BROOKS AUTOMATION INC
Form 10-K
November 29, 2016
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UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
Form 10-K
(Mark One)

þ	ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 For fiscal year ended September 30, 2016 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: 0-25434
Brooks Automation, Inc.
(Exact name of Registrant as Specified in Its Charter)

Delaware	04-3040660
(State or Other Jurisdiction of Incorporation or Organization)	(I.R.S. Employer Identification No.)
15 Elizabeth Drive Chelmsford, Massachusetts (Address of Principal Executive Offices)	01824 (Zip Code)

978-262-2400
(Registrant's telephone number, including area code)
Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Name of Each Exchange on Which Registered
Common Stock, $0.01 par value	The NASDAQ Stock Market LLC

Securities registered pursuant to Section 12(g) of the Act:
None
Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes þ No ¨
If this report is an annual or transition report, indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934. Yes ¨ No þ
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 þ No ¨
Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes þ No ¨
Indicate by check mark if disclosure of delinquent filers pursuant to Rule 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to the Form 10-K. ¨
Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of “large accelerated filer,” “accelerated filer” and “smaller reporting

company” in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer þ Accelerated filer ¨ Non-accelerated filer ¨ Smaller reporting company ¨
(Do not check if a smaller reporting company)

Indicate by check mark whether the registrant is a shell company (as defined in Exchange Act Rule 12b-2). Yes ¨ No þ

The aggregate market value of the registrant's Common Stock, $0.01 par value, held by non-affiliates of the registrant as of March 31, 2016, was approximately $669,058,000 based on the closing price per share of $10.40 on that date on the Nasdaq Stock Market. As of March 31, 2016, 68,616,306 shares of the registrant's Common Stock, $0.01 par value, were outstanding. As of November 15, 2016, 69,020,316 shares of the registrant's Common Stock, $0.01, par value, were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's Proxy Statement involving the election of directors, which is expected to be filed within 120 days after the end of the registrant's fiscal year, are incorporated by reference in Part III of this Report.

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Information Relating to Forward-Looking Statements

Certain statements in this Form 10-K constitute forward-looking statements, which are subject to the safe harbor provisions created by the Private Securities Litigation Reform Act of 1995. Certain, but not all, of the forward-looking statements in this report are specifically identified as forward-looking, by use of phrases and words such as “we believe,” “we estimate,” “we expect,” “may,” “should,” “could,” “intend,” “likely,” and other future-oriented terms. The identi of certain statements as “forward-looking” is not intended to mean that other statements not specifically identified are not forward-looking. Forward-looking statements include, but are not limited to, statements that relate to our future revenue, margin, costs, earnings, product development, demand, acceptance and market share, competitiveness, market opportunities and performance, levels of research and development, or R&D, the success of our marketing, sales and service efforts, outsourced activities and operating expenses, anticipated manufacturing, customer and technical requirements, the ongoing viability of the solutions that we offer and our customers’ success, tax expenses, our management’s plans and objectives for our current and future operations and business focus, the levels of customer spending, general economic conditions, the sufficiency of financial resources to support future operations, and capital expenditures. Such statements are based on current expectations and are subject to risks, uncertainties, and changes in condition, significance, value and effect, including without limitation those discussed within Item 1 A, “Risk Factors” and elsewhere in this report and other documents we file from time to time with the Securities and Exchange Commission, or SEC, such as our quarterly reports on Form 10-Q and our current reports on Form 8-K. Such risks, uncertainties and changes in condition, significance, value and effect could cause our actual results, performance or achievements to differ materially from those expressed in this report and in ways we cannot readily foresee. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date hereof and are based on information currently and reasonably known to us. We do not undertake any obligation to release the results of any revisions to these forward-looking statements, which may be made to reflect events or circumstances that occur after the date of this report or to reflect the occurrence or effect of anticipated or unanticipated events. Precautionary statements made herein should be read as being applicable to all related forward-looking statements wherever they appear in this report.

Unless the context indicates otherwise, references in this report to "we", "us", "our" and other similar references mean Brooks Automation, Inc. and its consolidated subsidiaries.

PART I

Item 1. Business

Overview

We are a leading global provider of automation and cryogenic solutions for multiple applications and markets. We primarily serve the semiconductor capital equipment market and sample management market for life sciences. We believe our leadership position and global support structure in these markets makes us a valued business partner to the largest semiconductor capital equipment and device makers and pharmaceutical and life science research institutions in the world. Our offerings are also applied to industrial capital equipment and other adjacent technology markets. We are headquartered in Chelmsford, Massachusetts, employ approximately 1,300 full-time employees worldwide, have sales in more than 50 countries, and provide customer support services globally.

In our early days in the 1980s, our Company developed and marketed automated handling equipment for semiconductor manufacturers. We have since enhanced our portfolio in the semiconductor capital equipment market to include cryogenic vacuum equipment, integrated automated handling systems, and automated contamination control solutions specific to the cleaning of wafer carrier devices. We have made several key acquisitions in recent years to strengthen our semiconductor market portfolio, including certain integrated handling system assets of Crossing Automation, Inc. acquired in fiscal year 2013, and the automated contamination cleaning equipment of Dynamic Micro Systems Semiconductor Equipment GmbH in fiscal year 2014 and Contact Co., Ltd. in fiscal year 2015. We have also invested in research and development initiatives to advance the offerings from each of these acquisitions. Our key divestitures in recent years were made within the semiconductor offerings portfolio and included the sale of our contract manufacturing business in fiscal year 2011 and Granville-Phillips Instruments business in fiscal year 2014. Our business supporting the semiconductor capital equipment and adjacent markets provided

approximately 81% of our revenue in fiscal year 2016.
In fiscal year 2010, we identified life sciences sample management as an underserved market in which we could leverage our core competencies of automation and cryogenics in order to diversify our business and provide us the potential for higher growth and profit margins. Our strategic objective was to provide offerings to assist customers in managing the 'cold chain of custody' of their compound and biological samples, including storage, work flow solutions, transportation, handling, and informatics and services. By fiscal year 2011, we were making strategic investments via acquisitions and research and development initiatives to fulfill our goal of becoming a leader in the life science sample management market. We acquired three providers of large automated ultra cold storage freezers which operate at -80°C and -20°C and bench-top instruments for sample management: RTS Life Sciences and Nexus BioSystems, Inc. both completed in fiscal year 2011; and Matrical, Inc in

fiscal year 2013. Internally, we initiated an internal design for an improved freezer system that launched in fiscal year 2013 and successfully combined large automated systems into our single Twinbank platform manufactured in Manchester, United Kingdom. Our market research led to our development of the BioStore III Cryo offering, a smaller, automated, liquid nitrogen-cooled freezer that operates at -150°C, which became available to the market in fiscal year 2016. Additionally, we acquired FluidX Ltd., a consumable sample tube and bench-top instruments business, in October 2014 and BioStorage Technologies, a full-service outsourcing sample management business, in November 2015. The BioStorage acquisition provided us with the capability to support customers with an integrated, comprehensive set of sample management products, services and solutions. All of these acquired businesses have been fully integrated into our life science systems operations. We have also made certain non-acquisitive investments, including investments in BioCision, LLC, as well as another small private technology company from which we obtained an exclusive license of certain silicon chip-based technology to track samples. In fiscal year 2015, we jointly developed a liquid nitrogen-charged carrier device for transporting biological specimens at cryogenic temperatures with BioCision. We also added to our portfolio consumable sample tubes and additional instrument offerings, as well as a full outsource service offering that provides customers with full care of their samples. Our business supporting the life science sample management market provided approximately 19% of our revenue in fiscal year 2016.

As discussed above, we have made acquisitions over the years which accelerated our product development cycle, broadened our installation base and added customer relationships to our business. We have also divested certain of our products that were not in leadership positions in our core markets. As such, we use acquisitions and divestitures to strengthen our offerings portfolio and to achieve increased growth and profitability. For further information on our acquisitions, divestitures, and equity investments, please refer to Note 4, "Acquisitions," and Note 8, "Equity Method and Other Investments," to our Consolidated Financial Statements included under "Item 8, Financial Statements and Supplementary Data" of this Form 10-K.

The demand for semiconductors and semiconductor manufacturing equipment is cyclical, resulting in periodic expansions and contractions of this market. While the services element of our semiconductor business is generally more stable, the cyclical nature of the capital equipment business causes sales from products to vary quarterly based on short term market demands. It is not unusual for these variations in sales to be up or down 10% to 20% in sequential quarters. We believe the life science sample management market is generally more stable than the semiconductor capital equipment market and is expected to grow as a result of the expanding need for storage and retention of compound and biological samples. However, even in this market, there is more stable revenue streams in the area of storage service, in contrast to the sale of freezers and other equipment, which has exhibited periods of robust growth but also decline. As we have expanded our offerings of consumables, infrastructure services, and storage services, we have seen these revenue streams in life sciences increase to account for approximately 66% of Brooks Life Science Systems revenue in fiscal year 2016.

Segments

Prior to fiscal year 2016, we had three operating and reportable segments that consisted of Brooks Product Solutions, Brooks Global Services and Brooks Life Science Systems. During fiscal year 2016, we reorganized our reporting structure into two operating and reportable segments consisting of: (i) Brooks Semiconductor Solutions Group; and (ii) Brooks Life Science Systems. Subsequently, we have reported financial results for fiscal years 2016, 2015 and 2014 based on the revised segment structure. The change in the segments was a result of restructuring actions initiated during fiscal year 2016 to streamline business operations to improve profitability and competitiveness and reflects a change in the manner in which our chief operating decision maker reviews information to assess our performance and make decisions about resource allocation. As part of these actions, we transitioned to a new internal management structure whereby the operating management responsible for Brooks Product Solutions and Brooks Global Services operating segments was brought under common leadership in the newly formed Brooks Semiconductor Solutions Group segment. The restructuring actions were completed during fiscal year 2016.

For further information on our operating segments and the restructuring actions, please refer to Note 17, "Restructuring and Other Charges" and Note 20, "Segment and Geographic Information," to our Consolidated Financial Statements included under "Item 8, Financial Statements and Supplementary Data" of this Form 10-K. Our prior period reportable segment information has been reclassified to reflect the current segment structure and conform

to the current period presentation.

Brooks Semiconductor Solutions Group Segment

Brooks Semiconductor Solutions Group is a leader in mission critical automated transport, vacuum and contamination controls solutions and services that are designed to improve throughput, yield and cost of ownership. Our product offerings include robots and integrated automation systems for precision handling of highly valued substrates. We are also a leading provider of cryogenic components to create vacuum and thermal stability within critical operating environments in the manufacturing process. We are a market leader in equipment for automated contamination control, conditioning and metrology solutions for wafer and reticle carriers. We capture the complete life cycle of value through a global network of expert application and field engineers who are located close to our customers. These services include rapid component exchange and repair, upgrades to improve equipment productivity, and proactive monitoring and diagnostics for predictive risk management and improved up-time of the installed base.

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Markets and Customers

The principal markets served by the Brooks Semiconductor Solutions Group segment include the following:

- Semiconductor capital equipment market

Each year, the global semiconductor industry makes significant capital investments in equipment to keep up with advancements in semiconductor technology, to add capacity and to improve productivity within existing semiconductor fabrication plants, or fabs. We are recognized as a market leading provider of vacuum automation, wafer carrier contamination control and cryogenic solutions to the global semiconductor capital equipment industry. As discussed above, the global semiconductor capital equipment industry is cyclical, but we believe that it possesses a long-term growth profile driven by the demand for increasingly sophisticated consumer electronics, automotive and smart appliance products, growth in data centers, the expansion of Internet-of-Things which increasingly connects various appliances and devices to servers, and mobile platforms. The demand for higher performance, lower power consumption and reduced size for all such products is enabled by advancements in the technology and processes used for the manufacturing of the devices. We believe this trend continues to provide market opportunities for the Brooks Semiconductor Solutions Group to be a valued partner in providing vacuum automation, carrier contamination control and cryogenic solutions to support the industry's needs.

We have been a long-term partner to device manufacturers and the original equipment manufacturers, or OEMs, who are the providers of complex processing equipment, or tools, to fabs. We maintain collaborative relationships with our customers in the innovative design of new automation, vacuum and contamination control solutions that are critical to the success of their products. Our comprehensive global network of technical specialists provides extensive support to our customers in new equipment installation and existing equipment support in all regions, including the key semiconductor markets in Korea, Taiwan, Japan, and China.

The production of advanced semiconductor chips requires many complex and logistically challenging manufacturing activities. Silicon wafers must go through hundreds of process steps performed by tools in order to create billions of microscopic transistors and connect them in both horizontal and vertical layers to produce a functioning integrated circuit, or IC. These steps, which comprise the initial fabrication of the IC and are referred to in the industry as front-end processes, are repeated many times on a single wafer to create the desired pattern on the silicon wafer. Up to 50% of these processes are performed in tools that operate under vacuum conditions, such as removing, depositing, or measuring materials on wafer surfaces. As the complexity of semiconductors has increased, the number of process steps that occur in a vacuum environment have also increased, resulting in a greater need for both automation and vacuum technology solutions.

Once the fabrication of the wafer is complete, the wafer is divided into individual components and applies additional processes and materials to form the final semiconductor chip device. The increase in packing density of components in mobile devices has led the industry to devise new techniques for chip interconnectivity using what is called wafer level packaging, or WLP. This new technology is a process of combining multiple wafers together prior to cutting them into pieces and then forming them onto a packaging substrate where they are ultimately divided into the multitude of chips. The recent increased adoption of WLP has increased the need for a contaminant free and high purity manufacturing environment, which is providing new demand across our semiconductor offerings which are tailored to handle full wafer forms expanding our opportunity with existing and new customers. For example, throughout the fabrication and packaging processes noted above, the demand for clean processing extends to increased demand for wafer carrier devices which are used for the safe and clean transport of wafers between tools during the manufacturing process. Large scale semiconductor fabs may use thousands of these carriers. There is also growing demand for wafer carrier cleaning and conditioning tools used to remove microscopic particles, organic compounds and water that are attracted to the inside surface of the carrier. Automated cleaning and conditioning of the carrier devices are also in demand by customers looking to improve yields.

- Adjacent capital equipment markets

In addition to the semiconductor manufacturing industry, there are a variety of adjacent and industrial manufacturing operations that use similar manufacturing processes. Frequently, these markets have common customers and similar technology applications. A few of the adjacent markets which we serve include light-emitting diodes, or LED, which are manufactured using vacuum systems and handling processes similar to semiconductor manufacturing. Organic

Light Emitting Diode, or OLED, applications are also gaining traction in the mobile computing and telecommunications device markets because of their high quality display and low power consumption. Touch screen technology found in mobile devices requires either a vacuum or significant cooling for effective deposition of films or coatings during the production process.

We believe the desire for efficient, higher throughput and extremely clean manufacturing for semiconductor wafer fabs, the chip packaging process and other industrial or high performance electronic-based products and processes have created a substantial market for us in the following offerings: (i) substrate handling automation, which is related to moving the wafers in a semiconductor fab, (ii) tool automation, which is related to using robots and modules in conjunction with and inside process tools that move wafers from station-to-station, (iii) vacuum systems technology to create and sustain the clean environment

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necessary for fabricating various products, and (iv) automated contamination control systems to condition and clean wafer carriers.

Product and Service Offerings

The principal offerings of the Brooks Semiconductor Solutions Group segment consist of: (i) wafer handling robotics and systems, (ii) semiconductor contamination control solutions, and (iii) cryogenic pumps and compressors. The segment also provides support services, including repair, diagnostic and installation, as well as spare parts and productivity enhancement upgrades to maximize tool productivity.

Wafer handling robotics and systems offerings include atmospheric and vacuum robots, robotic modules, as well as tool automation systems that provide precision handling and clean wafer environments. In the semiconductor industry, wafer handling robotics have emerged as a critical technology in the highly complex production tools in the world's most advanced wafer fabs. A typical customer tool is designed and built around a process chamber and uses automation technology to move wafers in and out of the chamber. We specialize in developing and building the automated handling systems, as well as the vacuum technologies used in these tools. We provide individual components within an OEM customer system as well as complete integrated handling systems. We provide automation products that are used for both atmospheric pressure and vacuum-based tools and are designed to improve performance and productivity of the manufacturing process.

Contamination control solutions- include automated cleaning and inspection systems for wafer carriers, as well as reticle pod cleaners and stockers, which are automated systems that store wafers or reticles. Our products use enhanced technology to remove critical airborne contamination within the workflow of the manufacturing process. Our solutions contribute to improving yields, productivity and process stability in the manufacturing process which requires an ultra-clean manufacturing environment.

Cryogenic pumps and compressors- provide vacuum pump and thermal management solutions that are used in critical vacuum process applications. Certain process steps require our vacuum pumps to create and optimize the process environment by maintaining pressure consistency throughout the manufacturing process. Semiconductor manufacturers need to ensure that each process operates at carefully controlled pressure levels to achieve optimal production yields. Impurities or incorrect pressure levels can lower production yields, thereby significantly increasing manufacturing costs. Our cryogenic vacuum pumps are considered the industry standard by many leading semiconductor device manufacturers for ion implant and physical vapor deposition, or PVD, applications, both of which require high vacuum pumping capability.

Within the semiconductor industry, we sell our products and services to the world's major semiconductor chip and original equipment manufacturers. Our customers outside the semiconductor industry are broadly diversified. We have major customers in North America, Europe and Asia. Although much of our equipment sales ship to OEMs in the United States, a large percentage of these OEM tools are ultimately installed in semiconductor fabs that are outside of North America. We also provide support services to leading OEMs, fabs and foundries across the globe.

Brooks Life Science Systems Segment

The Brooks Life Science Systems segment is a global leader of comprehensive sample life cycle management solutions that provides life science and bioscience customers with complete sample management solutions to advance scientific research and support drug development. Our sample management solutions are focused on providing customers with the highest level of sample quality, security, availability, management, intelligence and integrity throughout the life cycle of samples. Our solutions include automation, consumables and instruments, sample storage and support services, as well as informatics that manage samples throughout our customers' research discovery and development work flows.

Markets and Customers

Brooks Life Science Systems segment serves a broad range of end markets within the life sciences industry to address a confluence of life science industry trends, such as technology, information management and new sophisticated tools and applications. With the advent of biologics and personalized medicine, samples have become critical assets to the success of drug and therapy pipelines, and the proper management and protection of these samples has gained increased importance to our customers. We believe this trend has created a sizable market opportunity for the Brooks Life Science Systems segment to provide comprehensive sample management solutions.

We believe that the total addressable market for sample management solutions is currently expanding as a result of an increasing number of samples being stored globally. The market is fragmented, so we are initially focused on marketing our products and services within biopharma, which encompasses discovery research and development along with related clinical research, to government and commercially-sponsored biobanks, as well as to healthcare and academic research institutions. Together, this presents a significant addressable market for our comprehensive sample management solutions.

Brooks Life Science Systems has more than 800 customers around the globe, including a majority of the top-20 global bio-pharmaceutical companies. Due to the comprehensive nature of our sample management solutions that include automated

ultra-cold storage management systems, consumables and instruments, as well as services and informatics, we are continuing to expand our customer base and geographic reach to increase our revenue streams and to deliver consistent growth over the long-term.

Product and Service Offerings

The principal offerings of the Brooks Life Science Systems segment include the following:

Automated cold storage systems- provide stand-alone systems that can store between 10,000 and 2,000,000 samples in ultra-cold temperature ranges of +4°C to -190°C. Our systems provide high throughput capability that optimize storage of multi-format tubes and plates and increase storage capacity while maintaining a consistent temperature profile across stored samples.

Sample management services- include a complete range of services that complement the Brooks Life Science Systems segment's product offerings and consist of on-site and off-site sample storage, cold chain logistics, sample relocation, bio-processing solutions (inclusive of sample preparation, and genomic and cell culture analysis), disaster recovery and business continuity, as well as project management and consulting.

Consumables, instruments and devices- include a complete range of unique consumables, including multiple formats of racks, tubes, caps, plates and foils, which support storage of samples prior to placing them in ultra-cold storage environment. A comprehensive range of instruments used for labeling, bar coding, capping, decapping, auditing, sealing, peeling, and piercing tubes and plates complement our consumables.

Informatics- provides sample intelligence software solutions and integration of customer technology. Our informatics suite also provides laboratory work flow scheduling for life science tools and instrument work cells, sample inventory and logistics, environmental and temperature monitoring, clinical trial and consent management, as well as planning, data management, virtualization, and visualization.

Sales, Marketing and Customer Support

We market and sell the majority of our semiconductor products and services in Asia (including Japan), Europe, the Middle East and North America through our direct sales organization. The sales process for our products is often multilevel, involving a team comprised of individuals from sales, marketing, engineering, operations and senior management. In many cases we assign a team to a customer and that team engages the customer at different levels of its organization to facilitate planning, provide product customization when required, and ensure open communication and support. A portion of our vacuum products and services are sold through local distributors.

Prior to March 2015, we served the Japanese market for our semiconductor robotics and automation products through Yaskawa Brooks Automation, our joint venture with Yaskawa Electric Corporation of Japan. The venture was terminated in March 2015 and was liquidated during the fourth quarter of fiscal year 2015. As a result of the joint venture's dissolution, we reacquired the right to market our products in Japan through our direct sales force and employed a portion of the former employees of the venture.

The majority of our life sciences sales are completed through our direct Brooks Life Science Systems sales force, particularly our store systems and services. In addition, we facilitate the sale of consumables and instruments through distributors that reach a broad range of customers. In regions with emerging life science industries such as China, India and the Middle East, we leverage local distributors to assist with the sales process for store systems. The sales process for our larger sample management systems may take 6 to 18 months to complete and it involves a team typically comprised of individuals from sales, marketing, engineering and senior management.

We typically provide product warranties for a period of one to two years depending on the product type.

Our marketing activities include participation in trade shows, delivery of seminars, participation in industry forums, distribution of sales literature and white papers, publication of press releases and articles in business and industry publications. We maintain sales and service centers in Asia, Europe, the Middle East and North America to enhance support and communication with our customers. These facilities, together with our headquarters, maintain local support capabilities and demonstration equipment for our customers to evaluate. We encourage customers to discuss features and applications of our demonstration equipment with our engineers located at these facilities.

Competition

Brooks Semiconductor Solutions Group segment operates in a variety of market segments of varying breadth with differing competitors and competitive dynamics. The semiconductor and adjacent technology markets, as well as

process equipment manufacturing industries, are highly competitive and characterized by continual changes and technology improvements. A significant portion of equipment automation is still done internally by OEMs. Our competitors among external vacuum automation suppliers include primarily Japanese companies, such as Daihen Corporation, Daikin Industries, Ltd. and Rorze Corporation. Our competitors among vacuum component suppliers include Sumitomo Heavy Industries and

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Telemark, Inc. Atmospheric tool automation is typically less demanding, has fewer barriers to entry and has a larger field of competitors. We compete directly with other equipment automation suppliers of atmospheric modules and systems, such as Hirata Corporation, Kawasaki Heavy Industries, Ltd., Genmark Automation, Inc., Rorze Corporation, Sankyo Seisakusho Co., Ltd., TDK Corporation and Sinfonia Technology Co., Ltd. Contract manufacturers, such as Celestica Inc. and Flextronics International Ltd., also provide assembly and manufacturing services for atmospheric systems.

We believe our customers will purchase our equipment automation products and vacuum subsystems as long as our products continue to provide the necessary throughput, reliability, contamination control and accuracy at an acceptable price. We believe our semiconductor offerings are competitive with respect to all of these factors. We cannot guarantee, however, that we will be successful in selling our products to OEMs who currently satisfy a portion of their automation needs in-house or from other independent suppliers, regardless of the performance or price of our products.

Given the breadth of Brooks Life Sciences sample management solutions, there are no direct competitors for the comprehensive set of automation, consumables, instruments, services and informatics solutions we are providing to our customers into our targeted end markets. However, each of the business lines within the Life Sciences business has unique competitors. This would include Hamilton Company and Liconic AG for automation systems, Thermo-Fisher for consumables, as well as LabCorp and Covance for services.

Research and Development

Our research and development efforts are focused on developing new products and enhancing the functionality, degree of integration, reliability and performance of our existing products. Our engineering, marketing, operations and management personnel leverage their close collaborative relationships with their counterparts in customer organizations in an effort to proactively identify market demands that helps us refocus our research and development investment to match our customers' demands. With the rapid pace of change that characterizes the markets we serve, it is essential for us to provide high-performance and reliable products in order to maintain our leadership position in both our Brooks Semiconductor Solutions Group and Brooks Life Science Systems businesses.

Our research and development spending was $51.5 million, $52.2 million and $52.6 million, respectively, during fiscal years 2016, 2015 and 2014. The research and development spending reflects our investment in developing new products and enhancing the performance of our existing products within our Brooks Semiconductor Solutions Group and Brooks Life Science Systems segments.

We invest in research and development initiatives within our Brooks Semiconductor Solutions Group segment to maintain continued leadership position in the markets we serve. We have recently launched our newest Vacuum Automation platform, MagnaTran LEAP™, for the rapidly emerging advanced technologies related to manufacturing 10 nanometer semiconductor chips. MagnaTran LEAP is well positioned to deliver clean, accurate and fast wafer transport available for the fast growing Deposition and Etch market.

We have developed and continue to develop automated biological sample storage solutions for operating in ultra-low temperature environments within the Brooks Life Science Systems segment. We have developed the Twin-bank platform and introduced the BioStore™ III Cryo automated cryogenic sample management system which offer sample automation, cold chain management and improved security and accessibility while maintaining sample protection within the storage environment.

Manufacturing and Service

Our manufacturing operations include product assembly, integration and testing. We implement quality assurance procedures that include standard design practices, including reliability testing and analysis, supplier and component selection procedures, vendor controls, manufacturing process controls, and service processes that ensure high-quality performance of our products. Our major manufacturing facilities are located in Chelmsford, Massachusetts; Monterrey, Mexico; Yongin-City, South Korea; and Manchester, United Kingdom. Our manufacturing operations are designed to provide high quality, low cost, differentiated products to our customers in short lead times through responsive and flexible processes and sourcing strategies. We utilize lean manufacturing techniques for a large portion of our manufacturing, including manufacture of assemblies that we have outsourced to competitive regions, including Asia. We expect to continue to broaden our sourcing of certain portions of our manufacturing process to ensure we

continue to provide high quality products at competitive costs. We also believe the continued sourcing of portions of our manufacturing processes in these regions allows us to better serve our customers who have operations in these regions.

We have service and support locations close to our customers to provide rapid response to their service needs. Our principal service and support locations include Chelmsford, Massachusetts; Fremont, California; Chu Bei City, Taiwan; Yongin-City, South Korea; Yokohama, Japan; Shanghai, China; Singapore; Jena, Germany; Manchester, UK; and Kiryat-Gat,

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Israel. In November 2015, our Brooks Life Science Systems segment acquired Biostorage Technologies, Inc. which provides sample management storage services in Indianapolis, Indiana, Germany, China, and Singapore.

During fiscal year 2016, we committed to a restructuring plan to consolidate our Jena, Germany repair facility into our Chelmsford, Massachusetts repair operation as a part of our strategy to reduce our global footprint and streamline our cost structure. We began the initiative during the fourth quarter of fiscal year 2016 and expect to fully complete the transition by the end of the first quarter of fiscal year 2017. For further information on this restructuring action, please refer to Note 17, "Restructuring and Other Charges" to our Consolidated Financial Statements included under "Item 8, Financial Statements and Supplementary Data" of this Form 10-K.

Patents and Proprietary Rights

We rely on patents, trade secret laws, confidentiality procedures, copyrights, trademarks and licensing agreements to protect our technology. Due to the rapid technological change that characterizes the life sciences, semiconductor, adjacent technology markets and related process equipment industries, we believe that the improvement of existing technology, reliance upon trade secrets, unpatented proprietary know-how and the development of new products may be as important as patent protection in establishing and maintaining a competitive advantage. Our policy is to require all employees to enter into proprietary information and nondisclosure agreements to protect trade secrets and know-how. We cannot guarantee that these efforts will meaningfully protect our trade secrets.

As of September 30, 2016, we owned approximately 430 issued U.S. patents, with various corresponding patents issued in foreign jurisdictions. We also had approximately 130 pending U.S. patent applications, with foreign counterparts of certain of these applications having been filed or may be filed at the appropriate time. Our patents will expire at various dates through 2034.

Backlog

Backlog for the Brooks Semiconductor Solutions Group segment offerings totaled approximately $92 million as of September 30, 2016 as compared to approximately $68 million at September 30, 2015. This backlog includes all purchase orders for which our customers have scheduled delivery, regardless of the expected delivery date, and consists principally of orders for products and service agreements. Substantially all of this backlog consists of orders scheduled to be delivered within the next 12 months.

Backlog for the Brooks Life Science Systems segment offerings totaled $233 million as of September 30, 2016 as compared to approximately $40 million at September 30, 2015. The increase of approximately $193 million is equivalent to the ending backlog for BioStorage which was acquired on November 30, 2015. Backlog for the Brooks Life Science Systems segment includes all purchase orders for which customers have scheduled delivery, regardless of the expected delivery date, and consists of orders for products and service agreements. In addition, it includes estimated revenue for future services related to our BioStorage business for which contracts have been secured. Final revenue realized will vary based on volumes, prices, duration, and other factors. Storage contracts vary in length of time, with some being short term and some indefinite. We include the estimated value for time periods in the contract up to a maximum of 5 years.

Geographic Information

Our top 10 customers accounted for approximately 34% of our consolidated revenue in fiscal year 2016. No customers accounted for more than 10% of our consolidated revenue for fiscal year 2016.

For purposes of determining the percentage of revenue generated from our OEM customers, we do not include revenue from products sold to contract manufacturer customers who in turn sell to the OEM's. If we included revenue from products sold to contract manufacturer customers supporting our OEM customers, the percentage of our total revenue derived from certain OEM customers would be higher.

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Net revenue for the fiscal years ended September 30, 2016, 2015 and 2014 based upon the source of the order by geographic area is as follows (in thousands):

	Year Ended September 30,		
	2016	2015	2014
North America	$209,727	$199,103	$174,343
Asia/Pacific/Other	247,241	231,840	198,695
Europe:			
United Kingdom	36,611	$32,160	$27,078
Rest of Europe	66,744	$89,605	$82,732
	$560,323	$552,708	$482,848

The majority of our net revenue in North America is generated in the United States which amounted to $208.3 million, $197.4 million and $172.9 million, respectively, during fiscal years ended September 30, 2016, 2015 and 2014.
The geographic location of an OEM is not indicative of where our products will eventually be used. The geographic area for our orders is determined by the onward sale of an OEM system which incorporates our sub-systems and/or components.
Our property, plant and equipment as of September 30, 2016 and 2015 by geographic area is as follows (in thousands):

	September 30,	
	2016	2015
North America	$49,505	$36,402
Asia/Pacific	952	2,104
Europe/Middle East	4,428	3,349
	$54,885	$41,855

Property, plant and equipment located in the United States amounted to $49.3 million and $36.3 million, respectively, at September 30, 2016 and 2015.

Environmental Matters

We are subject to federal, state, and local environmental laws and regulations, as well as the environmental laws and regulations of the foreign national and local jurisdictions in which we have manufacturing facilities. We believe we are materially in compliance with all such laws and regulations.
Compliance with foreign, federal, state, and local laws and regulations has not had, and is not expected to have, an adverse effect on our capital expenditures, competitive position, financial condition or results of operations.

Employees

At September 30, 2016, we had 1,310 full time employees. In addition, we employ part time workers and contractors. We consider our relationships with these and all employees to be good.
Approximately 50 employees in our facility in Jena, Germany are covered by a collective bargaining agreement. During fiscal year 2016, we committed to a restructuring plan to consolidate our Jena, Germany repair facility into our Chelmsford, Massachusetts repair operation as a part of our strategy to reduce our global footprint and streamline our cost structure. The restructuring plan includes the elimination of 44 positions within the service and administrative functions as a part of this initiative. A collective bargaining agreement with a German labor union imposed a legal restriction on our ability to complete the restructuring plan. During fiscal year 2016, we entered into the negotiations with the Workers Council concerning the amount of involuntary termination benefits payable to employees impacted by this restructuring action, timing of these payments and the related terms of this arrangement. As of September 30, 2016, we reached an agreement with the Workers Council regarding the terms of this action and we have communicated termination benefit amounts to the majority of employees that will be impacted by the restructuring action along with their expected termination dates. The restructuring action is expected to be completed by March 31, 2017. For further information on this restructuring action, please refer to Note 17, "Restructuring and Other Charges" to our Consolidated Financial Statements included under "Item 8, Financial Statements and Supplementary Data" of

this Form 10-K.

Available Information

We file annual, quarterly, and current reports, proxy statements, and other documents with the SEC, under the Securities Exchange Act of 1934, as amended, or the Exchange Act. The public may read and copy any materials that we file with the

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SEC at the SEC's Public Reference Room at 100 F Street, NE, Washington, DC 20549. The public may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. Also, the SEC maintains an Internet website that contains reports, proxy and information statements, and other information regarding issuers, including Brooks Automation, Inc., that file electronically with the SEC. The public can obtain any documents that we file with the SEC at www.sec.gov.

Our internet website address is http://www.brooks.com. Through our website, we make available, free of charge, our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and any amendments to those reports, as soon as reasonably practicable after such materials are electronically filed, or furnished to, the SEC. These SEC reports can be accessed through the investors section of our website. The information found on our website is not part of this or any other report we file with or furnish to the SEC.

Item 1A. Risk Factors

Factors That May Affect Future Results

You should carefully consider the risks described below and the other information in this report before deciding to invest in shares of our common stock. These are the risks and uncertainties we believe are most important for you to consider. Additional risks and uncertainties not presently known to us, which we currently deem immaterial or which are similar to those faced by other companies in our industry or business in general, may also impair our business operations. If any of the following risks or uncertainties actually occurs, our business, financial condition and operating results would likely suffer. In that event, the market price of our common stock could decline and you could lose all or part of your investment.

Risks Relating to Our Industry

Due in part to the cyclical nature of the semiconductor manufacturing industry and related industries, as well as due to volatility in worldwide capital and equity markets, we have previously incurred operating losses and may have future losses.

Our business is largely dependent on capital expenditures in the semiconductor manufacturing industry and other businesses employing similar manufacturing technologies. The semiconductor manufacturing industry in turn depends on current and anticipated demand for integrated circuits and the products that use them. In recent years, these businesses have experienced unpredictable and volatile business cycles due in large part to rapid changes in demand and manufacturing capacity for semiconductors, and these cycles have had an impact on our business, sometimes causing declines in revenue and operating losses. We could experience future operating losses during an industry downturn. If an industry downturn continues for an extended period of time, our business could be materially harmed. Conversely, in periods of rapidly increasing demand, we could have insufficient inventory and manufacturing capacity to meet our customers' needs on a timely basis, which could result in the loss of customers and various other expenses that could reduce gross margins and profitability.

We face competition which may lead to price pressure and otherwise adversely affect our sales.

We face competition throughout the world in each of our product and service areas, including from the competitors discussed in Part I, Item 1, “Business - Competition” as well as from internal automation capabilities at larger OEMs. Many of our competitors have substantial engineering, manufacturing, marketing and customer support capabilities. We expect our competitors to continue to improve the performance of their current products and services and to introduce new products, services and technologies that could adversely affect sales of our current and future products and services. New products, services and technologies developed by our competitors or more efficient production of their products or provisions of their services could require us to make significant price reductions or decide not to compete for certain orders. If we fail to respond adequately to pricing pressures or fail to develop products with improved performance or better quality services with respect to the other factors on which we compete, we could lose customers or orders. If we are unable to compete effectively, our business and prospects could be materially harmed.

Risks Relating to Our Operations

Our operating results could fluctuate significantly, which could negatively impact our business.

Our revenue, operating margins and other operating results could fluctuate significantly from quarter to quarter depending upon a variety of factors, including:

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demand for our products as a result of the cyclical nature of the semiconductor manufacturing industry and the markets upon which the industry depends or otherwise;

- changes in the timing and terms of product orders by our customers as a result of our customer concentration or otherwise;
- changes in the demand for the mix of products and services that we offer;

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- timing and market acceptance of our new product and services introductions;
- delays or problems in the planned introduction of new products or service, or in the performance of any such products following delivery to customers or the quality of such services;
- new products, services or technological innovations by our competitors, which can, among other things, render our products less competitive due to the rapid technological changes in the markets in which we provide products and services;
- the timing and related costs of any acquisitions, divestitures or other strategic transactions;
- our ability to reduce our costs in response to decreased demand for our products and services;
- our ability to accurately estimate customer demand, including the accuracy of demand forecasts used by us;
- disruptions in our manufacturing process or in the supply of components to us;
- write-offs for excess or obsolete inventory;
- competitive pricing pressures; and
- Increased amount of investment into the Brooks Life Science Systems segment's infrastructure to support its growth, including capital equipment, research and development, as well as selling and marketing initiatives to support continuous product innovation, technological capability enhancements and sales efforts. The timing of revenue fluctuations within the segment coupled with the increased amount of investment may result in operating losses incurred during a period.

As a result of these risks, we believe that reference to past performance for comparisons of our revenue and operating results may not be meaningful, and that these comparisons may not be an accurate indicator of our future performance.

If we do not continue to introduce new products and services that reflect advances in technology in a timely and effective manner, our products and services may become obsolete and our operating results will suffer.

Our success is dependent on our ability to respond to the technological changes present in the markets we serve. The success of our product development and introduction of products to market depends on our ability to:

- identify and define new market opportunities, products and services in accurate manner;
- obtain market acceptance of our products and services;
- innovate, develop and commercialize new technologies and applications in a timely manner;
- adjust to changing market conditions;
- differentiate our offerings from our competitors' offerings;
- obtain and maintain intellectual property rights where necessary;
- continue to develop a comprehensive, integrated product and service strategy;
- price our products and services appropriately; and
- design our products to high standards of manufacturability so that they meet customer requirements.

If we cannot succeed in responding in a timely manner to technological and/or market changes or if the new products and services that we introduce do not achieve market acceptance, our competitive position would diminish which could materially harm our business and our prospects.

The global nature of our business exposes us to multiple risks.

During each of the fiscal years ended September 30, 2016 and 2015, approximately 63% of our revenue was derived from sales outside North America. We expect that international sales, including increased sales in Asia, will continue to account for a significant portion of our revenue. We maintain a global footprint of sales, service and repair operations. As a result of our international operations, we are exposed to many risks and uncertainties, including:

- longer sales-cycles and time to collection;
- tariff and international trade barriers;
- fewer or less certain legal protections for intellectual property and contract rights abroad;
- different and changing legal and regulatory requirements in the jurisdictions in which we operate;
- government currency control and restrictions on repatriation of earnings;
- fluctuations in foreign currency exchange and interest rates, particularly in Asia and Europe; and

- political and economic instability, changes, hostilities and other disruptions in regions where we operate.

Negative developments in any of these areas in one or more countries could result in a reduction in demand for our products, the cancellation or delay of orders already placed, threats to our intellectual property, difficulty in collecting receivables, and a higher cost of doing business, any of which could materially harm our business and profitability.

Our business could be materially harmed if we fail to adequately integrate the operations of the businesses that we have acquired or may acquire.

We have made in the past, and may make in the future, acquisitions or significant investments in businesses with complementary products, services and/or technologies. Our acquisitions present numerous risks, including:

- difficulties in integrating the operations, technologies, products and personnel of the acquired companies and realizing the anticipated synergies of the combined businesses;
- defining and executing a comprehensive product strategy;
- managing the risks of entering markets or types of businesses in which we have limited or no direct experience;
- the potential loss of key employees, customers and strategic partners of ours or of acquired companies;
- unanticipated problems or latent liabilities, such as problems with the quality of the installed base of the target company's products or infringement of another company's intellectual property by a target company's activities or products;
- problems associated with compliance with the acquired company's existing contracts;
- difficulties in managing geographically dispersed operations; and
- the diversion of management's attention from normal daily operations of the business.

If we acquire a new business, we may expend significant funds, incur additional debt or issue additional securities, which may negatively affect our operations and be dilutive to our stockholders. In periods following an acquisition, we will be required to evaluate goodwill and acquisition-related intangible assets for impairment. If such assets are found to be impaired, they will be written down to estimated fair value, with a charge against earnings. The failure to adequately address these risks or the impairment of any assets could materially harm our business and financial results.

Entering new markets introduces new competitors and commercial risks.

A key part of our growth strategy is to continue expanding beyond the semiconductor manufacturing market into semiconductor adjacent and life sciences sample management markets. As part of this strategy, we expect to diversify our product sales and service revenue by leveraging our core technologies, which requires investments and resources which may not be available as needed. We cannot guarantee that we will be successful in leveraging our capabilities into the life sciences sample management market to meet all the needs of these new customers and to compete favorably. Because a significant portion of our growth potential may be dependent on our ability to increase sales to markets beyond semiconductor manufacturing, our inability to successfully enter new markets may adversely impact future financial results.

Changes in key personnel could impair our ability to execute our business strategy.

The continuing service of our executive officers and essential engineering, technical and management personnel, together with our ability to attract and retain such personnel, is an important factor in our continuing ability to execute our strategy. There is substantial competition to attract such employees and the loss of any such key employees could have a material adverse effect on our business and operating results. The same could be true if we were to experience a high turnover rate among engineering and technical personnel and we were unable to replace them.

Our failure to protect our intellectual property could adversely affect our future operations.

Our ability to compete is significantly affected by our ability to protect our intellectual property. We rely upon patents, trade secret laws, confidentiality procedures, copyrights, trademarks and licensing agreements to protect our technology. Existing trade secret, trademark and copyright laws offer only limited protection. Our success depends in part on our ability to obtain and enforce patent protection for our products both in the United States and in other countries. We own numerous U.S. and foreign patents, and we intend to file additional applications, as appropriate, for patents covering our products and technology. Any issued patents owned by or licensed to us may be challenged, invalidated or circumvented, and the rights under these patents may not provide us with competitive advantages. In addition, the laws of some countries in which our products are or may be developed, manufactured or sold may not

fully protect our products. Due to the rapid technological change that characterizes the semiconductor and adjacent technology markets, we believe that the improvement of existing technology, reliance upon trade secrets and unpatented proprietary know-how and the development of new products may be as

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important as patent protection in establishing and maintaining competitive advantage. To protect trade secrets and know-how, it is our policy to require all technical and management personnel to enter into nondisclosure agreements. We cannot guarantee that the steps we have taken to protect our intellectual property will be adequate to prevent the misappropriation of our technology. Other companies could independently develop similar or superior technology without violating our intellectual property rights. In the future, it may be necessary to engage in litigation or like activities to enforce our intellectual property rights, to protect our trade secrets or to determine the validity and scope of proprietary rights of others, including our customers. This could require us to incur significant expenses and to divert the efforts and attention of our management and technical personnel from our business operations.

The expiration of our patents over time could lead to an increase of competition and a decline in our revenue.

One of our main competitive strengths is our technology, and we are dependent on our patent rights and other intellectual property rights to maintain our competitive position. Our current patents will expire from time to time through 2034 which could result in increased competition and declines in product and service revenue.

We may be subject to claims of infringement of third-party intellectual property rights, or demands that we license third-party technology, which could result in significant expense and prevent us from using our technology.

There has been substantial litigation regarding patent and other intellectual property rights in the semiconductor-related industries. We have in the past been, and may in the future be, notified that we may be infringing intellectual property rights possessed by third parties. We cannot guarantee that infringement claims by third parties or other claims for indemnification by customers or end-users of our products resulting from infringement claims will not be asserted in the future or that such assertions, whether or not proven to be true, will not materially and adversely affect our business, financial condition and results of operations.

We cannot predict the extent to which we might be required to seek licenses or alter our products so that they no longer infringe the rights of others. We also cannot guarantee that licenses will be available or the terms of any licenses we may be required to obtain will be reasonable. Similarly, changing our products or processes to avoid infringing the rights of others may be costly or impractical and could detract from the value of our products. If a judgment of infringement were obtained against us, we could be required to pay substantial damages and a court could issue an order preventing us from selling one or more of our products. Further, the cost and diversion of management attention brought about by such litigation could be substantial, even if we were to prevail. Any of these events could result in significant expense to us and may materially harm our business and our prospects.

