 million for the three months ended March 31, 2004 from $72.8 million for the three months ended March 31, 2003. The increase was due mainly to stronger worldwide demand from our semiconductor capital equipment manufacturer and semiconductor device manufacturer customers, which increased $55.3 million or 115% compared to the prior year. International net sales were $48.0 million for the three months ended March 31, 2004 or 36.1% of net sales and $29.7 million for the same period of 2003 or 40.7% of net sales.

Gross Profit. Gross profit as a percentage of net sales increased to 40.8% for the three months ended March 31, 2004 from 34.9% for the three months ended March 31, 2003. The increase was primarily due to higher overhead absorption from significantly higher net sales.

Research and Development. Research and development expense increased $3.1 million or 27.6% to $14.3 million or 10.8% of net sales for the three months ended March 31, 2004 from $11.2 million or 15.4% of net sales for the three months ended March 31, 2003. The increase was primarily due to increased compensation expense of $1.3 million as a result of higher staffing levels, restored compensation levels, salary increases and incentive compensation, and $1.0 million of higher project materials.

Selling, General and Administrative. Selling, general and administrative expenses increased $2.3 million or 13.1% to $20.1 million or 15.2% of net sales for the three months ended March 31, 2004 from $17.8 million or 24.5% of net sales for the three months ended March 31, 2003. The increase was primarily due to higher compensation expense of $1.7 million as a result of restored compensation levels, salary increases, incentive compensation and higher sales commissions, which were partially offset by lower headcount, and a $0.5 million increase in professional fees.

Amortization of Acquired Intangible Assets. Amortization expense of $3.7 million and $3.8 million for the three months ended March 31, 2004 and 2003, respectively, represents the amortization of the identifiable intangibles resulting from the acquisitions completed by MKS.

Restructuring Charges. During the first quarter of 2004, we completed our consolidation of acquisitions initiated in 2002 to accelerate product development, rationalize manufacturing operations and reduce operating costs. We recorded restructuring charges of $0.4 million related to lease costs of exited facilities.

The following table sets forth the activity in the restructuring reserves from December 31, 2003 to March 31, 2004:

| | Workforce Reductions | Facility Consolidations | Total |
|---|---|---|---|
| | | (in thousands) | |
| Balance as of December 31, 2003 ............ | $ 199 | $ 1,831 | $ 2,030 |
| Restructuring provision in first quarter ... | -- | 437 | 437 |
| Charges utilized in first quarter .......... | (15) | (226) | (241) |
| Balance as of March 31, 2004 ............... | $ 184 | $ 2,042 | $ 2,226 |

The remaining accruals for workforce reductions are expected to be paid by the end of 2004. The facilities consolidation charges will be paid over the respective lease terms, the latest of which ends in 2008. The accrual for severance costs and lease payments is recorded in Other accrued expenses and Other liabilities.

Interest Income, Net. Net interest income of $0.3 million for the three months ended March 31, 2004 remained constant compared to the $0.3 million for the three months ended March 31, 2003.

Provision for Income Taxes. We recorded a provision for income taxes of $3.2 million for the three months ended March 31, 2004, as compared to a provision of $0.3 million for the three months ended March 31, 2003. During the first quarter of 2004, the U.S. taxable income was offset by U.S. operating loss carryforwards. We did not record a deferred tax benefit from the net operating loss incurred in the three months ended March 31, 2003. The provisions in both years are comprised of tax expense from foreign operations and state taxes.

As a result of incurring significant operating losses from 2001 through 2003, we determined that it is more likely than not that our deferred tax assets may not be realized, and since the fourth quarter of 2002 have established a full valuation allowance for our net deferred tax assets. If we generate sustained future taxable income against which these tax attributes may be applied, some portion or all of the valuation allowance would be reversed. If the valuation allowance were reversed, a portion would be recorded as a reduction of goodwill, an additional amount would be recorded as an increase to additional paid in capital, and the remainder would be recorded as a reduction to income tax expense.

LIQUIDITY AND CAPITAL RESOURCES

Cash, cash equivalents and short-term marketable securities totaled $168.1 million at March 31, 2004 compared to $129.2 million at December 31, 2003. This increase is mainly due to our public offering of common stock in the first quarter, which generated net proceeds of approximately $32.5 million.