Unexpected events could disrupt our sample storage operations and adversely affect our reputation and results of operations.

Unexpected events, including fires or explosions at our facilities, natural disasters, such as tornadoes, hurricanes and earthquakes, war or terrorist activities, unplanned power outages, supply disruptions and failure of equipment or systems, could adversely affect our reputation and results of operations. Our BioStorage service customers rely on us to securely store and timely retrieve their critical samples, and these events could result in service disruptions, physical damage to one or more key storage facilities and the customer samples stored in those facilities, the temporary closure of one or more key operating facilities or the temporary disruption of service, each of which could negatively impact our reputation and results of operations. Our primary storage facility is located in Indianapolis, Indiana, an area of the United States that can be prone to tornado and other severe weather events.

If our manufacturing sites were to experience a significant disruption in operations, our business could be materially harmed, while the failure to estimate customer demand accurately could result in excess or obsolete inventory.

We have a limited number of manufacturing facilities for our products and we have moved portions of our manufacturing to third parties, including some in lesser developed countries. If the operations at any one of these facilities were disrupted as a result of a natural disaster, fire, power or other utility outage, work stoppage or other similar event, our business could be seriously harmed because we may be unable to manufacture and ship products and parts to our customers in a timely fashion. The impact of any disruption at one of our facilities may be exacerbated if the disruption occurs at a time when we need to rapidly increase our manufacturing capabilities to meet increased demand or expedited shipment schedules.

Moreover, if actual demand for our products is different than expected, we may purchase more/fewer component parts than necessary or incur costs for canceling, postponing or expediting delivery of such parts. If we purchase inventory

in anticipation of customer demand that does not materialize, or if our customers reduce or delay orders, we may incur excess inventory charges. Any or all of these factors could materially and adversely affect our business, financial condition and results of operations.

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Our business could be materially harmed if one or more key suppliers fail to continuously deliver key components of acceptable cost and quality.

We currently obtain many of our key components on an as-needed, purchase order basis from numerous suppliers. In some cases we have only a single source of supply for key components and materials used in the manufacturing of our products. Further, we are increasing our sourcing of products in Asia, and particularly in China, and we do not have a previous history of dealing with many of these suppliers. Our inability to obtain components or materials in required quantities or of acceptable cost and quality and with the necessary continuity of supply could result in delays or reductions in product shipments to our customers. In addition, if a supplier or sub-supplier suffers a production stoppage or delay for any reason, including natural disasters such as the tsunamis that affected Japan and Thailand, this could result in a delay or reduction in our product shipments to our customers. Any of these contingencies could cause us to lose customers, result in delayed or lost revenue and otherwise materially harm our business.

Our business could be adversely affected by a decline in the availability of raw materials.

We are dependent on the availability of certain key raw materials and natural resources used in our products and various manufacturing processes, and we rely on third parties to supply us with these materials in a cost-effective and timely manner. Our access to raw materials may be adversely affected if our suppliers' operations were disrupted as a result of limited or delayed access to key raw materials and natural resources which may result in increased cost of these items. While most of the raw materials used in our products and various manufacturing processes are commercially available, we rely in some cases on materials that have a limited supply and are considered rare Earth elements, such as helium. If the supply of these elements is drastically reduced, it may lead to price increases which could result in higher costs of our products and corresponding revenue declines and have a material adverse impact on our business, financial condition and results of operations.

Our outsource providers may fail to perform as we expect.

Outsource providers have played and will continue to play a key role in our manufacturing operations and in many of our transactional and administrative functions, such as information technology and facilities management. Although we attempt to select reputable providers and secure their performance on terms documented in written contracts, it is possible that one or more of these providers could fail to perform as we expect and such failure could have an adverse impact on our business.

Our business relies on certain critical information systems and a failure or breach of such a system could harm our business and results of operations and, in the event of unauthorized access to a customer's data or our data, incur significant legal and financial exposure and liabilities.

We maintain and rely upon certain critical information systems for the effective operation of our business. These information systems include telecommunications, the internet, our corporate intranet, various computer hardware and software applications, network communications and e-mail. These information systems may be owned and maintained by us, our outsource providers or third parties such as vendors and contractors. These information systems are subject to attacks, failures, and access denials from a number of potential sources including viruses, destructive or inadequate code, power failures, and physical damage to computers, hard drives, communication lines and networking equipment. To the extent that these information systems are under our control, we have implemented security procedures, such as virus protection software and emergency recovery processes, to mitigate the outlined risks. However, security procedures for information systems cannot be guaranteed to be failsafe and our inability to use or access these information systems at critical points in time, or unauthorized releases of confidential information, could unfavorably impact the timely and efficient operation of our business.

Confidential information stored on these information systems could also be compromised. If a third party gains unauthorized access to our data, including any information regarding our customers, such security breach could expose us to a risk of loss of this information, loss of business, litigation and possible liability. These security measures may be breached as a result of third-party action, including intentional misconduct by computer hackers, employee error, malfeasance or otherwise. Additionally, third parties may fraudulently attempt to induce employees or customers into disclosing sensitive information such as user names, passwords or other information in order to gain access to our customers' data or our data, including our intellectual property and other confidential business information, or our information technology systems. Because the techniques used to obtain unauthorized access, or to

sabotage systems, change frequently and generally are not recognized until launched against a target, we may be unable to anticipate these techniques or to implement adequate preventative measures. Any security breach could result in a loss of confidence by our customers, damage our reputation, disrupt our business, lead to legal liability and negatively impact our future sales.

Our goodwill and intangible assets may become impaired.

As of September 30, 2016, we had $202.1 million of goodwill and $81.8 million in net intangible assets as a result of our acquisitions. We periodically review our goodwill and the estimated useful lives of our identifiable intangible assets, taking into consideration any events or circumstances that might result in either a diminished fair value, or for intangible assets, a revised useful life. These events and circumstances include significant changes in the business climate, legal factors, operating

performance indicators, advances in technology and competition. Any impairment or revised useful life could have a material and adverse effect on our financial position and results of operations, and could harm the trading price of our common stock.

Changes in tax rates or tax regulation could affect results of operations.

As a global company, we are subject to taxation in the United States and various other countries. Significant judgment is required to determine and estimate worldwide tax liabilities. Our future annual and quarterly effective tax rates could be affected by numerous factors, including changes in the: applicable tax laws; composition of pre-tax income in countries with differing tax rates; and/or establishment of a valuation allowance against deferred tax assets based on the assessment of their realizability prior to expiration. In addition, we are subject to regular examination by the Internal Revenue Service and state, local and foreign tax authorities. We regularly assess the likelihood of favorable or unfavorable outcomes resulting from these examinations to determine the adequacy of our provision for income taxes. Although we believe our tax estimates are reasonable, there can be no assurance that any final determination will not be materially different from the treatment reflected in our historical income tax provisions and accruals, which could materially and adversely affect our financial condition and results of operations.

We are subject to numerous governmental regulations.

We are subject to federal, state, local and foreign regulations, including environmental regulations and regulations relating to the design and operation of our products and control systems. We might incur significant costs as we seek to ensure that our products meet safety and emissions standards, many of which vary across the states and countries in which our products are used. In the past, we have invested significant resources to redesign our products to comply with these directives. Compliance with future regulations, directives, and standards could require us to modify or redesign some products, 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 or shipments could be suspended; and
- we could be prohibited from offering particular products in specified markets.

Any of these events could materially and adversely affect our business, financial condition and results of operations.

Regulations and customer demands related to conflict minerals may adversely affect us.

The Dodd-Frank Wall Street Reform and Consumer Protection Act imposes disclosure requirements regarding the use in components of our products of “conflict minerals” mined from the Democratic Republic of Congo and adjoining countries, whether the components of our products are manufactured by us or third parties. This requirement could affect the pricing, sourcing and availability of minerals used in the manufacture of components we use in our products. In addition, there are additional costs associated with complying with the disclosure requirements and customer requests, such as costs related to our due diligence to determine the source of any conflict minerals used in our products. We may face difficulties in satisfying customers who may require that all of the components of our products are certified as conflict mineral free and/or free of numerous other hazardous materials.

Unfavorable currency exchange rate fluctuations may lead to lower operating 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 sales and results of operations and we could experience losses with respect to forward exchange contracts into which we may enter. 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 materially and 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 as compared to the U.S. dollar at the time of receipt as a result of exchange rate fluctuations. From time to time, we enter into forward exchange contracts to reduce currency exposure. 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, which could materially and adversely affect our results of operations.

Risk related to the Referendum of the United Kingdom’s Membership in the European Union

A majority of voters in the United Kingdom recently voted “for” the Referendum of the United Kingdom’s Membership in the European Union (referred to as “Brexit”), approving the exit of the United Kingdom from the European Union, which triggered volatility in global stock markets and currency exchange rate fluctuations that resulted in the strengthening of the U.S. dollar against foreign currencies in which we conduct our business. As described in Item 7A, "Quantitative and Qualitative Disclosures About Market Risk", of this 10-K, most of our foreign currency denominated transactions are conducted in Euros, British Pounds and a variety of Asian currencies. Sales in currencies other than the U.S. dollar were approximately 34% of our

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total sales during fiscal year 2016. As a result of a strengthening dollar, our revenue denominated in foreign currencies may be reduced as a result of translating into fewer U.S. dollars.

The announcement of Brexit has also create global economic uncertainty, which may cause our customers to closely monitor their costs and reduce their spending on our products and services. Negotiations are expected to commence shortly to determine the future terms of the United Kingdom's relationship with the European Union, including the terms of trade between the United Kingdom and the European Union. The effects of Brexit may depend on any agreements the United Kingdom makes to retain access to E.U. markets either during a transitional period or more permanently. The measures could potentially disrupt the markets we serve and may cause us to lose customers and employees. In addition, Brexit could lead to legal uncertainty and potentially divergent national laws and regulations as the United Kingdom determines which E.U. laws to replace or replicate. Any of these effects of Brexit, among others, could adversely affect our business, results of operations and financial condition.

Risks Relating to Our Customers

Because we rely on a limited number of customers for a large portion of our revenue, the loss of one or more of these customers could materially harm our business.

We receive a significant portion of our revenue in each fiscal period from a relatively limited number of customers, and that trend is likely to continue. Sales to our ten largest customers accounted for approximately 34%, 38% and 37% of our total revenue in the fiscal years ended September 30, 2016, 2015 and 2014, respectively. The loss of one or more of these major customers, a significant decrease in orders from one of these customers, or the inability of one or more customers to make payments to us when they are due could materially affect our revenue, business and reputation. In addition, there has been and may continue to be significant consolidation among some of our largest OEM customers, which could lead to increased pressure to reduce the price of our products and/or decreased market share of our products with the combined companies.

Because of the lengthy sales cycles of many of our products, we may incur significant expenses before we generate any revenue related to those products.

Our customers may need several months to test and evaluate our products. This increases the possibility that a customer may decide to cancel an order or change its plans, which could reduce or eliminate our sales to that customer. The impact of this risk can be magnified during the periods in which we introduce a number of new products, as has been the case in recent years. As a result of this lengthy sales cycle, we may incur significant research and development expenses, and selling, general and administrative expenses before we generate the related revenue for these products, and we may never generate the anticipated revenue if our customer cancels an order or changes its plans.

In addition, many of our products will not be sold directly to the end-user but will be components of other products manufactured by OEMs. As a result, we rely on OEMs to select our products from among alternative offerings to be incorporated into their equipment at the design stage; so-called design-ins. The OEMs' decisions often precede the generation of volume sales, if any, by a year or more. Moreover, if we are unable to achieve these design-ins from an OEM, we would have difficulty selling our products to that OEM because changing suppliers after design-ins involves significant cost, time, effort and risk on the part of that OEM.

Customers generally do not make long term commitments to purchase our products and our customers may cease purchasing our products at any time.

Sales of our products are often made pursuant to individual purchase orders and not under long-term commitments and contracts. Our customers frequently do not provide any assurance of minimum or future sales and are not prohibited from purchasing products from our competitors at any time. Accordingly, we are exposed to competitive pricing pressures on each order. Our customers also engage in the practice of purchasing products from more than one manufacturer to avoid dependence on sole-source suppliers for certain of their needs. The existence of these practices makes it more difficult for us to increase price, gain new customers and win repeat business from existing customers.

We may face claims for liability related to damages of customer materials attributed to the failure of our products, exposing us to significant financial or reputational harm.

Our automation products for the semiconductor manufacturing market are used in the handling and movement of silicon wafers at various points in the production process, and our automated cold storage systems for the life sciences sample management market are used in the handling, movement and storage of biological and chemical samples. In either case, damage to our customers' materials may be attributed to a failure of our products which could lead to claims for damages made by our customers and could also harm our relationship with our customers and damage our reputation in each of these industries, resulting in material harm to our business.

Risks Relating to Owning Our Securities

Our stock price is volatile.

The market price of our common stock has fluctuated widely. From the beginning of fiscal year 2015 through the end of fiscal year 2016, our stock price fluctuated between a high of $13.96 per share and a low of $8.48 per share. Consequently, the current market price of our common stock may not be indicative of future market prices, and we may be unable to sustain or increase the value of an investment in our common stock. Factors affecting our stock price may include:

- variations in operating results from quarter to quarter;
- changes in earnings estimates by analysts or our failure to meet analysts' expectations;
- changes in the market price per share of our public company customers;
- market conditions in the semiconductor and other industries into which we sell products and services;
- global economic conditions;
- political changes, hostilities or natural disasters such as hurricanes and floods;
- low trading volume of our common stock; and
- the number of firms making a market in our common stock.

In addition, the stock market has in the past experienced significant price and volume fluctuations. These fluctuations have particularly affected the market prices of the securities of high technology companies like ours. These market fluctuations could adversely affect the market price of our common stock.

We may not pay dividends on our common stock.

Holders of our common stock are only entitled to receive dividends when and if they are declared by our Board of Directors. Although we have declared cash dividends on our common stock for the past several years, we are not required to do so and may reduce or eliminate our cash dividends in the future. This could adversely affect the market price of our common stock.

Provisions in our charter documents and, Delaware law may delay or prevent an acquisition of us, which could decrease the value of your shares.

Our restated certificate of incorporation and by-laws and Delaware law contain provisions that could make it harder for a third party to acquire us without the consent of our Board of Directors. These provisions include limitations on actions by our stockholders by written consent, the inability of stockholders to call special meetings and the potential for super majority votes of our stockholders in certain circumstances. In addition, our Board of Directors has the right to issue preferred stock without stockholder approval, which could be used to dilute the stock ownership of a potential hostile acquirer.

Our restated certificate of incorporation makes us subject to the anti-takeover provisions of Section 203 of the Delaware General Corporation Law. In general, Section 203 prohibits publicly held Delaware corporations to which it applies from engaging in a “business combination” with an “interested stockholder” for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is approved in a prescribed manner. This provision could discourage others from bidding for our shares of common stock and could, as a result, reduce the likelihood of an increase in the price of our common stock that would otherwise occur if a bidder sought to buy our common stock.

Delaware law also imposes restrictions on mergers and other business combinations between us and any holder of 15% or more of our outstanding common stock. Although we believe these provisions provide for an opportunity to receive a higher bid by requiring potential acquirers to negotiate with our Board of Directors, these provisions apply even if the offer may be considered beneficial by stockholders. If a change of control or change in management is delayed or prevented, the market price of our common stock could decline.

Our certificate of incorporation authorizes the issuance of shares of blank check preferred stock.

Our certificate of incorporation provides that our Board of Directors is authorized to issue from time to time, without further stockholder approval, up to 1,000,000 shares of preferred stock in one or more series and to fix and designate the rights, preferences, privileges and restrictions of the preferred stock, including dividend rights, conversion rights, voting rights, redemption rights and terms of redemption and liquidation preferences. Such shares of preferred stock could have preferences over our common stock with respect to dividends and liquidation rights. Our issuance of

preferred stock may have the effect of delaying or preventing a change in control. Our issuance of preferred stock could decrease the amount of earnings and assets available for distribution to the holders of common stock or could adversely affect the rights and powers, including voting rights, of the holders of common stock. The issuance of preferred stock could have the effect of decreasing the market price of our common stock.

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Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Our corporate headquarters and primary manufacturing/research and development facilities are currently located in three buildings in Chelmsford, Massachusetts.

We maintain the following principal facilities:

Location	Functions	Square Footage (Approx.)	Ownership Status/Lease Expiration
Chelmsford, Massachusetts	Corporate headquarters, training, manufacturing, R&D and sales & support	298,000	Owned
Indianapolis, Indiana	Sample storage, sales & support	84,800	July 2017
Fremont, California	Manufacturing, R&D and sales & support	44,900	August 2018
Manchester, United Kingdom	Manufacturing, R&D and sales & support	44,670	December 2019
Yongin-City, South Korea	Manufacturing, R&D and sales & support	32,000	September 2019
Jena, Germany	R&D and sales & support	30,100	February 2017
Chu Bei City, Taiwan	Sales & support	28,600	June 2018

Our Brooks Semiconductor Solutions Group segment utilizes the facilities in Chelmsford, Massachusetts; Fremont, California; South Korea, Germany and Taiwan. Our Brooks Life Science Systems segment utilizes the facilities in Manchester, United Kingdom; Indianapolis, Indiana and Chelmsford, Massachusetts.

During fiscal year 2016, we utilized a facility in Spokane, Washington to accommodate certain manufacturing, R&D and sales & support functions for our Brooks Life Science Systems segment. We terminated the lease and vacated the facility in March 2016 prior to the expiration of the lease term in October 2016. Prior to fiscal year 2016, we owned and utilized a facility in Oberdiessbach, Switzerland which accommodated our sales & support functions for the Brooks Life Science Systems segment. We sold the building and the underlying land for a total price of $2.8 million during fiscal year 2016.

During fiscal year 2016, we committed to a restructuring plan related to centralizing our North American and European repair services for cryogenic and automation products in our Chelmsford, Massachusetts facility and relocating such services from our facility in Jena, Germany as a part of our strategy to reduce our global footprint and streamline our cost structure. We began the initiative during the fourth quarter of fiscal year 2016 and expect to fully complete the transition by the end of the first quarter of fiscal year 2017. During fiscal year 2016, we communicated to the landlord our intention to vacate majority of the space in the 30,100 square foot Jena facility upon expiration of the lease term on February 28, 2017.

We maintain additional sales and support and training offices in Texas, Europe (France and Germany), Asia (Japan, China and Singapore) and the Middle East (Israel). We also maintain sample storage facilities in Germany, Singapore and China.

We utilize a third party to manage our manufacturing operations in Mexico. As a part of this arrangement, we make and guarantee the monthly payments for a lease of the 56,100 square foot manufacturing facility which expires in February 2018. The remaining payments under the lease were approximately $0.9 million at September 30, 2016.

Item 3. Legal Proceedings

We are subject to various legal proceedings, both asserted and unasserted, that arise in the ordinary course of business. We cannot predict the ultimate outcome of such legal proceedings or in certain instances provide reasonable ranges of potential losses. However, as of the date of this report, we believe that none of these claims will have a material adverse effect on our consolidated financial condition or results of operations. In the event of unexpected subsequent developments and given the inherent unpredictability of these legal proceedings, there can be no assurance that our assessment of any claim will reflect the ultimate outcome and an adverse outcome in certain matters could, from time-to-time, have a material adverse effect on our consolidated financial condition or results of operations in particular quarterly or annual periods.

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Item 4. Mine Safety Disclosures

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Our common stock is traded on the NASDAQ Stock Market LLC under the symbol "BRKS." The following table sets forth the high and low intraday sales prices per share of our common stock as reported by the NASDAQ Stock Market LLC and the cash dividends declared per common share for the periods indicated:

	Market Price		Dividends
	High	Low	Declared
Fiscal year ended September 30, 2016			
First quarter	$11.91	$10.68	$ 0.10
Second quarter	10.54	8.48	0.10
Third quarter	11.90	9.16	0.10
Fourth quarter	13.96	11.05	0.10
Fiscal year ended September 30, 2015			
First quarter	$13.02	$9.87	$ 0.10
Second quarter	13.37	11.43	0.10
Third quarter	12.36	10.76	0.10
Fourth quarter	11.74	9.71	0.10

Number of Holders

As of November 15, 2016, there were 593 holders of record of our common stock.

Dividend Policy

Dividends are declared at the discretion of our Board of Directors and depend on actual cash flow from operations, our financial condition, capital requirements and any other factors our Board of Directors may consider relevant. Future dividend declarations, as well as the record and payment dates for such dividends, will be determined by our Board of Directors on a quarterly basis.

On November 9, 2016, our Board of Directors approved a cash dividend of $0.10 per share payable on December 23, 2016 to common stockholders of record on December 2, 2016.

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Comparative Stock Performance

The following graph compares the cumulative total shareholder return (assuming reinvestment of dividends) from investing $100 on September 30, 2011, and plotted at the last trading day of each of the fiscal years ended September 30, 2012, 2013, 2014, 2015 and 2016, in each of (i) our Common Stock; (ii) the NASDAQ/NYSE MKT/NYSE Index of companies; and (iii) a peer group comprised of: Advanced Energy Industries, Inc., Bruker Corp., Entegris, Inc., Formfactor Inc., MKS Instruments, Inc., Photronics, Inc., Teradyne Inc., Ultra Clean Technology, Inc., Veeco Instruments Inc. and Xcerra Corp. The stock price performance on the graph below is not necessarily indicative of future price performance.

COMPARISON OF 5 YEAR CUMULATIVE TOTAL RETURN*
Among Brooks Automation, Inc., the NASDAQ/NYSE MKT/NYSE Index,
and a Peer Group

* $100 invested on September 30, 2011 in stock or index, including reinvestment of dividends.

	9/30/11	9/30/12	9/30/13	9/30/14	9/30/15	9/30/16
Brooks Automation, Inc.	$100.00	$101.90	$122.26	$142.60	$164.54	$198.13
NASDAQ/NYSE MKT/NYSE	100.00	150.26	196.64	267.84	332.87	334.61
Peer Group	100.00	122.90	164.68	168.45	161.74	218.96

The information included under the heading “Comparative Stock Performance” in Item 5 of "this report" shall not be deemed to be “soliciting material” or subject to Regulation 14A, shall not be deemed “filed” for purposes of Section 18 of the Exchange Act, or otherwise subject to the liabilities of that section, nor shall it be deemed incorporated by reference in any filing under the Securities Act of 1933, as amended, or the Exchange Act.

Unregistered Sales of Securities

Our 1995 Employee Stock Purchase Plan, as amended, also referred to herein as the ESPP, permits eligible employees to purchase up to 4,000,000 shares of our common stock. We have previously filed registration statements on Form S-8 covering the offering of up to 3,000,000 shares of our common stock pursuant to the ESPP. As a result of an inadvertent failure to register the additional shares on Form S-8 after our stockholders approved a 1,000,000 share increase to the ESPP in February 2012, which we discovered in November 2016, 877,427 shares issued at purchase prices ranging from $7.79 to $9.01 per share

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under the ESPP for purchases made between January 2013 and July 2016 were not registered on Form S-8. We have determined that the offer and sale of these shares were not exempt from registration under the Securities Act, and that such sales may not have been properly registered under the Securities Act. Under the applicable provisions of federal securities laws, plan participants who purchase unregistered shares of common stock may seek to rescind the transaction within one year following the date of purchase, which is the applicable federal statute of limitations. Based on our current stock price and the number of shares that are still held by participants who purchased shares within the past year, we do not believe that any liability for rescission would be material to our consolidated financial position, results of operations or cash flows.

In fiscal year 2016, we sold shares of our common stock under the ESPP in two separate transactions. On January 29, 2016, we sold 118,548 shares to ESPP participants at a price of $8.00 per share and on July 29, 2016 we sold 117,179 shares to ESPP participants at a price of $8.02 per share, for an aggregate purchase price of approximately $1.9 million. No commissions or other fees were paid in connection with the issuance of those shares. The proceeds of these sales were used for general working capital purposes. Based on our current stock price, we do not expect any ESPP participants who still hold shares purchased within the last year to seek rescission. However, if we determine that any of these participants are likely to seek rescission in the future, we may make a registered rescission offer to repurchase the shares issued under the ESPP during fiscal year 2016 to the extent they continue to be held by the original purchasers.

We intend to file a Form S-8 registration statement with the SEC to cover the 1,000,000 shares of common stock that had been authorized for issuance by our Board of Directors and approved by our stockholders but not otherwise registered on a Form S-8.

Issuer's Purchases of Equity Securities

As part of our equity compensation program, we offer recipients of restricted stock units the opportunity to elect to sell shares of our common stock at the time of vesting to satisfy tax obligations in connection with such vesting. We purchase shares of our Common Stock, $0.01 par value, in connection with the forfeiture of shares to satisfy the employees' obligations with respect to withholding taxes related to the vesting of certain restricted stock units. Upon purchase, these shares are immediately retired. There were no such purchases during the three months ended September 30, 2016.

On September 29, 2015, our Board of Directors approved a share repurchase program for up to $50 million worth of our common stock. The timing and amount of any shares to be repurchased under this program will be based on market and business conditions, legal requirements and other factors and may be commenced or suspended at any time at our discretion. There were no shares repurchased under this program during fiscal year 2016.

Item 6. Selected Financial Data

The selected consolidated financial data set forth below should be read in conjunction with our consolidated financial statements and notes thereto and “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” appearing elsewhere in this report.

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	Year Ended September 30,				
	2016	2015	2014	2013	2012
	(1)(2)	(3)(4)	(5)(6)(7)	(6)(8)(9)	(6)(10)(11)(12)
	(In thousands, except per share data)				
Revenue	$560,323	$552,708	$482,848	$422,440	$ 488,983
Gross profit	198,081	189,105	167,337	132,307	159,453
Operating income (loss)	4,238	16,890	(2,699)	(16,798)	1,642
(Loss) income from continuing operations	(69,476)	14,221	1,520	(7,114)	131,835
Income from discontinued operations, net of tax	—	—	30,002	4,964	5,000
Net (loss) income attributable to Brooks Automation, Inc.	(69,476)	14,221	31,361	(2,215)	136,789
Basic net (loss) income per share attributable to Brooks Automation, Inc. common stockholders:					
(Loss) income from continuing operations	(1.01)	0.21	0.02	(0.11)	2.02
Income from discontinued operations, net of tax	—	—	0.45	0.08	0.08
Basic net (loss) income per share attributable to Brooks Automation, Inc.	$(1.01)	$0.21	$0.47	$(0.03)	$ 2.10
Diluted net (loss) income per share attributable to Brooks Automation, Inc. common stockholders:					
(Loss) income from continuing operations	$(1.01)	$0.21	$0.02	$(0.11)	$ 2.01
Income from discontinued operations, net of tax	—	—	0.44	0.08	0.08
Diluted net (loss) income per share attributable to Brooks Automation, Inc.	$(1.01)	$0.21	$0.46	$(0.03)	$ 2.08
Dividend declared per share	$0.40	$0.40	$0.34	$0.32	$ 0.32

	As of September 30,				
	2016	2015	2014	2013	2012
	(In thousands)				
Cash and cash equivalents and marketable securities	$91,221	$214,030	$245,456	$173,362	$200,231
Working capital (13), (14)	94,416	89,225	80,027	88,691	106,178
Total assets	685,905	758,702	777,227	736,765	741,960
Total capital lease obligation	—	—	8,298	—	—
Total equity	553,690	632,045	642,889	632,656	649,301

	Year Ended September 30, 2016			
	First Quarter (1)	Second Quarter (2)	Third Quarter	Fourth Quarter
	(In thousands, except per share data)			
Revenue	$119,955	$135,281	$147,534	$157,553
Gross profit	40,554	46,800	54,163	56,565
Operating (loss) income	(8,320)	(6,339)	8,494	10,404
Net (loss) income	(4,648)	(83,939)	8,564	10,547
Basic net (loss) income per share	(0.07)	(1.22)	0.12	0.15
Diluted net (loss) income per share	(0.07)	(1.22)	0.12	0.15

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	Year Ended September 30, 2015			
	First Quarter (4)	Second Quarter	Third Quarter	Fourth Quarter (3)
	(In thousands, except per share data)			
Revenue	$122,736	$139,313	$144,894	$145,765
Gross profit	39,088	46,025	51,187	52,805
Operating (loss) income	(6,480)	3,053	10,170	10,147
Net (loss) income	(2,734)	2,711	7,681	6,563
Basic net (loss) income per share	(0.04)	0.04	0.11	0.10
Diluted net (loss) income per share	(0.04)	0.04	0.11	0.10

(1) We acquired BioStorage Technologies, Inc., or BioStorage, in November 2015. The results of BioStorage have been included in our results of operations from the date of acquisition. Please refer to Note 4, “Acquisitions” to our Consolidated Financial Statements included under "Item 8. Financial Statements and Supplementary Data" of this Form 10-K for additional information regarding this transaction.

(2) Operating (loss) income and net (loss) income includes a charge of $79.3 million related to establishing an additional valuation allowance against our U.S. net deferred tax assets. Please refer to Note 12, “Income Taxes” to our Consolidated Financial Statements included under "Item 8. Financial Statements and Supplementary Data" of this Form 10-K for additional information.

(3) We acquired Contact Co., Ltd., or Contact, in August 2015. The results of Contact have been included in our results of operations from the date of acquisition. Please refer to Note 4, “Acquisitions” to our Consolidated Financial Statements included under "Item 8. Financial Statements and Supplementary Data" of this Form 10-K for additional information regarding this transaction.

(4) We acquired FluidX Ltd., or FluidX, in October 2014. The results of FluidX have been included in our results of operations from the date of acquisition. Please refer to Note 4, “Acquisitions” to our Consolidated Financial Statements included under "Item 8. Financial Statements and Supplementary Data" of this Form 10-K for additional information regarding this transaction.

(5) We acquired Dynamic Micro Systems Semiconductor Equipment GmbH, or DMS, in April 2014. The results of DMS have been included in our results of operations from the date of acquisition. Please refer to Note 4, “Acquisitions” to our Consolidated Financial Statements included under "Item 8. Financial Statements and Supplementary Data" of this Form 10-K for additional information regarding this transaction.

(6) In March 2014, we entered into an agreement to sell the Granville-Phillips Gas Analysis & Vacuum Measurement, or Granville-Phillips, business unit for $87.0 million in cash. In the second quarter of fiscal year 2014, we determined that the Granville-Phillips business met the criteria of being reported as a discontinued operation. As a result, the selected financial data presented for periods prior to the second quarter of fiscal year 2014 has been revised to present the operating results of the Granville-Phillips business as a discontinued operation. Please refer to Note 3, “Discontinued Operations” to our Consolidated Financial Statements included under "Item 8. Financial Statements and Supplementary Data" of this Form 10-K for additional information regarding this transaction.

(7) We completed the sale of the Granville-Phillips business in May 2014. We realized a pre-tax gain of $56.8 million and an after-tax gain of $26.9 million in connection with the sale. The tax charge of $29.9 million on the gain is substantially non-cash as it was offset by our net operating losses in the United States.

(8) We acquired certain assets and assumed certain liabilities of Matrical, Inc.’s life science businesses, collectively referred to as Matrical, in August 2013. The results of Matrical have been included in our results of operations from the date of acquisition.

(9) We acquired Crossing Automation Inc., or Crossing, in October 2012. The results of Crossing have been included in our results of operations from the date of acquisition.

(10) We acquired the Celigo® product line in December 2011. The results from the Celigo® product line were included in our results of operations from the date of acquisition through March 2014, when we completed the

sale of this product line.

(11) Income (loss) from continuing operations and net income (loss) attributable to Brooks Automation, Inc. includes a $121.8 million deferred income tax benefit in connection with a reversal of a majority of the valuation allowance against our net deferred tax assets.

(12) Income (loss) from continuing operations and net income (loss) attributable to Brooks Automation, Inc. includes an $8.9 million charge in connection with the settlement of our U.S. defined benefit pension plan.

(13) The calculation of working capital excludes "Cash and cash equivalents", "Marketable securities", "Assets Held for Sale", as well as assets and liabilities identifiable within the Granville-Phillips business reported as “Assets held for sale” and “Liabilities held for sale,” respectively, in the Consolidated Balance Sheets as of September 30, 2013.

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(14) Working capital amounts were adjusted to reflect the reclassification of current deferred tax assets and liabilities to non-current in accordance with ASU 2015-17. We reclassified $16.4 million, $18.2 million, $16.8 million and $15.5 million, respectively, of net deferred tax assets from current to non-current at September 30, 2015, September 30, 2014, September 30, 2013 and September 30, 2012. Please refer to Note 2 "Summary of Significant Accounting Policies" to our Consolidated Financial Statements included under "Item 8. Financial Statements and Supplementary Data" of this Form 10-K for additional information.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The Management's Discussion and Analysis of Financial Condition and Results of Operations, or MD&A, describes principal factors affecting the results of our operations, financial condition and liquidity, as well as our critical accounting policies and estimates that require significant judgment and thus have the most significant potential impact on our Consolidated Financial Statements. Our MD&A is organized as follows:

- Overview. This section provides a general description of our business and operating segments, as well as a brief discussion and overall analysis of our business and financial performance, including key developments affecting the Company during fiscal years ended September 30, 2016 and 2015.

Critical Accounting Policies and Estimates. This section discusses accounting policies and estimates that require us to exercise subjective or complex judgments in their application. We believe these accounting policies and estimates are important to understanding the assumptions and judgments incorporated in our reported financial results.

- Results of Operations. This section provides an analysis of our financial results for the fiscal year ended September 30, 2016 compared to the fiscal year ended September 30, 2015 and for the fiscal year ended September 30, 2015 compared to the fiscal year ended September 30, 2014.
- Liquidity and Capital Resources. This section provides an analysis of our liquidity and changes in cash flows, as well as a discussion of available borrowings and contractual commitments.

You should read the MD&A in conjunction with our Consolidated Financial Statements and related notes beginning on page 47. In addition to historical information, the MD&A contains forward-looking statements that involve risks and uncertainties. You should read "Information Related to Forward-Looking Statements" included above in this Form 10-K and "Item 1A. Risk Factors" for a discussion of important factors that could cause our actual results to differ materially from our expectations.

OVERVIEW

General

We are a leading global provider of automation and cryogenic solutions for multiple applications and markets. We primarily serve the semiconductor capital equipment market and sample management market for life sciences. Our leadership position and global support structure in each of these markets makes us a valued business partner to the largest semiconductor capital equipment and device makers, as well as pharmaceutical and life science research institutions in the world. Our offerings are also applied to industrial capital equipment and other adjacent technology markets.

In the semiconductor capital equipment market, equipment productivity and availability are critical factors for our customers' success, who typically operate equipment under demanding temperature and/or pressure environments. Our automation and cryogenics capabilities are demonstrated in our various robotic automation and cryogenic vacuum pump offerings, both of which are used by semiconductor manufacturers in the processing of silicon wafers into integrated circuits. Although the demand for semiconductors and semiconductor manufacturing equipment is cyclical, resulting in periodic expansions and contractions of this market, we expect the semiconductor equipment market to remain one of our principal markets as we continue making investments to maintain and grow our semiconductor product and service offerings. A majority of our research and development spending advances our current product lines and drives innovations for new product offerings. In addition, we have made numerous acquisitions in past years to support and expand our technology and product offerings for the semiconductor market. In April 2014, we acquired Dynamic Micro Systems Semiconductor Equipment GmbH, or DMS, for $31.6 million. DMS is a German-based provider of automated contamination control solutions, or CCS, for wafer carrier devices and reticle storage targeted at improving yield of semiconductor processes at semiconductor fabrication plants. In August 2015, we acquired

Contact Co., Ltd., or Contact, for $6.8 million, net of cash acquired. Contact is a Japanese-based provider of automated cleaner products for wafer carrier devices used in the global semiconductor markets. This acquisition broadened our CCS product portfolio and added complementary technology capabilities to our CCS business unit.

In the life sciences sample management market, we utilize our core competencies and capabilities in automation and cryogenics to provide comprehensive bio-sample management solutions to a broad range of end markets within the life

sciences industry. Our offerings include automated ultra-cold storage freezers, consumable sample storage containers, instruments which assist in the workflow of sample management, and both on-site and off-site full sample management services. We expect the life sciences sample management market to remain one of our principal markets for our product and service offerings and provide favorable opportunities for the growth of our overall business. Over the past several years, we have acquired and developed essential capabilities required to strategically address the sample management needs across multiple end markets within the life sciences industry. In October 2014, we acquired FluidX Ltd., or FluidX, based in Manchester, United Kingdom, for $15.5 million, net of cash acquired. This acquisition added unique and differentiated bio-sample workflow consumables and instruments and a strong revenue stream. On November 30, 2015, we acquired BioStorage Technologies, Inc., or BioStorage, based in Indianapolis, Indiana for a total purchase price of $125.2 million, net of cash acquired. BioStorage is a global provider of a comprehensive range of sample management services, including outsourced storage, cold chain logistics and relocation, bio-processing solutions, project management, consulting and related technology solutions that provide sample intelligence, virtualization, and visualization capabilities through an informatics platform. These acquisitions provided us with the capabilities to support customers with an integrated, comprehensive set of sample management products, services and solutions.

Since entering the life sciences industry, we have also strengthened and broadened our product portfolio and market reach by investing in internal product development. During fiscal years 2016, 2015 and 2014, more than 25% of our research and development spending was focused on innovating and advancing solutions in the life sciences sample management market. In fiscal year 2014, we installed our first system from the TwinBank platform, an automated sample management system developed internally, with a modular architecture designed for high reliability and maximum flexibility. In fiscal year 2016, we commercialized the internally developed Biostore III Cryo, an automated system which incorporates sample retrieval, archiving, monitoring, tracking, inventory control, and related enterprise systems connectivity with the industry’s leading cryogenic sample storage freezers. We expect to continue investing in research and development and making strategic acquisitions with the objective of expanding our offerings in the life sciences sample management market.

During fiscal year 2014, we determined that the Granville-Phillips business was not consistent with our strategy to expand our leadership positions in our core semiconductor and life science sample management businesses. As a result, in May 2015, we sold our Granville-Phillips business unit to MKS Instruments, Inc. for $87.0 million in cash. The Granville-Phillips business is a provider of gas analysis and vacuum measurement devices used primarily in the semiconductor and adjacent industrial manufacturing markets. We recorded a pre-tax gain of $56.8 million and an after-tax gain of $26.9 million as a result of this transaction. The tax charge of $29.9 million on the gain was substantially non-cash as it was offset by our prior net operating losses in the United States. Our historical financial statements have been revised to present the operating results of the Granville-Phillips business as a discontinued operation.

Segments Realignment

Prior to fiscal year 2016, we had three operating and reportable segments that consisted of Brooks Product Solutions, Brooks Global Services and Brooks Life Science Systems. During fiscal year 2016, we reorganized our reporting structure into two operating and reportable segments consisting of: (i) Brooks Semiconductor Solutions Group; and (ii) Brooks Life Science Systems. Subsequently, we have reported financial results for fiscal years 2016, 2015 and 2014 based on the revised segment structure. The change in segments was a result of restructuring actions initiated during fiscal year 2016 to streamline business operations to improve profitability and competitiveness and reflects a change in the manner in which our chief operating decision maker reviews information to assess our performance and make decisions about resource allocation. As part of these actions, we transitioned to a new internal management structure whereby the operating management responsible for Brooks Product Solutions and Brooks Global Services operating segments was brought under common leadership in the newly formed Brooks Semiconductor Solutions Group segment. The restructuring actions were completed during fiscal year 2016. Our prior period reportable segment information has been reclassified to reflect the current segment structure and conform to the current period presentation.

The Brooks Semiconductor Solutions Group segment provides a variety of products, services and solutions that enable improved throughput and yield in controlled operating environments, as well as an extensive range of support services. The products include atmospheric and vacuum robots, robotic modules and tool automation systems that provide precision handling and clean wafer environments, as well as cryogenic pumps and compressors that provide vacuum pumping and thermal management solutions used to create and control critical process vacuum applications. The support services include repair services, diagnostic support services, and installation services in support of the products, which enable our customers to maximize process tool uptime and productivity. This segment also provides end-user customers with spare parts and productivity enhancement upgrades to maximize tool productivity.
The Brooks Life Science Systems segment provides automated cold sample management systems for compound and biological sample storage, equipment for sample preparation and handling, consumables, and parts and support services to a wide range of life science customers including pharmaceutical companies, biotechnology companies, biobanks and research institutes. During fiscal year 2016, we completed the acquisition of BioStorage, a global provider of comprehensive

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outsource biological sample service solutions, including collection, transportation, processing, storage, protection, retrieval and disposal of biological samples. These solutions combined with our existing offerings, particularly automation for sample storage and formatting, provide customers with fully integrated sample management cold chain solutions that will help them increase productivity, efficiencies and speed to market. The operating results of BioStorage are included as a part of the Brooks Life Science Systems segment.

For additional information on segment revenues and their operating results, please refer to Note 20, "Segment and Geographic Information" in the Notes to the Consolidated Financial Statements included in Item 8 "Financial Statements and Supplementary Data" of this Form 10-K. Our prior period reportable segment information has been reclassified to reflect the current segment structure and conform to the current period presentation.

Business and Financial Performance

Fiscal Year Ended September 30, 2016 Compared to Fiscal Year Ended September 30, 2015

Revenue- we generated revenue of $560.3 million during fiscal year 2016 compared to $552.7 million during fiscal year 2015. The increase of $7.6 million, or 1.4%, was primarily attributable to higher revenue of $40.0 million generated by our Brooks Life Science Systems segment driven primarily by the acquisition of BioStorage which contributed $44.6 million of revenue during fiscal year 2016. This increase was partially offset by a revenue decline of $32.4 million within our Brooks Semiconductor Solutions Group segment primarily as a result of the downturn in the semiconductor equipment industry which exhibits cyclical characteristics and is subject to periodic expansions and contractions of the semiconductor market, partially offset by growth in demand for contamination control systems. These changes include the adverse impact of changes in foreign currency exchange rates which reduced revenue by $4.4 million during fiscal year 2016 as compared to fiscal year 2015. Additional revenue decline of approximately $3 million during fiscal year 2016 was attributable to the expiration of certain patents that we license to third parties in exchange for agreed upon royalties. We expect the expiration of these patents to adversely affect revenue in future periods by approximately $12 million per year. In addition, we exited a distribution arrangement for atmospheric robots during the fourth quarter of fiscal 2016 that we determined did not support our strategic objectives. The impact of exiting these product lines resulted in an adverse revenue impact of approximately $5 million during fiscal year 2016. We expect an annual revenue reduction of approximately $29 million as a result of such strategic exit.

Operating income- we generated operating income of $4.2 million during fiscal year 2016 compared to an operating income of $16.9 million during fiscal year 2015. The decrease of $12.7 million in our operating income was primarily attributable to higher operating expenses of $21.6 million incurred during fiscal year 2016, partially offset by higher gross profit of $9.0 million generated during the prior year.

Higher gross profit of $9.0 million was attributable primarily to the Brooks Life Science Systems segment, which experienced operation improvements in large stores projects and cost savings from restructuring actions initiated during fiscal year 2016. Additionally, gross profits also increased due to the acquisition of BioStorage which improved segment gross margins by approximately 1.7 percentage points during fiscal year 2016. This growth was partially offset by the adverse impact of changes in foreign currency exchange rates and a lower gross profit in Brooks Semiconductor Solutions Group primarily as a result of lower revenue volume.

Higher operating expenses incurred during fiscal year 2016 were primarily attributable to increased selling, general and administrative expenses of $15.0 million that resulted predominantly from the acquisition of BioStorage during the current fiscal year, as well as higher restructuring charges of $7.3 million for restructuring actions initiated during fiscal year 2016. During fiscal year 2016, we initiated several restructuring actions to streamline our business operations and improve profitability and competitiveness. These actions included a company-wide initiative which resulted in elimination of positions across the Company, including certain senior management positions, as well as initiatives within the Brooks Life Science Systems and Brooks Semiconductor Solutions Group segments that were primarily related to streamlining the segments' management structure, integrating BioStorage, closing the Spokane, Washington facility and consolidating our Jena, Germany repair facility into our Chelmsford, Massachusetts repair operations. These restructuring actions resulted in total charges of $12.0 million during fiscal year 2016 and are expected to generate annual aggregate pre-tax cost savings of approximately $19.3 million.

Net (loss) income- we generated a net loss of $69.5 million during fiscal year 2016 compared to a net income of $14.2 million during fiscal year 2015. The decrease of $83.7 million is primarily attributable to an increase of $72.4 million

in our income tax provision during fiscal year 2016 driven by a change in a valuation allowance against U.S. net deferred tax assets, as well as a decline in our operating income, as discussed above.

Cash Flows and Liquidity- Cash and cash equivalents and marketable securities were $85.1 million and $6.1 million, respectively, at September 30, 2016 as compared to $80.7 million and $133.3 million, respectively, at September 30, 2015. The aggregate decrease of $122.8 million in cash, cash equivalents and marketable securities was primarily attributable to the acquisition of BioStorage for $125.2 million in November 2015. Additional uses of cash in fiscal year 2016 included

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$27.5 million of cash dividends paid to our shareholders and $12.8 million paid for the capital expenditures, partially offset by inflows of $39.5 million of net cash provided by operating activities and $2.8 million of proceeds from sale of the building and the underlying land located in Oberdiessbach, Switzerland.

Fiscal Year Ended September 30, 2015 Compared to Fiscal Year Ended September 30, 2014

Revenue- we generated revenue of $552.7 million during fiscal year 2015 compared to $482.8 million during fiscal year 2014. The increase of $69.9 million, or 14.5%, included the incremental revenue increase of $53.5 million as a result of acquisitions completed during fiscal years 2015 and 2014, as well as organic growth experienced by our Brooks Semiconductor Solutions Group Segment due to increased sales of automation and cryogenic product sets. These increases were partially offset by an organic revenue decline of $10.1 million within our Brooks Life Science Systems segment due to lower sales of large store systems and instruments. These changes include the adverse impact of changes in foreign currency exchange rates which reduced revenue by $9.4 million during fiscal year 2015 as compared to fiscal year 2014.

Operating income (loss)- we generated operating income of $16.9 million during fiscal year 2015 compared to an operating loss of $2.7 million during fiscal year 2014. The increase of $19.6 million in our operating income resulted primarily from higher gross profit of $21.8 million generated during fiscal year 2015 that was partially offset by an increase of $2.2 million in operating expenses during the period then ended. The increase of $21.8 million in gross profit during fiscal year 2015 as compared to fiscal year 2014 was primarily attributable to higher revenue of $64.9 million and improved gross margins within our Brooks Semiconductor Solutions segment as a result of improved sales volume leverage of fixed manufacturing costs and product cost reductions due to efficiency improvement initiatives. These increases were partially offset by a gross margin decline within our Brooks Life Science Systems segment as a result of reduced absorption of fixed manufacturing costs within large store systems due to lower sales volume and an increase in costs associated with relocating operations from Poway, California to a contract manufacturer.

Net income- we generated net income of $14.2 million during fiscal year 2015 compared to $31.4 million during fiscal year 2014. The decrease of $17.1 million is primarily attributable to income from discontinued operations of $30.0 million during fiscal year 2014 which included the gain on sale of the Granville-Phillips business unit. We generated income from continuing operations of $14.2 million during fiscal year 2015 compared to $1.5 million during fiscal year 2014. The increase of $12.7 million is primarily attributable to higher operating income generated during fiscal year 2015, as discussed above.

Cash Flows and Liquidity- Cash, cash equivalents and marketable securities were $214.0 million and $245.5 million, respectively, at September 30, 2015 and 2014. The decrease of $31.4 million in cash, cash equivalents and marketable securities was primarily attributable to the acquisitions of FluidX and Contact in fiscal year 2015 for which we paid $14.5 million, net of cash acquired, and repaid debt of $8.8 million assumed in connection with the acquisition of Contact. Additional uses of cash in fiscal year 2015 included $27.0 million of cash dividends paid to our shareholders and $16.1 million paid for the capital expenditures, including the purchase of the building and the related land at our Chelmsford, Massachusetts facility. These payments were partially offset by inflows of $43.7 million of net cash provided by operating activities.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

The preparation of the Consolidated Financial Statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenue and expenses, and related disclosure of contingent assets and liabilities. On an ongoing basis, we evaluate our estimates, including those related to revenue, intangible assets, goodwill, bad debts, derivative instruments, warranty obligations, inventories, income taxes, pensions and stock-based compensation. We base our estimates on historical experience and various other assumptions that are believed to be reasonable under the circumstances. We evaluate current and anticipated worldwide economic conditions, both in general and specifically in relation to the semiconductor and life science industries, that serve as a basis for making judgments about the carrying values of assets and liabilities that are not readily determinable based on information from other sources. Actual results may differ from these estimates under different assumptions or conditions that could have a material impact on our financial condition and results of operations.

We believe that the assumptions and estimates associated with the following critical accounting policies involve significant judgment and thus have the most significant potential impact on our Consolidated Financial Statements.

Revenue Recognition

We generate revenue from the sale of products and services. A description of our revenue recognition policies is included in the Note 2, "Summary of Significant Accounting Policies" in the Notes to the Consolidated Financial Statements included in Item 8 "Financial Statements and Supplementary Data" of this Form 10-K.

Although most of our sales agreements contain standard terms and conditions, certain agreements contain multiple elements or non-standard terms and conditions. We exercise judgment in interpreting the commercial terms and determining

when all revenue recognition criteria have been met to ensure revenue was recognized in the appropriate accounting period. Moreover, judgment is required to properly identify the units of accounting in multiple element arrangements and determine the manner in which revenue should be allocated among separate units of accounting. We exercise judgment in determining whether the deliverables specified in these arrangements should be treated as separate units of accounting for revenue recognition purposes, and, if so, how the consideration should be allocated among the elements and when revenue for each element should be recognized. We allocate revenue to each element in the contractual arrangement based on the selling price hierarchy that may require us to estimate the selling price of certain deliverables that are not sold separately or where third party evidence of pricing is not observable. Our estimate of selling price impacts the amount and timing of revenue recognized in multiple element arrangements. While changes in the allocation of the estimated sales price between the units of accounting will not affect the amount of total revenue recognized for a particular sales arrangement, any material changes in these allocations could impact the timing of revenue recognition that could have a material effect on our financial condition and results of operations.
We recognize revenue for certain arrangements based on percentage of completion method and develop profit estimates for long-term contracts based on total revenue expected to be generated from the project and total costs anticipated to be incurred. Significant judgment is required in estimating such total costs and measuring the progress of the project completion, as well as whether a loss is expected to be incurred on the contract. We use certain assumptions and develop estimates based on a number of factors, including the degree of required product customization and the customer's existing environment based on installation work, as well as our historical experience, project plans and an assessment of the risks and uncertainties inherent in the contract related to implementation delays or performance issues that may or may not be within our control. We estimate a loss on a contract by comparing total estimated contract revenue to the total estimated contract costs and recognize a loss during the period in which it becomes probable and can be reasonably estimated. We review profit estimates for long-term contracts during each reporting period and revise them based on changes in circumstances.
If our judgment regarding revenue recognition proves incorrect, our revenue in particular periods may be adversely affected that could have a material impact on our financial condition and results of operations.
Business Combinations
We account for business acquisitions using the purchase method of accounting, in accordance with which assets acquired and liabilities assumed are recorded at their respective fair values at the acquisition date. The fair value of the consideration paid, including contingent consideration, is assigned to the assets acquired and liabilities assumed based on their respective fair values. Goodwill represents the excess of the purchase price over the estimated fair values of the assets acquired and liabilities assumed.
Significant judgment is used in determining fair values of assets acquired and liabilities assumed, as well as intangibles and their estimated useful lives. Fair value and useful life determinations are based on, among other factors, estimates of future expected cash flows, royalty cost savings and appropriate discount rates used in computing present values. These judgments may materially impact the estimates used in allocating acquisition date fair values to assets acquired and liabilities assumed, as well as our current and future operating results. Actual results may vary from these estimates that may result in adjustments to goodwill and acquisition date fair values of assets and liabilities during a measurement period or upon a final determination of asset and liability fair values, whichever occurs first. Adjustments to fair values of assets and liabilities made after the end of the measurement period are recorded within our operating results.
Changes in the fair value of a contingent consideration resulting from a change in the underlying inputs are recognized in results of operations until the arrangement is settled.
Intangible Assets, Goodwill and Other Long-Lived Assets
We have identified intangible assets and generated significant goodwill as a result of our acquisitions. Intangible assets other than goodwill are valued based on estimated future cash flows and amortized over their estimated useful lives. Goodwill is tested for impairment annually or more often if impairment indicators are present, at the reporting unit level. Intangible assets other than goodwill and long-lived assets are subject to impairment testing if events and circumstances indicate that the carrying amount of an asset or a group of assets may not be recoverable.

The goodwill impairment test is performed at the reporting unit level. A reporting unit is either an operating segment or one level below it, which is referred to as a "component." The level at which the impairment test is performed requires an assessment of whether the operations below an operating segment constitute a self-sustaining business, in which case testing is generally performed at this level.

Goodwill impairment testing involves a two-step process. We first compare the fair value of each reporting unit to its respective carrying amount, including goodwill, to assess whether potential goodwill impairment exists. If the fair value of the reporting unit exceeds its carrying amount, goodwill of the reporting unit is not considered impaired. If the reporting

unit's carrying amount exceeds its fair value, we perform the second step of the goodwill impairment test to measure the potential impairment loss amount by comparing the implied fair value of goodwill with its carrying amount. The implied fair value of goodwill is determined by allocating the fair value of the reporting unit to all of its assets and liabilities and assigning the excess amount to goodwill. If the implied fair value of goodwill is less than its carrying amount, an impairment loss is recognized for difference between the carrying amount of goodwill and its implied fair value.

We determine fair values of our reporting units based on an Income Approach in accordance with the Discounted Cash Flow Method, or DCF Method. The DCF Method is based on projected future cash flows and terminal value estimates discounted to their present values. Terminal value represents a present value an investor would pay on the valuation date for the rights to the cash flows of the business for the years subsequent to the discrete cash flow projection period. We consider the DCF Method to be the most appropriate valuation technique since it is based on management's long-term financial projections. Due to the cyclical nature of the semiconductor equipment market, management's projections as of the valuation date are considered more objective since market metrics of peer companies fluctuate during the cycle. In addition, we also compare aggregate values of our net corporate assets and reporting unit fair values to our overall market capitalization and use certain market-based valuation techniques to test the reasonableness of the reporting unit fair values determined in accordance with the DCF Method.

The observable inputs used in the DCF method include discount rates that are at or above our weighted-average cost of capital. We derive discount rates that are commensurate with the risks and uncertainties inherent in the respective businesses and our internally developed projections of future cash flows.

We completed our annual goodwill impairment test as of April 1, 2016 and determined that no adjustment to goodwill was necessary. Fair values of all of the reporting units, except for the Polycold reporting unit, significantly exceeded their respective carrying values. Fair value of the Polycold reporting unit on a standalone basis exceeded its carrying value by 12%. During the second quarter of 2016, we concluded that recent operating trends and declining forecasts for the Polycold reporting unit represented indicators of potential goodwill impairment. As a result, we performed the first step of the quantitative goodwill impairment test as of February 1, 2016 and determined that the fair value exceeded the carrying value by 18%, and that no goodwill impairment existed. We determined the Polycold reporting unit's fair value based on an Income Approach in accordance with the DCF method. Forecasted sales volumes, product costs and the resulting future cash flows used in the valuation of the Polycold reporting unit are driven by various factors, such as customer demand, macroeconomic environment and competitive dynamics, and may impact fair value of the Polycold reporting unit's goodwill. During the third quarter of fiscal year 2016, we incorporated lower projected future cash flows into the model due to lower forecasted revenue and gross margin in fiscal year 2016 which resulted in a decrease of the excess of Polycold reporting unit's fair value over its carrying value from 18% during the second quarter of fiscal year 2016 to 12% during the third quarter of fiscal year 2016. The estimated fair value of Polycold's reporting unit assumed a taxable transaction. .

Application of the goodwill impairment test requires judgment based on market and operational conditions at the time of the evaluation, including management's best estimates of the reporting unit's future business activity and the related estimates and assumptions of future cash flows from the assets that include the associated goodwill. Different assumptions of forecasted sales volumes, product costs, future cash flows, risk-adjusted weighted average cost of capital discount rate, as well as long-term growth rate projections used in the DCF model could results in different estimates of the Polycold's fair value as of each testing date. A hypothetical increase of 100 basis points in Polycold's risk-adjusted weighted average cost of capital discount rate would result in a decrease of $3.2 million in the reporting unit's fair value. A hypothetical increase of 126 basis points in Polycold's risk-adjusted weighted average cost of capital discount rate would cause Polycold to fail the first step of the goodwill impairment test. Polycold's goodwill carrying amount was $24.0 million as of the date of each goodwill impairment assessment.

Prior to fiscal year 2016, we had six reporting units, including five reporting units that had goodwill. Four reporting units were a part of the Brooks Product Solutions operating segment, and each of the Brooks Global Services segment and Brooks Life Science Systems segment represented a reporting unit. During fiscal year 2016, we reorganized our operating and reportable segments into (i) Brooks Semiconductor Solutions Group, or BSSG; and (ii) Brooks Life Science Systems and realigned our reporting units to reflect the revised reporting structure. The combination of the

Brooks Product Solutions segment and Brooks Global services segment did not have a direct impact on the goodwill at the reporting unit level. As a result of the re-alignment, we had five reporting units, including four reporting units within the Brooks Semiconductor Solutions Group operating segment and one reporting unit which was Brooks Life Science Systems operating segment as of September 30, 2016. The revised reporting unit structure reflects the combination of two previously reporting units identified units, Polycold and CTI Cryogenics, into one reporting unit called BSSG Cryogenics, as a result of the reorganization of our internal management structure and the economic similarities that exist between the two components. Please refer to Note 20, "Segment and Geographic Information" in the Notes to the Consolidated Financial Statements for additional information on the operating and reporting segments realignment. We tested goodwill for impairment before and after the reporting unit aggregation and determined that fair value of each reporting unit individually and in aggregate

exceeded their carrying values. BSSG Cryogenics goodwill carrying amount was $24.0 million, and its fair value significantly exceeded its carrying value as of the date of each goodwill impairment testing.

We are required to test long-lived assets, other than goodwill, for impairment when impairment indicators are present. For purposes of this test, long-lived assets are grouped with other assets and liabilities at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities. If we determine that indicators of potential impairment are present, we assess the recoverability of long-lived asset group by comparing its undiscounted future cash flows to its carrying value. If the carrying value of the long-lived asset group exceeds its future cash flows, we determine fair values of the individual net assets within the long-lived asset group to assess potential impairment. If the aggregate fair values of the individual net assets of the group are less than their carrying values, an impairment loss is recognized for an amount in excess of the group's aggregate carrying value over its fair value. The loss is allocated to the assets within the group based on their relative carrying values, with no asset reduced below its fair value. We did not test our long-lived assets for impairment during fiscal years 2016, 2015 and 2014 since no events indicating impairment occurred during the periods then ended.

Accounts Receivable

Trade accounts receivable do not bear interest and are recorded at the invoiced amount. We maintain an allowance for doubtful accounts representing our best estimate of probable credit losses related to our existing accounts receivable and their net realizable value. We adjust our estimates of the receivables' recoverability based on financial conditions of our customers. If financial conditions of our customers deteriorate reducing their ability to make payments, we increase the allowance for doubtful accounts and record a corresponding charge to operations. We do not have any off-balance-sheet credit exposure related to our customers.

Derivative Financial Instruments

We record all derivative instruments as assets or liabilities at their fair value determined based on the instruments' estimated future cash flows. Subsequent changes in a derivative's fair value are recognized in income, unless specific hedge accounting criteria are met. Changes in the fair value of a derivative that is highly effective and designated as a cash flow hedge are recognized in accumulated other comprehensive income until the forecasted transaction occurs or it becomes probable that the forecasted transaction will not occur. We perform an assessment at the inception of the hedge and during each subsequent reporting period to determine whether our derivatives are highly effective in offsetting changes in the values of the hedged items. Any changes in the fair value of a derivative resulting from hedge ineffectiveness are immediately recognized as income or expense.

Warranty

We record a provision for the estimated costs of product warranties at the time revenue is recognized. While we engage in extensive product quality programs and processes, including actively monitoring and evaluating the quality of our component suppliers, our warranty obligations are affected by product failure rates, material usage and service delivery costs incurred in correcting a product failure. We adjust our warranty obligations based on actual product failure rates, material usage or service delivery costs, which may result in revisions to the estimated warranty liabilities and additional benefits or charges to our operating results.

Inventory

We state our inventory at the lower of cost or market amount and make adjustments to reduce the inventory cost to its net realizable value by providing estimated reserves for obsolete or unmarketable inventory. The reserves are established for the difference between the cost of inventory and its estimated market value based on assumptions related to future demand and market conditions. We fully reserve for inventories and non-cancelable purchase orders for inventory deemed obsolete. We perform periodic reviews of our inventory to identify excess inventories on hand. We compare on-hand inventory balances to anticipated inventory usage based on our recent historical activity and anticipated or forecasted demand for our products developed through our planning systems and sales and marketing inputs.

We adjust the reserves for obsolete or unmarketable inventory and record additional inventory write downs based on unfavorable changes in estimated customer demand or actual market conditions that may differ from management projections.

Deferred Income Taxes

We record a valuation allowance to reduce our deferred tax assets to the amount that is more likely than not will be realized. We consider recent historical income, estimated future taxable income, carry-forward periods of tax attributes, the volatility of the semiconductor industry and ongoing tax planning strategies in assessing the need for the valuation allowance. We maintain a valuation allowance against our U.S. net deferred tax assets and in certain foreign jurisdictions. During fiscal year 2016, we recorded an additional valuation allowance of $79.3 million against our U.S. net deferred tax

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assets. We evaluate the realizability of our deferred tax assets by tax-paying component and assess the need for a valuation allowance on an annual and quarterly basis. We evaluate the profitability of each tax-paying component on a historic cumulative basis and on a forward looking basis in the course of performing this analysis. We evaluated all positive and negative evidence and concluded it was appropriate to establish a full valuation allowance against U.S. net deferred tax assets during fiscal year 2016. We will continue to maintain a full valuation allowance on our U.S. deferred tax assets until there is sufficient positive evidence to support the reversal of all or some portion of these allowances.

Pension Plans

We sponsor defined benefit pension plans in Switzerland and Taiwan. The costs and obligations of these arrangements are calculated based on certain assumptions related to estimated benefits that employees earn while working, the amount of which cannot be completely determined until the benefit payments cease. Key assumptions used in accounting for these employee benefit plans include the discount rate, expected return on plan assets and rate of increase in employee compensation levels. Assumptions are determined based on Company data and appropriate market indicators in consultation with third-party actuaries, and are evaluated each year as of the plans’ measurement date. A change in any of our assumptions would have an effect on net periodic pension costs and the unfunded benefit obligation.

Stock-Based Compensation

We measure stock-based compensation cost at fair value on the grant date and recognize the expense over the service period for the awards expected to vest. The fair value of restricted stock units is determined based on the number of shares granted and the closing price of our common stock quoted on NASDAQ on the date of grant.

We recognize stock-based compensation expense on a straight-line basis, net of estimated forfeitures, over the requisite service period. We recognize benefits from stock-based compensation in equity using the with-and-without approach for the utilization of tax attributes. We make estimates of stock award forfeitures and a number of awards expected to vest which requires significant judgment. We consider many factors in developing forfeiture estimates, including award types, employee classes and historical experience. We assess the likelihood of achieving the performance goals for stock-based awards that vest upon the satisfaction of these goals. Our current estimates may differ from actual results and future changes in estimates.

Recently Issued Accounting Pronouncements

For a summary of recently issued accounting pronouncements applicable to our Consolidated Financial Statements which is incorporated here by reference, please refer to Note 2, "Summary of Significant Accounting Policies" in the Notes to the Consolidated Financial Statements included in Item 8 "Financial Statements and Supplementary Data" of this Form 10-K.

RESULTS OF OPERATIONS

Fiscal Year Ended September 30, 2016 Compared to Fiscal Year Ended September 30, 2015

Revenue

We reported revenue of $560.3 million for fiscal year 2016 compared to $552.7 million for fiscal year 2015, an increase of $7.6 million, or 1.4%. We reported revenue growth in the Brooks Life Science Systems segment and lower revenue in the Brooks Semiconductor Solutions Group segment. The impact of changes in foreign currency exchange rates adversely affected revenue by $4.4 million during fiscal year 2016 compared to fiscal year 2015 as a result of strengthening of the U.S. dollar relative to other currencies in which we conduct our business.

Our Brooks Semiconductor Solutions Group segment reported revenue of $452.2 million for fiscal year 2016 compared to $484.6 million for fiscal year 2015. The decrease of $32.4 million during fiscal year 2016 compared to fiscal year 2015 reflects lower sales of robotic automation of $18.2 million, cryogenic pumps of $16.9 million, as well as services and repairs of $4.9 million, partially offset by an increase in revenue of $7.6 million in contamination controls systems. These declines include the unfavorable impact of changes in foreign currency exchange rates of $1.5 million during fiscal year 2016. These declines in revenue are a result of a downturn in the semiconductor industry, which is cyclical.

Additional robotic automation revenue decline of approximately $3 million during fiscal year 2016 was attributable to the expiration of certain patents that we license to third parties in exchange for agreed upon royalties. Royalty income

was $8.7 million in fiscal year 2016, as compared to $11.6 million and $9.8 million, respectively, in fiscal years 2015 and 2014. We expect the expiration of these patents to adversely affect revenue in future periods by approximately $12 million per year. In addition, we exited a distribution arrangement for atmospheric robots during the fourth quarter of fiscal 2016 which we determined did not support our strategic objectives. The impact of exiting these product lines resulted in an adverse

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revenue impact of approximately $5 million during fiscal year 2016. We expect an annual revenue reduction of approximately $29 million as a result of such strategic exit.

Our Brooks Life Science Systems segment reported revenue of $108.1 million for fiscal year 2016 compared to $68.1 million for fiscal year 2015. The increase of $40.0 million was driven primarily by the acquisition of BioStorage, which contributed $44.6 million of revenue in fiscal year 2016. Changes in foreign currency exchange rates had a negative impact of $2.9 million on revenue of the segment for fiscal year 2016.

We will continue to seek opportunities to expand our market share in the semiconductor and adjacent technology markets served by our Brooks Semiconductor Solutions Group segment. These markets are cyclical, and often fluctuate significantly from quarter to quarter. Demand for our Brooks Semiconductor Solution Group products is affected by these cycles. We anticipate continued growth in revenue from our Brooks Life Science Systems segment through our internally-developed products and services, including our Twin-bank and Biostore III automated sample management systems, and through our acquired businesses.

Revenue generated outside the United States amounted to $352.0 million, or 63% of total revenue, for fiscal year 2016 compared to $353.6 million, or 63% of total revenue, for fiscal year 2015.

Gross Margin

We reported gross margins of 35.4% for fiscal year 2016 compared to 34.2% for fiscal year 2015. The increase was attributable to a 10.1 percentage point improvement in the gross margin of the Brooks Life Science Systems segment, partially offset by a 0.2 percentage point decline in the gross margin of the Brooks Semiconductor Solutions Group segment. Cost of revenue for fiscal year 2016 included $4.2 million of charges for amortization related to completed technology as compared to $5.2 million incurred during fiscal year 2015. Additionally, cost of revenue for fiscal year 2016 also included $0.6 million of charges related to the sale of inventory obtained in acquisitions to which a step-up in value was applied in purchase accounting, compared to $1.5 million for fiscal year 2015.

Our Brooks Semiconductor Solutions Group segment reported a gross margin of 35.2% for fiscal year 2016 compared to 35.4% for fiscal year 2015. Product margins increased 0.6 percentage points during fiscal year 2016 as compared to fiscal year 2015, while service margins declined 3.7 percentage points during the same periods. Product margins benefited from favorable revenue mix, reduced material and manufacturing costs, and lower warranty expense. The product margin benefit was partially offset by lower absorption of fixed costs due to a decline in revenue volume and higher inventory charges related to excess and obsolescence. Service margins declined due to lower absorption of fixed costs due to a decline in revenue volume, higher material costs, and the impact of changes in foreign currency exchange rates. The change in the revenue mix between products and services was not significant to segment margins. Cost of revenue during fiscal year 2016 included $2.7 million of amortization related to completed technology compared to $3.6 million during fiscal year 2015. During each fiscal year 2016 and 2015, cost of revenue included $0.6 million of charges related to the sale of inventories obtained in acquisitions to which a step-up in value was applied in purchase accounting.

Our Brooks Life Science Systems segment reported a gross margin of 36.1% for fiscal year 2016 compared to 26.0% for fiscal year 2015. The increase in gross margins is primarily attributable to operational improvements in large stores projects, cost savings as a result of recent restructuring actions, lower excess and obsolescence costs, as well as the acquisition of BioStorage which improved segment gross margins by approximately 1.7 percentage points during fiscal year 2016. These increases were partially offset by the unfavorable impact of changes in foreign currency exchange rates during the period. Cost of revenue included $1.5 million of amortization related to completed technology in fiscal year 2016 as compared to $1.6 million in fiscal year 2015. Additionally, cost of revenue for fiscal year 2015 included $1.0 million of charges related to the sale of inventory obtained in acquisitions to which a step-up in value was applied in purchase accounting.

During fiscal year 2016, we initiated a restructuring action to streamline our operating structure and reduce our footprint as part of a company-wide initiative to improve profitability and competitiveness, as described in the "Restructuring and Other Charges" section below. When the savings fully take effect, this action is expected to reduce cost of revenue by approximately $4.4 million on an annual pretax basis. We began realizing a portion of the cost savings in fiscal year 2016 that amounted to approximately $1.9 million. Based on annualized revenue levels from fiscal year 2016, these savings are expected to improve gross margins by approximately 0.8 percentage points once

the full savings are realized.

Research and Development

Research and development expenses were $51.5 million in fiscal year 2016 compared to $52.2 million in fiscal year 2015. The decrease of $0.7 million reflects an expense reduction of $3.6 million within the Brooks Life Sciences System segment, partially offset by higher expenses of $2.9 million incurred within Brooks Semiconductor Solutions Group segment. The reduction of expenses within the Brooks Life Sciences System segment is primarily attributable to the impact

of restructuring actions initiated during fiscal year 2015 that resulted in the closure of the Poway, California facility, reductions in workforce and outsourcing manufacturing operations to a third-party contract manufacturer. The increase in expenses within the Brooks Semiconductor Solutions Group segment is primarily attributable to the acquisition of Contact, which resulted in incremental expenses of $1.0 million, higher outside services spending, as well as ongoing research and development initiatives related to developing new products and enhancing performance of our existing products.

During fiscal year 2016, we initiated a restructuring action to streamline our operating structure as part of a company-wide initiative to improve profitability and competitiveness, as described in the "Restructuring and Other Charges" section below. This action is expected to reduce research and development expenses by approximately $2.7 million on an annual pretax cost basis once the full savings are realized. We began realizing a portion of the cost savings in fiscal year 2016 that amounted to $1.1 million during the period then ended.

Selling, General and Administrative

Selling, general and administrative expenses were $130.3 million in fiscal year 2016 compared to $115.3 million in fiscal year 2015. Acquisitions made since the beginning of fiscal year 2015 drove an increase of $10.4 million in selling, general and administrative expense and $3.1 million in amortization expense as compared to fiscal year 2015. Merger costs increased to $3.4 million during fiscal year 2016, as compared to $0.8 million in fiscal year 2015 primarily as a result of the acquisition of BioStorage. Additional increases in selling, general and administrative expense included higher professional service fees of $1.5 million as compared to prior fiscal year, as well as a loan receivable impairment charge of $0.8 million recognized during fiscal year 2016. These increases were partially offset by a reduction in stock-based compensation expense of $0.8 million which was primarily attributable to the award forfeitures related to employees that were terminated as a result of the restructuring actions initiated during fiscal year 2016.

Amortization expense for fiscal year 2016 was related primarily to customer relationship intangibles and amounted to $10.8 million compared to $7.7 million in fiscal year 2015.

During fiscal year 2016, we initiated a restructuring action to streamline our operating structure and reduce our footprint as part of a company-wide initiative to improve profitability and competitiveness, as described in the "Restructuring and Other Charges" section below. This action is expected to reduce selling, general and administrative expenses by approximately $6.2 million on an annual pretax cost basis once the full savings are realized. We began realizing a portion of the cost savings beginning in fiscal year 2016 which amounted to $2.1 million during the period then ended.

Restructuring and Other Charges

We recorded restructuring charges of $12.0 million during fiscal year 2016 as compared to $4.7 million during fiscal year 2015. The increase of $7.3 million was primarily attributable to higher costs incurred as a result of the restructuring actions initiated during fiscal year 2016, partially offset by lower facility-related costs of $1.2 million.

Restructuring Charges Incurred During Fiscal Year Ended September 30, 2016

Restructuring charges of $12.0 million incurred during fiscal year 2016 were related to severance costs which consisted of $10.8 million of charges related to restructuring actions initiated during fiscal year 2016 and $1.3 million related to restructuring actions initiated in prior periods.

Restructuring Actions Initiated During Fiscal Year Ended September 30, 2016

Restructuring actions initiated during fiscal year 2016 resulted in $10.8 million of costs incurred during fiscal year 2016 which were comprised primarily of $3.1 million of costs attributable to the Brooks Life Science Systems segment, $1.8 million of costs attributable to the Brooks Semiconductor Solutions Group segment and $5.8 million of costs related to the company-wide restructuring action initiated during fiscal year 2016.

During fiscal year 2016, we initiated a restructuring action to streamline business operations as part of a company-wide initiative to improve profitability and competitiveness. The action primarily includes the elimination of positions across the Company, including certain senior management positions, and is expected to benefit all segments. Total severance costs incurred in connection with this action during fiscal year 2016 were $5.8 million. The action is expected to result in approximately $13.2 million in annual pre-tax cost savings, including $4.4 million of cost of revenue reductions, $2.7 million of research and development cost reductions, as well as $6.2 million of selling,

general and administrative expense reductions. This action was substantially completed by September 30, 2016 and is not expected to result in any additional restructuring charges in future periods. We began realizing a portion of the cost savings during fiscal year 2016 which amounted to approximately $5.1 million. Accrued restructuring costs of $3.4 million at September 30, 2016 from this action are expected to be paid within the next twelve months with cash flows generated from operating activities.

Restructuring initiatives within the Brooks Life Science Systems segment are primarily related to streamlining the segment's management structure, integrating acquisitions and improving profitability. During fiscal year 2016, we initiated several actions within the Brooks Life Science Systems segment related to integrating BioStorage, streamlining

management structure and closing the segment's Spokane, Washington facility in March 2016 and Oberdiessbach, Switzerland facility in July 2016 upon selling the building and temporarily leasing a smaller size office space until December 2016. This restructuring initiative within the Brooks Life Science Systems segment may include additional actions in future periods subject to discretion and approval by the Company management. Total severance costs incurred in connection with these actions during fiscal year 2016 were $3.1 million. These actions are expected to result in approximately $3.6 million in annual pre-tax cost savings, including $1.0 million of cost of revenue reductions, as well as $2.6 million of selling, general and administrative expense reductions. Accrued restructuring costs from these actions of $0.5 million at September 30, 2016 from this action are expected to be paid within the next twelve months with cash flows generated from operating activities.

During fiscal year 2016, we initiated a restructuring action within the Brooks Semiconductor Solutions Group segment to consolidate our Jena, Germany repair facility into our Chelmsford, Massachusetts repair operation as a part of our strategy to reduce our global footprint and streamline our cost structure. The restructuring plan includes the elimination of 44 positions for employees within the service and administrative functions that are covered by a collective bargaining agreement with a German labor union which imposed a legal restriction on our ability to complete the restructuring plan. During fiscal year 2016, we entered into the negotiations with the Workers Council concerning the amount of involuntary termination benefits payable to employees impacted by this restructuring action, timing of these payments and the related terms of this arrangement. As of September 30, 2016, we reached an agreement with the Workers Council regarding the terms of this action and we communicated termination benefit amounts to the majority of employees that will be impacted by the restructuring action along with their expected termination dates. Total severance costs expected to be incurred in connection with this action are $1.8 million which were recognized during fiscal year 2016. The action is expected to result in approximately $1.6 million in annual pre-tax cost savings, including $1.1 million of cost of revenue reductions and $0.5 million of selling, general and administrative expense reductions. The restructuring action is expected to be completed by March 31, 2017, and we expect to start realizing cost savings beginning with the second quarter of fiscal year 2017. Accrued restructuring costs of $1.8 million at September 30, 2016 from this action are expected to be paid within the next twelve months with cash flows generated from operating activities.

Restructuring Actions Initiated Prior to Fiscal Year Ended September 30, 2016

Restructuring actions initiated prior to fiscal year 2016 resulted in $1.2 million of costs attributable to the Brooks Semiconductor Solutions segment and less than $0.1 million of costs attributable to the Brooks Life Science Systems segment. These restructuring actions were primarily related to the integration of Contact, the closure and transfer of the Mistelgau, Germany manufacturing operations to a contract manufacturer, as well as reductions in workforce in order to improve our cost structure and profitability. These actions were substantially completed as of September 30, 2016. Accrued restructuring costs from these actions of $0.2 million at September 30, 2016 are expected to be paid within the next twelve months with cash flows generated from operating activities.

Restructuring Charges Incurred During Fiscal Year Ended September 30, 2015

During fiscal year 2015, we incurred restructuring charges of $4.7 million, which included severance costs of $3.4 million and facility-related costs of $1.3 million. Severance costs of $3.4 million consisted of $2.2 million of charges attributable to the Brooks Semiconductor Solutions segment and $1.3 million of costs attributable to the Brooks Life Science Systems segment. Restructuring actions within the Brooks Semiconductor Solutions Group segment were related to the integration of Dynamic Micro Systems Semiconductor Equipment GmbH (the "DMS") with the Company's operations and the transition of manufacturing of certain products from the Company's facility in Mistelgau, Germany to a third party contract manufacturer. Restructuring actions within the Brooks Life Science Systems segment were related to the closure of the Poway, California facility and transition of product sub-assembly manufacturing operations to the third party contract manufacturers. These restructuring plans were substantially completed on December 31, 2015. Liabilities related to restructuring costs from these actions were fully paid as of September 30, 2016. Facility exit costs of $1.3 million attributable to Brooks Semiconductor Solutions Group segment were related to outsourcing manufacturing of certain lines of Polycold cryochillers and compressors within the United States to a third party contract manufacturer. The facility exit costs represented future lease payments and expected operating costs to be paid until the termination of the facility lease. We terminated the lease on October 27, 2015 and

fully paid the related restructuring liability during fiscal year 2016.

Non-Operating (Expenses) Income

Interest Income- Interest income was $0.5 million in fiscal year 2016 as compared to $0.9 million in fiscal year 2015. The decrease of $0.4 million was primarily attributable to a sale of a substantial portion of our marketable securities portfolio during fiscal year 2016 to fund the acquisition of BioStorage.

Other (Expense) Income, net- we recorded other expenses, net of $0.6 million in fiscal year 2016 as compared to other income, net of $0.4 million in fiscal year 2015. The decrease of $1.0 million was primarily attributable to foreign currency exchange losses of $1.9 million recognized during fiscal year 2016 compared to foreign currency exchange gains of $0.5

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million during the prior fiscal year, as well as recognition of an interest penalty income of $0.5 million from a past due royalty payment collected during fiscal year 2015. Additionally, we recognized a gain of $0.1 million on sale of our Oberdiessbach, Switzerland facility in fiscal year 2016 and a loss of $1.9 million in fiscal year 2015 as a result of writing down the facility's assets held for sale to their fair value at September 30, 2015. For additional information on the assets held for sale transaction, please refer to Note 6 "Property, Plant and Equipment" to our Consolidated Financial Statements included under "Item 8. Financial Statements and Supplementary Data" of this Form 10-K.

Income Tax Provision (Benefit)

We recorded an income tax provision of $75.8 million in fiscal year 2016 compared to $3.4 million in fiscal year 2015. The income tax provision of $75.8 million during fiscal year 2016 was primarily driven by the change in a valuation allowance against U.S. net deferred tax assets recognized during the second quarter of the current fiscal year resulting in an additional provision of $79.3 million. Partially offsetting the valuation allowance provision were benefits related to pre-tax losses in the U.S., the reinstatement of the U.S. research and development tax credit retroactive to January 1, 2015, and reductions of reserves for unrecognized tax benefits resulting from the expiration of the statutes of limitations.

We recorded an income tax provision of $3.4 million in fiscal year 2015 which was driven by U.S. global income generated during the current fiscal year and interest related to unrecognized tax benefits. The tax provision includes $1.2 million of tax benefits related to reductions in unrecognized tax benefits resulting from the expiration of the statute of limitations in various foreign jurisdictions and $0.9 million of tax benefits resulting from the reinstatement of the U.S. federal research and development tax credit, retroactive to January 1, 2014.

For additional discussion of the calculation of our tax liabilities, please refer to Note 12 "Income Taxes" to our Consolidated Financial Statements included under "Item 8. Financial Statements and Supplementary Data" of this Form 10-K.

Equity in Earnings of Equity Method Investments

We recorded income of $2.4 million from our equity method investments in fiscal year 2016 as compared to a loss of $0.2 million in fiscal year 2015. The increase was primarily attributable to $2.0 million of higher income generated from our investment in ULVAC Cryogenics, Inc. Additionally, we incurred losses of $0.6 million in fiscal year 2015 from our investment in Yaskawa Brooks Automation, Inc., or YBA, that was liquidated during the fourth quarter of fiscal year 2015.

During the first quarter of fiscal year 2015, we agreed in principle with Yaskawa to dissolve the YBA joint venture. The venture came to closure in March 2015 and was liquidated during the fourth quarter of fiscal year 2015. In connection with the dissolution, YBA assessed the recoverability of assets held by the joint venture and notified its equity partners of the asset impairment. As a result, we recorded an impairment charge of $0.7 million in fiscal year 2015 to write down the carrying value of our equity investment in YBA to its fair value. The impairment charge was included in our proportionate share of losses generated from the joint venture with YBA. We incurred $0.2 million of liquidation costs related to the dissolution of the joint venture.

Fiscal Year Ended September 30, 2015 Compared to Fiscal Year Ended September 30, 2014

Revenue

We reported revenue of $552.7 million for fiscal year 2015 compared to $482.8 million for fiscal year 2014, an increase of $69.9 million, or 14.5%. Our growth was generated by both Brooks Semiconductor Solutions Group and Brooks Life Sciences Systems segments. The impact of changes in foreign currency exchange rates adversely affected revenue by $9.4 million during fiscal year 2015 compared to fiscal year 2014 as a result of strengthening U.S. dollar relative to other currencies in which we conduct our business.

Our Brooks Semiconductor Solutions Group segment reported revenue of $484.6 million for fiscal year 2015 compared to $419.7 million for fiscal year 2014 that resulted in the increase of $64.9 million. The DMS business acquired on April 30, 2014, provided $44.0 million of revenue in fiscal year 2015 as compared to $5.5 million in fiscal year 2014. The remaining growth of $26.4 million was attributable to the organic growth across automation, cryogenic pumps, as well as services and repairs. The revenue increase of $64.9 million includes the unfavorable impact of changes in foreign currency exchange rates of $6.5 million during fiscal year 2015.

Our Brooks Life Science Systems segment reported revenue of $68.1 million for fiscal year 2015 compared to $63.1 million for fiscal year 2014, an increase of $5.0 million, or 7.8%. The impact of changes in foreign currency exchange rates adversely affected revenue by $2.9 million during fiscal year 2015 compared to fiscal year 2014. The revenue increase was primarily attributable to the $15.0 million of revenue generated from the FluidX business acquired on October 1, 2014, and was partially offset by a decline of $10.1 million from the reduction in revenue from large stores systems and instruments.

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Revenue generated outside the United States amounted to $353.6 million, or 63% of total revenue, for fiscal year 2015 and $308.5 million, or 64% of total revenue, for fiscal year 2014.

Gross Margin

We reported gross margins of 34.2% for fiscal year 2015 compared to 34.7% for fiscal year 2014. The decline was attributable to reduced margins of the Brooks Life Science Systems segment, partially offset by improvements in gross margins of the Brooks Semiconductor Solutions Group segment. Cost of revenue for fiscal year 2015 included $5.2 million of amortization related to completed technology as compared to $4.4 million incurred during fiscal year 2014. Additionally, cost of revenue for fiscal year 2015 included $1.5 million of charges related to the sale of inventory obtained in acquisitions to which a step-up in value was applied in purchase accounting, compared to $2.2 million incurred during fiscal year 2014. Cost of revenue in fiscal year 2014 also included $0.4 million of charges related to the impairment of completed technology and $0.3 million of inventory write downs related to restructuring programs.

Our Brooks Semiconductor Solutions Group segment reported a gross margin of 35.4% for fiscal year 2015 compared to 34.3% for fiscal year 2014. The increase was primarily attributable to a increased leverage of fixed manufacturing costs due to higher revenue volume, reduced product costs achieved from sourcing and value engineering initiatives, as well as improved utilization of our service organization. The increase was partially offset by costs incurred due to transitioning a product line to contract manufacturing, an increase in warranty costs, as well as the unfavorable impact of changes in foreign currency exchange rates during this period. Cost of revenue in fiscal year 2015 included $3.6 million of amortization related to completed technology and $0.6 million of charges in fiscal year related to the sale of inventory obtained in acquisitions to which a step-up in value was applied in purchase accounting. Cost of revenue in fiscal year 2014 included $2.9 million of amortization related to completed technology and $1.9 million of charges related to the sale of inventory obtained in acquisitions to which a step-up in value was applied in purchase accounting. Additionally, cost of revenue in fiscal year 2014 also included $0.1 million of inventory write downs related to restructuring programs.

Our Brooks Life Science Systems segment reported gross margins of 26.0% for fiscal year 2015 compared to 37.1% in the prior year. Approximately nine percentage points of the decline were due to lower gross margins in our systems business with the remainder driven primarily by negative impacts from foreign currency exchange rates. The lower margins in the systems business were primarily driven by less absorption of fixed cost with the lower systems revenue and an increase of cost related to transitioning operations toward contract manufacturing support. In the fourth fiscal quarter of 2015, we discontinued all manufacturing at our Poway, California and Spokane, Washington sites to consolidate our systems operations into the Manchester UK location and to increase contract manufacturing support to the business. Cost of revenue also included $1.6 million of amortization related to completed technology in each of the fiscal years 2015 and 2014. Additionally, cost of revenue in fiscal year 2015 included $1.0 million of charges related to the sale of inventory obtained in acquisitions to which a step-up in value was applied in purchase accounting, compared to $0.4 million of such charges in fiscal year 2014. Cost of revenue in fiscal year 2014 also included $0.4 million of charges related to the impairment of completed technology for the Celigo product line and $0.2 million of inventory write downs related to restructuring programs.

Research and Development

Research and development expenses were $52.2 million in fiscal year 2015 compared to $52.6 million in fiscal year 2014. The decrease of $0.4 million reflects an expense reduction of $1.2 million within the Brooks Life Sciences System segment, partially offset by higher expenses of $0.8 million incurred within the Brooks Semiconductor Solutions Group segment. Acquisitions made since the beginning of fiscal year 2014 drove an increase of $2.4 million in research and development expenses during fiscal year 2015 as compared to fiscal year 2014.