Net cash provided by operating activities of $6.7 million for the three months ended March 31, 2004, resulted mainly from net income of $12.7 million, non-cash depreciation and amortization expenses of $6.9 million and an increase in operating liabilities of $23.4 million, partially offset by an increase in operating assets of $36.4 million. The increase in operating assets consisted mainly of an increase in accounts receivable of $21.6 million due to the higher shipments in the first quarter of 2004 as compared to the fourth quarter of 2003, and an increase in inventory of $12.3 million as a result of higher production volumes in the first quarter of 2004 and expected shipments in the second quarter of 2004. The increase in operating liabilities consisted primarily of an increase in accounts payable, accrued expenses and other current liabilities of $14.7 million resulting from increased production activity in the first quarter, as well as an $8.6 million increase in income tax payable consisting mainly of state and foreign taxes payable. Net cash used in operating activities of $0.7 million for the three months ended March 31, 2003 resulted mainly from a net loss of $7.4 million and an increase in accounts receivable of $4.2 million, partially offset by non-cash charges of $7.6 million for depreciation and amortization, an increase in accounts payable of $2.0 million and decreases in other assets of $1.1 million and inventories of $0.8 million.

Net cash used in investing activities of $24.2 million for the three months ended March 31, 2004 resulted from the net purchases of $20.8 million of available for sale investments mainly from the net proceeds received from our stock offering in the first quarter, and the purchase of property, plant and equipment of $4.2 million for investments in manufacturing test equipment and for consolidation of our IT infrastructure. Net cash used in investing activities of $7.3 million for the three months ended March 31, 2003 consisted mainly of net purchases of short-term and long-term available for sale investments of $5.8 million and purchases of property, plant and equipment of $1.7 million.

Net cash provided by financing activities of $35.8 million for the three months ended March 31, 2004 consisted primarily of $32.5 million in net proceeds received from our common stock offering, $1.9 million in proceeds from the exercise of stock options and purchases under the employee stock purchase plan, and net proceeds of $1.9 million from short-term borrowings, partially offset by $0.5 million of principal payments on long-term debt. Net cash used in financing activities of $0.9 million for the three months ended March 31, 2003 consisted mainly of $0.5 million in net payments on short-term borrowings and principal payments of $0.4 million on long-term debt.

We believe that our working capital, together with the cash anticipated to be generated from operations and funds available from existing credit facilities, will be sufficient to satisfy our estimated working capital and planned capital expenditure requirements through at least the next twelve months.

## OFF-BALANCE SHEET ARRANGEMENTS

We do not have any financial partnerships with unconsolidated entities, such as entities often referred to as structured finance, special purpose entities or variable interest entities which are often established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes. Accordingly, we are not exposed to any financing, liquidity, market or credit risk that could arise if we had such relationships.

## FACTORS THAT MAY AFFECT FUTURE RESULTS

### OUR BUSINESS DEPENDS SUBSTANTIALLY ON CAPITAL SPENDING IN THE SEMICONDUCTOR INDUSTRY WHICH IS CHARACTERIZED BY PERIODIC FLUCTUATIONS THAT MAY CAUSE A REDUCTION IN DEMAND FOR OUR PRODUCTS.

We estimate that approximately 78% of our net sales for the quarter ended March 31, 2004 and 69%, 70% and 64% of our net sales for the years ended December 31, 2003, 2002 and 2001, respectively, were to semiconductor capital equipment manufacturers and semiconductor device manufacturers, and we expect that sales to such customers will continue to account for a substantial majority of our sales. Our business depends upon the capital expenditures of semiconductor device manufacturers, which in turn depend upon the demand for semiconductors. Periodic reductions in demand for the products manufactured by semiconductor capital equipment manufacturers and semiconductor device manufacturers may adversely affect our business, financial condition and results of operations. Historically, the semiconductor market has been highly cyclical and has experienced periods of overcapacity, resulting in significantly reduced demand for capital equipment. Most recently, in 2001 and 2002, we experienced a significant reduction in demand from OEM customers, and lower gross margins due to reduced absorption of manufacturing overhead. In addition, many semiconductor manufacturers have operations and customers in Asia, a region that in recent years has experienced serious economic problems including currency devaluations, debt defaults, lack of liquidity and recessions. We cannot be certain that semiconductor downturns will not continue or recur. A decline in the level of orders as a result of any future downturn or slowdown in the semiconductor capital equipment industry could have a material adverse effect on our business, financial condition and results of operations.

### OUR QUARTERLY OPERATING RESULTS HAVE VARIED, AND ARE LIKELY TO CONTINUE TO VARY SIGNIFICANTLY. THIS MAY RESULT IN VOLATILITY IN THE MARKET PRICE OF OUR COMMON STOCK.

A substantial portion of our shipments occurs shortly after an order is received and therefore we operate with a low level of backlog. As a result, a decrease in demand for our products from one or more customers could occur with limited advance notice and could have a material adverse effect on our results of operations in any particular period. A significant percentage of our expenses are relatively fixed and based in part on expectations of future net sales. The inability to adjust spending quickly enough to compensate for any shortfall would magnify the adverse impact of a shortfall in net sales on our results of operations. Factors that could cause fluctuations in our net sales include:

- the timing of the receipt of orders from major customers;
- shipment delays;
- disruption in sources of supply;
- seasonal variations of capital spending by customers;
- production capacity constraints; and
- specific features requested by customers.

In addition, our quarterly operating results may be adversely affected due to charges incurred in a particular quarter, for example, relating to inventory obsolescence, bad debt or asset impairments.

As a result of the factors discussed above, it is likely that we may in the future experience quarterly or annual fluctuations and that, in one or more future quarters, our operating results may fall below the expectations of public market analysts or investors. In any such event, the price of our common stock could decline significantly.

THE LOSS OF NET SALES TO ANY ONE OF OUR MAJOR CUSTOMERS WOULD LIKELY HAVE A MATERIAL ADVERSE EFFECT ON US.

Our top ten customers accounted for approximately 42%, 49% and 39% of our net sales for the years ended December 31, 2003, 2002 and 2001, respectively. The loss of a major customer or any reduction in orders by these customers, including reductions due to market or competitive conditions, would likely have a material adverse effect on our business, financial condition and results of operations. During the years ended December 31, 2003, 2002 and 2001, one customer, Applied Materials, accounted for approximately 18%, 23% and 18%, respectively, of our net sales. None of our significant customers, including Applied Materials, has entered into an agreement requiring it to purchase any minimum quantity of our products. The demand for our products from our semiconductor capital equipment customers depends in part on orders received by them from their semiconductor device manufacturer customers.

Attempts to lessen the adverse effect of any loss or reduction of net sales through the rapid addition of new customers could be difficult because prospective customers typically require lengthy qualification periods prior to placing volume orders with a new supplier. Our future success will continue to depend upon:

- our ability to maintain relationships with existing key customers;
- our ability to attract new customers;
- our ability to introduce new products in a timely manner for existing and new customers; and
- the success of our customers in creating demand for their capital equipment products which incorporate our products.

AS PART OF OUR BUSINESS STRATEGY, WE HAVE ENTERED INTO AND MAY ENTER INTO OR SEEK TO ENTER INTO BUSINESS COMBINATIONS AND ACQUISITIONS THAT MAY BE DIFFICULT TO INTEGRATE, DISRUPT OUR BUSINESS, DILUTE STOCKHOLDER VALUE OR DIVERT MANAGEMENT ATTENTION.

We have made several acquisitions since 2000. As a part of our business strategy, we may enter into additional business combinations and acquisitions. Acquisitions are typically accompanied by a number of risks, including the difficulty of integrating the operations and personnel of the acquired companies, the potential disruption of our ongoing business and distraction of management, expenses related to the acquisition and potential unknown liabilities associated with acquired businesses.

As a result of our acquisitions, we have added several different decentralized accounting systems, resulting in a complex reporting environment. We expect that we will need to continue to modify our accounting policies, internal controls, procedures and compliance programs to provide consistency across all our operations.

If we are not successful in completing acquisitions that we may pursue in the future, we may be required to reevaluate our growth strategy, and we may incur substantial expenses and devote significant management time and resources in seeking to complete proposed acquisitions that will not generate benefits for us.

In addition, with future acquisitions, we could use substantial portions of our available cash as all or a portion of the purchase price. We could also issue additional securities as consideration for these acquisitions, which could cause significant stockholder dilution. Our recent acquisitions and any future acquisitions may not ultimately help us achieve our strategic goals and may pose other risks to us.