Selling, General and Administrative

Selling, general and administrative expenses were $115.3 million in fiscal year 2015 compared to $111.1 million in fiscal year 2014. Business acquisitions made since fiscal year 2014 drove an increase in amortization of $1.5 million and $6.3 million of additional selling, general and administrative spending. Amortization expense was related primarily to customer relationships and amounted to $7.7 million in fiscal year 2015 compared to $6.2 million in fiscal year 2014. Partially offsetting these increases was a decrease of $1.1 million in compensation and

employee-related costs and a reduction of $2.6 million related to a loan receivable impairment charge recognized in fiscal year 2014. Selling, general and administrative expenses included merger costs of $0.7 million in each fiscal year.

During fiscal 2014, we recorded the impairment charge of $2.6 million on the loan receivable after a partner informed us of their intent to secure additional funding through an investment program designed to support early-stage companies being funded by the Commonwealth of Massachusetts. In connection with their efforts to secure additional financing, we agreed to subordinate our first-priority security interest to the new lender and to extend the due date of our loan to September 2019 to coincide with the due date of the new loan. The partner also provided revised assumptions about their

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future cash flows. Based on the information provided by the partner and the subordination of our interest to the new lender, we determined it was probable that we would not recover all amounts due from the loan and recorded an impairment charge of $2.6 million. We determined the fair value of the loan by considering the fair value of the collateral using certain valuation techniques, principally, the discounted cash flow method, and the subordination to the new lender.

Restructuring and Other Charges

We recorded restructuring charges of $4.7 million during fiscal year 2015 as compared to $6.3 million during fiscal year 2014. The decrease of $1.6 million was primarily attributable to lower severance costs of $2.3 million, partially offset by higher facility costs of $0.7 million during fiscal year 2015 as compared to fiscal year 2014.

Restructuring Charges Incurred During Fiscal Year Ended September 30, 2015

During fiscal year 2015, we incurred restructuring charges of $4.7 million, which included severance costs of $3.4 million and facility-related costs of $1.3 million. Severance costs of $3.4 million consisted of $2.2 million of charges attributable to the Brooks Semiconductor Solutions segment and $1.3 million of costs attributable to the Brooks Life Science Systems segment. Restructuring actions within the Brooks Semiconductor Solutions Group segment were related to the integration of Dynamic Micro Systems Semiconductor Equipment GmbH (the "DMS") with our operations and the transition of manufacturing of certain products from our facility in Mistelgau, Germany to a third party contract manufacturer. Restructuring actions within the Brooks Life Science Systems segment were related to the closure of the Poway, California facility and transition of product sub-assembly manufacturing operations to the third party contract manufacturers. Facility exit costs of $1.3 million attributable to Brooks Semiconductor Solutions Group segment were related to outsourcing manufacturing of certain lines of Polycold cryochillers and compressors within the United States to a third party contract manufacturer. The facility exit costs represented future lease payments and expected operating costs to be paid until the termination of the facility lease. We terminated the lease on October 27, 2015 and fully paid the related restructuring liability during fiscal year 2016.

Restructuring Charges Incurred During Fiscal Year Ended September 30, 2014

We recorded restructuring charges of $6.3 million in fiscal year 2014. These costs resulted from the consolidation of certain administrative functions in the Brooks Life Science Systems segment, the on-going transition of manufacturing of certain Polycold products to a third party contract manufacturer and other programs designed to improve our cost structure.

Restructuring charges of $6.3 million recorded in fiscal year 2014 included $5.7 million of severance costs resulting from workforce reductions of approximately 70 positions across all of our reportable segments and our corporate function. Total severance charges related to the outsourcing of the Polycold manufacturing operation, which relate to the Brooks Product Solutions and Brooks Global Services segments, were $1.2 million, of which $0.6 million was recorded in fiscal year 2014. The charge for this program was recorded ratably over the period from notification of the closing in October 2012 to the actual service end date in September 2014.

In addition to the workforce-related charges described above, we recorded $0.6 million of facility-related costs which consisted of lease payments and fixed asset write-offs associated with our efforts to reduce the space used in our operations. In addition, we recorded $0.3 million of inventory write-offs associated primarily with discontinuing certain product lines that were included in cost of revenue in our Consolidated Statements of Operations for the fiscal year 2014.

Non-Operating (Expenses) Income

Interest Expense- Interest expense was $0.4 million and $0.2 million, respectively, in fiscal years 2015 and 2014 and related to the capital lease of the building and the associated land on our Chelmsford, Massachusetts campus. We began leasing the building in fiscal year 2002 and exercised a renewal option in March 2014 to extend the lease term until March 2018 and purchase the building at the end of the lease period. We reached an agreement with the lessor and purchased the building and the related land on September 30, 2015 for a total price of $8.4 million. For additional information on the capital lease arrangement, please refer to Note 22 "Commitments and Contingencies" to our Consolidated Financial Statements included under "Item 8. Financial Statements and Supplementary Data" of this Form 10-K.

Other (Expense) Income, net- Other (expense) income, net was $0.4 million in fiscal year 2015 compared to $0.3 million in fiscal year 2014. The increase of $0.1 million is primarily attributable to currency exchange gains of $0.5 million in fiscal year 2015 compared to losses of $1.2 million in the prior fiscal year that were recognized by our foreign subsidiaries on the balances denominated in U.S dollars. Additionally, we recognized gains of $0.4 million during fiscal year 2015 related to fair value measurement of convertible debt securities. These increases were partially offset by a loss of $1.9 million recognized as a result of writing down the assets held for sale to their fair value at September 30, 2015. For additional information on this transaction, please refer to Note 6 "Property, Plant and Equipment" to our Consolidated Financial Statements included under "Item 8. Financial Statements and Supplementary Data" of this Form 10-K.

Income Tax Provision

We recorded an income tax provision of $3.4 million in fiscal year 2015 compared to a benefit of $2.0 million in fiscal year 2014. The income tax provision of $3.4 million in fiscal year 2015 was driven by U.S. global income generated during fiscal year 2015 and interest related to unrecognized tax benefits. The tax provision also included $1.2 million of tax benefits related to reductions in unrecognized tax benefits resulting from the expiration of the statute of limitations in various foreign jurisdictions and $0.9 million of tax benefits resulting from the reinstatement of the U.S. federal research and development tax credit, retroactive to January 1, 2014.

We recorded an income tax benefit of $2.0 million in fiscal year 2014. The tax benefit was driven by U.S. and German pre-tax losses and $1.2 million of reductions in unrecognized tax benefits resulting from the expiration of the statute of limitations in various foreign jurisdictions. These benefits were partially offset by foreign income taxes and interest related to unrecognized tax benefits.

The net deferred tax assets, including current and noncurrent, amounted to $83.6 million during fiscal year 2015. We recognized deferred tax liabilities of $2.3 million as part of purchase accounting related to the acquisition of two foreign subsidiaries. These liabilities were partially offset by deferred tax benefits of $2.2 million, as well tax return true-ups and tax effects of other comprehensive income adjustments.

Equity in Earnings of Equity Method Investments

We recorded a loss of $0.2 million from our equity method investments in fiscal year 2015 as compared to an income of $1.2 million in fiscal year 2014. The decrease of $1.4 million was driven primarily by lower income of $0.2 million generated from our joint venture with ULVAC Corporation of Japan and higher proportional share of losses of $1.2 million generated by our joint venture with Yaskawa Electric Corporation of Japan and BioCision LLC, a privately-held company based in Larkspur, California, in which we made an equity investment in March 2014.

During the first quarter of fiscal year 2015, we agreed in principle with Yaskawa to dissolve the YBA joint venture. The venture came to closure in March 2015 and was liquidated during the fourth quarter of fiscal year 2015. In connection with the dissolution, YBA assessed the recoverability of assets held by the joint venture and notified its equity partners of the asset impairment. As a result, we recorded an impairment charge of $0.7 million in fiscal year 2015 to write down the carrying value of our equity investment in YBA to its fair value. The impairment charge was included in our proportionate share of losses generated from the joint venture with YBA. We incurred $0.2 million of liquidation costs related to the dissolution of the joint venture.

Income from Discontinued Operations, Net of Tax

During fiscal year 2014, we determined that the Granville-Phillips business was not consistent with our strategy to expand our leadership positions in our core semiconductor and life science sample management market segments. On March 17, 2014, we entered into an agreement to sell the Granville-Phillips business unit to MKS Instruments, Inc. for $87.0 million in cash. The sale was completed on May 30, 2014. We determined that our Granville-Phillips business unit met the criteria to be reported as a discontinued operation. As a result, our historical financial statements have been revised to present the operating results of the Granville-Phillips business as a discontinued operation.

Reported revenue for fiscal year 2014 was reduced by $19.3 million for amounts attributable to Granville-Phillips. The pre-tax and the after-tax income from the discontinued operation for fiscal year 2014 were $61.7 million and $30.0 million, respectively. The results of the discontinued operation for fiscal year 2014 included the pre-tax gain of $56.8 million and the after-tax gain of $26.9 million from the sale of the Granville-Phillips business unit. Tax expense related to the gain on the sale of the business was $29.9 million, representing a tax rate of 52.7%, which is higher than the U.S. statutory rate. The goodwill that was disposed of in this transaction had no basis for tax purposes and as a result, increased the gain recognized for tax purposes. The tax charge was substantially non-cash as it was offset by our net operating losses.

LIQUIDITY AND CAPITAL RESOURCES

A considerable portion of our revenue is dependent on the demand for semiconductor capital equipment which historically has experienced periodic downturns. We believe that we have adequate resources to fund our currently planned working capital and capital expenditure requirements for the next twelve months. The cyclical nature of our served markets and current global economic environment uncertainty make it difficult for us to predict longer-term liquidity requirements with sufficient certainty. We may be unable to obtain any required additional financing on terms favorable to us, if at all. If adequate funds are not available to us on acceptable terms, we may be unable to

successfully develop or enhance products and services, respond to competitive pressure or take advantage of acquisition opportunities, any of which could have a material adverse effect on our business, financial condition and operating results.

Our cash balances are held in numerous locations throughout the world, with substantial majority of those amounts located outside of the U.S. As of September 30, 2016, we had cash and cash equivalents of $85.1 million, of which $60.4 million was held outside of the U.S. If these funds are needed for the U.S. operations, we would be required to accrue for

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tax liabilities to repatriate these funds. However, given the amount of our net operating loss carryovers in the U.S., such repatriation will most likely not result in U.S. cash tax payments within the next twelve months. Our intent is to permanently reinvest these funds outside of the U.S. and our current plans do not demonstrate a need to repatriate these funds for our U.S. operations. We believe that our current cash balance, marketable securities, access to the revolving line of credit, as well as to debt and capital markets along with cash flows from operations will satisfy working capital, financing activities, and capital expenditure requirements for the next twelve months.

As of September 30, 2016, we had approximately $57.8 million available for borrowing under the line of credit. There were no amounts outstanding pursuant to the line of credit as of September 30, 2016. The amount of funds available for borrowing under the line of credit arrangement may fluctuate each period based on our borrowing base availability.

Overview of Cash Flows and Liquidity

Our cash, cash equivalents and marketable securities as of September 30, 2016 and 2015 consist of the following (in thousands):

	Year Ended September 30,	
	2016	2015
Cash and cash equivalents	$85,086	$80,722
Short-term marketable securities	39	70,021
Long-term marketable securities	6,096	63,287
	$91,221	$214,030

Our marketable securities are generally readily convertible to cash without an adverse impact.

Fiscal Year Ended September 30, 2016 Compared to Fiscal Year Ended September 30, 2015

Overview

Cash and cash equivalents and marketable securities were $85.1 million and $6.1 million, respectively, at September 30, 2016 as compared to $80.7 million and $133.3 million, respectively, at September 30, 2015. The aggregate decrease of $122.8 million in cash, cash equivalents and marketable securities was primarily attributable to the acquisition of BioStorage for $125.2 million. Additional uses of cash included $27.5 million of cash dividends paid to our shareholders and $12.8 million paid for the capital expenditures, partially offset by inflows of $39.5 million of net cash provided by operating activities and $2.8 million of proceeds from sale of the building and the underlying land located in Oberdiessbach, Switzerland.

Operating Activities

Cash flows from operating activities can fluctuate significantly from period to period as earnings, working capital needs and the timing of payments for income taxes, restructuring activities and other items impact reported cash flows.

Cash flows from operating activities were $39.5 million for fiscal year 2016 as compared to $43.7 million for fiscal year 2015. The decrease of $4.2 million in cash flows from operating activities was primarily attributable to the following factors:

- We generated earnings of $39.3 million, net of non-cash items, in fiscal year 2016 as compared to $52.8 million fiscal year 2015. Earnings generated in fiscal years 2016 and 2015 consisted of net (loss) income of $(69.5) million and $14.2 million, respectively, adjusted for the impact of non-cash related charges of $108.8 million and $38.6 million, respectively, that consisted primarily of a deferred tax provision, depreciation and amortization, as well as stock-based compensation expense. Please refer to the "Results of Operations" section above for a detailed discussion of our fiscal year 2016 operating results as compared to fiscal year 2015.
- The aggregate of trade accounts receivable, inventories and trade accounts payable provided $1.6 million in operating cash flows in fiscal year 2016 as compared to $2.7 million used in fiscal year 2015. The amount of cash flow generated from or used by the aggregate of trade accounts receivable, inventories and trade accounts payable depends upon how effectively we manage our working capital and can be significantly impacted by the timing of customer billings, cash collections and vendor payments made during the period. Lower inventory levels during fiscal year 2016 compared to 2015 provided a favorable impact of $14.5 million on our cash flows from operating activities, partially

offset by a decrease in accounts payable that resulted in an unfavorable impact of $13.5 million. We maintained lower level of finished goods inventory in fiscal year 2016 due to our focused efforts on improving working capital efficiencies while providing sufficient inventory balance to support current and future sales. A decrease in accounts payable during fiscal year 2016 compared to 2015 was primarily attributable to lower level of inventory purchases, as well as a timing of payments to our suppliers. Additionally, our cash flow from operating activities benefited by $3.3

million due to the favorable impact of the timing of product shipments and the associated billings during the last quarter of each fiscal year, as well as customer cash collections.

•The timing of payments for aggregate of prepaid expenses and other assets collectively with accrued expenses and other liabilities provided $1.9 million in operating cash flows during fiscal year 2016 as compared to $0.4 million in fiscal year 2015. The increase of $1.5 million was primarily attributable to timing of cash payments for restructuring liabilities that provided a favorable impact of $5.1 million, partially offset by a negative impact of $3.7 million related to the timing of bonus and pension benefit payments.

During fiscal year 2016, we initiated a restructuring action to streamline business operations as part of a company-wide initiative to improve profitability and competitiveness. The action primarily includes the elimination of positions across the Company, including certain senior management positions, and is expected to result in approximately $11.4 million of reduced annual cash spending. Accrued restructuring liabilities of $3.4 million at September 30, 2016 are expected to be paid within the next twelve months with cash flows generated from operating activities. Please refer to Note 17, “Restructuring and Other Charges” to our Consolidated Financial Statements included under "Item 8. Financial Statements and Supplementary Data" of this Form 10-K, as well as "Restructuring and Other Charges" section above for further information on this action.

•The timing of customer billings and the associated changes in deferred revenue which used $3.3 million in operating cash flows in fiscal year 2016 as compared to $6.8 million in fiscal year 2015. The favorable impact of $3.5 million on our cash flows from operating activities was primarily attributable to the timing of milestone billings and the amount of revenue recognized on percentage of completion type contracts.

Investing Activities

Cash flows from investing activities consist primarily of cash used for acquisitions, capital expenditures and purchases of marketable securities, as well as cash proceeds generated from sales and maturities of marketable securities.

Cash used in investing activities was $10.9 million in fiscal year 2016 as compared to $17.6 million in fiscal year 2015. Cash used in investing activities of $10.9 million in fiscal year 2016 included primarily $125.2 million for the acquisition of BioStorage, $12.8 million of capital expenditures and disbursement of $1.8 million for a loan provided to BioCision. These uses of cash were partially offset by $126.5 million related to net proceeds from sales and maturities of marketable securities that were used primarily for the acquisition of BioStorage. For additional information on this arrangement, please refer to Note 4 "Acquisitions" to our Consolidated Financial Statements included under "Item 8. Financial Statements and Supplementary Data" of this Form 10-K.

Cash used in investing activities was $17.6 million in fiscal year 2015 and included primarily $14.5 million for the acquisition of FluidX, Contact and certain assets and liabilities of YBA, $16.1 million of capital expenditures, including the purchase of the building and the related land in Chelmsford, Massachusetts for $8.4 million, as well as $5.5 million paid for certain cost method investments and BioCision convertible debt securities. These uses of cash were partially offset by $16.7 million related to net proceeds from sales and maturities of marketable securities. For additional information on the acquisitions made in fiscal year 2015, please refer to Note 4 "Acquisitions" to our Consolidated Financial Statements included under "Item 8. Financial Statements and Supplementary Data" of this Form 10-K.

Capital expenditures are made primarily for increasing capacity, replacing equipment, supporting new product development and improving information technology infrastructure. Capital expenditures were $12.8 million during fiscal year 2016 compared to $16.1 million during fiscal year 2015. The decrease of $3.3 million was primarily attributable to the purchase of the building and the related land for $8.4 million during fiscal year 2015, partially offset by increased capital expenditures of $4.2 million due to the acquisition of BioStorage and investment in its capital infrastructure.

On November 28, 2016, we acquired 100% of the equity of Cool Lab, LLC, or Cool Lab, from BioCision, LLC, or BioCision. Cool Lab, a newly established subsidiary of BioCision, contains certain assets and liabilities related to cell cryopreservation products and solutions. These offerings address and assist in managing the temperature variability of therapeutics, biological samples, and related biomaterials. We have held equity ownership interest in BioCision since March of 2014, and convertible debt securities with warrants acquired in December of 2014 and February of 2015. We purchased Cool Lab in exchange for approximately $5 million in net cash subject to customary working capital

adjustments along with non-cash consideration, which included the redemption and repurchase of the original equity ownership interest in BioCision, the cancellation of both the convertible debt securities with warrants and previously issued term notes with the related interest receivable. The aforementioned non-cash consideration had a total carrying value of $9.1 million as of September 30, 2016.

Financing Activities

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Cash used in financing activities was $26.0 million in fiscal year 2016 compared to $34.0 million in fiscal year 2015. Cash used in financing activities included $27.5 million and $27.0 million, respectively, of cash dividend payments made during fiscal years 2016 and 2015, as well as $8.8 million of debt repayment assumed in connection with the Contact acquisition during fiscal year 2015.

Fiscal Year Ended September 30, 2015 Compared to Fiscal Year Ended September 30, 2014

Overview

Cash and cash equivalents were $80.7 million and $94.1 million at September 30, 2015 and 2014, respectively. The decrease of $13.4 million in cash and cash equivalents was primarily attributable to the acquisitions of FluidX and Contact for which we paid $14.5 million, net of cash acquired, and repaid debt of $8.8 million assumed in connection with the acquisition of Contact. Additional uses of cash included $27.0 million of cash dividends paid to our shareholders, $16.1 million paid for the capital expenditures, including the purchase of the building and the related land, as well as $5.5 million paid for certain cost method investments and BioCision convertible debt securities. These payments were partially offset by inflows of $16.7 million related to net proceeds from sales and maturities of marketable securities and $43.7 million of net cash provided by operating activities.

Operating Activities

Cash flows from operating activities were $43.7 million for fiscal year 2015 as compared to $53.8 million for fiscal year 2014. The decrease of $10.1 million in cash flows from operating activities was primarily attributable to a reduction of $12.5 million in cash flows from working capital related items and a decrease of $12.7 million in deferred revenue. These decreases were partially offset by higher earnings of $13.1 million generated in fiscal year 2015 compared to fiscal year 2014 and an increase of $2.0 million in cash flows due to the timing of payments related to prepaid and accrued expenses.

The key drivers associated with a fluctuation in cash flows from operating activities in fiscal year 2015 compared to fiscal year 2014 are as follows:

•The aggregate of trade accounts receivable, inventories and trade accounts payable used $2.7 million in operating cash flows in fiscal year 2015 as compared to $9.8 million provided in fiscal year 2014. The amount of cash flow generated from or used by the aggregate of trade accounts receivable, inventories and trade accounts payable depends upon how effectively we manage our working capital and can be significantly impacted by the timing of customer cash collections and vendor payments made during the period. Higher inventory levels and accounts receivable balances during fiscal year 2015 compared to 2014 resulted in an unfavorable impact of $32.7 million on our cash flows from operating activities, partially offset by an increase in accounts payable that resulted in a favorable impact of $20.3 million. We maintained higher inventory as a result of increased revenue during fiscal year 2015 to provide sufficient inventory levels for supporting sales growth. Higher account receivable and account payable balances were attributable to the timing of product shipments and the associated customer billings during the last quarter of each fiscal year, as well as customer cash collections and vendor payments.

•The timing of customer billings and the associated changes in deferred revenue which used $6.8 million in operating cash flows in fiscal year 2015 as compared to $5.9 million provided in fiscal year 2014. The decrease of $12.7 million in cash used by these activities was primarily attributable to the timing of customer billings and the amount of revenue recognized on long-term contracts.

•We generated earnings of $52.8 million, net of non-cash items, in fiscal year 2015 as compared to $39.7 million fiscal year 2014. Earnings generated in fiscal years 2015 and 2014 consisted of net income of $14.2 million and $31.5 million, respectively, adjusted for the impact of non-cash related charges of $38.6 million and $8.2 million, respectively, which consisted primarily of depreciation and amortization, stock-based compensation expense, as well as deferred tax provision. Additionally, non-cash related charges in fiscal year 2014 included a gain of $27.4 million on sale of the Granville-Phillips business unit and an impairment loss of $2.6 million related to a loan receivable from a strategic partner. Please refer to the "Results of Operations" section above for a detailed discussion of our fiscal year 2016 operating results as compared to fiscal year 2015.

•The timing of payments for aggregate of prepaid expenses and other assets collectively with accrued expenses and other liabilities provided $0.4 million in operating cash flows during fiscal year 2015 as compared to $1.6 million used in fiscal year 2014. The increase of $2.0 million in cash provided by these activities was primarily attributable to

the timing of cash payments for various employee compensation-related liabilities, including bonuses and restructuring, which provided an unfavorable impact of $11.5 million, partially offset by a favorable impact of $9.5 million due to the timing of cash payments for various operating expenses.

Investing Activities

Cash used in investing activities was $17.6 million in fiscal year 2015 as compared to $17.8 million in fiscal year 2014. Cash used in investing activities of $17.6 million in fiscal year 2015 included primarily $14.5 million for the acquisition of

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FluidX, Contact and certain assets and liabilities of YBA, $16.1 million of capital expenditures, including the purchase of the building and the related land for $8.4 million, as well as $5.5 million paid for certain cost method investments and BioCision convertible debt securities. These uses of cash were partially offset by $16.7 million related to net proceeds from sales and maturities of marketable securities.

Capital expenditures were $16.1 million during fiscal year 2015 compared to $5.5 million during fiscal year 2014. The increase of $10.6 million was primarily attributable to the purchase of the building and the related land for $8.4 million during fiscal year 2015, as well increased level of capital spending on our facility infrastructure.

During fiscal year 2015, we purchased five-year convertible debt securities with a warrant agreement to acquire preferred units of BioCision, LLC for a total purchase price of $5.0 million. Interest on the convertible debt securities accrues at a rate of 9% per annum and is due with the principal upon maturity. For additional information on this arrangement, please refer to Note 8 "Equity Method and Other Investments" to our Consolidated Financial Statements included under "Item 8. Financial Statements and Supplementary Data" of this Form 10-K.

Financing Activities

Cash used in financing activities was $34.0 million in fiscal year 2015 compared to $24.5 million in fiscal year 2014. Cash used in financing activities included $27.0 million and $22.9 million, respectively, of cash dividend payments made during fiscal years 2015 and 2014, as well as $8.8 million of debt repayment assumed in connection with the Contact acquisition during fiscal year 2015 and an acquisition of an outstanding interest of our majority-owned subsidiary in Korea for $3.2 million in fiscal year 2014.

Capital Resources

Line of Credit Facility

On May 26, 2016, we and certain of our subsidiaries entered into a credit agreement with Wells Fargo Bank, N.A., or Wells Fargo. The credit agreement provides for a five-year senior secured revolving line of credit, or line of credit, of $75.0 million. Availability under the line of credit is subject to a borrowing base which is redetermined from time to time based on specific advance rates on eligible assets. Such availability is limited to the lesser of (a) the amount committed by the lenders under the credit agreement, or (b) the amount determined based on the borrowing base limited to a certain percentage of certain eligible U.S. assets, including accounts receivable, inventory, real property, as well as machinery and equipment. If at any time the aggregate amounts outstanding under the credit agreement exceed the borrowing base then in effect, we are required to make a prepayment of an amount sufficient to eliminate such excess. The agreement includes sublimits of up to $25.0 million for letters of credit and $7.5 million of swing loans at the time there is more than one lender under the credit agreement. Availability under the borrowing base may be affected by events beyond our control, such as collection cycles, advance rates and general economic conditions. These and other events could require us to seek waivers or amendments of covenants or alternative sources of financing or to reduce expenditures. We can provide no assurance that such waivers, amendments or alternative financing sources could be obtained or, if obtained, would be on terms acceptable to us. The proceeds from the credit agreement are available for permitted acquisitions and general corporate purposes. The line of credit expires on May 26, 2021 with all outstanding principal and interest due and payable on such date or an earlier date if declared due and payable on such earlier date pursuant to the terms of the credit agreement (by acceleration or otherwise). Subject to certain conditions of the credit agreement, net cash proceeds from sales of certain collateral during the term of the arrangement are required to be used to prepay borrowings under the line of credit. We may also voluntarily prepay certain amounts under the line of credit without penalty or premium.

As of September 30, 2016, we had approximately $57.8 million available for borrowing under the line of credit. There were no amounts outstanding pursuant to the line of credit as of September 30, 2016. The amount of funds available for borrowing under the line of credit arrangement may fluctuate each period based on our borrowing base availability, as described above.

Borrowings under the line of credit bear an annual interest rate equal to, at our option, the base rate or the LIBOR rate plus, in each case, an applicable margin determined based on our liquidity as of the first day of each fiscal quarter. LIBOR rate is reset at the beginning of each selected interest period based on the rate then in effect. The base rate is a fluctuating interest rate equal to the highest of (i) the federal funds rate plus 0.50%, (ii) the one month LIBOR rate plus 1.00% and (iii) the prime lending rate announced by Wells Fargo. During fiscal year 2016, we incurred $0.7

million in deferred financing costs which included commitments fees and other costs directly associated with obtaining line of credit financing. In addition to interest on any outstanding borrowings under the credit agreement, we are required to pay monthly fees of 0.25% per year related to unused portion of the revolver commitment amounts. We incurred $0.1 million in such fees during fiscal year 2016. All outstanding borrowings under the credit agreement are guaranteed by us along with certain U.S. subsidiaries and secured by a first priority perfected security interest in substantially all of our and guarantor's assets in the

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U.S., subject to certain exceptions. Additionally, we granted Wells Fargo a mortgage lien on certain company-owned real properties.

The line of credit contains certain customary representations and warranties, a financial covenant, affirmative and negative covenants, as well as events of default. In the event our liquidity is less than the greater of (i) 12.5% of the commitments under the line of credit, and (ii) $9.4 million, and continuing until the time such liquidity during a 60-consecutive day period has been equal to or greater than the greater of (a) 12.5% of the commitments under the line of credit, and (b) $9.4 million, we are required to maintain a fixed charge coverage ratio of at least 1.0 to 1.0 measured as of the last day of each fiscal month ending during such period. Liquidity is defined as a sum of (a) excess availability under the credit agreement; and (b) unrestricted cash and cash equivalents located in bank accounts in the United States that are subject to a control agreement in favor of Wells Fargo, limited to a maximum amount of 50% of liquidity. Negative covenants limit our ability to incur additional indebtedness, liens, sell assets, consolidate or merge with or into other entities, pay non-cash dividends, (and cash dividends if we fail to meet certain payment conditions), make certain investments, prepay, redeem or retire subordinated debt, and enter into certain types of transactions with our affiliates. If any of the events of default occur and are not waived or cured within applicable grace periods, any unpaid amounts under the credit agreement, including principal and interest, may be declared immediately due and payable and the credit agreement may be terminated. We were in compliance with the line of credit covenants as of September 30, 2016. We are confident in our ability to generate sufficient cash in the United States and foreign jurisdictions to fund future operating costs. We secured the revolving line of credit as an additional assurance for maintaining liquidity in the United States during potentially severe downturns of the cyclical semiconductor market, as well as for strategic investments and acquisitions.

Shelf Registration Statement

On July 27, 2016, we filed a registration statement on Form S-3 with the SEC to sell securities, including common stock, preferred stock, warrants, debt securities, depository shares, purchase contracts and purchase units in amounts to be determined at the time of an offering. Any such offering, if it does occur, may happen in one or more transactions. The specific terms of any securities to be sold will be described in supplemental filings with the SEC. This registration statement will expire on July 27, 2019.

Approximately 877,427 shares of common stock issued under our 1995 Employee Stock Purchase Plan, or ESPP, for the purchases made between January 2013 and July 2016, at purchase prices ranging from $7.79 to $9.01 per share, may not have been registered under federal securities laws. Based on our current stock price, we do not expect any ESPP participants who still hold shares purchased within the last year to seek rescission. However if we determine that ESPP participants are likely to seek rescission in the future, we may make a registered rescission offer to repurchase the shares issued under the ESPP during fiscal 2016 to the extent they continue to be held by the original purchasers. If holders of all of these shares seek to rescind their purchases, we could be required to make aggregate payments of up to approximately $950,000, which includes estimated statutory interest.

Dividends

Our Board of Directors declared the following dividends during the fiscal years 2016 and 2015 (in thousands, except per share data):

Declaration Date	Dividend per Share	Record Date	Payment Date	Total
Fiscal year Ended September 30, 2016				
November 4, 2015	$ 0.10	December 4, 2015	December 22, 2015	$6,844
February 3, 2016	0.10	March 4, 2016	March 24, 2016	6,862
April 27, 2016	0.10	June 3, 2016	June 24, 2016	6,863
July 27, 2016	0.10	September 2, 2016	September 23, 2016	6,876
Fiscal year Ended September 30, 2015				
November 5, 2014	$ 0.10	December 5, 2014	December 26, 2014	$6,731
February 4, 2015	0.10	March 6, 2015	March 27, 2015	6,748
April 28, 2015	0.10	June 5, 2015	June 26, 2015	6,749

August 5, 2015	0.10	September 4, 2015	September 25, 2015	6,763

On November 9, 2016, our Board of Directors approved a cash dividend of $0.10 per share of our common stock. The total dividend of approximately $6.9 million will be paid on December 23, 2016 to shareholders of record at the close of business on December 2, 2016. Dividends are declared at the discretion of our Board of Directors and depend on actual cash flow from operations, our financial condition, capital requirements and any other factors our Board of Directors may consider relevant. We intend to pay quarterly cash dividends in the future; however, the amount and timing of these

dividends may be impacted by the cyclical nature of certain markets we serve. We may reduce, delay or cancel a quarterly cash dividend based on the severity of a cyclical downturn.

Share Repurchase Program

On September 29, 2015, our Board of Directors approved a share repurchase program for up to $50 million worth of our common stock. The timing and amount of any shares repurchased are based on market and business conditions, legal requirements and other factors and may be commenced or suspended at any time at our discretion. There were no shares repurchased under this program during fiscal year 2016.

Contractual Obligations and Requirements

Our contractual obligations were as follows at September 30, 2016 (in thousands):

	Total	Less than One Year	One to Three Years	Four to Five Years	Thereafter
Contractual Cash Obligations:					
Operating leases	$6,538	$3,390	$ 3,044	$ 104	$ —
Pension and other post retirement benefit plans	2,798	155	41	186	2,416
Other purchase commitments	104,605	95,271	9,173	161	—
Total contractual cash obligations	$113,941	$98,816	$ 12,258	$ 451	$ 2,416
Other Commercial Commitments:					
Letters of credit	$1,960	$1,753	$ 207	$ —	$ —
Other commercial commitments	750	750	—	—	—
Total commercial commitments	$2,710	$2,503	$ 207	$ —	$ —
Total commitments	$116,651	$101,319	$ 12,465	$ 451	$ 2,416

The letters of credit of approximately $2.0 million are related primarily to customer advances and other performance obligations at September 30, 2016. These arrangements guarantee the refund of advance payments received from our customers in the event that the product is not delivered or warranty obligations are not fulfilled in accordance with the contract terms. These obligations could be called by the beneficiaries at any time before the expiration date of the particular letter of credit if we fail to meet certain contractual requirements. None of these obligations were called during fiscal year 2016, and we currently do not anticipate any of these obligations to be called in the near future.

As of September 30, 2016, the total amount of net unrecognized tax benefits for uncertain tax positions and the accrual for the related interest was $5.4 million, all of which represents a potential future cash outlay. We are unable to make a reasonably reliable estimate of the timing of the cash settlement for this liability since the timing of future tax examinations by various tax jurisdictions and the related resolution is uncertain.

We utilize a third party to manage our manufacturing operations in Mexico. As a part of this arrangement, we make and guarantee the monthly payments for a lease of the Mexico facility which expires in December 2018. The remaining payments under the lease were approximately $0.9 million as of September 30, 2016.

Off-Balance Sheet Arrangements

As of September 30, 2016, we did not have any off-balance sheet arrangements, as defined in Item 303(a)(4)(ii) of SEC Regulation S-K.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

We are exposed to a variety of market risks, including changes in interest rates affecting the return on our cash and cash equivalents, short-term and long-term investments and fluctuations in foreign currency exchange rates.

Interest Rate Exposure

Our cash and cash equivalents consist principally of money market securities which are short-term in nature. Our short-term and long-term investments consist mostly of highly rated corporate debt securities, U.S. Treasury securities, and obligations of U.S. Government Agencies and other municipalities. At September 30, 2016, the unrealized loss position on marketable securities was less than $0.1 million, which is included in “Accumulated other comprehensive income” in the Consolidated Balance Sheets. We sold a substantial portion of our marketable securities portfolio during fiscal year 2016 and utilized sales proceeds for the acquisition of BioStorage Technologies, Inc. which was completed on November 30, 2015. A hypothetical 100 basis point change in interest rates would result in an annual change of approximately $0.1 million in interest income earned in fiscal year 2016 as compared to

approximately $1.4 million in fiscal year 2015. The difference is due to the sale of a substantial portion of our marketable securities portfolio during the current fiscal year.

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Currency Rate Exposure

We have transactions and balances denominated in currencies other than the U.S. dollar. Most of these transactions or balances are denominated in Euros, British Pounds and a variety of Asian currencies. Sales in currencies other than the U.S. dollar were 34% of our total sales for each of the fiscal years ended September 30, 2016 and 2015. These sales were made primarily by our foreign subsidiaries, which have cost structures that substantially align with the currency of sale.

In the normal course of our business, we have liquid assets denominated in non-functional currencies which include cash, short-term advances between our legal entities and accounts receivable which are subject to foreign currency exposure. Such balances were approximately $34.9 million and $14.2 million, respectively, at September 30, 2016 and 2015, and related to the Euro, British Pound and a variety of Asian currencies. We mitigate the impact of potential currency translation losses on these short-term intercompany advances by the timely settlement of each transaction, generally within 30 days. We also utilize forward contracts to mitigate our exposures to currency movement. We incurred a foreign currency loss of $1.9 million in fiscal year 2016 as compared to a gain of $0.5 million in fiscal year 2015, which related to the currency fluctuation on these balances between the time the transaction occurred and the ultimate settlement of the transaction. A hypothetical 10% change in foreign exchange rates would result in a change of $0.5 million and $0.1 million, respectively, in our net (loss) income at September 30, 2016 and 2015.

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of
Brooks Automation, Inc.
In our opinion, the accompanying consolidated balance sheet as of September 30, 2016, and the related consolidated statements of operations, of comprehensive (loss) income, of changes in equity, and of cash flows for the year then ended present fairly, in all material respects, the financial position of Brooks Automation, Inc. and its subsidiaries as of September 30, 2016, and the results of their operations and their cash flows for the year then ended in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of September 30, 2016, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's management is responsible for these financial statements, for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control Over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on these financial statements and on the Company's internal control over financial reporting based on our integrated audit. We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audit of the financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinions.

As discussed in Note 12 to the consolidated financial statements, the Company changed the manner in which it classifies deferred taxes in year 2016.
A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.
Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.
As described in Management's Report on Internal Control Over Financial Reporting, management has excluded BioStorage Technologies, Inc. from its assessment of internal control over financial reporting as of September 30, 2016 because it was acquired by the Company in a purchase business combination during 2016. We have also excluded BioStorage Technologies, Inc. from our audit of internal control over financial reporting. BioStorage Technologies, Inc. is a wholly-owned subsidiary whose total assets and total revenues represent 7.4% and 8.0%,

respectively, of the related consolidated financial statement amounts as of and for the year ended September 30, 2016.

/s/ PricewaterhouseCoopers LLP
Boston, Massachusetts

November 29, 2016

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Stockholders
Brooks Automation, Inc.
Chelmsford, Massachusetts

We have audited the accompanying consolidated balance sheet of Brooks Automation, Inc. as of September 30, 2015 and the related consolidated statements of operations, comprehensive (loss) income, changes in equity, and cash flows for each of the two years in the period ended September 30, 2015. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Brooks Automation, Inc. at September 30, 2015 and the results of its operations and its cash flows for each of the two years in the period ended September 30, 2015, in conformity with accounting principles generally accepted in the United States of America.

/s/ BDO USA, LLP
Boston, Massachusetts

November 5, 2015, except for the effect of changes to disclosures for segment reporting, equity method investments and the adoption of ASU 2015-17 discussed in Note 20, Note 8 and Note 12, respectively, as to which the date is November 29, 2016.