AN INABILITY TO CONVINCE SEMICONDUCTOR DEVICE MANUFACTURERS TO SPECIFY THE USE OF OUR PRODUCTS TO OUR CUSTOMERS, THAT ARE SEMICONDUCTOR CAPITAL EQUIPMENT MANUFACTURERS, WOULD WEAKEN OUR COMPETITIVE POSITION.

The markets for our products are highly competitive. Our competitive success often depends upon factors outside of our control. For example, in some cases, particularly with respect to mass flow controllers, semiconductor device manufacturers may direct semiconductor capital equipment manufacturers to use a specified supplier's product in their equipment. Accordingly, for such products, our success will depend in part on our ability to have semiconductor device manufacturers specify that our products be used at their semiconductor fabrication facilities. In addition, we may encounter difficulties in changing established relationships of competitors that already have a large installed base of products within such semiconductor fabrication facilities.

IF OUR PRODUCTS ARE NOT DESIGNED INTO SUCCESSIVE GENERATIONS OF OUR CUSTOMERS' PRODUCTS, WE WILL LOSE SIGNIFICANT NET SALES DURING THE LIFESPAN OF THOSE PRODUCTS.

New products designed by semiconductor capital equipment manufacturers typically have a lifespan of five to ten years. Our success depends on our products being designed into new generations of equipment for the semiconductor industry. We must develop products that are technologically current so that they are positioned to be chosen for use in each successive generation of semiconductor capital equipment. If customers do not choose our products, our net sales may be reduced during the lifespan of our customers' products. In addition, we must make a significant capital investment to develop products for our customers well before our products are introduced and before we can be sure that we will recover our capital investment through sales to the customers in significant volume. We are thus also at risk during the development phase that our products may fail to meet our customers' technical or cost requirements and may be replaced by a competitive product or alternative technology solution. If that happens, we may be unable to recover our development costs.

THE SEMICONDUCTOR INDUSTRY IS SUBJECT TO RAPID DEMAND SHIFTS WHICH ARE DIFFICULT TO PREDICT. AS A RESULT, OUR INABILITY TO EXPAND OUR MANUFACTURING CAPACITY IN RESPONSE TO THESE RAPID SHIFTS MAY CAUSE A REDUCTION IN OUR MARKET SHARE.

Our ability to increase sales of certain products depends in part upon our ability to expand our manufacturing capacity for such products in a timely manner. If we are unable to expand our manufacturing capacity on a timely basis or to manage such expansion effectively, our customers could implement our competitors' products and, as a result, our market share could be reduced. Because the semiconductor industry is subject to rapid demand shifts which are difficult to foresee, we may not be able to increase capacity quickly enough to respond to a rapid increase in demand in the semiconductor industry. Additionally, capacity expansion could increase our fixed operating expenses and if sales levels do not increase to offset the additional expense levels associated with any such expansion, our business, financial condition and results of operations could be materially adversely affected.

WE OPERATE IN A HIGHLY COMPETITIVE INDUSTRY.

The market for our products is highly competitive. Principal competitive factors include:

- historical customer relationships;

- product quality, performance and price;

- breadth of product line;

- manufacturing capabilities; and

- customer service and support.

Although we believe that we compete favorably with respect to these factors, there can be no assurance that we will continue to do so. We encounter substantial competition in most of our product lines. Certain of our competitors may have greater financial and other resources than we have. In some cases, competitors are smaller than we are, but well established in specific product niches. We may encounter difficulties in changing established relationships of competitors with a large installed base of products at such customers' fabrication facilities. In addition, our competitors can be expected to continue to improve the design and performance of their products. There can be no assurance that competitors will not develop products that offer price or performance features superior to those of our products.

SALES TO FOREIGN MARKETS CONSTITUTE A SUBSTANTIAL PORTION OF OUR NET SALES; THEREFORE, OUR NET SALES AND RESULTS OF OPERATIONS COULD BE ADVERSELY AFFECTED BY DOWNTURNS IN ECONOMIC CONDITIONS IN COUNTRIES OUTSIDE OF THE UNITED STATES.

International sales include sales by our foreign subsidiaries, but exclude direct export sales, which were less than 10% of our total net sales for each of the years ended December 31, 2003, 2002 and 2001. International sales accounted for approximately 41%, 36% and 31% of net sales for the years ended December 31, 2003, 2002 and 2001, respectively, a significant portion of which were sales to Japan.

We anticipate that international sales will continue to account for a significant portion of our net sales. In addition, certain of our key domestic customers derive a significant portion of their revenues from sales in international markets. Therefore, our sales and results of operations could be adversely affected by economic slowdowns and other risks associated with international sales.

RISKS RELATING TO OUR INTERNATIONAL OPERATIONS COULD ADVERSELY AFFECT OUR OPERATING RESULTS.

We have substantial international sales, service and manufacturing operations in Europe and Asia, which exposes us to foreign operational and political risks that may harm our business. Our international operations are subject to inherent risks, which may adversely affect us, including:

- political and economic instability in countries where we have sales, service and manufacturing operations, particularly in Asia;

- fluctuations in the value of currencies and high levels of inflation, particularly in Asia and Europe;

- changes in labor conditions and difficulties in staffing and managing foreign operations, including, but not limited to, labor unions;

- greater difficulty in collecting accounts receivable and longer payment cycles;

- burdens and costs of compliance with a variety of foreign laws;

- increases in duties and taxation;

- imposition of restrictions on currency conversion or the transfer of funds;
- changes in export duties and limitations on imports or exports;
- expropriation of private enterprises; and
- unexpected changes in foreign regulations.

If any of these risks materialize, our operating results may be adversely affected.

UNFAVORABLE CURRENCY EXCHANGE RATE FLUCTUATIONS MAY LEAD TO LOWER GROSS MARGINS, OR MAY CAUSE US TO RAISE PRICES WHICH COULD RESULT IN REDUCED SALES.

Currency exchange rate fluctuations could have an adverse effect on our net sales and results of operations and we could experience losses with respect to our hedging activities. Unfavorable currency fluctuations could require us to increase prices to foreign customers which could result in lower net sales by us to such customers. Alternatively, if we do not adjust the prices for our products in response to unfavorable currency fluctuations, our results of operations could be adversely affected. In addition, most sales made by our foreign subsidiaries are denominated in the currency of the country in which these products are sold and the currency they receive in payment for such sales could be less valuable at the time of receipt as a result of exchange rate fluctuations. We enter into forward exchange contracts and local currency purchased options to reduce currency exposure arising from intercompany sales of inventory. However, we cannot be certain that our efforts will be adequate to protect us against significant currency fluctuations or that such efforts will not expose us to additional exchange rate risks.

KEY PERSONNEL MAY BE DIFFICULT TO ATTRACT AND RETAIN.

Our success depends to a large extent upon the efforts and abilities of a number of key employees and officers, particularly those with expertise in the semiconductor manufacturing and similar industrial manufacturing industries. The loss of key employees or officers could have a material adverse effect on our business, financial condition and results of operations. We believe that our future success will depend in part on our ability to attract and retain highly skilled technical, financial, managerial and marketing personnel. We cannot be certain that we will be successful in attracting and retaining such personnel.

OUR PROPRIETARY TECHNOLOGY IS IMPORTANT TO THE CONTINUED SUCCESS OF OUR BUSINESS. OUR FAILURE TO PROTECT THIS PROPRIETARY TECHNOLOGY MAY SIGNIFICANTLY IMPAIR OUR COMPETITIVE POSITION.

As of December 31, 2003, we owned 194 U.S. patents, 123 foreign patents and had 84 pending U.S. patent applications. Although we seek to protect our intellectual property rights through patents, copyrights, trade secrets and other measures, we cannot be certain that:

- we will be able to protect our technology adequately;
- competitors will not be able to develop similar technology independently;
- any of our pending patent applications will be issued;
- intellectual property laws will protect our intellectual property rights; or
- third parties will not assert that our products infringe patent, copyright or trade secrets of such parties.

PROTECTION OF OUR INTELLECTUAL PROPERTY RIGHTS MAY RESULT IN COSTLY LITIGATION.

Litigation may be necessary in order to enforce our patents, copyrights or other intellectual property rights, to protect our trade secrets, to determine the validity and scope of the proprietary rights of others or to defend against claims of infringement. We have been in the past, and currently are, involved in lawsuits enforcing and defending our intellectual property rights and may be involved in such litigation in the future. Such litigation could result in substantial costs and diversion of resources and could have a material adverse effect on our business, financial condition and results of operations.