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BROOKS AUTOMATION, INC.
CONSOLIDATED BALANCE SHEETS

	September 30, 2016	September 30, 2015
	(In thousands, except share and per share data)	
Assets		
Current assets		
Cash and cash equivalents	$85,086	$ 80,722
Marketable securities	39	70,021
Accounts receivable, net	106,372	86,448
Inventories	92,572	100,619
Assets held for sale	—	2,900
Prepaid expenses and other current assets	15,265	15,158
Total current assets	299,334	355,868
Property, plant and equipment, net	54,885	41,855
Long-term marketable securities	6,096	63,287
Long-term deferred tax assets	1,982	87,133
Goodwill	202,138	121,408
Intangible assets, net	81,843	55,446
Equity method investments	27,273	24,308
Other assets	12,354	9,397
Total assets	$685,905	$ 758,702
Liabilities and Stockholders' Equity		
Current liabilities		
Accounts payable	$41,128	$ 44,890
Deferred revenue	14,966	17,886
Accrued warranty and retrofit costs	6,324	6,089
Accrued compensation and benefits	21,254	20,401
Accrued restructuring costs	5,939	2,073
Accrued income taxes payable	7,554	6,111
Accrued expenses and other current liabilities	22,628	15,550
Total current liabilities	119,793	113,000
Long-term tax reserves	2,681	3,644
Long-term deferred tax liabilities	2,913	3,495
Long-term pension liabilities	2,557	3,118
Other long-term liabilities	4,271	3,400
Total liabilities	132,215	126,657
Commitments and contingencies (Note 22)		
Stockholders' Equity		
Preferred stock, $0.01 par value- 1,000,000 shares authorized, no shares issued or outstanding	—	—
Common stock, $0.01 par value- 125,000,000 shares authorized, 82,220,270 shares issued and 68,758,401 shares outstanding at September 30, 2016, 81,093,052 shares issued and 67,631,183 shares outstanding at September 30, 2015	821	811
Additional paid-in capital	1,855,703	1,846,357
Accumulated other comprehensive income	15,166	5,898
Treasury stock, at cost- 13,461,869 shares	(200,956)	(200,956)
Accumulated deficit	(1,117,044)	(1,020,065)

Total stockholders' equity	553,690	632,045
Total liabilities and stockholders' equity	$685,905	$ 758,702

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

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BROOKS AUTOMATION, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS

	Year Ended September 30,		
	2016	2015	2014
	(In thousands, except per share data)		
Revenue			
Products	$421,783	$457,411	$387,032
Services	138,540	95,297	95,816
Total revenue	560,323	552,708	482,848
Cost of revenue			
Product	267,974	298,348	250,268
Services	94,268	65,255	65,243
Total cost of revenue	362,242	363,603	315,511
Gross profit	198,081	189,105	167,337
Operating expenses			
Research and development	51,543	52,232	52,649
Selling, general and administrative	130,261	115,270	111,098
Restructuring and other charges	12,039	4,713	6,289
Total operating expenses	193,843	172,215	170,036
Operating income (loss)	4,238	16,890	(2,699)
Interest income	452	899	950
Interest expense	(157)	(395)	(202)
Other (expense) income, net	(579)	421	256
Income (loss) before income taxes and earnings (losses) of equity method investments	3,954	17,815	(1,695)
Income tax provision (benefit)	75,810	3,430	(1,980)
(Loss) income before earnings (losses) of equity method investments	(71,856)	14,385	285
Equity in earnings (losses) of equity method investments	2,380	(164)	1,235
(Loss) income from continuing operations	(69,476)	14,221	1,520
Income from discontinued operations, net of tax	—	—	30,002
Net (loss) income	(69,476)	14,221	31,522
Net income attributable to noncontrolling interests	—	—	(161)
Net (loss) income attributable to Brooks Automation, Inc.	$(69,476)	$14,221	$31,361
Basic net (loss) income per share attributable to Brooks Automation, Inc. common stockholders:			
(Loss) income from continuing operations	$(1.01)	$0.21	$0.02
Income from discontinued operations, net of tax	—	—	0.45
Basic net (loss) income per share attributable to Brooks Automation, Inc.	$(1.01)	$0.21	$0.47
Diluted net (loss) income per share attributable to Brooks Automation, Inc. common stockholders:			
(Loss) income from continuing operations	$(1.01)	$0.21	$0.02
Income from discontinued operations, net of tax	—	—	0.44
Diluted net (loss) income per share attributable to Brooks Automation, Inc. common stockholders	$(1.01)	$0.21	$0.46
Dividend declared per share	$0.40	$0.40	$0.34
Weighted-average shares used in computing earnings (loss) per share:			
Basic	68,507	67,411	66,648
Diluted	68,507	68,549	67,644

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

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BROOKS AUTOMATION, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE (LOSS) INCOME

	Year Ended September 30,		
	2016	2015	2014
	(In thousands)		
Net (loss) income	$(69,476)	$14,221	$31,522
Other comprehensive income (loss), net of tax:			
Cumulative foreign currency translation adjustments	8,844	(9,557)	(6,296)
Unrealized gains (losses) on marketable securities, net of tax effects of $58, $(83) and $62 for fiscal years 2016, 2015 and 2014	(106)	141	(104)
Change in fair value of cash flow hedges, net of tax impact of $9 for fiscal year 2014	—	—	(14)
Actuarial losses, net of tax effects of $161, $115 and $471 for fiscal years 2016, 2015 and 2014	(322)	(605)	(503)
Pension settlement	—	232	—
Pension curtailment	852	—	—
Total other comprehensive income (loss), net of tax	9,268	(9,789)	(6,917)
Comprehensive income attributable to noncontrolling interests	—	—	(161)
Comprehensive (loss) income attributable to Brooks Automation, Inc., net of tax	$(60,208)	$4,432	$24,444

The accompanying notes are an integral part of these consolidated financial statements.
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BROOKS AUTOMATION, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS

	Year Ended September 30,		
	2016	2015	2014
	(In thousands)		
Cash flows from operating activities			
Net (loss) income	$(69,476)	$14,221	$31,522
Adjustments to reconcile net (loss) income to net cash provided by operating activities:			
Depreciation and amortization	28,046	25,160	23,459
Impairment of intangible assets	—	—	398
Impairment of other assets	807	—	2,621
Stock-based compensation	11,737	12,159	10,912
Amortization of premium on marketable securities and deferred financing costs	339	1,193	1,255
Undistributed (earnings) losses of equity method investments	(2,380)	164	(1,235)
Deferred income tax provision (benefit)	70,273	(2,173)	(1,779)
Loss on write-downs of assets held for sale	—	1,944	—
Pension settlement	—	232	—
Gain on disposal of businesses	—	(85)	(27,444)
(Gain) loss on disposal of long-lived assets	(41)	—	13
Changes in operating assets and liabilities, net of acquisitions and disposals:			
Accounts receivable	(1,796)	(5,134)	12,098
Inventories	8,565	(5,919)	9,598
Prepaid expenses and other current assets	(428)	(2,875)	(12,325)
Accounts payable	(5,143)	8,358	(11,924)
Deferred revenue	(3,290)	(6,779)	5,900
Accrued warranty and retrofit costs	290	(407)	(1,102)
Accrued compensation and tax withholdings	(3,234)	(1,148)	6,783
Accrued restructuring costs	3,860	(1,247)	2,161
Accrued pension costs	(811)	812	997
Accrued expenses and other current liabilities	2,229	5,251	1,873
Net cash provided by operating activities	39,547	43,727	53,781
Cash flows from investing activities			
Purchases of property, plant and equipment	(12,848)	(16,146)	(5,518)
Purchases of marketable securities	(12,901)	(87,333)	(174,287)
Sales and maturities of marketable securities	139,388	104,008	112,085
Proceeds from divestitures	—	—	85,369
Disbursement for a loan receivable	(1,821)	—	—
Acquisitions, net of cash acquired	(125,248)	(14,450)	(35,625)
Decrease in restricted cash	—	—	177
Proceeds from liquidation of a joint venture	—	1,778	—
Purchases of other investments	(250)	(5,500)	—
Proceeds from sales of property, plant and equipment	2,806	6	—
Net cash used in investing activities	(10,874)	(17,637)	(17,799)
Cash flows from financing activities			
Proceeds from line of credit	366	—	—
Proceeds from issuance of common stock	1,888	1,807	1,838
Principal repayments of capital lease obligations	—	—	(239)
Payment of deferred financing costs	(708)	—	—

Acquisitions of noncontrolling interest	—	—	(3,189)
Repayment of debt assumed in business acquisition	—	(8,829)	—
Common stock dividends paid	(27,503)	(26,992)	(22,875)
Net cash used in financing activities	(25,957)	(34,014)	(24,465)
Effects of exchange rate changes on cash and cash equivalents	1,648	(5,468)	(374)
Net increase (decrease) in cash and cash equivalents	4,364	(13,392)	11,143
Cash and cash equivalents, beginning of year	80,722	94,114	82,971
Cash and cash equivalents, end of year	$85,086	$80,722	$94,114

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

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BROOKS AUTOMATION, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS (Continued)

	Year Ended September 30,		
	2016	2015	2014
	(In thousands)		
Supplemental disclosures:			
Cash paid for interest	$114	$395	$202
Cash paid for income taxes, net	4,930	3,883	1,084
Supplemental disclosure of non-cash investing and financing activities:			
Acquisition of buildings and land through capital lease	$—	$—	$8,537
Derecognition of a capital lease obligation and the related assets	—	7,804	—

The accompanying notes are an integral part of these consolidated financial statements.
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BROOKS AUTOMATION, INC.
CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

	Common Stock Shares	Common Stock at Par Value	Additional Paid-In Capital	Accumulated Other Comprehensive Income	Accumulated Deficit	Treasury Stock	Total Brooks Automation, Inc. Stockholders' Equity	Noncontrolling Interests in Subsidiaries	Total Equity
	(In thousands, except share data)								
Balance September 30, 2013	80,039,104	$ 800	$ 1,825,499	$ 22,604	$ (1,015,991)	$ (200,956)	$ 631,956	$ 700	$ 632,656
Shares issued under stock option, restricted stock and purchase plans, net	336,673	4	386				390		390
Stock-based compensation			11,062				11,062		11,062
Common stock dividends declared, at $0.34 per share					(22,635)		(22,635)		(22,635)
Acquisition of noncontrolling interest			(2,328)				(2,328)	(861)	(3,189)
Net income					31,361		31,361	161	31,522
Foreign currency translation adjustments				(6,296)			(6,296)		(6,296)
Changes in unrealized losses on marketable securities, net of tax effects of $62				(104)			(104)		(104)
Changes in unrealized losses on cash flow hedges, net of tax effects of $9							(14)		(14)
Actuarial losses arising in the year, net of tax effects of $471				(503)			(503)		(503)

Balance September 30, 2014	80,375,777	804	1,834,619	15,687	(1,007,265)	(200,956)	642,889	—	642,889
Shares issued under restricted stock and purchase plans, net	717,275	7	(421)				(414)		(414)
Stock-based compensation			12,159				12,159		12,159
Common stock dividends declared, at $0.40 per share					(27,021)		(27,021)		(27,021)
Net income					14,221		14,221		14,221
Foreign currency translation adjustments				(9,557)			(9,557)		(9,557)
Changes in unrealized gains on marketable securities, net of tax effects of ($83)				141			141		141
Actuarial losses arising in the year, net of tax effects of $115				(605)			(605)		(605)
Recognition of pension settlement in earnings				232			232		232
Balance September 30, 2015	81,093,052	811	1,846,357	5,898	(1,020,065)	(200,956)	632,045	—	632,045
Shares issued under restricted stock and purchase plans, net	1,127,218	10	(2,391)				(2,381)		(2,381)
Stock-based compensation			11,737				11,737		11,737
Common stock dividends declared, at $0.40 per share					(27,503)		(27,503)		(27,503)
Net loss					(69,476)		(69,476)		(69,476)
Foreign currency				8,844			8,844		8,844

translation adjustments									
Changes in unrealized losses on marketable securities, net of tax effects of $58				(106)			(106)		(106)
Actuarial losses arising in the year, net of tax effects of $161				(322)			(322)		(322)
Pension curtailment				852			852		852
Balance September 30, 2016	82,220,270	$ 821	$ 1,855,703	$ 15,166	$ (1,117,044)	$ (200,956)	$ 553,690	$ —	$ 553,690

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

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BROOKS AUTOMATION, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. Nature of the Business

Brooks Automation, Inc. (“Brooks”, or the “Company”) is leading global provider of automation and cryogenic solutions for multiple applications and markets. The Company primarily serves the semiconductor capital equipment market and sample management market for life sciences. The Company's technologies, engineering competencies and global service capabilities provide customers speed to market and ensure high uptime and rapid response, which equate to superior value in their mission-critical controlled environments. Since 1978, the Company has been a leading partner to the global semiconductor manufacturing markets. The Company has expanded its products and services through product development initiatives and strategic business acquisitions to meet the needs of customers in the life science and technology markets adjacent to semiconductor.

In the second quarter of fiscal year 2014, the Company determined that its Granville-Phillips Gas Analysis & Vacuum Measurement, or Granville-Phillips, business met the criteria of being reported as a discontinued operation. As a result, the Company’s historical financial statements have been revised to present the operating results of the Granville-Phillips business as a discontinued operation. The results of operations from the Granville-Phillips business are presented as “Income from discontinued operations, net of tax” in the Consolidated Statements of Operations. The Company has not separated cash flows of the Granville-Phillips business from those of its continuing operations and has not revised its historical statements of cash flows. Unless otherwise noted, the discussion in the notes to these Consolidated Financial Statements relates solely to the Company's continuing operations.

Revision of Prior Period Financial Statements

During fiscal year 2016, the Company identified a classification error related to a presentation of cost of product and service revenue in the Company's consolidated statements of operations for the quarterly and annual periods beginning in the fourth quarter of fiscal year 2014 through the quarterly period ended March 31, 2016. The classification error had no impact on the total cost of revenue, gross profit, operating income (loss), net (loss) income, as well as basic and diluted net (loss) income per share during any of the periods presented. Additionally, the classification error had no impact on the Company's consolidated balance sheets and consolidated statements of cash flows during any of the prior periods. The Company considered the guidance in Accounting Standard Codification (ASC) Topic 250, “Accounting Changes and Error Corrections,” ASC Topic 250-10-S99-1, “Assessing Materiality,” and ASC Topic 250-10-S99-2, “Considering the Effects of Prior Year Misstatements when Quantifying Misstatements in Current Year Financial Statements" in evaluating whether the Company’s previously issued Consolidated Financial Statements were materially misstated. The Company concluded this classification error was not material individually or in the aggregate to the financial statements presented during any of the prior reporting periods, and therefore, amendments of previously filed reports were not required. The revisions for these corrections to the applicable prior periods are reflected in the financial information herein and will be reflected in future filings containing such financial information.

The following table summarizes the effects of the classification error on the annual prior period financial statements (in thousands):

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	Fiscal Year Ended September 30, 2015		
	As Previously Reported	Adjustment	As Revised
Cost of product revenue	$307,865	$ (9,517)	$298,348
Cost of service revenue	55,738	9,517	65,255
Total cost of revenue	$363,603	$ —	$363,603

	Fiscal Year Ended September 30, 2014		
	As Previously Reported	Adjustment	As Revised
Cost of product revenue	$252,688	$ (2,420)	$250,268
Cost of service revenue	62,823	2,420	65,243
Total cost of revenue	$315,511	$ —	$315,511

2. Summary of Significant Accounting Policies

Principles of Consolidation and Basis of Presentation

The accompanying Consolidated Financial Statements include the accounts of the Company and its majority-owned subsidiaries. All intercompany balances and transactions have been eliminated in consolidation. The Company applies equity method of accounting to investments that provide it with ability to exercise significant influence over the entities in which it lacks controlling financial interest and is not a primary beneficiary.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements, as well as the reported amounts of revenue and expenses during the reporting period. Significant estimates are associated with recording accounts receivable, inventories, goodwill, intangible assets other than goodwill, long-lived assets, derivative financial instruments, deferred income taxes, warranty and pension obligations, revenue recognized in accordance with the percentage of completion method, and stock-based compensation expense. The Company assesses the estimates on an ongoing basis and records changes in estimates in the period they occur and become known. Actual results could differ from these estimates.

Business Combinations

The Company accounts for business acquisitions using the acquisition method of accounting, in accordance with which assets acquired and liabilities assumed are recorded at their respective fair values at the acquisition date. The fair value of the consideration paid, including contingent consideration, is assigned to the assets acquired and liabilities assumed based on their respective fair values. Goodwill represents excess of the purchase price over the estimated fair values of the assets acquired and liabilities assumed.

Significant judgments are used in determining fair values of assets acquired and liabilities assumed, as well as intangibles. Fair value and useful life determinations are based on, among other factors, estimates of future expected cash flows, royalty cost savings and appropriate discount rates used in computing present values. These judgments may materially impact the estimates used in allocating acquisition date fair values to assets acquired and liabilities assumed, as well as the Company's current and future operating results. Actual results may vary from these estimates which may result in adjustments to goodwill and acquisition date fair values of assets and liabilities during a measurement period or upon a final determination of asset and liability fair values, whichever occurs first. Adjustments to fair values of assets and liabilities made after the end of the measurement period are recorded within

the Company's operating results.

Changes in the fair value of a contingent consideration resulting from a change in the underlying inputs are recognized in results of operations until the arrangement is settled.

Foreign Currency Translation

Certain transactions of the Company and its subsidiaries are denominated in currencies other than their functional currency. Foreign currency exchange gains (losses) generated from the settlement and remeasurement of these transactions are

recognized in earnings and presented within “Other (expense) income, net” in the Company's Consolidated Statements of Operations. Net foreign currency transaction and remeasurement (losses) gains totaled $(1.9) million, $0.5 million and $(1.2) million for the fiscal years ended September 30, 2016, 2015 and 2014, respectively.
The determination of the functional currency of the Company's subsidiaries is based on their financial and operational environment and is the local currency of all of the Company's foreign subsidiaries. The subsidiaries' assets and liabilities are translated into the reporting currency at period-end exchange rates, while revenue, expenses, gains and losses are translated at the average exchange rates during the period. Gains and losses from foreign currency translations are recorded in accumulated other comprehensive income in the Company's Consolidated Balance Sheets and presented as a component of comprehensive income (loss) in the Company's Consolidated Statements of Comprehensive Income (Loss).

Derivative Financial Instruments

All derivatives, whether designated as a hedging relationship or not, are recorded in the Consolidated Balance Sheets at fair value. The accounting for changes in fair value of a derivative instrument depends on whether it has been designated and qualifies as part of a hedging relationship and the type of hedging relationship. For those derivative instruments that are designated and qualify as hedging instruments, the Company must designate the hedging instrument as a fair value hedge, cash flow hedge or a hedge of a net investment in a foreign operation based on the exposure being hedged. Certain derivatives held by the Company are not designated as hedges but are used in managing exposure to changes in foreign exchange rates.
A fair value hedge is a derivative instrument designated for the purpose of hedging the exposure of changes in fair value of an asset or a liability resulting from a particular risk. If the derivative is designated as a fair value hedge, the changes in the fair value of the derivative and of the hedged item attributable to the hedged risk are both recognized in the results of operations and presented in the same caption in the Consolidated Statements of Operations and Consolidated Statements of Comprehensive Income (Loss).
A cash flow hedge is a derivative instrument designated for the purpose of hedging the exposure to variability in future cash flows resulting from a particular risk. If the derivative is designated as a cash flow hedge, the effective portions of changes in the fair value of the derivative are recorded in accumulated other comprehensive income and recognized in the results of operations when the hedged item affects earnings. Ineffective portions of changes in the fair value of cash flow hedges are recognized in the results of operations.
A hedge of a net investment in a foreign operation is achieved through a derivative instrument designated for the purpose of hedging the exposure of changes in value of investments in foreign subsidiaries. If the derivative is designated as a hedge of a net investment in a foreign operation, the effective portions of changes in the fair value of the derivative are recorded in other comprehensive income as a part of the foreign currency translation adjustment. Ineffective portions of net investment hedges are recognized in the results of operations.
For derivative instruments not designated as hedging instruments, changes in fair value are recognized in the Consolidated Statements of Operations as gains or losses consistent with the classification of the underlying risk.

Concentration of Credit Risk

Financial instruments that potentially subject the Company to concentrations of credit risk consist of cash deposits and cash equivalents, marketable securities, derivative instruments and accounts receivable. All of the Company’s cash, cash equivalents, marketable securities and derivative instruments are maintained by major financial institutions.
The Company invests cash not used in operations in investment grade, high credit quality securities in accordance with the Company's investment policy which provides guidelines and limits regarding investments type, concentration, credit quality and maturity terms aimed at maintaining liquidity and reducing risk of capital loss.
A majority of the Company’s customers is concentrated in the semiconductor industry. The Company regularly monitors the creditworthiness of its customers and believes that it has adequately provided for exposure to potential credit losses. The Company's top ten largest customers accounted for approximately 34%, 38% and 37% of its consolidated revenue for the fiscal years ended September 30, 2016, 2015 and 2014, respectively. One customer accounted for approximately 12%, and 11%, respectively, in the fiscal years ended September 30, 2015 and 2014. No customers accounted for more than 10% of our consolidated revenue for fiscal year 2016.

Fair Value of Financial Instruments

The Company's financial instruments consist of cash and cash equivalents, marketable securities, derivative instruments, accounts receivable, loans receivable, convertible debt securities, stock warrants, contingent consideration and accounts payable.

Marketable securities and derivative instruments are measured at fair value based on quoted market prices or observable inputs other than quoted market prices for identical or similar assets or liabilities.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Convertible debt securities are measured at fair value based on the probability-weighted expected return method utilizing various scenarios for the expected payout of the instrument covering the full range of the potential outcomes. Fair value of the asset securities is based upon the present value of the probability of each future outcome becoming available to the asset and the economic rights and preferences of each asset.
Stock warrants are measured at fair value based on the Black-Scholes model which incorporates the constant price variation of the underlying asset, the time value of money, the warrant’s strike price and the time to the warrant’s expiration date.
Loans receivable are measured at fair value on a non-recurring basis. The Company considers the subordination features of the loans and the fair value of the collateral when measuring the loans' fair value. The fair value of the loans receivable is determined based on valuation techniques, principally the discounted cash flow method, and could be different under different conditions or different assumptions, including the varying assumptions regarding future cash flows of the Borrower or discount rates.
Contingent consideration is measured at fair value based on the probability-weighted average discounted cash flow model utilizing potential outcomes related to achievement of certain specified targets and events. The fair value measurement of the contingent consideration is based on probabilities assigned to each potential outcome and the discount rate.
The carrying amounts of cash, cash equivalent, accounts receivable and accounts payable approximate their fair value due to their short-term nature.

Cash and Cash Equivalents

Cash and cash equivalents consist of cash and highly liquid investments with original maturities of three months or less that are readily convertible to known amounts of cash. At September 30, 2016 and 2015, cash equivalents were $0.1 million and $11.6 million, respectively. Cash equivalents are reported at cost which approximates their fair value due to their short-term nature and varying interest rates.

Accounts Receivable, Allowance for Doubtful Accounts and Sales Returns

Trade accounts receivable do not bear interest and are recorded at the invoiced amount. The Company maintains an allowance for doubtful accounts representing its best estimate of probable credit losses related to its existing accounts receivable and their net realizable value. The Company determines the allowance based on a number of factors, including an evaluation of customer credit worthiness, the age of the outstanding receivables, economic trends and historical experience. The Company reviews its allowance for doubtful accounts on a quarterly basis and adjusts the balance based on the Company's estimates of the receivables' recoverability in the period the changes in estimates occur and become known. Accounts receivable balances are written-off against the allowance for doubtful accounts when the Company determines that the balances are not recoverable. Provisions for doubtful accounts are recorded in "Selling, general and administrative expenses" in the Consolidated Statements of Operations. The Company determines the allowance for sales returns based on its best estimate of probable customer returns. Provisions for sales returns are recorded in "Revenue" in the Consolidated Statements of Operations. The Company does not have any off-balance-sheet credit exposure related to its customers.

Inventories

Inventories are stated at the lower of cost or market determined on a first-in, first-out basis and include the cost of materials, labor and manufacturing overhead. The Company reports inventories at their net realizable value and provides reserves for excess, obsolete or damaged inventory based on changes in customer demand, technology and other economic factors.

Fixed Assets, Intangible Assets and Impairment of Long-lived Assets

Property, plant and equipment are stated at cost, net of accumulated depreciation. Depreciation expense is computed based on the straight-line method and charged to results of operations to allocate the cost of the assets over their estimated useful lives, as follows:

Buildings	20 - 40 years
Computer equipment and software	2 - 7 years

Machinery and equipment	2 - 10 years
Furniture and fixtures	3 - 10 years

Leasehold improvements are amortized over the shorter of their estimated useful lives or the remaining terms of the respective leases. Equipment used for demonstrations to customers is included in machinery and equipment and depreciated over its estimated useful life. Repair and maintenance costs are expensed as incurred.

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The Company develops software for its internal use and capitalizes direct costs incurred to develop internal-use software during the application development stage after determining software technological requirements and obtaining management approval for funding projects probable of completion. Capitalization of the internal-use software development costs ceases upon substantially completing the project and placing the software into service based on its intended use. Training and data conversion costs, as well as costs incurred prior to the application development stage and during the post-implementation stage are expensed as incurred. During the fiscal year ended September 30, 2016, the Company capitalized direct costs of $3.7 million associated with development of software for its internal use which are included within "Property, plant and equipment, net" in the accompanying Consolidated Balance Sheets. There were no internal-use software development costs as of September 30, 2015.

Cost of disposed assets upon their retirement and the associated accumulated depreciation are derecognized at the time of disposal, and the resulting gain or loss is included in the Company's results of operations.

The Company identified finite-lived intangible assets other than goodwill as a result of acquisitions. Finite-lived intangible assets are valued based on estimated future cash flows and amortized over their estimated useful lives based on methods that approximate the pattern in which the economic benefits are expected to be realized.

Finite-lived intangibles assets and fixed assets are tested for impairment when indicators of impairment are present. For purposes of this test, long-lived assets are grouped with other assets and liabilities at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities. If the Company determines that indicators of potential impairment are present, it assesses the recoverability of long-lived asset group by comparing its undiscounted future cash flows to its carrying value. The future cash flow period is based on the future service life of the primary asset within the long-lived asset group. If the carrying value of the long-lived asset group exceeds its future cash flows, the Company determines fair values of the individual net assets within the long-lived asset group to assess potential impairment. If the aggregate fair values of the individual net assets of the group are less than their carrying values, an impairment loss is recognized for an amount in excess of the group's aggregate carrying value over its fair value. The loss is allocated to the assets within the group based on their relative carrying values, with no asset reduced below its fair value.

Finite-lived intangible assets are amortized over their useful lives, as follows:

Patents	7 - 15 years
Completed technology	5 - 10 years
Customer relationships	5 - 11 years

Goodwill

Goodwill represents the excess of a purchase price over the fair value of net tangible and identifiable intangible assets of the businesses acquired by the Company. Goodwill is tested for impairment annually or more often if impairment indicators are present at the reporting unit level. The Company elected April 1st as its annual goodwill impairment assessment date and performs additional impairment tests if triggering events occur. If events occur or circumstances change that would more likely than not reduce fair values of the reporting units below their carrying values, goodwill will be evaluated for impairment between annual tests.

Application of the goodwill impairment test requires significant judgment based on market and operational conditions at the time of the evaluation, including management's best estimate of future business activity and the related estimates of future cash flows from the assets and the reporting units that include the associated goodwill. These periodic evaluations could cause management to conclude that impairment factors exist, requiring an adjustment of these assets to their then-current fair market values. Future business conditions and/or activity could differ materially from the projections made by management which could result in additional adjustments and impairment charges.

The goodwill impairment test is performed at the reporting unit level. A reporting unit is either an operating segment or one level below it, which is referred to as a “component”. The level at which the impairment test is performed requires an assessment of whether the operations below an operating segment constitute a self-sustaining business, in which case testing is generally performed at this level.

Goodwill impairment testing involves a two-step process. The Company first compares the fair value of each reporting unit to its respective carrying amount, including goodwill, to assess whether potential goodwill impairment exists. If the fair value of the reporting unit exceeds its carrying amount, goodwill of the reporting unit is not considered impaired. If the reporting unit's carrying amount exceeds its fair value, the Company performs the second step of the goodwill impairment test to measure the potential impairment loss amount by comparing the implied fair value of goodwill with its carrying amount. The implied fair value of goodwill is determined by allocating the fair value of the reporting unit to all of its assets and liabilities and assigning the excess amount to goodwill. If the implied fair value of goodwill is less than its carrying amount, an impairment loss is recognized for difference between the carrying amount of goodwill and its implied fair value.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

The Company determines fair values of its reporting units based on an Income Approach in accordance with the Discounted Cash Flow Method, or DCF Method. The DCF Method is based on projected future cash flows and terminal value estimates discounted to their present values. Terminal value represents a present value an investor would pay on the valuation date for the rights to the cash flows of the business for the years subsequent to the discrete cash flow projection period. The observable inputs used in the DCF Method include discount rates set above the Company's weighted-average cost of capital. The Company derives discount rates that are commensurate with the risks and uncertainties inherent in the respective businesses and its internally developed projections of future cash flows. The Company considers the DCF Method to be the most appropriate valuation technique since it is based on management’s long-term financial projections. Due to the cyclical nature of the semiconductor equipment market, management’s projections as of the valuation date are considered more objective since market metrics of peer companies fluctuate during the cycle. In addition, the Company also compares aggregate values of its net corporate assets and reporting unit fair values to its overall market capitalization and uses certain market-based valuation techniques to test the reasonableness of the reporting unit fair values determined in accordance with the DCF Method.

Deferred Financing Costs

The Company records commitment fees and other costs directly associated with obtaining line of credit financing as deferred financing costs which are presented within "Other assets" in the accompanying Consolidated Balance Sheets. Deferred financing costs are amortized over the term of the related financing arrangement and included in interest expense in the accompanying unaudited Consolidated Statements of Operations. During the fiscal year ended September 30, 2016, the Company incurred $0.7 million in deferred financing costs associated with obtaining line of credit financing. Amortization expense incurred during fiscal year ended September 30, 2016 was insignificant and was included in interest expense in the accompanying Consolidated Statements of Operations. Please refer to Note 11, “Line of Credit”for further information on this arrangement.

Warranty Obligations

The Company offers warranties on the sales of certain of its products and records warranty obligations for estimated future claims at the time revenue is recognized. Warranty obligations are estimated based on historical experience and management's estimate of the level of future claims.

Defined Benefit Pension Plans

The cost and obligations of the Company's defined benefit pension plans are calculated based on certain assumptions related to estimated benefits that employees earn while working, the amount of which cannot be completely determined until the benefit payments cease. Key assumptions used in accounting for these employee benefit plans include the discount rate, expected return on plan assets and rate of increase in employee compensation levels. Assumptions are determined based on Company data and appropriate market indicators in consultation with third-party actuaries, and are evaluated each year as of the plans’ measurement date.

Revenue Recognition

The Company generates revenue from the following sources:

- Products, including sales of tool automation and automated cold sample management systems, atmospheric and vacuum robots, contamination control solutions, cryogenic pumps and compressors, as well as consumables and spare parts.
- Services, including repairs, upgrades, diagnostic support, installation, as well as biological sample and other support services.

The Company recognizes revenue for such products and services when it is realized or realizable and earned. Revenue is considered realized and earned when all of the following revenue recognition criteria have been met: (i) persuasive evidence of an arrangement exists; (ii) delivery has occurred or services have been rendered; (iii) the fee is fixed or determinable; and (iv) collectibility is probable. The Company recognizes shipping and handling fees billed to customers as revenue and includes the related costs in "Cost of revenue" in the accompanying Consolidated Statements of Operations. Revenue is presented net of taxes assessed by governmental authorities on revenue-producing transactions.

Products

Revenue from the sale of products is recognized upon their delivery to customers, provided all other revenue recognition criteria have been met. Delivery is considered complete when both of the following conditions have been met: (i) legal title and risk of loss have transferred to the customer upon product shipment or delivery; and (ii) the Company has reliably demonstrated that products have met their required specifications prior to shipment and, as a result, the Company possesses an enforceable claim right to amounts recognized as revenue. Revenue is recognized upon obtaining a customer technical acceptance if the Company was not able to demonstrate that products have met their required specifications prior to shipment and / or legal title

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and risk of loss did not transfer to the customer upon product shipment or delivery, which generally occurs upon obtaining a customer technical acceptance. Revenue from third-party sales for which the Company does not meet the criteria for gross revenue recognition is recognized on a net basis. All other revenue is recognized on a gross basis. Customer allowances and rebates consist primarily of volume discounts and other incentive programs. Customer allowance and rebate amounts are estimated based on historical experience, contractual terms and expected level of sales during the qualifying incentive program period. The Company records customer allowances and rebates as a reduction of revenue at the time of product sale since they represent a reduction in purchase price.

Revenue from product sales that involve significant customization, which include primarily automated cold sample management systems, is recognized based on the percentage of completion method. The Company recognizes revenue as work progresses based on a percentage of actual labor hours incurred on the project to-date and total estimated labor hours expected to the incurred on the project. The Company develops profit estimates for long-term contracts based on total revenue expected to be generated from the project and total costs anticipated to be incurred. These estimates are based on a number of factors, including the degree of required product customization and the customer’s existing environment based on installation work, as well as the Company's historical experience, project plans and an assessment of the risks and uncertainties inherent in the contract related to implementation delays or performance issues that may or may not be within the Company's control. The Company estimates a loss on a contract by comparing total estimated contract revenue to the total estimated contract costs and recognizes a loss during the period in which it becomes probable and can be reasonably estimated. The Company reviews profit estimates for long-term contracts during each reporting period and revises them based on changes in circumstances.

The Company uses the completed contract method for certain arrangements that involve significant product customization and include contractual terms and customer rights disallowing the use of the percentage of completion method. The Company recognizes revenue for these arrangements upon completion or substantial completion of the project, provided all other revenue recognition criteria have been met. The project is considered substantially complete when the Company receives acceptance and remaining tasks are perfunctory or inconsequential and in control of the Company. Generally, the terms of long-term contracts provide for progress billings based on completion of milestones or other defined phases of work. In certain instances, payments collected from customers in advance of recognizing the related revenue are recorded as deferred revenue.

Services

Service revenue is generally recognized ratably over the term of the contract, provided all other revenue recognition criteria have been met. Payments due or received from the customers prior to rendering the associated services are recorded as deferred revenue. Revenue from repair services or upgrades of customer-owned equipment is recognized upon completion of the repair effort and the shipment of the repaired product back to the customer. If the repair or the upgrade include installation, revenue is recognized when the installation is completed.

Multiple Element Arrangements

Certain customer arrangements related to the sale of automated cold sample management systems and contamination control solution products represent multiple element arrangements that include product, service and other elements. The Company allocates arrangement consideration to each deliverable that has a standalone value based upon the selling price hierarchy which requires the Company to use vendor-specific objective evidence (the "VSOE") of selling price if it exists, or a third-party evidence (the "TPE") of the selling price in the absence of VSOE. If neither VSOE nor TPE of selling price exists for a deliverable, the Company uses its best estimate of selling price (the "BESP") for that deliverable. The Company has not been able to establish VSOE or TPE for the deliverables included in the multiple element arrangements and, as a result, primarily uses BESP to allocate the arrangement consideration. The Company determines BESP based on the cost plus a reasonable margin approach and considers entity-specific, as well as external market factors, when developing such estimates.

The Company recognizes revenue for each deliverable that has a standalone value in accordance with its revenue recognition policies. Revenue allocated to the delivered elements is recognized at the time of delivery, provided all other revenue recognition criteria are met. Revenue allocated to the undelivered elements is deferred until the elements are delivered and all other revenue recognition criteria have been met.

Certain multiple element arrangements include the sale of automated cold sample management systems and contamination control solution products with installation services. Revenue allocated to the automated cold sample management systems and contamination control solution products is recognized in accordance with the Company's revenue recognition policies. Revenue allocated to the installation services is recognized based on the percentage-of-completion method or the completed contract method in which case it is deferred until the installation-related tasks have been completed.

Certain customer arrangements include contingent revenue provisions in which a portion of the selling price of a delivered element is contingent on meeting specified performance criteria or on delivery of other elements included in the arrangement. The amount of revenue recognized for these arrangements is limited to the lower of either: (i) the amount billed to the customer

that is not contingent on obtaining a customer technical acceptance; or (ii) the value of the arrangement consideration allocated to the delivered elements.

Research and Development Expense

Research and development costs are expensed as incurred and consist primarily of personnel expenses related to the creation of new products, as well as enhancements and engineering changes to existing products and development of hardware and software components.

Stock-Based Compensation Expense

The Company measures stock-based compensation cost at fair value on the grant date and recognizes the expense over the service period for the awards expected to vest. The fair value of restricted stock units is determined based on the number of shares granted and the closing price of the Company's common stock quoted on NASDAQ on the date of grant.

The Company recognizes stock-based compensation expense on a straight-line basis, net of estimated forfeitures, over the requisite service period. The Company recognizes benefits from stock-based compensation in equity using the with-and-without approach for the utilization of tax attributes. The Company makes estimates of stock award forfeitures and a number of awards expected to vest which requires significant judgment. The Company considers many factors in developing forfeiture estimates, including award types, employee classes and historical experience. The Company assesses the likelihood of achieving the performance goals for stock-based awards that vest upon the satisfaction of these goals. Current estimates may differ from actual results and future changes in estimates.

The following table reflects stock-based compensation expense, excluding amounts related to discontinued operations, recorded during the fiscal years ended September 30, 2016, 2015 and 2014 (in thousands):

	Year Ended September 30,		
	2016	2015	2014
Restricted stock	$11,220	$11,696	$10,467
Employee stock purchase plan	517	463	445
Total stock-based compensation expense	$11,737	$12,159	$10,912

Valuation Assumptions for an Employee Stock Purchase Plan

The fair value of shares issued under the employee stock purchase plan is estimated on the commencement date of each offering period using the Black-Scholes option-pricing model with the following weighted average assumptions for the fiscal years ended September 30, 2016, 2015 and 2014:

	Year Ended September 30,		
	2016	2015	2014
Risk-free interest rate	0.4 %	0.1 %	0.1 %
Volatility	32 %	31 %	25 %
Expected life	6 months	6 months	6 months
Dividend yield	3.40 %	3.40 %	3.40 %

The risk-free rate is based on the U.S. Treasury yield curve for notes with terms approximating the expected life of the shares granted. The expected stock price volatility is determined based on the Company's historic stock prices over a period commensurate with the expected life of the shares granted. The expected life represents the weighted average period over which the shares are expected to be purchased. Dividend yields are projected based on the Company's history of dividend declarations and management's intention for future dividend declarations.

Restructuring Expenses

The Company records restructuring expenses associated with management-approved restructuring actions to streamline its business operations, improve profitability and competitiveness, remove duplicative infrastructure, as well as reduce headcount resulting from business acquisitions. Restructuring expenses include severance costs related to eliminating a specified number of employees, contract termination costs to vacate facilities and consolidate operations, as well as other costs directly associated with restructuring actions. The Company records severance and other employee termination costs associated with restructuring actions when it is probable that benefits will be paid

and the amounts can be reasonably estimated. The rates used in determining restructuring liabilities related to severance costs are based on existing plans, historical experience and negotiated settlements.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

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 differences between the financial statement carrying amounts of existing assets and liabilities and their respective income tax bases, as well as operating loss and tax credit carryforwards. The Company's Consolidated Financial Statements contain certain deferred tax assets that were recorded as a result of operating losses, as well as other temporary differences between financial and tax accounting. A valuation allowance is established against deferred tax assets if, based upon the evaluation of positive and negative evidence and the extent to which that evidence is objectively verifiable, it is more likely than not that some or all of the deferred tax assets will not be realized.

Significant management judgment is required in determining the Company's income tax provision, the Company's deferred tax assets and liabilities and any valuation allowance recorded against those net deferred tax assets. The Company evaluates the weight of all available evidence to determine whether it is more likely than not that some portion or all of the net deferred income tax assets will not be realized.

The calculation of the Company's tax liabilities involves consideration of uncertainties in the application of complex tax regulations. The Company recognizes liabilities for uncertain tax positions based on a two-step process. The first step is to evaluate the tax position for recognition by determining if the weight of available evidence indicates that it is more likely than not that the position will be sustained upon an audit or an examination conducted by taxing authorities, including resolution of related appeals or litigation processes, if any. If the Company determines that a tax position will more likely than not be sustained, the second step requires the Company to estimate and measure the tax benefit as the largest amount that is more likely than not to be realized upon ultimate settlement. It is inherently difficult and subjective to estimate such amounts, as the Company has to determine the probability of various possible outcomes. The Company re-evaluates these uncertain tax positions on a quarterly basis. This evaluation is based on factors, such as changes in facts or circumstances, tax law, new audit activity and effectively settled issues. Determining whether an uncertain tax position is effectively settled requires judgment. A change in recognition or measurement may result in the recognition of a tax benefit or an additional charge to the tax provision.

Earnings Per Share

Basic income (loss) per share is determined by dividing net income (loss) by the weighted average common shares outstanding during the period. Diluted income (loss) per share is determined by dividing net income (loss) by diluted weighted average shares outstanding during the period. Diluted weighted average shares reflect the dilutive effect, if any, of potential common shares. To the extent their effect is dilutive, employee equity awards and other commitments to be settled in common stock are included in the calculation of diluted income per share based on the treasury stock method. Potential common shares are excluded from the calculation of dilutive weighted average shares outstanding if their effect would be anti-dilutive at the balance sheet date based on a treasury stock method or due to a net loss.

Recently Issued Accounting Pronouncements

In June 2016, the Financial Accounting Standards Board (the "FASB"), issued new accounting guidance for reporting credit losses. The new guidance introduces a new "expected loss" impairment model which applies to most financial assets measured at amortized cost and certain other instruments, including trade and other receivables, loans, held-to-maturity debt securities and other financial assets. Entities are required to estimate expected credit losses over the life of financial assets and record an allowance against the assets' amortized cost basis to present them at the amount expected to be collected. Additionally, the guidance amends the impairment model for available for sale debt securities and requires entities to determine whether all or a portion of the unrealized loss on such debt security is a credit loss. The guidance is effective for fiscal years, and interim periods within those years, beginning after December 15, 2019. Early adoption of the newly issued guidance is permitted for fiscal years, and interim periods within those years, beginning after December 15, 2018. The standard should be applied as a cumulative-effect adjustment to retained earnings as of the beginning of the first reporting period in which the guidance is effective. The Company expects to adopt the guidance during the first quarter of fiscal year 2021 and is currently evaluating the impact of this guidance on its financial position and results of operations.

In May 2016, the FASB issued an amendment to the revenue recognition guidance released in May 2014. The amendment is intended to reduce the cost and complexity of applying the revenue recognition guidance and result in a more consistent application of the revenue recognition rules. The amendment clarifies the implementation guidance on collectibility, non-cash consideration and the presentation of sales and other similar taxes, as well as transitional guidance related to completed contracts. The guidance is effective for fiscal years, and interim periods within those years, beginning after December 15, 2017 and should be applied at the time of the adoption of the revenue recognition guidance issued in May 2014. Early adoption of the newly issued guidance is not permitted. The Company expects to adopt the guidance during the first quarter of fiscal year 2019 and is currently evaluating the impact of this guidance on its financial position and results of operations.

In April 2016, the FASB issued an amendment to the revenue recognition guidance released in May 2014. The amendment clarifies the implementation guidance on identifying performance obligations and licensing. Specifically, the amendment

reduces the cost and complexity of identifying promised goods or services and improves the guidance for determining whether promises are separately identifiable. The amendment also provides implementation guidance on determining whether an entity's promise to grant a license provides a customer with either a right to use the entity's intellectual property (which is satisfied at a point in time) or a right to access the entity's intellectual property (which is satisfied over time). The guidance is effective for fiscal years, and interim periods within those years, beginning after December 15, 2017 and should be applied at the time of the adoption of the revenue recognition guidance issued in May 2014. Early adoption of the newly issued guidance is not permitted. The Company expects to adopt the guidance during the first quarter of fiscal year 2019 and is currently evaluating the impact of this guidance on its financial position and results of operations.

In March 2016, the FASB issued an amendment to the accounting guidance to simplify accounting for share-based payment awards issued to employees. The amendment requires recognition of excess tax benefits or deficiencies within income tax expense or benefit and changes their presentation requirements on the statement of cash flows. Additionally, the entity can make an accounting policy election to either estimate the number of awards that are expected to vest, consistent with the current accounting guidance, or account for forfeitures as they occur. The guidance is effective for fiscal years, and interim periods within those years, beginning after December 15, 2016. Early adoption of the newly issued guidance is permitted. The Company expects to adopt the guidance during the first quarter of fiscal year 2018 and is currently evaluating the impact of this guidance on its financial position and results of operations.

In March 2016, the FASB issued an amendment to the revenue recognition guidance released in May 2014. The amendment clarifies the application of the principal versus agent guidance, identification of the units of accounting, as well as application of the control principle to certain types of arrangements within the scope of the guidance. The guidance is effective for fiscal years, and interim periods within those years, beginning after December 15, 2017 and should be applied at the time of the adoption of the revenue recognition guidance issued in May 2014. Early adoption of the newly issued guidance is not permitted. The Company expects to adopt the guidance during the first quarter of fiscal year 2019 and is currently evaluating the impact of this guidance on its financial position and results of operations.

In February 2016, the FASB, issued new accounting guidance for reporting lease transactions. In accordance with provisions of the newly issued guidance, a lessee should recognize at the inception of the arrangement a right-of-use asset and a corresponding lease liability initially measured at the present value of lease payments over the lease term. For finance leases, interest on a lease liability should be recognized separately from the amortization of the right-of-use asset, while for operating leases, total lease costs are recorded on a straight-line basis over the lease term. For leases with a term of twelve months or less, a lessee is permitted to make an accounting policy election by class of underlying assets to forgo a recognition of right-of-use assets and corresponding lease liabilities and record a lease expense on a straight-line basis. Entities should determine at the inception of the arrangement whether a contract represents a lease or contains a lease which is defined as a right to control the use of identified property for a period of time in exchange for consideration. Additionally, entities should separate the lease components from the non-lease components and allocate the contract consideration on a relative standalone price basis in accordance with provisions of ASC Topic 606, Revenue from Contracts with Customers. The guidance is effective for fiscal years, and interim periods within those years, beginning after December 15, 2018 and should be adopted via a modified retrospective approach with certain optional practical expedients that entities may elect to apply. The Company expects to adopt the guidance during the first quarter of fiscal year 2020 and is currently evaluating the impact of this guidance on its financial position and results of operations.

In November 2015, the FASB issued an amendment to the accounting guidance to simplify the presentation of deferred income tax assets and liabilities in a statement of financial position. Deferred income tax assets, net of a corresponding valuation allowance, and liabilities related to a particular tax-paying component of an entity within a particular tax jurisdiction shall be offset and presented as a single non-current amount in a statement of financial position. Deferred income tax assets and liabilities attributable to different tax-paying components of an entity or different tax jurisdictions shall not be offset and be presented separately. The guidance is effective for fiscal years, and

interim periods within those years, beginning after December 15, 2016. The guidance can be adopted early via either a prospective or a retrospective approach for all deferred income tax assets and liabilities presented in a statement of financial position. The Company has adopted this guidance as of September 30, 2016 and applied it retrospectively. As a result, the Company has recast the Consolidated Balance Sheet as of September 30, 2015 to conform to the current period presentation. The adoption of this guidance resulted in a reduction of previously presented current deferred tax assets by $17.6 million, an increase of non-current deferred tax assets by $16.7 million, a reduction of current deferred tax liabilities by $1.3 million and an increase of non-current deferred tax liabilities by $0.3 million as of September 30, 2015.

In September 2015, the FASB issued new accounting guidance to simplify the presentation of measurement-period adjustments recognized in business combinations. Measurement-period adjustments will no longer be recognized by the acquirer retrospectively and will be recorded by the acquirer during the period in which they were determined. The guidance is effective for fiscal years, and interim periods within those years, beginning after December 15, 2015 and should be applied prospectively to the adjustments that occur after the effective date of the guidance. Early adoption is permitted for the financial

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statements that have not been issued, and the Company adopted the guidance during the first quarter of fiscal year 2016 to simplify the presentation of the measurement period adjustments in its Consolidated Financial Statements. During the fiscal year ended September 30, 2016, the Company recorded a measurement period adjustment of $1.1 million related to the acquisition of Contact Co., Ltd and recognized its impact in the accompanying Consolidated Balance Sheets as of the period then ended in accordance with the provisions of the newly adopted guidance. There was no impact on the results of operations during the fiscal year ended September 30, 2016 as a result of this adjustment. This adjustment would have been applied retrospectively and recognized as a reclassification in the accompanying Consolidated Balance Sheets as of September 30, 2015 in accordance with provisions of the previous guidance.

In February 2015, the FASB issued an amendment to the accounting guidance for consolidations of financial statements by changing the analysis that a reporting entity must perform to determine whether it should consolidate certain types of legal entities. The guidance is effective for fiscal years, and interim periods within those years, beginning after December 15, 2015. Early adoption is permitted. The guidance can be adopted either via a full retrospective approach or a modified retrospective approach by recording a cumulative-effect adjustment to beginning equity in the period of adoption. The Company expects to adopt the guidance during the first quarter of fiscal year 2017. The Company is currently evaluating the impact of the guidance on its financial position and results of operations.

In May 2014, the FASB issued new accounting guidance for reporting revenue recognition. The guidance provides for the recognition of revenue when promised goods or services are transferred to customers in an amount that reflects the consideration that is expected to be received for those goods or services. A five-step process set forth in the guidance may require more judgment and estimation within the revenue recognition process than the current GAAP, including identifying performance obligations in the contract, estimating the amount of variable consideration to include in the transaction price and allocating the transaction price to each separate performance obligation. The guidance was initially effective for fiscal years, and interim periods within those years, beginning after December 15, 2016. In August 2015, the FASB issued an amendment deferring the effective date of the guidance by one year. The guidance should be adopted retrospectively either for each reporting period presented or via recognizing the cumulative effect at the date of the initial application. Early adoption is permitted only as of annual reporting periods, including the interim periods, beginning after December 15, 2016. The Company expects to adopt the guidance during the first quarter of fiscal year 2019 and is currently evaluating the impact of this guidance on its financial position and results of operations.