We may need to expend significant time and expense to protect our intellectual property regardless of the validity or successful outcome of such intellectual property claims. If we lose any litigation, we may be required to seek licenses from others or change, stop manufacturing or stop selling some of our products.

THE MARKET PRICE OF OUR COMMON STOCK HAS FLUCTUATED AND MAY CONTINUE TO FLUCTUATE FOR REASONS OVER WHICH WE HAVE NO CONTROL.

The stock market has from time to time experienced, and is likely to continue to experience, extreme price and volume fluctuations. Prices of securities of technology companies have been especially volatile and have often fluctuated for reasons that are unrelated to the operating performance of the companies. The market price of shares of our common stock has fluctuated greatly since our initial public offering and could continue to fluctuate due to a variety of factors. In the past, companies that have experienced volatility in the market price of their stock have been the objects of securities class action litigation. If we were the object of securities class action litigation, it could result in substantial costs and a diversion of our management's attention and resources.

OUR DEPENDENCE ON SOLE, LIMITED SOURCE SUPPLIERS, AND INTERNATIONAL SUPPLIERS, COULD AFFECT OUR ABILITY TO MANUFACTURE PRODUCTS AND SYSTEMS.

We rely on sole, limited source suppliers, and international suppliers, for a few of our components and subassemblies that are critical to the manufacturing of our products. This reliance involves several risks, including the following:

- the potential inability to obtain an adequate supply of required components;

- reduced control over pricing and timing of delivery of components; and

- the potential inability of our suppliers to develop technologically advanced products to support our growth and development of new systems.

We believe that in time we could obtain and qualify alternative sources for most sole, limited source and international supplier parts. Seeking alternative sources of the parts could require us to redesign our systems, resulting in increased costs and likely shipping delays. We may be unable to redesign our systems, which could result in further costs and shipping delays. These increased costs would decrease our profit margins if we could not pass the costs to our customers. Further, shipping delays could damage our relationships with current and potential customers and have a material adverse effect on our business and results of operations.

WE ARE SUBJECT TO GOVERNMENTAL REGULATIONS. IF WE FAIL TO COMPLY WITH THESE REGULATIONS, OUR BUSINESS COULD BE HARMED.

We are subject to federal, state, local and foreign regulations, including environmental regulations and regulations relating to the design and operation of our power supply products. We must ensure that these systems meet certain safety standards, many of which vary across the countries in which our systems are used. For example, the European Union has published directives specifically relating to power supplies. We must comply with these directives in order to ship our systems into countries that are members of the European Union. We believe we are in compliance with current applicable regulations, directives and standards and have obtained all necessary permits, approvals, and authorizations to conduct our business. However, compliance with future regulations, directives and standards could require us to modify or redesign certain systems, make capital expenditures or incur substantial costs. If we do not comply with current or future regulations, directives and standards:

- we could be subject to fines;

- our production could be suspended; or

- we could be prohibited from offering particular systems in specified markets.

CERTAIN STOCKHOLDERS HAVE A SUBSTANTIAL INTEREST IN US AND MAY BE ABLE TO EXERT SUBSTANTIAL INFLUENCE OVER OUR ACTIONS.

As of January 31, 2004, John R. Bertucci, our Chairman and Chief Executive Officer and certain members of his family, in the aggregate, beneficially owned approximately 18% of our outstanding common stock. As a result, these stockholders, acting together, are able to exert substantial influence over our actions. Pursuant to the acquisition of the ENI Business of Emerson Electric Co. ("Emerson"), we issued approximately 12,000,000 shares of common stock to Emerson and its wholly owned subsidiary, Astec America, Inc. Emerson owned approximately 19% of our outstanding common stock as of January 31, 2004, and James G. Berges, the President and a director of Emerson, is a member of our board of directors. Accordingly, Emerson is able to exert substantial influence over our actions.

SOME PROVISIONS OF OUR RESTATED ARTICLES OF ORGANIZATION, AS AMENDED, OUR AMENDED AND RESTATED BY-LAWS AND MASSACHUSETTS LAW COULD DISCOURAGE POTENTIAL ACQUISITION PROPOSALS AND COULD DELAY OR PREVENT A CHANGE IN CONTROL OF US.

Anti-takeover provisions could diminish the opportunities for stockholders to participate in tender offers, including tender offers at a price above the then current market price of the common stock. Such provisions may also inhibit increases in the market price of the common stock that could result from takeover attempts. For example, while we have no present plans to issue any preferred stock, our board of directors, without further stockholder approval, may issue preferred stock that could have the effect of delaying, deterring or preventing a change in control of us. The issuance of preferred stock could adversely affect the voting power of the holders of our common stock, including the loss of voting control to others. In addition, our amended and restated by-laws provide for a classified board of directors consisting of three classes. The classified board could also have the effect of delaying, deterring or preventing a change in control of us.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.

Information concerning market risk is contained in the Management's Discussion and Analysis of Financial Condition and Results of Operations contained in our Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 11, 2004. We enter into local currency purchased options and forward exchange contracts to reduce currency exposure arising from intercompany sales of inventory. There were no material changes in our exposure to market risk from December 31, 2003.

We have performed an analysis to assess the potential financial effect of reasonably possible near-term changes in interest and foreign currency exchange rates. Based upon our analysis, the effect of such rate changes in not expected to be material to our financial condition, results of operations or cash flows.

ITEM 4. CONTROLS AND PROCEDURES.

a) Evaluation of disclosure controls and procedures.

Our management, with the participation of our principal executive officer and principal financial officer, has evaluated the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended) as of the end of the period covered by this Quarterly Report on Form 10-Q. Based on this evaluation, our principal executive officer and principal financial officer concluded that these disclosure controls and procedures are effective and designed to ensure that the information required to be disclosed in our reports filed or submitted under the Securities Exchange Act of 1934 is recorded, processed, summarized and reported within the requisite time periods.

While our disclosure controls and procedures provide reasonable assurance that the appropriate information will be available on a timely basis, this assurance is subject to limitations inherent in any control system, no matter how well designed and administered.

b) Changes in internal controls.

There were no changes in our internal control over financial reporting identified in connection with the evaluation of our internal control performed during our last fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

As a result of recent acquisitions, we have added several different decentralized accounting systems, resulting in a complex reporting environment. We expect that we will need to continue to modify our accounting policies, internal controls, procedures and compliance programs to provide consistency across all of our operations.

## PART II OTHER INFORMATION

### ITEM 1. LEGAL PROCEEDINGS.

On January 12, 2004, Gas Research Institute ("GRI") brought suit in federal district court in Illinois against us, On-Line Technologies, Inc., which was acquired by us in April 2001, and another defendant for breach of contract, misappropriation of trade secrets and related claims relating to certain infra-red gas analysis technology allegedly developed under a January 1995 Contract for Research and incorporated into certain of our products. GRI has made claims for damages, exemplary damages, attorney's fees and costs and injunctive relief. We are currently evaluating the merits of the claims. We cannot be certain of the outcome of this litigation, but we plan to oppose the claims against us vigorously.

On April 3, 2003, Advanced Energy Industries, Inc. ("Advanced Energy") filed suit against us in federal district court in Colorado ("Colorado Action"), seeking a declaratory judgment that Advanced Energy's Xstream product does not infringe three patents held by our subsidiary Applied Science and Technology, Inc. ("ASTeX"). On May 14, 2003, we brought suit in federal district court in Delaware against Advanced Energy for infringement of five ASTeX patents, including the three patents at issue in the Colorado Action. We seek injunctive relief and damages for Advanced Energy's infringement. On December 24, 2003, the Colorado court granted our motion to transfer Advanced Energy's Colorado suit to Delaware and on February 9, 2004, the Delaware court denied Advanced Energy's motion to dismiss or transfer our Delaware case back to Colorado. Fact discovery has now closed, and the case is scheduled for trial in July 2004.

On November 3, 1999, On-Line Technologies, Inc. brought suit in federal district court in Connecticut against Perkin-Elmer, Inc. and certain other defendants for infringement of On-Line's patent related to its FTIR spectrometer product. The suit sought injunctive relief and damages for infringement. Perkin-Elmer, Inc. filed a counterclaim seeking invalidity of the patent, costs, and attorneys' fees. In June 2002, the defendants filed a motion for summary judgment. In April 2003, the court granted the motion and dismissed the case. We have appealed this decision and are awaiting a date for argument in the federal circuit court of appeals.