3. Discontinued Operations

The Granville-Phillips business unit developed, manufactured, sold and serviced vacuum measurement and gas analysis instrumentation to semiconductor and non-semiconductor customers. In March 2014, the Company entered into an agreement to sell this business for $87.0 million in cash. The sale was completed on May 30, 2014. The Company’s historical financial statements have been revised to present the operating results of the Granville-Phillips business as a discontinued operation. Summarized results of the discontinued operation are as follows for the fiscal year ended September 30, 2014 (in thousands):

	Amount
Revenue	$18,921
Income from discontinued operations	4,888
Gain on the sale of the discontinued operations	56,804
Income tax provision	31,690
Income from discontinued operations, net of tax	$30,002

The operating results of the Granville-Phillips business were historically included in the results of operations for the Brooks Semiconductor Solutions segment.

The presentation of the Granville-Phillips business as a discontinued operation had no impact on previously reported net (loss) income or stockholders' equity.

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4. Acquisitions

Acquisitions Completed in Fiscal Year 2016

Acquisition of BioStorage Technologies, Inc.

On November 30, 2015, the Company completed its acquisition of BioStorage Technologies, Inc., or BioStorage, an Indiana-based global provider of comprehensive sample management and integrated cold chain solutions for the biosciences industry. These solutions include collection, transportation, processing, storage, protection, retrieval and disposal of biological samples. These solutions combined with the Company's existing offerings, particularly automation for sample storage and formatting, provide customers with fully integrated sample management cold chain solutions which will help them increase productivity, efficiencies and speed to market. This acquisition will allow the Company to access a broader customer base that is storing samples at ultra cold temperatures and simultaneously provide opportunities for BioStorage to use the Company's capabilities to expand into new markets.

The Company acquired 100% of the issued and outstanding shares of BioStorage. A cash payment of $130.7 million, net of the seller's cash of $2.8 million, resulted in a net cash outflow of $128.0 million, including $125.2 million ascribed to the purchase price and $2.5 million for retention arrangements with certain employees based on the completion of a service retention period. The cash payment included a debt repayment of $3.2 million and transaction costs of $2.9 million paid by the Company on behalf of BioStorage.

The Company recorded the assets acquired and liabilities assumed related to BioStorage at their preliminary fair values as of the acquisition date, from a market participant's perspective. The purchase price allocation was prepared on a preliminary basis and is subject to further adjustments as additional information becomes available concerning the fair value of the assets acquired and liabilities assumed. The preliminary fair values of the tangible and intangible assets acquired were based upon preliminary valuations and the Company's estimates and assumptions that are subject to change within the measurement period. As of September 30, 2016, the primary areas that remained preliminary included fair values of intangible assets acquired, certain tangible assets, tax-related matters and residual goodwill. The Company expects to continue obtaining information to assist it with determining the fair values of the net assets acquired during the measurement period. Any adjustments to the purchase price allocation will be made as soon as practicable but no later than one year from the acquisition date.

On September 9, 2016, the Company reached a settlement with the sellers of BioStorage's stock related to certain working capital adjustments. On September 13, 2016, the Company received $0.2 million of proceeds from the sellers as a result of such settlement, which was recorded as a decrease of $0.2 million in the purchase price and goodwill. The impact of the working capital adjustment is reflected in the following preliminary purchase price allocation table (in thousands):

	Fair Value of Assets and Liabilities
Accounts receivable	$16,942
Prepaid expenses and other current assets	321
Property, plant and equipment	14,345
Intangible assets	41,460
Goodwill	79,639
Other assets	53
Debt assumed	(385)
Accounts payable	(1,708)
Accrued liabilities	(9,423)
Deferred revenue	(1,766)
Long-term deferred tax liabilities	(14,169)
Other liabilities	(61)
Total purchase price, net of cash acquired	$125,248

At the closing of the acquisition of BioStorage, a cash payment of $5.4 million was placed into escrow which consisted of $2.9 million ascribed to the purchase price and $2.5 million related to retention arrangements with certain employees. The

payment of $2.9 million included $1.9 million related to satisfaction of the sellers' indemnification obligations with respect to BioStorage's representations and warranties and other indemnities, as well as $1.0 million related to potential purchase price adjustments which was reduced by the full amount subsequent to the acquisition date as a result of reaching a settlement with the sellers. The remaining escrow balance of $2.5 million is payable to certain employees upon completion of a service retention period. Such retention payments were not considered a part of the purchase price, but rather recorded as a separate asset acquired and included within "Prepaid expenses and other current assets" in the accompanying Consolidated Balance Sheets. The escrow balance related to such retention payments was reduced by $1.7 million subsequent to the acquisition date and had a balance of $0.8 million as of September 30, 2016. Total escrow balances were $2.7 million as of September 30, 2016.

The fair value of customer relationship intangible assets of $36.6 million was estimated based on the income approach in accordance with the excess-earnings method. In accordance with the excess-earnings method, the value of the intangible asset is equal to the present value of the after-tax cash flows attributable to the intangible asset only. The weighted average amortization period for the customer relationships intangible assets acquired in the BioStorage acquisition is 11.0 years.

The fair value of the trademark intangible assets acquired of $4.9 million was estimated based on the income approach in accordance with the relief-from-royalty method. In accordance with the relief-from-royalty method, the value of an intangible asset is equal to the present value of the after-tax royalty savings attributable to owning that intangible asset. The weighted average amortization period for the trademark intangible assets acquired in the BioStorage acquisition is 8.0 years.

The intangible assets acquired are amortized over the total weighted average period of 10.6 years using an accelerated depreciation method which approximates the pattern in which the economic benefits are expected to be realized.

Fair values of intangible assets and their estimated useful lives are determined based on estimates of future expected after-tax cash flows and royalty savings, customer attrition rates, discount rates, as well as assumptions about the period of time over which the Company will be deriving economic benefits from the acquired intangible assets.

Goodwill represents the excess of the consideration transferred over the fair value of the net assets acquired and has been assigned to the Company's Brooks Life Science Systems segment. Goodwill is primarily the result of expected synergies from combining the operations of BioStorage with the Company's operations and is not deductible for tax purposes.

The operating results of BioStorage have been reflected in the results of operations for the Brooks Life Science Systems segment from the date of the acquisition, which included one month of activity during the first quarter of fiscal year 2016. During fiscal year 2016, revenue and net income from BioStorage recognized in the Company’s results of operations were $44.6 million and $2.4 million, respectively. During fiscal year 2016, the net income included amortization expense of $2.9 million related to acquired intangible assets.

During fiscal year 2016, the Company incurred $3.2 million in non-recurring transaction costs with respect to the BioStorage acquisition which were recorded in "Selling, general and administrative" expenses within the accompanying Consolidated Statements of Operations. The retention payment of $2.5 million was recorded within prepaid expenses and other current assets at the acquisition date and is recognized as a compensation expense over the service period or upon a triggering event in the underlying change in control agreements. During fiscal year 2016, the Company recorded $2.4 million of the compensation-related expense with respect to this arrangement. The retention payment balance was $0.1 million at September 30, 2016.

The following unaudited proforma financial information represents a summary of the consolidated results of operations for the Company and BioStorage as if the acquisition of BioStorage occurred on October 1, 2014 (in thousands):

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

	Fiscal Year Ended September 30,	
	2016	2015
Revenue	$571,369	$593,687
Net (loss) income	(63,396)	7,000
Basic (loss) income per share	$(0.93)	$0.10
Diluted (loss) income per share	$(0.93)	$0.10
Weighted average shares outstanding used in computing net (loss) income per share:		
Basic	68,507	67,411
Diluted	68,507	68,549

The unaudited pro forma information presented above reflects historical operating results of the Company and BioStorage and includes the impact of certain adjustments directly attributable to the business combination. The unaudited pro forma financial information is presented for informational purposes only and is not necessarily indicative of the results of operations that would have been achieved if the acquisition of BioStorage had taken place on October 1, 2014. During fiscal years ended September 30, 2016 and 2015, the adjustments reflected in the unaudited pro forma information included aggregate amortization and depreciation expense of $0.6 million and $4.3 million, respectively, and tax effects of $0.5 million and $0.8 million, respectively. Additionally, the impact of transaction costs of $3.3 million and restructuring charges of $1.9 million
was included in the proforma net income during fiscal year 2015 and excluded from the proforma net loss during fiscal year 2016.

Acquisitions Completed in Fiscal Year 2015

Acquisition of Contact Co., Ltd.

On August 14, 2015, the Company acquired all of the outstanding stock of Contact Co., Ltd., or Contact, a Japanese-based provider of automated cleaner products for wafer carrier devices used in the global semiconductor markets. The acquisition of Contact expanded the Company's offerings of contamination control solutions within its Brooks Semiconductor Solutions Group segment, strengthened its current capabilities and technology used in its contamination control solutions business and enhanced its long-term strategy of gaining share in its core semiconductor markets.

The aggregate purchase price of $6.8 million, net of cash acquired, consisted of a cash payment of $1.9 million, the assumption of the seller's debt of $8.8 million, seller's cash of $4.8 million and a contingent consideration of $0.8 million payable upon achievement of certain specified targets and events. The entire debt amount was fully repaid as of September 30, 2015.

The Company recorded the assets acquired and liabilities assumed related to Contact at their preliminary fair values as of the acquisition date and prepared the purchase price allocation on a preliminary basis. The preliminary fair values of the tangible and intangible assets acquired were based upon preliminary valuations and the Company's estimates and assumptions that were subject to change within the measurement period. During the first quarter of fiscal year 2016, the Company finalized the valuation of property, plant and equipment reported at fair value at the acquisition date. As a result, the Company recorded a measurement period adjustment of $1.1 million as a decrease in the tangible assets' fair value and a corresponding increase in goodwill. There was no impact on the depreciation expense as a result of the tangible assets' fair value revision during the period then ended. The Company adopted Accounting Standards Update, or ASU, 2015-16, Simplifying the Accounting for Measurement Period Adjustments, during the first quarter of fiscal year 2016 and recognized the impact of the measurement period adjustment in the accompanying unaudited Consolidated Balance Sheets as of September 30, 2016 in accordance with the provisions of the newly adopted guidance. The purchase price allocation for Contact acquisition was finalized within the measurement period.

The Company recorded the following amounts for the assets acquired and liabilities assumed related to Contact at their fair values as of the acquisition date (in thousands):

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

	Fair Value of Assets and Liabilities
Accounts receivable	$ 42
Inventories	2,020
Prepaid expenses and other current assets	484
Property, plant and equipment	79
Completed technology	2,290
Goodwill	4,195
Other assets	1,410
Accounts payable	(1,089)
Accrued liabilities	(1,823)
Long-term deferred tax liabilities	(774)
Total purchase price, net of cash acquired	$ 6,834

Fair value of the contingent consideration of $0.8 million was determined based on a probability-weighted average discounted cash flow model and recorded in "Accrued expenses and other current liabilities" in the Company's Consolidated Balance Sheets. The Company remeasures the fair value of the contingent consideration at each reporting date until the arrangement is settled. Fair value of the contingent consideration was $0.5 million at September 30, 2016, and the Company recognized a corresponding gain of $0.3 million on the fair value remeasurement during fiscal year 2016. Please refer to Note 21, “Fair Value Measurements” for further information on the fair value measurement of the contingent consideration.

At September 30, 2016, the Company had approximately $0.7 million in escrow related to potential working capital adjustments and the sellers' satisfaction of general representations and warranties. At the closing of the acquisition of Contact, the escrow balance was $1.5 million which was reduced by approximately $0.8 million during fiscal year 2016 as a result of a payment made to the sellers upon termination of a certain third-party arrangement. The escrow balance was $0.7 million as of September 30, 2016.

Fair value of the completed technology intangible assets was estimated based on the income approach in accordance with the excess-earnings method. The weighted average amortization period for the completed technology intangible assets acquired in the Contact acquisition is 5.0 years. The intangible assets acquired are amortized using an accelerated depreciation method which approximates the pattern in which the economic benefits are expected to be realized.

Goodwill represents the excess of the consideration transferred over the fair value of the net assets acquired and has been assigned to the Company's Brooks Semiconductor Solutions Group segment. Goodwill is primarily the result of expected synergies from combining the operations of Contact with the Company's operations and is not deductible for tax purposes.

The operating results of Contact have been included in the results of operations for the Brooks Semiconductor Solutions Group segment from the date of the acquisition. During fiscal year 2016, revenue and net loss from Contact recognized in the Company's results of operations were $4.5 million and $1.1 million, respectively. The operating results of Contact for fiscal year 2015 were insignificant and have been included in the results of operations of Brooks Semiconductor Solutions Group segment from the date of the acquisition. During fiscal year 2016, the net loss included charges of $0.6 million and $0.7 million, respectively, related to the step-up in value of the acquired inventories and amortization expense of acquired intangible assets.

The Company incurred $0.1 million and $0.2 million, respectively, in non-recurring transaction costs with respect to the Contact acquisition during fiscal years ended September 30, 2016 and 2015 which were recorded in "Selling, general and administrative" expenses within the accompanying Consolidated Statements of Operations.

The Company did not present a pro forma information summary for its consolidated results of operations for the fiscal years ended September 30, 2015 and 2014 as if the acquisition of Contact occurred on October 1, 2013 because such

results were insignificant.

Acquisition of FluidX Ltd.

On October 1, 2014, the Company acquired all of the outstanding stock of FluidX Ltd., or FluidX, a UK-based provider of biological sample storage tubes and complementary bench-top instruments. The Company paid, in cash, aggregate merger consideration of $15.5 million, net of cash acquired. The acquisition of FluidX provided the Company with the opportunity to enhance its existing capabilities with respect to biobanking solutions in the Brooks Life Science Systems segment.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

The Company recorded the following amounts for the assets acquired and liabilities assumed related to FluidX at their fair values as of the acquisition date (in thousands):

	Fair Values of Assets and Liabilities
Accounts receivable	$ 1,980
Inventory	2,857
Prepaid and other current assets	213
Property, plant and equipment	101
Completed technology	1,230
Trademarks and trade names	750
Customer relationships	4,810
Goodwill	8,247
Accounts payable	(2,079)
Deferred revenue	(72)
Accrued liabilities	(992)
Long-term deferred tax liabilities	(1,540)
Total purchase price, net of cash acquired	$ 15,505

The purchase price was allocated based on the fair value of the identified assets acquired and liabilities assumed as of the acquisition date from a market participant's perspective.

On January 23, 2015, the Company reached a settlement with respect to certain working capital adjustments with the sellers of FluidX stock. On February 3, 2015, the Company made a payment to the sellers as a result of this settlement, which increased the purchase price by $0.1 million. Prior to September 30, 2016, the Company had $1.5 million in a general escrow account held by the unrelated third party. The balance was remitted to the sellers and fully released during fiscal year 2016. The Company finalized the purchase price allocation for FluidX acquisition within the measurement period. Adjustments to the initial purchase price allocation recorded during the measurement period were not material to the Company's financial position.

Fair values of the trademarks and the completed technology acquired were estimated based on the income approach in accordance with the relief-from-royalty method. Fair value of customer relationships acquired was estimated based on the income approach in accordance with the excess-earnings method. The weighted average amortization periods for intangible assets acquired in the FluidX acquisition are 5.0 years for each of completed technology, trademarks, and customer relationships. The intangible assets acquired are amortized using an accelerated amortization method which approximates the pattern in which the economic benefits are expected to be realized.

Goodwill represents the excess of the consideration transferred over the fair value of the net assets acquired and has been assigned to the Company's Brooks Life Science Systems segment. Goodwill is primarily the result of expected synergies from combining the operations of FluidX with the Company and is not deductible for tax purposes.

The operating results of FluidX have been included in the results of operations for the Brooks Life Science Systems segment from the date of the acquisition. During fiscal year 2016, revenue and net loss attributable to FluidX were $15.6 million and $0.2 million, respectively. During fiscal year 2015, revenue and net loss attributable to FluidX were $15.0 million and $0.6 million, respectively. The Company incurred charges of $1.0 million related to the step-up in value of the acquired inventories during fiscal year 2015, as well as amortization expense of $1.2 million and $1.4 million, respectively, related to the acquired intangible assets which was included in the net loss during fiscal years 2016 and 2015.

The Company incurred $0.5 million and $0.2 million, respectively, during fiscal years 2015 and 2014 in non-recurring transaction costs with respect to the FluidX acquisition which were recorded in "Selling, general and administrative" expenses within the accompanying Consolidated Statements of Operations.

The Company did not present a pro forma information summary for its consolidated results of operations for the fiscal year ended September 30, 2015 and 2014 as if the acquisition of FluidX occurred on October 1, 2013 because such results were insignificant.

Acquisitions Completed in Fiscal Year 2014

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On April 30, 2014, the Company acquired all the outstanding stock of Dynamic Micro Systems Semiconductor Equipment GmbH, or DMS, a German provider of automated contamination control solutions for front opening unified pod, or FOUP, carriers and reticle storage targeted at improving yield of semiconductor processes at semiconductor fabrication plants. The Company paid to the sellers an aggregate cash consideration of $31.6 million, net of cash acquired. The acquisition of DMS expanded the Company's capabilities at semiconductor fabrication plants for yield improvement on new technology nodes.

The Company recorded the assets acquired and the liabilities assumed related to DMS at their fair values as of the acquisition date. The amounts recorded were as follows (in thousands):

	Fair Values of Assets and Liabilities
Accounts receivable	$ 15,262
Inventory	10,051
Prepaid and other current assets	2,727
Property, plant and equipment	2,049
Completed technology	3,610
Customer relationships	7,100
Goodwill	11,638
Accounts payable	(10,393)
Accrued liabilities	(5,522)
Deferred revenue	(1,309)
Long-term deferred tax liabilities	(3,588)
Total purchase price, net of cash acquired	$ 31,625

The purchase price was allocated based on the fair value of the identified assets acquired and liabilities assumed as of the acquisition date from a market participant's perspective. The Company finalized the purchase price allocation for this acquisition within the measurement period. Adjustments to the initial purchase price allocation recorded during the measurement period were not material to the Company's financial position.

The Company reached a settlement with respect to certain working capital adjustments and other issues with the sellers of DMS' stock in the fourth quarter of fiscal year 2014. As a result of this settlement, the Company received $2.2 million in the first quarter of fiscal year 2015 from certain escrow accounts established at the date of acquisition and held by the unrelated third party. At September 30, 2015, $2.8 million remained in escrow related to potential future claims against the sellers of DMS' stock. On October 30, 2015, the Company remitted $2.8 million to the sellers upon expiration of the escrow period.

The Company used the relief-from-royalty method to estimate the fair value of the completed technology and the excess-earnings method to estimate the fair value of the customer relationships. The weighted average amortization periods for intangible assets acquired in the DMS acquisition are 5.0 years for completed technologies and 8.0 years for customer relationships. The intangible assets acquired are amortized using variable declining balance and straight-line methods that approximate the pattern in which the economic benefits are expected to be realized.

Goodwill represents the excess of the consideration transferred over the net assets acquired and has been assigned to the Company's Brooks Semiconductor Solutions Group segment. Goodwill is primarily the result of expected synergies from combining the operations of DMS with the Company and is not deductible for tax purposes. In the first quarter of fiscal year 2015, the Company increased the opening goodwill balance by $0.3 million as a result of a fair value adjustment recorded to inventory.

The operating results of DMS have been included in the results of operations for the Brooks Semiconductor Solutions Group segment from the date of the acquisition. Revenue from DMS was $45.1 million, $44.0 million and $5.5 million for fiscal years 2016, 2015 and 2014, respectively. Net income attributable to DMS was $1.8 million for fiscal year 2016 and included $1.6 million of amortization expense during the period then ended. Net income attributable to

DMS was $3.1 million for fiscal year 2015 and included charges of $0.6 million related to the step-up in values of the acquired inventories, $2.2 million of amortization expense and $0.1 million of restructuring charges during the period then ended. Net loss attributable to DMS was $4.5 million for fiscal year 2014 and included charges of $1.9 million related to the step-up in values of the acquired inventories, $0.9 million of amortization expense and $0.3 million of restructuring charges during the period then ended.

The Company incurred $0.4 million during fiscal year 2014 in non-recurring transaction costs with respect to the DMS acquisition which were recorded in "Selling, general and administrative" expenses within the accompanying Consolidated Statements of Operations. Transaction costs incurred during fiscal year 2015 with respect to the DMS acquisition were

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insignificant.

5. Marketable Securities

The Company invests in marketable securities that are classified as available-for-sale and recorded at fair value in the Company's Consolidated Balance Sheets. Marketable securities reported as current assets represent investments that mature within one year from the balance sheet date. Long-term marketable securities represent investments with maturity dates greater than one year from the balance sheet date.

Unrealized gains and losses are excluded from earnings and reported as a separate component of accumulated other comprehensive income until the security is sold or matures. Gains or losses realized from sales of marketable securities are computed based on the specific identification method and recognized as a component of "Other (expense) income, net" in the accompanying Consolidated Statements of Operations. During fiscal year 2016, the Company sold marketable securities with a fair value of $127.6 million and amortized cost of $127.7 million and recognized net losses of approximately $0.1 million. Gross gains reported as a component of net losses recognized on the sale of marketable securities during fiscal year 2016 were insignificant. The Company collected cash proceeds of $127.0 million from the sale of marketable securities and reclassified unrealized net holding losses of approximately $0.1 million from accumulated other comprehensive income into "Other (expense) income, net" in the accompanying Consolidated Statements of Operations as a result of these transactions.

During fiscal year 2015, the Company sold marketable securities with fair values of $9.5 million and amortized costs of $9.5 million and collected cash proceeds of $9.5 million from such sales. Unrealized net holding gains reclassified from accumulated other comprehensive income into "Other (loss) income, net" and realized on sales of these securities during fiscal years 2015 and 2014 were insignificant. Please refer to Note 15, "Stockholders' Equity", for further information on these reclassifications and their impact on the Accumulated Other Comprehensive Income and Other Comprehensive Income for the fiscal years ended September 30, 2016, 2015 and 2014.

The following is a summary of the amortized cost and the fair value, including accrued interest receivable, as well as unrealized holding gains (losses) on the short-term and long-term marketable securities as of September 30, 2016 and 2015 (in thousands):

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
September 30, 2016:				
Corporate securities	2,394	—	—	2,394
Other debt securities	39	—	—	39
Municipal securities	3,704	1	(3)	3,702
	$ 6,137	$ 1	$ (3)	$ 6,135
September 30, 2015:				
U.S. Treasury securities and obligations of U.S. government agencies	$ 30,343	$ 39	$ —	$ 30,382
Corporate securities	54,725	13	(48)	54,690
Mortgage-backed securities	857	27	—	884
Other debt securities	5,056	3	—	5,059
Municipal securities	30,258	18	(9)	30,267
Bank certificate of deposits	12,024	2	—	12,026
	$ 133,263	$ 102	$ (57)	$ 133,308

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

The fair values of the marketable securities by contractual maturities at September 30, 2016 are presented below (in thousands).

	Fair Value
Due in one year or less	$ 39
Due after one year through five years	3,704
Due after ten years	2,392
	$ 6,135

Expected maturities could differ from contractual maturities because the security issuers may have the right to prepay obligations without prepayment penalties.

The Company reviews the marketable securities for impairment at each reporting period to determine if any of the securities have experienced an other-than-temporary decline in fair value. The Company considers factors, such as the length of time and extent to which the market value has been less than the cost, the financial condition and near-term prospects of the issuer, the Company's intent to sell, or whether it is more likely than not it will be required to sell the investment before recovery of its amortized cost basis. If the Company believes that an other-than-temporary decline in fair value has occurred, it writes down the investment to fair value and recognizes the credit loss in earnings and the non-credit loss in accumulated other comprehensive income. As of September 30, 2016, aggregate fair value of the marketable securities in unrealized loss position was $2.5 million and was comprised entirely of municipal securities. Aggregate unrealized losses for these securities were insignificant as of September 30, 2016 and are presented in the table above. As of September 30, 2015, aggregate fair value of the marketable securities in unrealized loss position was $40.4 million and was comprised of corporate securities of $31.8 million, municipal securities of $6.6 million, bank certificates of deposit of $1.0 million, as well as U.S. Treasury and Government Agency securities of $1.0 million. Aggregate unrealized losses for these securities were $0.1 million as of September 30, 2015 and are presented in the table above. The securities in unrealized loss position as of September 30, 2016 and 2015 were not considered other-than-temporarily impaired and, as such, the Company did not recognize impairment losses during the periods then ended. The unrealized losses are attributable to changes in interest rates which impact the value of the investments.

6. Property, Plant and Equipment

Property, plant and equipment were as follows as of September 30, 2016 and 2015 (in thousands):

	September 30,	
	2016	2015
Buildings and land	$45,772	$43,765
Computer equipment and software	65,989	58,715
Machinery and equipment	54,896	43,185
Furniture and fixtures	5,704	5,310
Leasehold improvements	17,128	13,617
Capital projects in progress	5,428	4,427
	194,917	169,019
Less accumulated depreciation and amortization	(140,032)	(127,164)
Property, plant and equipment, net	$54,885	$41,855

Depreciation expense, excluding amounts related to the discontinued operations, was $13.1 million, $12.3 million and $12.7 million, respectively, for the fiscal years ended September 30, 2016, 2015 and 2014. The Company recorded $1.3 million of additions to property, plant and equipment for which cash payments had not yet been made as of September 30, 2016.

During fiscal year 2015, the Company was leasing one of the buildings in Chelmsford, Massachusetts which was purchased for a total price of $8.4 million on September 30, 2015. Please refer to Note 22, "Commitments and Contingencies" for further information on this transaction.

As of September 30, 2015, the building and the underlying land with a carrying value of $4.8 million located in Oberdiessbach, Switzerland were presented as "Assets Held for Sale" in the accompanying Consolidated Balance Sheets. The Company determined fair value of the assets held for sale based on indication of value resulting from marketing the building and the land to prospective buyers. The Company recognized a loss of $1.9 million in fiscal year 2015 for the difference between the assets' fair value of $2.9 million and the carrying value of $4.8 million. The loss of $1.9 million was recognized as a component of "Other (expense) income, net" in the accompanying Consolidated Statements of Operations. During fiscal year

2016, the Company sold the building and the underlying land to an unrelated third party for a total price of $2.8 million and remeasured the fair value of the assets. The corresponding impact of this remeasurement on the Company's results of operations for fiscal year 2016 was insignificant. Please refer to Note 21, "Fair Value Measurements" for further information on the assets' fair value measurements.

7. Goodwill and Intangible Assets

Goodwill represents the excess of net book value over the estimated fair value of net tangible and identifiable intangible assets of a reporting unit. Goodwill is tested for impairment annually or more often if impairment indicators are present at the reporting unit level. The Company elected April 1 as its annual goodwill impairment assessment date and performs additional impairment tests if triggering events occur. If events occur or circumstances change that would more likely than not reduce fair values of the reporting units below their carrying values, goodwill is evaluated for impairment between annual tests.

Prior to fiscal year 2016, the Company had six reporting units, including five reporting units that had goodwill. Four reporting units were a part of the Brooks Product Solutions operating segment, and each of the Brooks Global Services segment and Brooks Life Science Systems segment represented a reporting unit. During fiscal year 2016, the Company reorganized its operating and reportable segments into (i) Brooks Semiconductor Solutions Group, or BSSG,; and (ii) Brooks Life Science Systems and realigned its reporting units to reflect the revised reporting structure. The combination of the Brooks Product Solutions segment and Brooks Global services segment did not have a direct impact on the goodwill at the reporting unit level. As a result of this re-alignment, the Company had five reporting units as of September 30, 2016, including four reporting units within the BSSG operating segment and one reporting unit which was Brooks Life Science Systems operating segment. Please refer to Note 20, "Segment Information" for additional information on the operating and reporting segments realignment. The revised reporting unit structure reflects the combination of two previously identified reporting units, Polycold and CTI Cryogenics, into one reporting unit called BSSG Cryogenics as a result of the reorganization of the Company's internal management structure and the economic similarities that exist between the two reporting units. The Company evaluated goodwill for potential indicators of impairment before and after this combination and determined that fair value of each component individually and in aggregate exceeded their carrying values. BSSG Cryogenics goodwill carrying amount was $24.0 million, and its fair value significantly exceeded its carrying value as of the date of each goodwill impairment testing.

The Company completed its annual goodwill impairment test as of April 1, 2016 and determined that no adjustment to goodwill was necessary. Fair values of all of the reporting units, except for Polycold, substantially exceeded their respective carrying values. Fair value of the Polycold reporting unit on a standalone basis exceeded its carrying value by 12%. During the second quarter of 2016, the Company concluded that recent operating trends and declining forecasts for the Polycold reporting unit represented indicators of potential goodwill impairment. As a result, the Company performed the first step of the quantitative goodwill impairment test as of February 1, 2016 and determined that the fair value exceeded the carrying value by 18%, and that no goodwill impairment existed. The Company determined the Polycold reporting unit's fair value based on an Income Approach in accordance with the DCF method. During the third quarter of fiscal year 2016, the Company incorporated lower projected future cash flows into the model due to lower forecasted revenue and gross margin in fiscal year 2016 that resulted in a decrease of the excess of the Polycold reporting unit's fair value over its carrying value from 18% during the second quarter of fiscal year 2016 to 12% during the third quarter of fiscal year 2016. The estimated fair value of the Polycold's reporting unit assumed a taxable transaction. The Polycold reporting unit's goodwill carrying amount was $24.0 million as of the date of each goodwill impairment assessment.

The components of the Company's goodwill by an operating segment at September 30, 2016 and 2015 are as follows (in thousands):

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	Brooks Semiconductor Solutions Group	Brooks Life Science Systems	Other	Total
Gross goodwill, at September 30, 2014	$ 651,067	$ 47,378	$26,014	$724,459
Accumulated goodwill impairments	(588,944)	—	(26,014)	(614,958)
Goodwill, net of accumulated impairments, at September 30, 2014	62,123	47,378	—	109,501
Acquisitions and adjustments	3,660	8,247	—	11,907
Gross goodwill, at September 30, 2015	654,727	55,625	26,014	736,366
Accumulated goodwill impairments	(588,944)	—	(26,014)	(614,958)
Goodwill, net of accumulated impairments, at September 30, 2015	65,783	55,625	—	121,408
Acquisitions and adjustments	1,054	79,676	—	80,730
Gross goodwill, at September 30, 2016	655,781	135,301	26,014	817,096
Accumulated goodwill impairments	(588,944)	—	(26,014)	(614,958)
Goodwill, net of accumulated impairments, at September 30, 2016	$ 66,837	$ 135,301	$—	$202,138

During fiscal year 2016, the Company recorded a goodwill increase of $79.7 million related to the acquisition of BioStorage which represented the excess of the consideration transferred over the fair value of the net assets acquired. Additionally, the Company recorded a measurement period adjustment related to the acquisition of Contact that resulted in a decrease in the tangible assets' fair value of $1.1 million and a corresponding increase in goodwill. Please refer to the Note 4 "Acquisitions" for further information on the measurement period adjustment recorded during fiscal year 2016.

The Company tests certain long-lived assets when impairment indicators are present. During fiscal year 2013, the Company determined that impairment indicators were present for the finite-lived intangible assets related to the Celigo product line. The assets were tested for recoverability by comparing the sum of the undiscounted cash flows directly attributable to the assets to their carrying values, which resulted in the conclusion that the carrying amounts of the assets were not recoverable. The fair values of the assets were determined based primarily on market-based valuation techniques, and an impairment loss of $2.0 million was recognized during fiscal year 2013. The loss amount was allocated to the long-lived assets in the impaired asset group based on the carrying value of each asset, with no asset reduced below its respective fair value. The Company revised its estimate of the fair value of these assets in fiscal year 2014 and recorded an additional impairment loss of $0.4 million within "Cost of revenue" in its Consolidated Statements of Operations during the period then ended. The impairment loss was recorded in the Brooks Life Science Systems segment. The Company completed the sale of the Celigo product line during fiscal year 2014 that did not have a material impact on the Company's financial position or results of operations for the period then ended.

The components of the Company’s identifiable intangible assets as of September 30, 2016 and 2015 are as follows (in thousands):

	September 30, 2016			September 30, 2015		
	Cost	Accumulated Amortization	Net Book Value	Cost	Accumulated Amortization	Net Book Value
Patents	$7,808	$ 7,486	$322	$7,808	$ 7,394	$414
Completed technology	60,485	51,018	9,467	60,748	46,718	14,030
Trademarks and trade names	9,142	4,204	4,938	4,241	3,604	637
Customer relationships	114,263	47,147	67,116	77,716	37,351	40,365
	$191,698	$ 109,855	$81,843	$150,513	$ 95,067	$55,446

Amortization expense for intangible assets, excluding amounts related to the discontinued operations, was $15.0 million, $12.9 million and $10.6 million, respectively, for the fiscal years ended September 30, 2016, 2015 and 2014.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Estimated future amortization expense for the intangible assets as of September 30, 2016 is as follows (in thousands):

Year ended September 30,	
2017	$15,573
2018	14,052
2019	13,713
2020	12,909
2021	8,036
Thereafter	17,560
	$81,843

8. Equity Method and Other Investments

The Company accounts for certain of its investments using the equity method of accounting and records its proportionate share of the investee's earnings (losses) in its results of operations with a corresponding increase (decrease) in the carrying value of the investment.

BioCision, LLC

In March 2014, the Company acquired a 22% equity interest in BioCision, LLC, or BioCision, a privately-held company based in Larkspur, California, for $4.0 million. During fiscal year 2015, the Company's equity investment was diluted from 22% to 20% as a result of stock options granted to new employees. BioCision develops, manufactures and markets cell cryopreservation products used for improving and standardizing the tools and methods for biomaterial sample handling. The Company determined that BioCision represented a variable interest entity since the level of equity investment at risk was not sufficient to finance its activities without additional financial support. However, the Company does not qualify as a primary beneficiary since it does not have the power to direct BioCision's product research, development, selling and marketing activities that have the most significant impact on its economic performance. The Company's loss exposure is limited to the amount of investment and loan funding provided to BioCision. As such, the Company concluded that BioCision should not be consolidated in its financial statements.

During the fiscal years ended September 30, 2016 and 2015, the Company recorded a loss of $1.1 million and $1.0 million, respectively, representing its proportional share in the BioCision's losses. The carrying value of the investment in BioCision was $1.7 million and $2.7 million, respectively, at September 30, 2016 and 2015.

The Company purchased BioCision's five-year convertible debt securities with a warrant agreement to purchase preferred units of BioCision for $2.5 million on each of the following dates of December 22, 2014 and February 2, 2015, resulting in a total purchase price of $5.0 million. Interest accrues on the convertible debt securities at a rate of 9% per annum, and is due with the principal at maturity. The convertible debt securities were recorded at fair value and accounted for in accordance with the fair value method. The warrant was recorded at fair value and accounted for as a derivative instrument. At September 30, 2016, the fair values of the convertible debt securities and warrants were $5.8 million and less than $0.1 million, respectively. At September 30, 2015, the fair values of the convertible debt securities and warrants were $5.3 million and $0.1 million, respectively.

Please refer to Note 21, “Fair Value Measurements” for further information regarding the convertible debt securities and the warrants. The Company re-measures the fair values of the BioCision convertible debt securities and the warrant during each reporting period and recognizes the respective gains or losses as a component of "Other (expense) income, net" in the accompanying Consolidated Statements of Operations. The Company recognized remeasurement gains of $0.4 million during each fiscal year ended September 30, 2016 and 2015.

During fiscal year 2016, the Company provided a series of bridge loans to BioCision with an aggregate principal amount of $0.6 million bearing an annual interest rate of 10% to support BioCision's working capital requirements. During the second quarter of fiscal year 2016, the Company made an additional loan of $0.2 million to BioCision, and the bridge loans were converted into a part of the permanent term loan, collectively, the" loan", which provides for financing of an aggregate principal amount up to $1.5 million, including the first tranche of $0.8 million and a second tranche of $0.8 million which was provided to BioCision during the third quarter of fiscal year 2016 to support its working capital requirements. All principal and accrued interest outstanding on the loan mature on December 31,

2019 or at an earlier date upon the occurrence of certain events. In the event that BioCision obtains a certain equity investment or has a liquidity event, in either case, on or before September 30, 2016, all accrued and unpaid interest will be due and payable, and interest will thereafter accrue and be due and payable monthly in arrears. All accrued and unpaid interest was converted into additional loan principal with accrued interest due and payable monthly in arrears since no such equity investment or liquidity event occurred on or before September 30, 2016. The financing supports growing working capital requirements in part due to BioCision entering into a supply agreement with a certain customer. The Company will be entitled to receive quarterly royalty payments from BioCision equal to 15% of

the revenue generated from this certain customer arrangement until the earlier of: (i) the termination of the customer arrangement, (ii) the receipt by the Company of an aggregate amount of $1.5 million of royalty proceeds, and (iii) the date the loan is repaid in full. All outstanding and unpaid royalties become immediately due and payable to the Company if the customer arrangement is terminated. The loan is secured by a first priority perfected lien on BioCision's cash flows from the aforementioned customer arrangement, as well as a second priority perfected subordinated security interest and a lien on its personal property and other intangible assets, including intellectual property. At September 30, 2016, the aggregate loan of $1.5 million was recorded at its carrying value and included in "Other assets" in the accompanying Consolidated Balance Sheets.

As a result of each of the funding rounds described above, the Company reconsidered whether BioCision represents a variable interest entity subject to consolidation. The Company concluded that BioCision remains a variable interest entity since the level of equity investment at risk is not sufficient to finance its activities without additional financial support. However, the Company does not qualify as a primary beneficiary since it does not have the power to direct BioCision's product research, development, selling and marketing activities that have the most significant impact on its economic performance. As such, the Company concluded that BioCision will not be consolidated in the Company's financial statements.

ULVAC Cryogenics, Inc.

The Company participates in a 50% joint venture, ULVAC Cryogenics, Inc., or UCI, with ULVAC Corporation of Chigasaki, Japan. UCI manufactures and sells cryogenic vacuum pumps, principally to ULVAC Corporation.

The carrying value of the investment in UCI was $25.6 million and $21.5 million, respectively, at September 30, 2016 and 2015. During the fiscal years ended September 30, 2016, 2015 and 2014, the Company recorded income of $3.4 million, $1.4 million and $1.6 million, respectively, representing its proportionate share of the UCI's earnings. Management fee payments received by the Company from UCI were $0.8 million during fiscal year ended September 30, 2016 and $0.6 million during each fiscal year ended September 30, 2015 and 2014. During the fiscal years ended September 30, 2016, 2015 and 2014, the Company incurred charges from UCI for products or services of $0.3 million, $0.4 million and $0.4 million, respectively. The Company owed UCI $0.1 million at each of September 30, 2016 and 2015 in connection with accounts payable for unpaid products and services. During the fiscal years ended September 30, 2016 and 2015, the Company received $1.5 million and $0.6 million, respectively, of cash dividends from UCI which reduced the carrying value of the Company's investment.

The Company's investment in UCI is considered to be significant for the fiscal year ended September 30, 2016 since the Company's proportionate share of the UCI's earnings exceeded 20% of the Company's consolidated income from continuing operations before the income tax provision for the fiscal year 2016. Consolidated Financial Statements of UCI as of June 30, 2016 and 2015 and July 1, 2014 (the date of transition) and the related notes are filed as Exhibit 99.2 hereto and incorporated herein by reference in this Form 10-K.

Yaskawa Brooks Automation, Inc.

During fiscal year 2015, the Company participated in a 50% joint venture with Yaskawa Electric Corporation, or Yaskawa, called Yaskawa Brooks Automation, Inc., or YBA, which came to closure in March 2015 and was liquidated on September 3, 2015. YBA exclusively marketed and sold Yaskawa’s semiconductor robotics products and the Company's automation hardware products to semiconductor customers in Japan. During the first quarter of fiscal year 2015, the Company and Yaskawa agreed in principle to dissolve the joint venture. On January 22, 2015, the Company entered into an agreement with YBA to facilitate the acquisition of certain assets and liabilities by the Company’s subsidiary in Japan. In accordance with provisions of the joint venture's agreement, on March 20, 2015, the Company purchased the net assets of YBA for cash consideration of approximately $1.8 million. The Company recorded the assets received and liabilities assumed from YBA at fair value as of the acquisition date. As a result of the transaction, the Company recorded $0.2 million of goodwill, representing the excess of the consideration transferred over the fair value of the net assets acquired. The Company received a final dividend of $1.8 million upon liquidation of YBA and incurred liquidation costs of $0.2 million during fiscal year 2015. In connection with the planned dissolution, YBA assessed the recoverability of assets held by the joint venture and notified its equity partners of the asset impairment. As a result, the Company recorded an impairment charge of $0.7 million related to the write

down of the carrying value of the equity investment in YBA to its fair value during fiscal year 2015.

During the fiscal years ended September 30, 2015 and 2014, the Company recorded a loss of $0.6 million and $0.1 million, respectively, representing its proportionate share of the YBA's losses. During the fiscal years ended September 30, 2015 and 2014, revenue earned by the Company from YBA was $2.5 million and $7.4 million, respectively. The Company incurred charges from YBA for products or services of $0.7 million during each fiscal year ended September 30, 2015 and 2014. There were no amounts receivable by the Company from YBA or owed by the Company to YBA at September 30, 2016 and 2015.

Summarized Financial Information

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Summarized financial information for the unconsolidated subsidiaries accounted for based on the equity method for the fiscal years ended September 30, 2016, 2015 and 2014 is as follows (in thousands):

	September 30,	
	2016	2015
Balance Sheets:		
Current assets	$59,507	$43,201
Non-current assets	15,461	12,657
Current liabilities	25,320	15,551
Non-current liabilities	19,933	13,581

	Year Ended September 30,		
	2016	2015	2014
Statements of Operations:			
Total revenue	$74,659	$48,047	$48,702
Gross profit (loss)	27,355	16,327	16,510
Income (loss) from continuing operations	6,731	(1,074)	1,745
Net income (loss)	2,374	(2,452)	1,636

Summarized financial information presented in the table above includes results for UCI and BioCision and does not include results for YBA since such amounts are not significant. The Company currently records its share of UCI's and BioCision's results of operations based on a three-months lag. Accordingly, the Company's Consolidated Financial Statements include its share of income and losses incurred by UCI and BioCision from the periods beginning and ending three months prior to the periods shown in the table.

9. Loan Receivable

In fiscal year 2012, the Company provided a strategic partner (the "Borrower") a loan of $3.0 million to support the Borrower's future product development and other working capital requirements. The loan initially bore a stated interest rate of 9%, and the outstanding principal and interest were initially due in May 2015. The Company also received a warrant to purchase the Borrower's common stock in the event of an equity offering by the Borrower and certain other rights related to conversion of the loan, including the first refusal to acquire the Borrower and a redemption premium. The loan was initially secured by a security agreement granting the Company a first-priority security interest in all of the Borrower's assets.

The Company determined that the Borrower represented a variable interest entity since the level of equity investment at risk was not sufficient for the entity to finance its activities without additional financial support. However, the Company does not qualify as the primary beneficiary since it would not absorb the majority of the expected losses from the Borrower and does not have the power to direct the Borrower's product research, development and marketing activities that have the most significant impact on its economic performance. The Company has no future contractual funding commitments to the Borrower and, as a result, the Company's exposure to loss is limited to the outstanding principal and interest due on the loan.

During fiscal year 2014, the Borrower informed the Company of its intent to secure additional funding from an investment program funded by the Commonwealth of Massachusetts designed to support early-stage companies. In connection with the Borrower’s efforts to secure additional financing, the Company agreed to subordinate its security interest in the assets of the Borrower to the new lender. Additionally, the Company agreed to extend the due date of its loan by approximately 5 years, to September 2019, in order to coincide with the due date of the new loan. The amended loan has a stated interest rate of 10%.

In connection with its efforts to secure additional financial support, the Borrower developed revised assumptions about its future cash flows. Based on the information provided by the Borrower and the subordination of the loan to the new lender, the Company determined it was probable that it would not recover all amounts due from the loan and recorded an impairment charge of $2.6 million during fiscal year 2014. The impairment charge included the warrant

write-off and was recorded in the "Selling, general and administrative" expenses in the Company's Consolidated Statements of Operations.

The fair value of the loan is determined by considering the fair value of the collateral using valuation techniques, principally the discounted cash flow method, reduced by the amounts subordinated to the debt provided by the new lender. The observable inputs used in the Company's analysis are limited primarily to the discount rate, which is based on a rate

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commensurate with the risks and uncertainties of the Borrower. As a result, the fair value of the loan could vary under different conditions or assumptions, including the varying assumptions regarding future cash flows of the Borrower or discount rates.

Carrying value of the loan receivable was $0.2 million and $1.0 million, respectively, at September 30, 2016 and 2015. The Company determines fair value of the loan based on a relief from royalty and discounted cash flow approaches. During fiscal year 2016, the Company concluded that recent operating trends and declining future cash flow forecasts of the Borrower represented indicators of potential loan impairment. As a result, the Company updated the discounted cash flow valuation model based on revised lower forecasted future cash flow assumptions and determined, based on a relief from royalty and discounted cash flow approaches, that carrying value of the loan exceeded its estimated fair value by $0.8 million. Accordingly, the Company recorded an impairment based on charge of $0.8 million in "Selling, general and administrative" expenses in the Company's Consolidated Statements of Operations during fiscal year ended September 30, 2016 which resulted in the loan's carrying value of $0.2 million at September 30, 2016.

10. Supplementary Balance Sheet Information

The following is a summary of accounts receivable at September 30, 2016 and 2015 (in thousands):

	September 30,	
	2016	2015
Accounts receivable	$108,713	$87,582
Less allowance for doubtful accounts	(2,241)	(1,019)
Less allowance for sales returns	(100)	(115)
	$106,372	$86,448

The allowance for doubtful accounts activity for the fiscal years ended September 30, 2016, 2015 and 2014 is as follows (in thousands):

Description	Balance at Beginning of Period	Provisions	Reversals of Bad Debt Expense	Write-offs and Adjustments	Balance at End of Period
2016 Allowance for doubtful accounts	$ 1,019	$ 202	$ —	$ 1,020	$ 2,241
2015 Allowance for doubtful accounts	1,031	—	—	(12)	1,019
2014 Allowance for doubtful accounts	863	438	(315)	45	1,031

The allowance for sales returns activity for the fiscal years ended September 30, 2016, 2015 and 2014 is as follows (in thousands):

Description	Balance at Beginning of Period	Provisions	Write-offs and Adjustments	Balance at End of Period
2016 Allowance for sales returns	$ 115	$ (14)	$ —	$ 101
2015 Allowance for sales returns	133	(18)	—	115
2014 Allowance for sales returns	114	19	—	133

The following is a summary of inventories at September 30, 2016 and 2015 (in thousands):

	September 30,	
	2016	2015
Inventories		
Raw materials and purchased parts	$60,979	$62,441
Work-in-process	16,090	21,563
Finished goods	15,503	16,615
	$92,572	$100,619

The activity for excess and obsolete inventory reserves, excluding amounts related to discontinued operations, is as follows for the fiscal years ended September 30, 2016, 2015 and 2014 (in thousands):

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Description	Balance at Beginning of Period	Provisions	Inventory Disposals and Adjustments	Balance at End of Period
2016 Reserves for excess and obsolete inventory	$ 23,768	$ 7,293	$ (6,267)	$ 24,794
2015 Reserves for excess and obsolete inventory	26,027	7,879	(10,138)	23,768
2014 Reserves for excess and obsolete inventory	24,200	6,900	(5,073)	26,027

The Company establishes reserves for estimated cost of product warranties based on historical information. Product warranty reserves are recorded at the time product revenue is recognized, and retrofit accruals are recorded at the time retrofit programs are established. The Company’s warranty obligation is affected by product failure rates, utilization levels, material usage, service delivery costs incurred in correcting a product failure and supplier warranties on parts delivered to the Company.

The following is a summary of product warranty and retrofit activity on a gross basis, excluding amounts related to discontinued operations, for the fiscal years ended September 30, 2016, 2015 and 2014 (in thousands):

	Amount
Balance at September 30, 2013	$7,260
Adjustments for acquisitions and divestitures	364
Accruals for warranties during the year	9,969
Costs incurred during the year	(11,094)
Balance at September 30, 2014	6,499
Adjustments for acquisitions and divestitures	81
Accruals for warranties during the year	9,917
Costs incurred during the year	(10,408)
Balance at September 30, 2015	6,089
Adjustments for acquisitions and divestitures	—
Accruals for warranties during the year	9,975
Costs incurred during the year	(9,740)
Balance at September 30, 2016	$6,324

11. Line of Credit

On May 26, 2016, the Company and certain of its subsidiaries entered into a credit agreement with Wells Fargo Bank, N.A. (the "Wells Fargo"). The credit agreement provides for a five-year senior secured revolving line of credit (the "line of credit") of $75.0 million. Availability under the line of credit is subject to a borrowing base which is redetermined from time to time based on certain percentage of certain eligible U.S. assets, including accounts receivable, inventory, real property, as well as machinery and equipment. The agreement includes sublimits of up to $25.0 million for letters of credit and $7.5 million of swing loans at the time there is more than one lender under the credit agreement. The line of credit expires on May 26, 2021 with all outstanding principal and interest due and payable on such date or an earlier date if declared due and payable on such earlier date pursuant to the terms of the credit agreement (by acceleration or otherwise). Subject to certain conditions of the credit agreement, the net cash proceeds from sales of certain collateral during the term of the arrangement are required to be used to prepay borrowings under the line of credit. The Company may also voluntarily prepay certain amounts under the line of credit without penalty or premium. There were no amounts outstanding under the line of credit as of September 30, 2016. Borrowings under the line of credit bear an annual interest rate equal to, at the Company’s option, the base rate or the LIBOR rate plus, in each case, an applicable margin determined based on the Company's liquidity as of the first day of each fiscal quarter. LIBOR rate is reset at the beginning of each selected interest period based on the rate then in effect. The base rate is a fluctuating interest rate equal to the highest of (i) the federal funds rate plus 0.50%, (ii) the one month LIBOR rate plus 1.00% and (iii) the prime lending rate announced by Wells Fargo. During the fiscal year 2016, the Company incurred $0.7 million in deferred financing costs which included commitments fees and other costs directly associated with obtaining the line of credit. Please refer to Note 2, "Summary of Significant Accounting

Policies" for further information on the deferred financing fees. In addition to interest on any outstanding borrowings under the credit agreement, the Company is required to pay monthly fees of 0.25% per year related to unused portion of the revolver commitment amounts. The Company incurred approximately $0.1 million in such fees during fiscal year 2016. All outstanding borrowings under the credit agreement are guaranteed by the Company along with certain U.S. subsidiaries and secured by a first priority perfected security interest in

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substantially all of the Company's and guarantor's assets in the U.S., subject to certain exceptions. Additionally, the Company granted Wells Fargo a mortgage lien on certain company-owned real properties.
The line of credit contains certain customary representations and warranties, a financial covenant, affirmative and negative covenants, as well as events of default. In the event in which the Company's liquidity is less than the greater of (i) 12.5% of the commitments under the line of credit, and (ii) $9.4 million, and continuing until the time such liquidity during a 60-consecutive day period has been equal to or greater than the greater of (a) 12.5% of the commitments under the line of credit, and (b) $9.4 million, the Company is required to maintain a fixed charge coverage ratio of at least 1.0 to 1.0 measured as of the last day of each fiscal month ending during such period. Liquidity is defined as a sum of (a) excess availability under the credit agreement; and (b) unrestricted cash and cash equivalents located in bank accounts in the United States that are subject to a control agreement in favor of Wells Fargo, limited to a maximum amount of 50% of liquidity. Negative covenants limit the Company's ability to incur additional indebtedness, liens, sell assets, consolidate or merge with or into other entities, pay non-cash dividends (and cash dividends if the Company fails to meet certain payment conditions), make certain investments, prepay, redeem or retire subordinated debt, and enter into certain types of transactions with the Company’s affiliates. If any of the events of default occur and are not waived or cured within applicable grace periods, any unpaid amounts under the credit agreement, including principal and interest, may be declared immediately due and payable and the credit agreement may be terminated. The Company was in compliance with the line of credit covenants as of September 30, 2016.

12. Income Taxes

The components of the income tax provision (benefit), excluding amounts related to the discontinued operations, for the fiscal years ended September 30, 2016, 2015 and 2014 are as follows (in thousands):

	Year Ended September 30,		
	2016	2015	2014
Current income tax provision (benefit):			
Federal	$(145)	$10	$15
State	(186)	56	177
Foreign	5,868	5,537	1,417
Total current income tax provision	5,537	5,603	1,609
Deferred income tax benefit:			
Federal	68,300	(1,773)	(2,276)
State	4,000	(104)	(35)
Foreign	(2,027)	(296)	(1,278)
Total deferred income tax benefit	70,273	(2,173)	(3,589)
Income tax provision (benefit)	$75,810	$3,430	$(1,980)

The components of income (loss) before income taxes and equity in (losses) earnings of equity method investments for the fiscal years ended September 30, 2016, 2015 and 2014 are as follows (in thousands):

	Year Ended September 30,		
	2016	2015	2014
Domestic	$(8,186)	$(1,321)	$(7,338)
Foreign	12,140	19,136	5,643
	$3,954	$17,815	$(1,695)

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

The differences between the income tax provision (benefit) and income taxes computed using the applicable U.S. statutory federal tax rate for the fiscal years ended September 30, 2016, 2015 and 2014 are as follows (in thousands):

	Year Ended September 30,		
	2016	2015	2014
Income tax provision (benefit) computed at federal statutory rate	$2,217	$6,177	$(217)
State income taxes, net of federal benefit	113	243	(12)
Foreign income taxed at different rates	(755)	(938)	(596)
Dividends	(1,666)	(1,069)	(1,373)
Change in deferred tax asset valuation allowance	77,531	(36)	453
Reduction in uncertain tax positions	(1,543)	(1,207)	(1,236)
Nondeductible compensation	782	1,325	1,064
Tax credits	(1,786)	(1,741)	(704)
Travel and entertainment	274	314	220
Merger costs	503	228	187
Other	140	134	234
Income tax provision (benefit)	$75,810	$3,430	$(1,980)

The Company has not provided deferred income taxes on the unremitted earnings of its foreign subsidiaries as these earnings are considered to be indefinitely reinvested outside of the U.S. These earnings amounted to approximately $52.0 million, $40.3 million and $25.2 million, respectively, at September 30, 2016, 2015 and 2014. It is not practicable to compute the estimated deferred tax liability on these earnings as they depend on numerous factors and vary based on the timing of future remittances and the future results of various foreign operations. Deferred taxes have not been provided on unremitted earnings of its fifty percent-owned foreign corporate joint venture, Ulvac Cryogenics, Inc. as these earnings are also considered to be indefinitely reinvested outside of the U.S. The Company does, however, receive annual dividends only from current year earnings of this joint venture and these dividends are included in taxable income for the year. Any earnings that are not distributed in the current year will then be considered indefinitely reinvested as the company does not expect to receive dividends from prior year earnings.
The significant components of the net deferred tax assets and liabilities as of September 30, 2016 and 2015 are as follows (in thousands):

	September 30,	
	2016	2015
Accruals and reserves not currently deductible	$16,448	$9,602
Federal, state and foreign tax credits	24,539	22,115
Other assets	4,294	5,939
Net operating loss carryforwards	73,097	63,569
Inventory reserves and valuation	11,342	10,598
Deferred tax assets	129,720	111,823
Depreciation and intangible amortization	25,850	9,388
Deferred tax liabilities	25,850	9,388
Valuation allowance	(104,802)	(18,797)
Net deferred tax (liability) asset	$(932)	$83,638

In November 2015, the FASB issued Accounting Standards Update ("the ASU") 2015-17, Income Taxes (Topic 740), Balance Sheet Classification of Deferred Taxes. This guidance requires deferred tax liabilities, deferred tax assets and valuation allowances to be classified as non-current in a classified balance sheet. This ASU is effective for annual reporting periods beginning after December 15, 2016 and interim periods within those annual periods. Early adoption is permitted and may be applied either prospectively or retrospectively to all periods presented. The Company has elected to early adopt the ASU as of September 30, 2016 on retrospective basis. The classification of deferred tax assets and liabilities as of September 30, 2015 has been recast to reflect the current period presentation. Current

deferred tax assets, non-current deferred tax assets, current deferred tax liabilities and non-current deferred tax liabilities were $17.6 million, $70.5 million, $1.3 million and $3.2 million, respectively, in the previously issued financial statements for the fiscal year ended September 30, 2015.

ASC Topic 740, Income Taxes, requires that all available evidence, both positive and negative, be considered in determining, based on the weight of that evidence, whether a valuation allowance is needed. The weight given to the potential effect of negative and positive evidence should be commensurate with the extent to which it can be objectively verified. The more negative evidence that exists, (a) the more positive evidence is necessary and (b) the more difficult it is to support a conclusion that a valuation allowance is not needed for some portion or all of the deferred tax asset. A cumulative loss in recent years is considered a significant piece of negative evidence that is difficult to overcome in assessing the need for a valuation allowance.

The Company evaluates the realizability of its deferred tax assets by tax-paying component and assesses the need for a valuation allowance on an annual and quarterly basis. The Company evaluates the profitability of each tax-paying component on a historic cumulative basis and a forward looking basis in the course of performing this analysis. The Company evaluated all positive and negative evidence in concluding it was appropriate to establish a full valuation allowance against U.S. net deferred tax assets during fiscal year 2016.

The Company evaluated negative evidence to assess if it is more likely than not that the Company could utilize the U.S. deferred tax assets. In reviewing performance over the recent years, the Company currently shows cumulative income. This history considers earnings in recent years from the discontinued operations of Granville-Phillips, which was divested during fiscal year 2014 and freed up capital for investments in strategic growth businesses. In evaluating the historical results of the continuing businesses, the Company has not yet demonstrated profitability with losses in recent periods. The Company reported U.S. pre-tax losses during fiscal year 2015 and fiscal year 2016. The loss in fiscal year 2016 included a significant charge for restructuring actions which are ultimately expected to improve future profitability. However, these losses presented significant negative evidence in the evaluation.

The Company also considered positive evidence such as expected improvements that are the results of investments in growth businesses. The Company prepares comprehensive forecasts based on the cyclical trends of the semiconductor industry, expected capital spending in the industry and demand for new product offerings. The Company's forecast of future improved profits includes a portion related to foreign operations, specifically in the Contamination Control Solutions business, which are excluded from the evaluation of U.S. deferred tax assets. The forecast of future improved profits also includes a portion related to U.S. operations. The Brooks Life Science Systems segment has driven cumulative losses in the U.S. in the past years, but is expected to provide growth in revenue and improved profitability resulting in increased profits in the U.S. After extensive review, despite significant projected improvements, the forecasted income is not considered to be objectively verifiable evidence because the revenue growth expected for the future periods is based on projections and not significantly supported by specific bookings and backlog of orders for product in place as of the end of the quarter. The evidence is therefore considered more subjective than objective under the accounting rules. Accordingly, this positive evidence is given less weight than the negative evidence discussed above.

A cumulative loss is difficult negative evidence to overcome on a more likely than not basis. Future income projections can only overcome this negative evidence if the projections are considered objectively verifiable. Since the income projections are not considered objectively verifiable, the Company determined that realization of the U.S. net deferred tax assets should not be viewed as more likely than not until the projected profits are supported with objectively verifiable evidence of the improvements. As a result of this change in assessment, the Company recorded a tax provision of $79.3 million to establish the valuation allowance against U.S. net deferred tax assets during the second quarter of fiscal year 2016. The Company will continue to maintain a full valuation allowance on its U.S. deferred tax assets until there is sufficient positive evidence to support the reversal of all or some portion of these allowances.

As of September 30, 2016, the Company had federal, state and foreign net operating loss carry-forwards of approximately $137.0 million, $114.0 million and $85.0 million, respectively. The federal net operating losses expire beginning in 2024 through 2035, with the majority of the loss expiring in 2029. The state net operating losses are generated in various jurisdictions with different carryover periods and expire starting in 2017 through 2035. Certain foreign net operating loss carryovers will begin to expire in 2017, while a significant portion has an unlimited carryover period. The net operating loss carry-forward includes excess deductions related to stock compensation in the

amount of $15.0 million which have not been recognized for financial statement purposes. The benefits of these tax deductions will be credited to additional paid-in capital upon being realized.
As of September 30, 2016, the Company had federal research and development tax credit carry-forwards of $18.7 million. These credit carry-forwards will expire at various dates beginning in 2020 through 2036. The Company also has $10.4 million of state credits which begin to expire in 2020, while some of these credits have an unlimited carryover period.
The Company has performed studies to determine if there are any annual limitations on the federal net operating losses under the Section 382 of the Internal Revenue Code of 1986, as amended, or the Internal Revenue Code. As a result of these studies, the Company has determined that ownership changes have occurred primarily in connection with acquisitions when the Company has issued stock to the sellers, as well as ownership changes in the subsidiaries acquired by the Company. Certain

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

limitations have been calculated, and the benefits of the net operating losses that will expire before utilization have not been recorded as deferred tax assets in the accompanying Consolidated Balance Sheets.
In fiscal year 2016, the Company identified an error in footnote disclosures related to historical components of its net deferred tax asset balance. Specifically, as of September 30, 2015, the gross deferred tax assets net operating loss carryforwards and related valuation allowance were understated by an equal and offsetting amount of $12.9 million. The error was corrected as of September 30, 2016 and had no impact on the net deferred tax assets or the provision for income taxes. The error and associated out of period correction were determined to be immaterial and had no effect on the Company’s Consolidated Balance Sheets, Statements of Operations, Changes in Equity or Cash Flows for any period presented.
The Company maintains liabilities for uncertain tax positions. These liabilities involve judgment and estimation and are monitored based on the best information available. A reconciliation of the beginning and ending amount of the consolidated liability for unrecognized income tax benefits during the fiscal years ended September 30, 2016, 2015 and 2014 is as follows (in thousands):

	Total
Balance at October 1, 2013	$5,147
Reductions from lapses in statutes of limitations	(861)
Foreign exchange rate adjustment	(24)
Balance at September 30, 2014	4,262
Reductions from settlements with taxing authorities	(1,304)
Reductions from lapses in statutes of limitations	(734)
Foreign exchange rate adjustment	(33)
Balance at September 30, 2015	2,191
Additions for tax positions in current year	4,165
Reductions from lapses in statutes of limitations	(897)
Foreign exchange rate adjustment	(32)
Balance at September 30, 2016	$5,427

Included in the ending balance of unrecognized tax benefits for the fiscal year ended September 30, 2016 are $3.8 million of tax benefits that if recognized would result in adjustments to deferred taxes in jurisdictions where a full valuation allowance is recorded. The Company recognizes interest related to unrecognized benefits as a component of income tax provision (benefit), of which $0.1 million, $0.2 million and $0.3 million, respectively, was recognized for the fiscal years ended September 30, 2016, 2015 and 2014. The statute of limitations lapsed on several uncertain tax positions in the foreign jurisdictions during fiscal year 2016 that resulted in a $0.9 million reduction in gross unrecognized tax benefits that impacted the effective tax rate.
The Company is subject to U.S. federal income tax and various state, local and international income taxes in various jurisdictions. The amount of income taxes paid is subject to the Company's interpretation of applicable tax laws in the jurisdictions in which it files.
In the normal course of business, the Company is subject to income tax audits in various global jurisdictions in which it operates. The years subject to examination vary for the U.S. and international jurisdictions, with the earliest tax year being 2010. Based on the outcome of these examinations or the expiration of statutes of limitations for specific jurisdictions, it is reasonably possible that the related unrecognized tax benefits could change from those recorded in the Company's Consolidated Balance Sheets. The Company currently anticipates that it is reasonably possible that the unrecognized tax benefits will be reduced by approximately $1.1 million in the next 12 months.

13. Derivative Instruments

Prior to fiscal year 2014, the Company was a party to foreign exchange contracts to reduce its exposure to changes in foreign exchange rates associated with an order for multiple automated sample management systems. The Company concluded that these foreign currency contracts met the criteria to qualify as a cash flow hedge. Accordingly, the Company reflected changes in the fair value of the effective portion of these foreign currency contracts in

accumulated other comprehensive income. During fiscal year 2014, the Company reclassified the realized gain of $0.1 million on these contracts from accumulated other comprehensive income into revenue to coincide with recognition of the hedged transaction. Please refer to Note 15, "Stockholders' Equity", for further information on this reclassification and its impact on the accumulated other

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comprehensive income and other comprehensive income for the fiscal year 2014. The Company did not recognize any amounts related to hedging ineffectiveness of these contracts in the results of operations for the fiscal year ended September 30, 2014. As of September 30, 2014, the Company did not have any notional amounts outstanding under foreign currency contracts that qualified for cash flow hedge accounting.

The Company has transactions and balances denominated in currencies other than the U.S. dollar. Most of these transactions or balances are denominated in Euros, British Pounds and a variety of Asian currencies. These transactions and balances, including short-term advances between the Company and its subsidiaries, subject the Company's operations to exposure from exchange rate fluctuations. The impact of currency exchange rate movement can be positive or negative in any period. The Company mitigates the impact of potential currency transaction gains and losses on short-term intercompany advances through timely settlement of each transaction, generally within 30 days.

The Company also enters into foreign exchange contracts to reduce its exposure to currency fluctuations. Under forward contract arrangements, the Company typically agrees to purchase a fixed amount of U.S. dollars in exchange for a fixed amount of a foreign currency on specified dates with maturities of three months or less. These transactions do not qualify for hedge accounting. Net gains and losses related to these contracts are recorded as a component of "Other (expense) income, net" in the accompanying Consolidated Statements of Operations and are as follows for the fiscal years ended September 30, 2016, 2015 and 2014 (in thousands):

	Years Ended September 30,		
	2016	2015	2014
Realized gains on derivatives not designated as hedging instruments	$1,434	$628	$185

The Company had the following notional amounts outstanding under foreign currency contracts that do not qualify for hedge accounting at September 30, 2016 and 2015 (in thousands):

September 30, 2016:

Buy Currency	Notional Amount of Buy Currency	Sell Currency	Maturity	Notional Amount of Sell Currency	Fair Value of Assets	Fair Value of Liabilities
British Pound	246	Swedish Krona	October 2016	2,100	$ 1	$ —
U.S. Dollar	6,107	British Pound	October 2016	4,710	2	—
U.S. Dollar	5,815	Chinese Yuan	October 2016	39,000	—	(33)
Euro	14,976	U.S. Dollar	October 2016	13,300	—	(40)
Korean Won	2,255	U.S. Dollar	October 2016	2,488,000	1	—
Euro	8,403	British Pound	October 2016	6,500	—	(23)
U.S. Dollar	311	Israeli Shekel	October 2016	1,169	1	—
					$ 5	$ (96)

September 30, 2015:

Buy Currency	Notional Amount of Buy Currency	Sell Currency	Maturity	Notional Amount of Sell Currency	Fair Value of Assets	Fair Value of Liabilities
U.S. Dollar	1,543	Korean Won	October 2015	1,852,000	$ —	$ (6)
British Pound	2,157	Euro	October 2015	1,600	—	(29)
U.S. Dollar	662	Taiwan Dollar	October 2015	22,000	—	(1)
U.S. Dollar	4,308	British Pound	October 2015	6,520	32	—
Euro	9,300	U.S. Dollar	October 2015	8,253	40	—
U.S. Dollar	5,177	Chinese Yuan	October 2015	33,000	15	—
U.S. Dollar	425	Japanese Yen	October 2015	51,000	—	—
U.S. Dollar	1,336	Japanese Yen	December 2015	160,000	2	—
U.S. Dollar	457	Israeli Shekel	October 2015	1,800	—	—
					$ 89	$ (36)

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

The fair values of the forward contracts described above are recorded in the Company's Consolidated Balance Sheets as "Prepaid expenses and other current assets" and "Accrued expenses and other current liabilities".

Stock Warrants

The BioCision warrant agreement contains net share settlement provisions, which permit the Company to pay the warrant exercise price using shares issuable under the warrants (“cashless exercise”). The value of the stock warrants fluctuates primarily in relation to the value of BioCision's underlying securities, either providing an appreciation in value or potentially expiring with no value. Gains and losses on the revaluation of the stock warrant are recognized as a component of "Other (expense) income, net" in the accompanying Consolidated Statements of Operations. Please refer to Note 21 “Fair Value Measurements” for further information regarding the fair value of the stock warrant.

14. Postretirement Benefits

Defined Benefit Pension Plans

The Company has two active defined benefit pension plans (collectively, the “Plans”). The Plans cover substantially all of the Company’s employees in Switzerland and Taiwan. Retirement benefits are generally earned based on years of service and the level of compensation during active employment, but the level of benefits varies within the Plans. Eligibility is determined in accordance with local statutory requirements.

The Company uses September 30th as a measurement date to determine net periodic benefit costs, benefit obligations and the value of plan assets for all plans. The following tables set forth the funded status and amounts recognized in the Company’s Consolidated Balance Sheets as of September 30, 2016 and 2015 (in thousands):

	September 30,	
	2016	2015
Benefit obligation at beginning of fiscal year	$7,661	$8,213
Service cost	548	482
Interest cost	71	124
Actuarial loss	106	733
Benefits paid	(712)	(209)
Employee contributions	156	444
Settlements paid	—	(1,795)
Curtailment gain	(1,064)	—
Foreign currency translation	81	(331)
Benefit obligation at end of fiscal year	$6,847	$7,661
Fair value of assets at beginning of fiscal year	$4,838	$6,131
Actual return on plan assets	30	112
Disbursements	(837)	(334)
Employer contributions	296	306
Employee contributions	352	642
Settlements paid	—	(1,795)
Foreign currency translation	55	(224)
Fair value of assets at end of fiscal year	$4,734	$4,838
Accrued benefit obligation	$2,113	$2,823

The accumulated benefit obligation of the Plans is $6.3 million and $6.9 million, respectively, at September 30, 2016 and 2015. Both Plans have an accumulated benefit obligation and projected benefit obligation in excess of plans' assets at September 30, 2016 and 2015.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

The following table provides pension-related amounts and their classification within the accompanying Consolidated Balance Sheets as of September 30, 2015 and 2014 (in thousands):

	September 30,	
	2016	2015
Accrued compensation and benefits	$155	$298
Long-term pension liability	1,958	2,525
	$2,113	$2,823

Accumulated other comprehensive income at September 30, 2016 and 2015 includes unrecognized net actuarial losses of $0.3 million and $0.2 million, respectively, and cumulative unrecognized investment losses of $0.9 million and $0.8 million, respectively, during fiscal years 2016 and 2015. Unrecognized net actuarial losses and cumulative unrecognized investment losses within accumulated other comprehensive income were offset by a curtailment gain of $0.9 million at September 30, 2016.

The components of the Company’s net pension cost for the fiscal years ended September 30, 2016, 2015 and 2014 are as follows (in thousands):

	Year Ended September 30,		
	2016	2015	2014
Service cost	$548	$482	$406
Interest cost	71	124	154
Expected return on plan assets	(159)	(210)	(214)
Amortization of losses	2	2	2
Other	—	—	—
Net periodic pension cost	462	398	348
Curtailment gain	(227)	—	—
Settlement loss	—	232	—
Total pension cost	$235	$630	$348

The following changes in Plans' assets and benefit obligations were recognized in other comprehensive income (loss) as of September 30, 2016 and 2015 (in thousands):

	September 30,	
	2016	2015
Net loss	$165	$722
Amortization of net loss	(2)	(2)
Curtailment gain	(852)	—
Settlement loss	—	(232)
Total recognized in other comprehensive income (loss)	(689)	488
Total recognized in net periodic pension cost and other comprehensive income (loss)	$(227)	$886

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The curtailment gain of $0.2 million incurred during fiscal year 2016 and the settlement loss of $0.2 million incurred during fiscal year 2015 were reclassified from accumulated other comprehensive income (loss) into the results of operations during each fiscal year. Additionally, a curtailment gain of $1.1 million was recognized as a reclassification from accumulated other comprehensive income and a corresponding reduction in pension liabilities. Please refer to Note 15, "Stockholders' Equity", for further information on these reclassifications and their impact on the accumulated other comprehensive income and other comprehensive income during each fiscal year.
Weighted-average assumptions used to determine the projected benefit obligation for the fiscal years ended September 30, 2016, 2015 and 2014 are as follows:

	Year Ended September 30,		
	2016	2015	2014
Discount rate	0.40 %	0.92 %	1.55 %
Expected return on plan assets	1.75 %	1.78 %	2.18 %
Expected rate of compensation increases	1.31 %	1.65 %	1.87 %

In selecting the appropriate discount rates for the Plans, the Company uses country-specific information, adjusted to reflect the duration of the particular plan. The expected return on plan assets is based on an evaluation of fixed income yield curves and equity return assumption studies applied to the Plans' asset allocations.
The Company bases its determination of pension expense on a market-related valuation of assets, which reduces year-to-year volatility. This market-related valuation recognizes investment gains or losses over a five-year period from the year in which they occur. Investment gains or losses represent the difference between the expected return calculated using the market-related value of assets and the actual return on assets. Since the market-related value of assets recognizes gains or losses over a five-year period, the future value of assets will be impacted as previously deferred gains or losses are recognized. At September 30, 2016, the Company had cumulative unrecognized investment losses of approximately $0.9 million under the Plans which remain to be recognized in the calculation of the market-related values of assets. At September 30, 2016, the Company had cumulative unrecognized net actuarial losses of 0.3 million which are amortized into net periodic benefit cost over the average remaining service period of active Plans' participants.
Plan Assets
The fair value of plan assets for the Switzerland Plan and Taiwan Plan were $4.2 million and $0.5 million, respectively, at September 30, 2016. The assets of the Switzerland Plan are invested in a collective fund with multiple employers through a Swiss insurance company, which is a customary practice for Swiss pension plans. The Company does not have any rights or an investment authority over the Plan's assets which are invested primarily in highly rated debt securities.
The assets of the Taiwan Plan are invested with a trustee selected by the Taiwan government, and the Company has no investment authority over the Plan's assets.
The allocation of the Plans' assets at September 30, 2016 is as follows:

	September 30, 2016
Cash and cash equivalents	3 %
Debt securities	72
Equity securities	7
Other	18
	100 %

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

The fair values of pension assets by asset category and by level at September 30, 2016 are as follows (in thousands):

	As of September 30, 2016			
	Level 1	Level 2	Level 3	Total
Swiss Life collective foundation	$ —	$4,208	$ —	$4,208
Taiwan collective trust	—	526	—	526
Total	$ —	$4,734	$ —	$4,734

The fair values of pension assets by asset category and by level at September 30, 2015 are as follows (in thousands):

	As of September 30, 2015			
	Level 1	Level 2	Level 3	Total
Swiss Life collective foundation	$ —	$4,347	$ —	$4,347
Taiwan collective trust	—	491	—	491
Total	$ —	$4,838	$ —	$4,838

Please refer to Note 21, "Fair Value Measurements" for a description of the levels of inputs used to determine fair value measurements.

Benefit payments expected to be paid over the next five fiscal years and thereafter are as follows (in thousands):

2017	$203
2018	21
2019	21
2020	81
2021	104
Thereafter (through 2026)	735

The Company expects to contribute $0.2 million to the Plans in fiscal year 2017 to meet the minimum funding requirements of the Plans.

Defined Contribution Plans

The Company sponsors a defined contribution plan that meets the requirements of Section 401(k) of the Internal Revenue Code. All United States employees who meet minimum age and service requirements are eligible to participate in the plans. The plans allow employees to invest, on a pre-tax basis, a percentage of their annual salary and bonus subject to statutory limitations. The Company matches a portion of their contributions on a pre-tax basis up to a maximum amount of 4.5% of deferred pay. The expense recognized for the defined contribution plans was $3.6 million, $3.0 million and $3.5 million, respectively, for the fiscal years ended September 30, 2016, 2015 and 2014.

15. Stockholders’ Equity

Preferred Stock

Total number of shares of preferred stock authorized for issuance was 1,000,000 shares at September 30, 2016 and 2015, respectively. Preferred stock has a par value of $0.01 per share and may be issued at the discretion of the Board of Directors without stockholder approval with such designations, rights and preferences as the Board of Directors may determine. There were no shares of preferred stock issued or outstanding at September 30, 2016 or 2015, respectively.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Accumulated Other Comprehensive Income
The following is a summary of the components of accumulated other comprehensive income, net of tax, at September 30, 2016, 2015 and 2014 (in thousands):

	Currency Translation Adjustments	Unrealized Gains (Losses) on Available-for-Sale Securities	Unrealized Gains (Losses) on Cash Flow Hedges	Pension Liability Adjustments	Total
Balance at September 30, 2013	$ 22,398	$ 66	$ 14	$ 126	$ 22,604
Other comprehensive (loss) income before reclassifications	(6,296)	(78)	79	(503)	(6,798)
Amounts reclassified from accumulated other comprehensive income	—	(26)	(93)	—	(119)
Balance at September 30, 2014	16,102	(38)	—	(377)	15,687
Other comprehensive (loss) income before reclassifications	(9,426)	144	—	(605)	(9,887)
Amounts reclassified from accumulated other comprehensive income	(131)	(3)	—	232	98
Balance at September 30, 2015	6,545	103	—	(750)	5,898
Other comprehensive income (loss) before reclassifications	8,844	(231)	—	(322)	8,291
Amounts reclassified from accumulated other comprehensive income	—	125	—	852	977
Balance at September 30, 2016	$ 15,389	$ (3)	$ —	$ (220)	$ 15,166

Unrealized net holding gains (losses) on available-for-sale marketable securities are reclassified from accumulated other comprehensive income into results of operations at the time of the securities' sale, as described in Note 5, "Marketable Securities.” Losses on settlements of cash flow hedges are reclassified from accumulated other comprehensive income into results of operations at the time of the settlement, as described in Note 13, "Derivative Instruments.” Losses related to defined benefit pension plan settlements are reclassified from accumulated other comprehensive income into results of operations at the time of the settlement, as described in Note 14, "Postretirement Benefits.” Defined benefit pension plan curtailments are recognized as reclassifications from accumulated other comprehensive income and corresponding reductions in pension liabilities and net pension cost, as described in Note 14, "Postretirement Benefits.”

Losses related to currency translation adjustments were reclassified from accumulated other comprehensive income into results of operations upon liquidation of YBA joint venture, as described in Note 8, "Equity Method Investments".

Non-controlling Interests

Noncontrolling interests represented the minority shareholders’ proportionate share of the equity in the Company’s majority owned subsidiary, Brooks Automation Asia, Ltd. (the "BAA"). The Company has historically consolidated the financial position and results of operations from BAA and presented the portion of the income attributable to the minority shareholders as “Net income attributable to noncontrolling interests” in the Consolidated Statements of Operations. In September 2014, the Company acquired the remaining interest in BAA from the minority shareholders for $3.2 million. Increases in ownership of a consolidated subsidiary are accounted for as equity transactions and as a result, no additional assets or liabilities are recognized upon acquiring additional interest. As of the date of the acquisition, 100% of BAA’s pre-tax income was reflected in the Company’s results of operations. The increase in the Company's proportional share of BAA's results of operations was not material to the Company's results of operations for the fiscal year ended September 30, 2014. The payment to the minority shareholders was classified as a financing

activity in the Consolidated Statements of Cash Flows. As a result of this transaction, the Company does not have noncontrolling interests as of September 30, 2016 and 2015, respectively.

16. Equity Incentive Plans

The Company's equity incentive plans are intended to attract and retain employees and provide an incentive for them to contribute to the Company's long-term growth and achievement of its long-range performance goals. The equity incentive plans consist of plans under which employees may be granted options to purchase shares of the Company's stock, restricted stock and other equity incentives. Restricted stock awards generally have a 3 year vesting period. At September 30, 2016, a total of 4,363,536 shares were reserved and available for future grant under the equity incentive plans.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Amended and Restated 2000 Equity Incentive Plan
The primary purpose of the Amended and Restated 2000 Equity Incentive Plan (the “2000 Plan") is to attract and retain employees and provide an incentive for them to contribute to the Company's long-term growth and achievement of its long-range performance goals. In accordance with the 2000 Plan provisions, the Company may grant (i) options intended to qualify as incentive stock options under Section 422 of the Internal Revenue Code, (ii) options that are not qualified as incentive stock option (the "nonqualified stock options"), and (iii) stock appreciation rights, performance awards and restricted stock. All employees of the Company or any affiliate of the Company, independent directors, consultants and advisors are eligible to participate in the 2000 Plan. Options granted out of the 2000 Plan generally vested over four years and expired within ten years from the date of grant. The 2000 Plan provided for the issuance of a maximum of 9,000,000 shares of common stock. The 2000 Plan expired on March 31, 2015. Stock option and restricted stock awards granted out of the 2000 Plan that were canceled or forfeited after February 5, 2015 were available for grant under the 2015 Equity Incentive Plan.
2015 Equity Incentive Plan
The primary purpose of the 2015 Equity Incentive Plan, (the “2015 Plan") is to attract and retain employees and provide an incentive for them to contribute to the Company's long-term growth and achievement of its long-range performance goals. In accordance with the 2015 Plan provisions, the Company may grant (i) restricted stock and other stock-based awards, (ii) nonqualified stock options, and (iii) options intended to qualify as incentive stock options under Section 422 of the Internal Revenue Code. All employees of the Company or any affiliate of the Company, independent directors, consultants and advisors are eligible to participate in the 2015 Plan. The 2015 Plan provides for the issuance of a maximum of 5,000,000 shares of common stock in addition to the stock option and restricted stock awards granted out of the 2000 Plan that were canceled or forfeited after February 5, 2015.
Restricted Stock Activity
The following table summarizes restricted stock unit activity for the fiscal year ended September 30, 2016:

	Shares	Weighted Average Grant-Date Fair Value
Outstanding at September 30, 2015	3,257,413	$ 9.95
Granted	1,690,582	$ 10.84
Vested	(1,269,862)	$ 9.53
Forfeited	(1,189,057)	$ 11.18
Outstanding at September 30, 2016	2,489,076	$ 10.79

The weighted average grant date fair value of restricted stock units granted during fiscal years 2016, 2015 and 2014 was $10.84, $11.89 and $9.49 per share, respectively. The fair value of restricted stock units vested during fiscal years 2016, 2015 and 2014 was $14.3 million, $8.4 million and $5.6 million, respectively. The Company paid $4.4 million, $2.3 million and $1.4 million, respectively, for withholding taxes on vested restricted stock units during fiscal years 2016, 2015 and 2014. Additionally, 1,189,057 restricted stock units were forfeited during fiscal year 2016 primarily due to the failure to achieve certain performance thresholds for performance-based restricted stock units and as a result of the restructuring action initiated during the period then ended. Please refer to Note 17, "Restructuring and Other Charges" for further information on the restructuring action.
As of September 30, 2016, the future unrecognized stock-based compensation expense related to restricted stock units expected to vest is $15.1 million and is expected to be recognized over an estimated weighted average amortization period of 1.7 years.
The Company grants restricted stock units which vest upon the satisfaction of certain performance conditions and / or service conditions. In addition, the Company issues shares to participating employees pursuant to an employee stock purchase plan. The Company also issues unrestricted stock awards to its directors in accordance with its director compensation program.

The Company grants restricted stock units that vest over a required service period and /or achievement of certain operating performance goals. Restricted stock units granted with performance goals may also have a required service period following the achievement of all or a portion of the goals. The following table reflects restricted stock units granted, including 8,500 of time-based awards related to the discontinued operation and stock awards granted, during fiscal years ended September 30, 2016, 2015 and 2014:

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

	Total Units	Time-Based Units	Stock Grants	Performance-Based Units
Year ended September 30, 2016	1,690,582	744,250	86,082	860,250
Year ended September 30, 2015	1,513,281	597,250	69,281	846,750
Year ended September 30, 2014	1,517,057	596,212	82,095	838,750

Time-Based Grants

Restricted stock units granted with a required service period typically have three year vesting schedules in which one-third of awards vest at the first anniversary of the grant date, one-third vest at the second anniversary of the grant date and one-third vest at the third anniversary of the grant date, subject to the award holders meeting service requirements.

Stock Grants

During fiscal years 2016, 2015 and 2014, the Company granted 86,082, 69,281 and 82,095 units, respectively, to the members of the Company's Board of Directors, including compensation-related restricted stock units of 55,380, 49,267 and 57,603, respectively. Certain members of its Board of Directors previously elected to defer receiving their annual awards of unrestricted shares of the Company stock and quarterly dividends until a future date. During fiscal years 2016, 2015 and 2014, the Company issued 25,560, 13,318 and 24,492 units, respectively, related to deferred annual restricted share awards.

During fiscal years 2016 and 2015, the Company issued 5,142 and 6,876 units, respectively, related to deferred quarterly dividends in an amount equal to the value of cash dividends that would be paid on the number of deferred shares based on the closing price of the Company’s stock on each dividend record date. There were no such units issued during fiscal year 2014. These units vested upon issuance, but receipt of the Company shares is deferred until the holders attain a certain age or cease to provide services to the Company in their capacity as Board members.

Performance-Based Grants

Performance-based restricted stock units are earned based on the achievement of performance criteria established by the Human Resources and Compensation Committee of the Board of Directors. The criteria for performance-based awards are weighted and have threshold, target and maximum performance goals.

Performance-based awards granted in fiscal year 2016 allow participants to earn 100% of a targeted number of restricted stock units if the Company’s performance meets its target for each applicable financial metric, and up to a maximum of 200% of the restricted stock units if the Company’s performance for such metrics meets the maximum threshold. Performance below the minimum threshold for each financial metric results in award forfeitures. Performance goals will be measured over a three year period at the end of fiscal year 2018 to determine the number of units earned by recipients that continue to meet a service requirement. Units held by recipients that fail to meet the continued service requirement are forfeited. Earned units for recipients that continue to meet the service requirements vest on the date the Company’s Board of Directors determines the number of units earned, which will be approximately the third anniversary of the grant date.

Performance-based awards granted in fiscal year 2015 include provisions similar to fiscal 2016 awards that allow participants to earn threshold, target and maximum awards ranging from 0% of the award for performance below the minimum threshold, 100% of the award for performance at target, and up to a maximum of 200% of the award if the Company achieves the maximum performance goals.

Sixty percent of the performance-based units granted in fiscal year 2015 had certain performance goals that were measured at the end of fiscal year 2015 to determine the number of earned units eligible for subsequent vesting. The Company performed below the threshold levels relative to the performance criteria for these awards and as a result these awards were not eligible for subsequent vesting, which resulted in a forfeiture of 495,684 units.

Forty percent of the performance-based units granted in fiscal year 2015 have certain performance goals which will be measured over a three year period at the end of fiscal year 2017 to determine the number of earned units eligible for vesting. Earned units vest on the third anniversary of the grant date, subject to award holders satisfying the service requirements. 351,066 units, or 40.0%, of performance-based awards granted in fiscal year 2015 are eligible for vesting. The total number of performance-based units to be earned by the participants will be based on the

achievement against the Company's performance targets. The vesting of the units is subject to award holders satisfying the service requirements.

Performance-based awards granted in fiscal year 2014 include provisions similar to fiscal 2016 awards that allow participants to earn threshold, target and maximum awards ranging from 0% of the award for performance below the minimum threshold, 100% of the award for performance at target, and up to a maximum of 200% of the award if the Company achieves the maximum performance goals. Performance below the minimum threshold results in award forfeitures. The measurement of achievement against the performance goals for performance-based units granted in fiscal year 2014 occurred

at the end of fiscal year 2014 to determine the number of earned units eligible for subsequent vesting. One-half of the earned units vests at the second anniversary of the grant date and one-half of the earned units vests at the third anniversary of the grant date, subject to the award holders meeting service requirements.