We are subject to other legal proceedings and claims, which have arisen in the ordinary course of business.

In the opinion of management, the ultimate disposition of these matters will not have a material adverse effect on our results of operations, financial condition or cash flows.

ITEM 6. EXHIBITS AND REPORTS ON FORM 8-K.

(a) Exhibits

| Exhibit No. | Exhibit Description |
| --- | --- |
| 31.1 | Certification of Principal Executive Officer pursuant to Rule 13a-14(a)/Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended |
| 31.2 | Certification of Principal Financial Officer pursuant to Rule 13a-14(a)/Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended |
| 32.1 | Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 |
| 32.2 | Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 |

(b) Reports on Form 8-K

On January 7, 2004, the Company filed a Current Report on Form 8-K under Item 12 furnishing a press release announcing that the Company had raised its guidance for the quarter ended December 31, 2003.

On January 15, 2004, the Company filed a Current Report on Form 8-K for the purpose of filing under Item 5 and Item 7 relating to the effectiveness of the Company's Registration Statements on Form S-3 (File Nos. 333-34450 and 333-109753) and filing the Company's press release announcing the pricing of its common stock offering and filing the purchase agreement with its underwriters in connection with such offering.

On January 15, 2004, the Company filed a Current Report on Form 8-K under Item 5 disclosing that Gas Research Institute had brought suit in federal district court in Illinois against the Company, On-Line Technologies, Inc. and another defendant.

On February 3, 2004, the Company filed a Current Report on Form 8-K under Item 12 furnishing a press release announcing its financial results for the quarter ended and year ended December 31, 2003.

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

MKS INSTRUMENTS, INC.

May 5, 2004

By: /s/ Ronald C. Weigner

Ronald C. Weigner
Vice President and Chief Financial Officer
(Principal Financial Officer)

EXHIBIT 31.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO RULE 13a-14(a)/RULE 15d-14(a) OF THE
SECURITIES EXCHANGE ACT OF 1934, AS AMENDED

I, John R. Bertucci, certify that:

1. I have reviewed this report on Form 10-Q of MKS Instruments, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the registrant and have:

   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) [Paragraph omitted in accordance with SEC transition instructions contained in SEC Release 34-47986];

   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any changes in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal controls over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control and financial reporting.

Dated: May 5, 2004

/s/ John R. Bertucci
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John R. Bertucci
Chairman and Chief Executive Officer
(Principal Executive Officer)

EXHIBIT 31.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER
PURSUANT TO RULE 13a-14(a)/RULE 15d-14(a) OF THE
SECURITIES EXCHANGE ACT OF 1934, AS AMENDED

I, Ronald C. Weigner, certify that:

1. I have reviewed this report on Form 10-Q of MKS Instruments, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the registrant and have:

    a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this annual report is being prepared;

    b) [Paragraph omitted in accordance with SEC transition instructions contained in SEC Release 34-47986];

    c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this annual report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

    d) Disclosed in this report any changes in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal controls over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent functions):

    a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

    b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control and financial reporting.

Dated: May 5, 2004

/s/ Ronald C. Weigner

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Ronald C. Weigner
Vice President and Chief Financial Officer
(Principal Financial Officer)

EXHIBIT 32.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER

PURSUANT TO 18 U.S.C. SECTION 1350,

AS ADOPTED PURSUANT TO

SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report on Form 10-Q of MKS Instruments, Inc. (the "Company") for the period ended March 31, 2004 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned, John R. Bertucci, Chairman and Chief Executive Officer of the Company, hereby certifies, pursuant to 18 U.S.C. Section 1350, that:

(1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: May 5, 2004

/s/ John R. Bertucci

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John R. Bertucci
Chairman and Chief Executive Officer

EXHIBIT 32.2

CERTIFICATION OF CHIEF FINANCIAL OFFICER

PURSUANT TO 18 U.S.C. SECTION 1350,

AS ADOPTED PURSUANT TO

SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report on Form 10-K of MKS Instruments, Inc. (the "Company") for the period ended March 31, 2004 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned, Ronald C. Weigner, Vice President and Chief Financial Officer of the Company, hereby certifies, pursuant to 18 U.S.C. Section 1350, that:

(1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: May 5, 2004

/s/ Ronald C. Weigner

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Ronald C. Weigner

Vice President and Chief Financial Officer