The Company significantly exceeded the fiscal year 2014 financial goals associated with the performance-based awards granted in fiscal year 2014. In accordance with the award terms, a total of 1,297,546 units, or 154.7%, were eligible for subsequent vesting, subject to award holders satisfying the service requirements, which resulted in an increase of 458,796 units over the target grant amount of 838,750 units. Units granted to the employees of the Granville-Phillips business were forfeited upon completion of the sale.

1995 Employee Stock Purchase Plan

On February 22, 1996, the stockholders approved the 1995 Employee Stock Purchase Plan, (the "1995 Plan"), which enables eligible employees to purchase shares of the Company's common stock. Under the 1995 Plan, eligible employees may purchase up to an aggregate of 3,000,000 shares during six-month offering periods commencing on February 1 and August 1 of each year at a share price of 85% of the lower of the Company's closing stock price on the first or last day of each six-month offering period. On February 8, 2012, the stockholders approved an amendment to the 1995 Plan to increase the number of shares of the Company's common stock available for issuance by 1,000,000 shares, from 3,000,000 to 4,000,000 shares. Participating employees may elect to have up to 10% of their base pay withheld and applied toward the purchase of such shares. The rights of participating employees under the 1995 Plan terminate upon voluntary withdrawal from the plan at any time or upon termination of employment. As of September 30, 2016, 3,787,072 shares of common stock have been purchased under the 1995 Plan and 212,928 shares remain available for purchase. During fiscal years 2016 and 2015, the Company issued 235,727 and 200,700 shares, respectively, under the employee stock purchase plan for $1.9 million and $1.8 million.

17. Restructuring and Other Charges

Fiscal Year 2016 Activities

The Company recorded restructuring charges of $12.0 million during fiscal year 2016 related to severance costs which consisted primarily of $10.8 million of charges related to restructuring actions initiated during fiscal year 2016 and $1.3 million of charges related to restructuring actions initiated in prior periods.

Restructuring Actions Initiated During Fiscal Year 2016

The Company's restructuring actions initiated during fiscal year 2016 resulted in total charges of $10.8 million, which included $3.1 million of costs attributable to the Brooks Life Science Systems segment, $1.8 million of costs attributable to the Brooks Semiconductor Solutions Group segment and $5.8 million of costs related to the company-wide restructuring action that benefited all segments.

Restructuring initiatives within the Brooks Life Science Systems segment are primarily related to streamlining the segment's management structure, integrating acquisitions and improving profitability. During fiscal year 2016, the Company initiated several actions within the Brooks Life Science Systems segment related to integrating BioStorage, streamlining management structure and closing the segment's Spokane, Washington facility in March 2016 and Oberdiessbach, Switzerland facility in July 2016 upon selling the building and temporarily leasing a smaller size office space until December 2016. This restructuring initiative within the Brooks Life Science Systems segment may include additional actions in future periods subject to discretion and approval by the Company management. Total severance costs incurred in connection with these actions are $3.1 million which were recognized entirely during fiscal year 2016. Accrued restructuring costs of $0.5 million at September 30, 2016 from these actions are expected to be paid within the next twelve months with cash flows generated from operating activities.

During fiscal year 2016, the Company initiated a restructuring action to streamline its business operations as part of a company-wide initiative to improve profitability and competitiveness which is expected to benefit all segments. Total severance costs incurred in connection with this action were $5.8 million which were recognized entirely during fiscal year 2016. Severance costs were attributable to the elimination of positions across the Company, including certain senior management positions. This restructuring action was substantially completed by September 30, 2016 and is not expected to result in any additional restructuring charges in future periods. Accrued restructuring costs of $3.4 million at September 30, 2016 from these actions are expected to be paid within the next twelve months with cash flows

generated from operating activities.

During fiscal year 2016, the Company initiated a restructuring action within the Brooks Semiconductor Solutions Group segment to consolidate its Jena, Germany repair facility into its Chelmsford, Massachusetts repair operation as a part of its strategy to reduce our global footprint and streamline the cost structure. The restructuring plan includes the elimination of 44

positions for employees within the service and administrative functions that are covered by a collective bargaining agreement with a German labor union which imposed a legal restriction on the Company's ability to complete the restructuring plan. During fiscal year 2016, the Company entered into the negotiations with the Workers Council concerning the amount of involuntary termination benefits payable to employees impacted by this restructuring action, timing of these payments and the related terms of this arrangement. As of September 30, 2016, the Company reached an agreement with the Workers Council regarding the terms of this action and has communicated termination benefit amounts to the majority of employees that will be impacted by the restructuring action along with their expected termination dates. Total severance costs expected to be incurred in connection with this action are $1.8 million which were recognized during fiscal year 2016. The restructuring action is expected to be completed by March 31, 2017. Accrued restructuring costs of $1.8 million at September 30, 2016 from this action are expected to be paid within the next twelve months with cash flows generated from operating activities.

Restructuring Actions Initiated Prior to Fiscal Year 2016

The Company's restructuring actions initiated in prior periods resulted in $1.2 million of costs attributable to the Brooks Semiconductor Solutions segment and less than $0.1 million of costs attributable to the Brooks Life Science Systems segment. These restructuring actions were primarily related to the integration of Contact, as well as the closure and transfer of the Mistelgau, Germany manufacturing operations to a contract manufacturer. Accrued restructuring costs of $0.2 million at September 30, 2016 from these actions are expected to be paid within the next twelve months with cash flows generated from operating activities.

Fiscal Year 2015 Activities

The Company recorded restructuring charges of $4.7 million in fiscal year 2015, which included severance costs of $3.4 million and facility-related costs of $1.3 million.

Severance costs of $3.4 million consisted of $2.2 million of charges attributable to the Brooks Semiconductor Solutions segment and $1.3 million of costs attributable to the Brooks Life Science Systems segment. Restructuring actions within the Brooks Semiconductor Solutions Group segment were related to the integration of Dynamic Micro Systems Semiconductor Equipment GmbH (the "DMS") with the Company's operations and the transition of manufacturing of certain products from the Company's facility in Mistelgau, Germany to a third party contract manufacturer. Restructuring actions within the Brooks Life Science Systems segment were related to the closure of the Poway, California facility and transition of product sub-assembly manufacturing operations to the third party contract manufacturers. These restructuring plans were substantially completed on December 31, 2015.

Facility exit costs of $1.3 million were attributable to Brooks Semiconductor Solutions Group segment were related to the outsourcing of manufacturing certain of the Company’s line of Polycold cryochillers and compressors within the United States to a third party contract manufacturer. The facility exit costs represented future lease payments and expected operating costs to be paid until the termination of the facility lease. The Company terminated the lease on October 27, 2015 and fully paid the related restructuring liability during the first quarter of fiscal year 2016.

Fiscal Year 2014 Activities

The Company recorded restructuring charges of $6.3 million in fiscal year 2014. These charges were related primarily to the Company's decision to discontinue certain product lines in the Brooks Life Science Systems and Brooks Product Solutions segments, the on-going transition of manufacturing cryochillers and compressors within the Company's Polycold product line to a third party contract manufacturer and other global programs designed to improve the Company’s cost structure.

Restructuring charges of $6.3 million recorded in fiscal year 2014 consisted of $5.7 million of severance costs and $0.6 million of facility-related costs.

Severance costs of $5.7 million included charges related to the outsourcing of the Polycold manufacturing operation and workforce-related charges resulting from reductions of approximately 70 positions. Severance charges incurred during fiscal year 2014 by the Brooks Product Solutions segment, the Brooks Global Services segment and the Brooks Life Science Systems segment amounted to $2.4 million, $0.4 million and $1.6 million, respectively. In addition to these severance charges, the Brooks Life Science Systems segment recorded a charge of $1.3 million related to the reduction of positions within the corporate and sales functions. Total severance charges related to the outsourcing of

the Polycold manufacturing operation were $1.2 million and consisted of severance and retention fees. The charge for this program was recorded ratably over the period from notification of the closing in October 2012 to the actual service end date in September 2014.

Facility-related costs of $0.6 million consisted of lease payments and fixed asset write-offs associated with the Company's efforts to reduce the space used in its operations.

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In addition to the workforce and facility-related charges described above, the Company recorded $0.3 million of inventory write-offs associated with discontinuing certain product lines. Inventory write-offs are included in cost of revenue in the accompanying Consolidated Statements of Operations.
The following is a summary of activity related to the Company's restructuring and other charges, excluding amounts related to the discontinued operations, for the fiscal years ended September 30, 2016, 2015 and 2014 (in thousands):

	Fiscal Year 2016 Activity			
	Balance September 30, 2015	Expenses	Payments	Balance September 30, 2016
Facility and other contract termination costs	$433	$ 25	$ (458)	$ —
Workforce-related termination benefits	1,640	12,014	(7,715)	5,939
	$2,073	$ 12,039	$ (8,173)	$ 5,939

	Fiscal Year 2015 Activity			
	Balance September 30, 2014	Expenses	Payments	Balance September 30, 2015
Facility and other contract termination costs	$71	$ 1,204	$ (842)	$ 433
Workforce-related termination benefits	3,404	3,213	(4,977)	1,640
	$3,475	$ 4,417	$ (5,819)	$ 2,073

	Fiscal Year 2014 Activity			
	Balance September 30, 2013	Expenses	Payments	Balance September 30, 2014
Facility and other contract termination costs	$155	$ 583	$ (667)	$ 71
Workforce-related termination benefits	$1,257	$ 5,706	$ (3,559)	3,404
	$1,412	$ 6,289	$ (4,226)	$ 3,475

Accrued restructuring costs of $5.9 million as of September 30, 2016 are expected to be paid during fiscal year 2017.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

18. Earnings per Share

The calculations of basic and diluted net (loss) income per share and basic and diluted weighted average shares outstanding are as follows for the fiscal years ended September 30, 2016, 2015 and 2014 (in thousands, except per share data):

	Year Ended September 30,		
	2016	2015	2014
(Loss) income from continuing operations	$(69,476)	$14,221	$1,520
Income from discontinued operations, net of tax	—	—	30,002
Net (loss) income	(69,476)	14,221	31,522
Net income attributable to noncontrolling interests	—	—	(161)
Net (loss) income attributable to Brooks Automation, Inc.	$(69,476)	$14,221	$31,361
Weighted average common shares outstanding used in computing basic earnings per share	68,507	67,411	66,648
Dilutive common stock options and restricted stock units	—	1,138	996
Weighted average common shares outstanding used in computing diluted earnings per share	68,507	68,549	67,644
Basic net (loss) income per share attributable to Brooks Automation, Inc. common stockholders:			
(Loss) income from continuing operations	$(1.01)	$0.21	$0.02
Income from discontinued operations, net of tax	—	—	0.45
Basic net (loss) income per share attributable to Brooks Automation, Inc.	$(1.01)	$0.21	$0.47
Diluted net (loss) income per share attributable to Brooks Automation, Inc. common stockholders:			
(Loss) income from continuing operations	$(1.01)	$0.21	$0.02
Income from discontinued operations, net of tax	—	—	0.44
Diluted net (loss) income per share attributable to Brooks Automation, Inc. common stockholders	$(1.01)	$0.21	$0.46

Restricted stock units of 859,000 during fiscal year 2016 were excluded from the computation of diluted earnings per share as a result of a net loss incurred during the period. Approximately 120,000 shares of unvested restricted stock units were excluded from the computation of diluted earnings per share for the fiscal year ended September 30, 2015 as their effect would be anti-dilutive based on the treasury stock method. Options to purchase approximately 11,000 shares of common stock were excluded from the computation of diluted earnings per share attributable to Brooks Automation, Inc. common stockholders for the fiscal years ended September 30, 2014 as their effect would be anti-dilutive based on the treasury stock method. There were no anti-dilutive restricted stock awards for the fiscal year ended September 2014. There were no options outstanding as of September 30, 2016 and 2015.

On November 9, 2016, the Company's compensation committee and Board of Directors authorized and approved the annual grant of approximately 952,200 restricted stock units with a grant date of November 9, 2016.

19. Significant Customers

The Company had one customer that accounted for more than 10% of its consolidated revenue, at 12%, and 11%, respectively, in the fiscal years ended September 30, 2015 and 2014. No customers accounted for more than 10% of the Company's consolidated revenue for the fiscal year ended September 30, 2016. At September 30, 2016, one customer's receivable balance represented approximately 11% of the Company's total receivables. At September 30, 2015, the Company did not have any customers that accounted for more than 10% of its accounts receivable balance For purposes of determining the percentage of revenue generated from any of the Company's original equipment manufacturer (the "OEM") customers, the Company does not include revenue from products sold to contract

manufacturer customers who in turn sell to the OEM's. If the Company included revenue from products sold to contract manufacturer

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customers supporting the Company's OEM customers, the percentage of the Company's total revenue derived from certain OEM customers would be higher.

20. Segment and Geographic Information

Operating segments are defined as components of an enterprise that engage in business activities for which discrete financial information is available and regularly reviewed by the chief operating decision maker in deciding how to allocate resources and to assess performance. The Company's Chief Executive Officer is the Company's chief operating decision maker.

Prior to fiscal year 2016, the Company had three operating and reportable segments that consisted of Brooks Product Solutions, Brooks Global Services and Brooks Life Science Systems. During fiscal year 2016, the Company reorganized its previous reporting structure into two operating and reportable segments consisting of: (i) Brooks Semiconductor Solutions Group; and (ii) Brooks Life Science Systems. Subsequently, the Company reported its financial results during years ended September 30, 2016, 2015 and 2014 based on the revised reporting structure. The change in segments was a result of restructuring actions initiated during fiscal year 2016 to streamline business operations to improve profitability and competitiveness and reflects a change in the manner in which the chief operating decision maker reviews information to assess performance and make decisions about resource allocation. As part of these actions, the Company transitioned to a new internal management structure whereby the operating management responsible for Brooks Product Solutions and Brooks Global Services operating segments was brought under common leadership in the newly formed Brooks Semiconductor Solutions Group segment. The restructuring actions were completed in the third quarter of fiscal year 2016 which marked the transition to a new internal management structure during that period. The Company's prior period reportable segment information has been reclassified to reflect the current segment structure and to conform to the current period presentation. The accounting policies of the operating segments remained unchanged as a result of the realignment.

The Brooks Semiconductor Solutions Group segment provides a variety of products, services and solutions that enable improved throughput and yield in controlled operating environments, as well as an extensive range of support services. The solutions include atmospheric and vacuum robots, tool automation systems that provide precision handling and clean wafer environments, contamination control of wafer carrier front opening unified pods, or FOUPs, as well as cryogenic pumps and compressors that provide vacuum pumping and thermal management solutions used to create and control critical process vacuum applications. The support services include repair services, diagnostic support services, and installation services in support of the products, which enable our customers to maximize process tool uptime and productivity. This segment also provides end-user customers with spare parts and productivity enhancement upgrades to maximize tool productivity.

The Brooks Life Science Systems segment provides automated cold sample management systems for compound and biological sample storage, equipment for sample preparation and handling, consumables, and parts and support services to a wide range of life science customers including pharmaceutical companies, biotechnology companies, biobanks and research institutes. During fiscal year 2016, the Company completed the acquisition of BioStorage, a global provider of comprehensive outsource biological sample service solutions, including collection, transportation, processing, storage, protection, retrieval and disposal of biological samples. These solutions combined with the Company's existing offerings, particularly automation for sample storage and formatting, provide customers with fully integrated sample management cold chain solutions which will help them increase productivity, efficiencies and speed to market.

The Company evaluates the performance and future opportunities of its segments and allocates resources to them based on their revenue, operating income (loss) and returns on invested assets. Operating income (loss) for each segment includes selling, general and administrative expenses directly attributable to the segment. Amortization of acquired intangible assets (excluding completed technology), restructuring and other charges, pension settlement, in-process research and development, as well as other unallocated corporate expenses are excluded from the segments' operating income (loss). The Company's indirect overhead costs, which include various general and administrative expenses, are allocated among the segments based upon several cost drivers associated with the respective administrative function, including segment revenue, headcount, or benefits that each segment derives from a specific

administrative function. Segment assets exclude cash, cash equivalents, marketable securities, deferred tax assets, assets held for sale and equity method investments.

The following is the summary of the financial information for the Company's operating and reportable segments, excluding amounts related to the discontinued operations, for the fiscal years ended September 30, 2016, 2015 and 2014 (in thousands):

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

	Brooks Semiconductor Solutions Group	Brooks Life Science Systems	Total
Fiscal year ended September 30, 2016:			
Revenue			
Products	$ 375,237	$ 46,546	$ 421,783
Services	76,973	61,567	138,540
Segment revenue	$ 452,210	$ 108,113	$ 560,323
Gross profit	$ 159,018	$ 39,063	$ 198,081
Segment operating income (loss)	37,926	(6,451)	31,476
Depreciation expense	4,788	3,496	8,284
Assets	317,717	247,735	565,452
Fiscal year ended September 30, 2015:			
Revenue			
Products	$ 406,579	$ 50,832	$ 457,411
Services	78,058	17,239	95,297
Segment revenue	$ 484,637	$ 68,071	$ 552,708
Gross profit	$ 171,379	$ 17,726	$ 189,105
Segment operating income (loss)	49,695	(19,580)	30,115
Depreciation expense	4,312	1,295	5,607
Assets	317,069	110,910	427,979
Fiscal year ended September 30, 2014:			
Revenue			
Products	$ 340,617	$ 46,415	$ 387,032
Services	79,083	16,733	95,816
Segment revenue	$ 419,700	$ 63,148	$ 482,848
Gross profit	$ 143,914	$ 23,423	$ 167,337
Segment operating income (loss)	23,287	(8,431)	14,856
Depreciation expense	10,677	2,022	12,699
Assets	311,622	103,498	415,120

The following is a reconciliation of the Company’s operating and reportable segments' operating income (loss) and segment assets to the corresponding amounts presented in the accompanying Consolidated Balance Sheets and Consolidated Statements of Operations for the fiscal years ended September 30, 2016, 2015 and 2014 (in thousands):

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

	As of and for the Year Ended September 30,		
	2016	2015	2014
Segment operating income (loss)	$31,476	$30,115	$14,856
Other unallocated corporate expenses	4,400	856	5,096
Amortization of acquired intangible assets	10,799	7,656	6,170
Restructuring and other charges	12,039	4,713	6,289
Total operating income (loss)	$4,238	$16,890	$(2,699)

	2016	2015
Segment assets	$565,452	$427,979
Cash, cash equivalents and marketable securities	91,221	214,030
Deferred tax assets	1,982	89,007
Assets held for sale	—	2,900
Equity method investments	27,250	24,286
Other unallocated corporate net assets	—	500
Total assets	$685,905	$758,702

Revenue from external customers is attributed to geographic areas based on locations in which customer orders are placed. Net revenue by geographic area for the fiscal years ended September 30, 2016, 2015 and 2014 are as follows (in thousands):

	Year Ended September 30,		
	2016	2015	2014
North America	$209,727	$199,103	$174,343
Asia / Pacific/ Other	247,241	231,840	198,695
Europe:			
United Kingdom	$36,611	$32,160	$27,078
Rest of Europe	$66,744	$89,605	$82,732
	$560,323	$552,708	$482,848

The majority of our net revenue in North America is generated in the United States which amounted to $208.3 million, $197.4 million and $172.9 million, respectively, during fiscal years ended September 30, 2016, 2015 and 2014

Property, plant and equipment by geographic area as of September 30, 2016 and 2015 are as follows (in thousands):

	September 30,	
	2016	2015
North America	$49,505	$36,402
Asia / Pacific	952	2,104
Europe	4,428	3,349
	$54,885	$41,855

Property, plant and equipment located in the United States amounted to $49.3 million and $36.3 million, respectively, at September 30, 2016 and 2015.

21. Fair Value Measurements

The fair value measurement guidance establishes a fair value hierarchy which requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. The following levels of inputs may be used to measure fair value:

Level 1 Inputs: Quoted prices in active markets for identical assets or liabilities as of the reporting date. Active markets are those in which transactions for the asset and liability occur in sufficient frequency and volume to provide pricing information on an ongoing basis.

Level 2 Inputs: Observable inputs other than prices included in Level 1, including quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Level 3 Inputs: Unobservable inputs that are significant to the fair value of the assets or liabilities and reflect an entity's own assumptions in pricing assets or liabilities since they are supported by little or no market activity.
The following tables summarize assets and liabilities measured and recorded at fair value on a recurring basis in the accompanying Consolidated Balance Sheets as of September 30, 2016 and 2015 (in thousands):

		Fair Value Measurements at Reporting Date Using		
Description	September 30, 2016	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets:				
Cash equivalents	$ 143	$98	$ 45	$ —
Available-for-sale securities	6,135	—	6,135	—
Foreign exchange contracts	5	—	5	—
Convertible debt securities	5,774	—	—	5,774
Stock warrant	45	—	—	45
Total Assets	$ 12,102	$98	$ 6,185	$ 5,819
Liabilities:				
Contingent consideration	$ 500	$—	$ —	$ 500
Foreign exchange contracts	97	—	97	—
Total Liabilities	$ 597	$—	$ 97	$ 500

		Fair Value Measurements at Reporting Date Using		
Description	September 30, 2015	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets:				
Cash equivalents	$ 11,628	$ 10,133	$ 1,495	$ —
Available-for-sale securities	133,308	—	133,308	—
Foreign exchange contracts	89	—	89	—
Convertible debt securities	5,337	—	—	5,337
Stock warrant	59	—	—	59
Total Assets	$ 150,421	$ 10,133	$ 134,892	$ 5,396
Liabilities:				
Contingent consideration	$ 811	$—	$ —	$ 811
Foreign exchange contracts	36	—	36	—
	$ 847	$—	$ 36	$ 811

The convertible debt securities and the stock warrant are included in "Other assets" in the accompanying Consolidated Balance Sheets as of September 30, 2016 and 2015. Please refer to Note 8, "Equity Method and Other Investments" for further information on the convertible debt securities and the stock warrant.

Cash Equivalents

Cash equivalents of $0.1 million and $10.1 million, respectively, at September 30, 2016 and 2015 consist of Money Market Funds and are classified within Level 1 of the fair value hierarchy because they are valued using quoted market prices in active markets. Cash equivalents of less than $0.1 million and $1.5 million, respectively, at September 30, 2016 and 2015, consist primarily of Bank Certificate of Deposits and are classified within Level 2 of the fair value hierarchy because they are not actively traded.

Available-For-Sale Securities

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - (Continued)

Available-for-sale securities of $6.1 million and $133.3 million, respectively, at September 30, 2016 and 2015 consist of Municipal Securities, Bank Certificate of Deposits, Commercial Paper, Mortgage-Backed Securities, as well as U.S. Treasury Securities and Obligations of U.S. Government Agencies. The securities are valued using matrix pricing and benchmarking and classified within Level 2 of the fair value hierarchy because they are not actively traded. Matrix pricing is a mathematical technique used to value securities by relying on the securities' relationship to other benchmark quoted prices.

Foreign Exchange Contracts

Foreign exchange contract assets and liabilities amounted to less than $0.1 million and $0.1 million, respectively, at September 30, 2016. Foreign exchange contract assets and liabilities amounted to $0.1 million and less than $0.1 million, respectively, at September 30, 2015. Foreign exchange contract assets and liabilities are measured and reported at fair value based on observable market inputs and classified within Level 2 of the fair value hierarchy due to a lack of an active market for these contracts.

Convertible Debt Securities

Convertible debt securities of $5.8 million and $5.3 million, respectively, at September 30, 2016 and 2015 are classified within Level 3 of the fair value hierarchy and measured at fair value based on the probability-weighted expected return method (the "PWERM") utilizing various scenarios for the expected payout of the instrument covering the full range of the potential outcomes. The PWERM determines the value of an asset based upon an analysis of future values for the subject asset and full range of its potential values. The asset value is based upon the present value of the probability of each future outcome becoming available to the asset and the economic rights and preferences of each asset. The Company remeasures the fair value of the convertible debt securities at each reporting date and recognizes the corresponding fair value change related to the underlying inputs in the "Other (expense) income, net" in the Company's Consolidated Statements of Operations.

Stock Warrants

Stock warrant of less than $0.1 million and $0.1 million, respectively, at September 30, 2016 and 2015 is classified within Level 3 of the fair value hierarchy and measured at fair value based on the Black-Scholes model. The Black-Scholes model applied to the warrant incorporates the constant price variation of the underlying asset, the time value of money, the warrant's strike price and the time until the warrant's expiration date. The fair value of the warrant was determined utilizing a five year equity volatility percentage based on an average equity volatility derived from comparable public companies. The Company remeasures the fair value of the stock warrant at each reporting date and recognizes the corresponding fair value change related to the underlying inputs in the "Other (expense) income, net" in the Company's Consolidated Statements of Operations.

Contingent Consideration

Contingent consideration liability of $0.5 million and $0.8 million, respectively, at September 30, 2016 and 2015 is classified within Level 3 of the fair value hierarchy and measured at fair value based on the probability-weighted average discounted cash flow model utilizing potential outcomes related to achievement of certain specified targets and events. The fair value measurement of the contingent consideration is based on probabilities assigned to each potential outcome and the discount rate. The Company remeasures the fair value of the contingent consideration at each reporting date and recognizes the corresponding fair value change related to the underlying inputs in the "Selling, general and administrative" expenses in the Company's Consolidated Statements of Operations. Please refer to Note 4 "Acquisitions" for further information on the contingent consideration liability.

The carrying amounts of accounts receivable and accounts payable approximate their fair value due to their short-term nature.

The following table presents the reconciliation of the assets and liabilities measured and recorded at fair value on a recurring basis using significant unobservable inputs (Level 3) (in thousands):

	Convertible Debt Securities	Stock Warrants	Contingent Consideration	Total
Balance at September 30, 2015	$ 5,337	$ 59	$ 811	$6,207

Change in fair value	437	(14)	(311)	112
Balance at September 30, 2016	$ 5,774	$ 45	$ 500	$ 6,319

Nonrecurring Fair Value Measurements

The Company holds certain assets that are measured at fair value on a nonrecurring basis in periods subsequent to initial recognition.

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As of September 30, 2015, the building and the underlying land located in Oberdiessbach, Switzerland were presented at fair value of $2.9 million as "Assets Held for Sale" in the accompanying Consolidated Balance Sheets. The Company determined fair value of the assets held for sale based on indication of value resulting from marketing the building and the land to prospective buyers. Fair value measurement was classified within Level 3 of the fair value hierarchy since it was based on unobservable inputs. During fiscal year 2016, the Company sold the building and the underlying land to an unrelated third party for a total price of $2.8 million and remeasured the fair value of the assets. The corresponding impact of this remeasurement on the Company's results of operations for fiscal year 2016 was insignificant.

Loan receivable of $0.2 million and $1.0 million, respectively, at September 30, 2016 and 2015 is recorded at carrying value and included in "Other assets" in the accompanying Consolidated Balance Sheets. The fair value of the loan is determined by considering the fair value of the collateral using valuation techniques, principally the discounted cash flow method and a relief from royalty approach, reduced by the amounts subordinated to the debt provided by the new lender. Fair value measurement is classified within Level 3 of the fair value hierarchy since it is based primarily on unobservable inputs and requires significant management judgment. The observable inputs used in the Company's analysis are limited primarily to the discount rate, which is based on a rate commensurate with the risks and uncertainties of the Borrower. As a result, the fair value of the loan could vary under different conditions or assumptions, including the varying assumptions regarding future cash flows of the Borrower or discount rates.

During fiscal year 2016, the Company concluded that recent operating trends and declining future cash flow forecasts of the Borrower represented indicators of potential loan impairment. As a result, the Company updated the discounted cash flow valuation model based on revised lower forecasted future cash flow assumptions and determined, based on a relief from royalty and discounted cash flow approaches, that carrying value of the loan exceeded its estimated fair value by $0.8 million. Accordingly, the Company recorded an impairment charge of $0.8 million in "Selling, general and administrative" expenses in the Company's Consolidated Statements of Operations during fiscal year ended September 30, 2016 which resulted in the loan's carrying value of $0.2 million at September 30, 2016. Please refer to Note 9, "Loan Receivable" for further information on the loan.

Loan receivable of $1.5 million at September 30, 2016 and 2015 is recorded at carrying value and included in "Other assets" in the accompanying unaudited Consolidated Balance Sheets. Please refer to Note 8, "Equity Method and Other Investments" for further information on the loan.

Certain non-financial assets, including goodwill, finite-lived intangible assets and other long-lived assets, are measured at fair value on a non-recurring basis in accordance with the income approach when there is an indication of impairment. Please refer to Note 2, "Summary of Significant Accounting Policies" for further information on the valuation techniques used in developing these measurements.

22. Commitments and Contingencies

Capital Lease Obligation

During fiscal year 2015, the Company was leasing the building and the related land on its Chelmsford, Massachusetts campus. The assets and the associated capital lease obligation were recorded on the Company's Consolidated Balance Sheets.

On September 30, 2015, the Company purchased the building and the related land for a total price of $8.4 million and derecognized the associated capital lease obligation of $7.8 million. The difference of $0.6 million between the purchase price of $8.4 million and the capital lease obligation of $7.8 million was recorded as an adjustment to the acquisition cost of the building and land of $6.6 million and $2.3 million, respectively, which were classified as "Property, plant and equipment, net" in the Company's Consolidated Balance Sheets as of September 30, 2015. Depreciation expense related to the building was computed using the straight-line method over the estimated useful life of the asset. Accumulated amortization related to the building was $0.2 million at September 30, 2015.

Operating Leases Commitments

The Company leases manufacturing and office facilities and certain equipment under non-cancelable operating leases that expire throughout 2020. Rent expense under the operating leases, excluding costs recorded as a component of restructuring charges, was $4.9 million, $6.5 million and $8.2 million, respectively, for the fiscal years ended

September 30, 2016, 2015 and 2014.

The Company leases approximately 85,000 square feet of space in Indianapolis, Indiana to accommodate its sample storage, sales and support functions. The initial lease term expires in July 2017 and may be extended at the Company's option for two successive terms of five years each subject to the terms and conditions of the lease. In addition to the Indianapolis facility, the Company leases approximately 45,000 square feet of space in Fremont, California and Manchester, UK to accommodate its manufacturing, research and development, and sales and support functions. The initial term for the Fremont, California facility expires in August 2018 and may be extended at the Company's option for five years subject to the terms and

conditions of the lease. The initial term for the Manchester, UK facility expires in December 2019 and may be extended at the Company's option for five years subject to the terms and conditions of the lease.
Future minimum lease commitments on non-cancelable operating leases and scheduled sublease payments as of September 30, 2016 are as follows (in thousands):

Year Ended September 30,	Gross Payments	Scheduled Sublease Payments	Net Payments
2017	$ 3,390	$ 54	$ 3,336
2018	2,118	54	2,064
2019	926	9	917
2020	104	—	104
2021	—	—	—
Thereafter	—	—	—
	$ 6,538	$ 117	$ 6,421

The Company utilizes a third party to manage its manufacturing operations in Mexico. As a part of this arrangement, the Company makes and guarantees the monthly payments for a lease of its Mexico facility which expires in December 2018. The remaining payments under the lease were approximately $0.9 million at September 30, 2016.

Letters of Credit

At September 30, 2016 and 2015, the Company had $2.0 million and $3.5 million, respectively, of letters of credit outstanding related primarily to customer advances and other performance obligations. These arrangements guarantee the refund of advance payments received from our customers in the event that the product is not delivered or warranty obligations are not fulfilled in accordance with the contract terms. These obligations could be called by the beneficiaries at any time before the expiration date of the particular letter of credit if the Company fails to meet certain contractual requirements. None of these obligations were called during fiscal years ended September 30, 2016 and 2015, and the Company currently does not anticipate any of these obligations to be called in the near future.

Purchase Commitments

The Company has non-cancelable contracts and purchase orders for inventory of $101.4 million at September 30, 2016.

Contingencies

During the fourth quarter of fiscal year 2016, the Company discovered that it inadvertently failed to register on Form S-8 with the Securities and Exchange Commission certain shares of common stock previously authorized for issuance by the Company’s Board of Directors and stockholders under the Company’s 1995 Employee Stock Purchase Plan, as amended (the “ESPP”). As a result, certain purchasers of common stock under the ESPP may have the right to rescind their purchases for an amount equal to the purchase price paid for the shares, plus interest from the date of purchase, limited to the shares purchased in the last twelve months, which is the applicable federal statute of limitations, and still held by the original purchasers. These shares have been treated as issued and outstanding for financial reporting purposes.

As of September 30, 2016, there were approximately 115,793 shares of common stock issued under the ESPP during fiscal year 2016 and held by the original purchasers of such shares which may be subject to these rescission rights. Of these, approximately 53,800 shares were originally purchased for $8.00 per share and the remaining 61,993 shares were originally purchased for $8.02 per share. If holders of all of these shares seek to rescind their purchases, the Company could be required to make aggregate payments of up to approximately $950,000, which includes estimated statutory interest. The Company may also be subject to civil and other penalties by regulatory authorities as a result of the potential failure to register these shares. The Company does not believe that the failure to register the shares on a Form S-8 or a potential rescission offer, if any, will have a material impact on its consolidated financial statements.

The Company is subject to various legal proceedings, both asserted and unasserted, that arise in the ordinary course of business. The Company cannot predict the ultimate outcome of such legal proceedings or in certain instances provide

reasonable ranges of potential losses. However, as of the date of this report, the Company believes that none of these claims will have a material adverse effect on its consolidated financial position or results of operations. In the event of unexpected subsequent developments and given the inherent unpredictability of these legal proceedings, there can be no assurance that the Company's assessment of any claim will reflect the ultimate outcome, and an adverse outcome in certain matters could, from time to time, have a material adverse effect on the Company's consolidated financial position or results of operations in particular quarterly or annual periods.

23. Subsequent Events

On November 9, 2016, the Company’s Board of Directors declared a cash dividend of $0.10 per share payable on December 23, 2016 to common stockholders of record as of December 2, 2016. Dividends are declared at the discretion of the Company’s Board of Directors and depend on the Company's actual cash flow from operations, its financial condition and capital requirements, as well as any other factors the Company’s Board of Directors may consider relevant. Future dividend declarations, as well as the record and payment dates for such dividends, will be determined by the Company’s Board of Directors on a quarterly basis.
On November 28, 2016, the Company acquired 100% of the equity of Cool Lab, LLC (“Cool Lab”) from BioCision, LLC (“BioCision”). Cool Lab, a newly established subsidiary of BioCision, contains certain assets and liabilities related to cell cryopreservation products and solutions. These offerings address and assist in managing the temperature variability of therapeutics, biological samples, and related biomaterials. The Company has held equity ownership interest in BioCision since March of 2014, and convertible debt securities with warrants acquired in December of 2014 and February of 2015. Please refer to Note 8, Equity Method and Other Investments for further details.
The Company purchased Cool Lab in exchange for approximately $5 million in net cash subject to customary working capital adjustments along with non-cash consideration, which included the redemption and repurchase of the original equity ownership interest in BioCision, the cancellation of both the convertible debt securities with warrants and previously issued term notes with the related interest receivable. The aforementioned non-cash consideration had a total carrying value of $9.1 million as of September 30, 2016. As a result of the limited time since the acquisition date, the accounting along with the preliminary purchase price allocation, the fair value of the non cash consideration and the related effects on the Company’s financial statements is incomplete. The Company will include such information in its quarterly report on Form 10-Q for the period ended December 31, 2016.

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Item 9. Changes In and Disagreements With Accountants on Financial Accounting and Financial Disclosure

Not applicable.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Under the supervision and with the participation of our management, including our chief executive officer and chief financial officer, we conducted an evaluation of our disclosure controls and procedures, as such term is defined under Rule 13a-15(e) promulgated under the Exchange Act. Disclosure controls and procedures are designed to ensure that information required to be disclosed by us in the reports we file or submit under the Exchange Act is recorded, processed, summarized and reported on a timely basis and that such information is accumulated and communicated to management, including the chief executive officer and chief financial officer, as appropriate, to allow timely decisions regarding required disclosure. Based upon this evaluation, our chief executive officer and our chief financial officer concluded that our disclosure controls and procedures were effective as of September 30, 2016, the end of the period covered by this annual report.

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act, as a process designed by, or under the supervision of our chief executive and chief financial officers and effected by our board of directors, management and other personnel to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles and includes those policies and procedures that:

- pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and disposition of our assets;
- provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that our receipts and expenditures are being made only in accordance with authorization of our management and directors; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Projections of any evaluation of effectiveness to future periods are subject to the risks that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Under the supervision and with the participation of our management, including our chief executive officer and chief financial officer, we conducted an assessment of the effectiveness of our internal control over financial reporting as of September 30, 2016. In making this assessment, we used the criteria set forth in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations (COSO) of the Treadway Commission. Based on our
assessment, our management concluded that, as of September 30, 2016, our internal control over financial reporting was effective.

We excluded BioStorage Technologies, Inc. from our assessment of internal control over financial reporting as of September 30, 2016 because it was acquired by the Company in a purchase business combination during 2016. The total assets and total revenues of BioStorage Technologies, Inc., a wholly-owned subsidiary, represent 7.4% and 8.0%, respectively, of the related consolidated financial statement amounts as of and for the year ended September 30, 2016.

The effectiveness of our internal control over financial reporting as of September 30, 2016 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report which appears herein.

Changes in Internal Control Over Financial Reporting

There were no changes in internal control over financial reporting during the fiscal fourth quarter ended September 30, 2016, that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None.

PART III

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Item 10. Directors, Executive Officers and Corporate Governance

The information required by this Item 10 is contained in our definitive proxy statement for our 2017 annual meeting of shareholders to be filed by us within 120 days after the close of our fiscal year, or the 2017 Proxy Statement, under the caption "Proposal No. 1-Election of Directors," "Other Matters-Section 16(a) Beneficial Ownership Compliance," "Other Matters-Standards of Conduct," "Other Matters-Stockholder Proposals and Recommendations for Directors" and "Corporate Governance" and is incorporated herein by reference.

Item 11. Executive Compensation

The information required by this Item 11 is contained under the caption "Corporate Governance and Director Compensation" and "Executive Officers" in the 2017 Proxy Statement to be filed by us within 120 days after the close of our fiscal year and is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required by this Item 12 is contained under the caption "General Information-Security Ownership of Certain Beneficial Owners" and "Equity Compensation Plan Information" in the 2017 Proxy Statement to be filed by us within 120 days after the close of our fiscal year and is incorporated herein by reference.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by this Item 13 is contained under the caption "Related Party Transactions" and "Corporate Governance and Director Compensation" in the 2017 Proxy Statement to be filed by us within 120 days after the close of our fiscal year and is incorporated herein by reference.

Item 14. Principal Accountant Fees and Services

The information required by this Item 14 is contained under the caption "Independent Auditor Fees and Other Matters" in the 2017 Proxy Statement to be filed by us within 120 days after the close of our fiscal year and is incorporated herein by reference.

PART IV

Item 15. Exhibits and Financial Statement Schedules

(a) Financial Statements and Financial Statement Schedules

- Consolidated Financial Statements of the Company and the related notes are included under Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K.
- Consolidated Financial Statements of ULVAC Cryogenics, Inc. as of as of June 30, 2016 and 2015 and the related notes are filed as Exhibit 99.2 hereto and incorporated herein by reference in this Form 10-K pursuant to Rule 3-09 of Regulation S-X.
- Other financial statement schedules are omitted because of the absence of conditions under which they are required or because the required information is given in the supplementary Consolidated Financial Statements or notes thereto.

(b) Exhibits

Exhibit No.	Description
3.01	Restated Certificate of Incorporation of the Company (incorporated herein by reference to Exhibit 3.01 to the Company’s registration statement on Form S-3 (Reg. No. 333-189582), filed on June 25, 2013).
3.02	Amended and Restated Bylaws (incorporated herein by reference to Exhibit 3.01 of the Company's current report on Form 8-K, filed on February 11, 2008).
4.01	Specimen Certificate for shares of the Company's common stock (incorporated herein by reference to the Company's registration statement on Form S-3 (Reg. No. 333-88320), filed on May 15, 2002).
10.01	U.S. Robot Supply Agreement, made as of June 30, 2006, by and between Brooks Automation, Inc. and Yaskawa Electric Corporation (incorporated herein by reference to Exhibit 10.02 to the 2010 10-K).

10.02	Basic agreement between the Company and Ulvac Corporation dated August 17, 1981 (incorporated herein by reference to Exhibit 10.13 of the registration statement on Form S-2 (Reg. No. 2-84880) filed by Helix Technology Corporation).
10.03	Form of Indemnification Agreement for directors and officers of the Company (incorporated herein by reference to the Company's registration statement on Form S-1 (Reg. No. 333-87296), filed on December 13, 1994 (the “Brooks S-1”)).
10.04	Employment Agreement, effective as of April 5, 2010, by and between Brooks Automation, Inc. and Stephen S. Schwartz (incorporated herein by reference to Exhibit 10.01 to the Company's quarterly report on Form 10-Q for the fiscal quarter ended March 31, 2010, filed on May 6, 2010).
10.05	Offer letter dated December 1, 2011 between the Company and Mark D. Morelli (incorporated herein by reference to Exhibit 10.08 to the Company's annual report on Form 10-K for the fiscal year ended September 30, 2012, as filed on November 21, 2012 (the “2012 10-K”)).
10.06	Letter Agreement dated June 4, 2015 between Brooks Automation, Inc. and Mark D. Morelli (incorporated herein by reference to Exhibit 10.1 to the Company's current report on Form 8-K, filed on June 9, 2015).
10.08	Separation Agreement dated April 5, 2016 between Brooks Automation, Inc. and Mark D. Morelli (incorporated herein by reference to Exhibit 10.01 to the Company’s quarterly report on Form 10-Q for the fiscal quarter ended June 30, 2016, filed on July 28, 2016).
10.09	Offer letter dated September 5, 2013 between the Company and Lindon G. Robertson (incorporated herein by reference to Exhibit 10.11 to the Company's 2013 10-K, filed on November 22, 2013).
10.10	Letter Agreement dated June 4, 2015 between Brooks Automation, Inc. and Lindon G. Robertson (incorporated herein by reference to Exhibit 10.1 to the Company's current report on Form 8-K, filed on June 9, 2015).
10.11	Offer Letter dated September 27, 2014, as revised, between the Company and Maurice Tenney, III (incorporated herein by reference to Exhibit 10.01 to the Company's quarterly report on Form 10-Q for the quarter ended December 31, 2015, filed on February 3, 2016).
10.12	Amended Offer Letter dated June 4, 2015, between the Company and Maurice Tenney, III (incorporated herein by reference to Exhibit 10.02 to the Company's quarterly report on Form 10-Q for the quarter ended December 31, 2015, filed on February 3, 2016).
10.13	Offer Letter dated June 12, 2014 between the Company and David C. Gray (incorporated herein by reference to Exhibit 10.1 to the Company's quarterly report on Form 10-Q for the quarter ended December 31, 2014, filed on February 5, 2015).
10.14	Form of Non-competition Agreement (incorporated herein by reference to Exhibit 10.1 to the Company's current report on Form 8-K, filed on June 9, 2015).
10.15	Form of Change in Control Agreement (incorporated herein by reference to Exhibit 10.2 to the Company's current report on Form 8-K, filed on June 9, 2015).
10.16	1995 Employee Stock Purchase Plan, as amended

10.17	Second Amended and Restated 2000 Equity Incentive Plan, restated as of May 7, 2013 (incorporated herein by reference to Exhibit 10.01 to the Company's current report on Form 8-K, filed on May 9, 2013).
10.17	Form of 2000 Equity Incentive Plan New Employee Nonqualified Stock Option Agreement (incorporated herein by reference to Exhibit 10.18 to the 2010 10-K).
10.18	Form of 2000 Equity Incentive Plan Existing Employee Nonqualified Stock Option Agreement (incorporated herein by reference to Exhibit 10.19 to the 2010 10-K).
10.19	Form of 2000 Equity Incentive Plan Director Stock Option Agreement (incorporated herein by reference to Exhibit 10.20 to the 2010 10-K).
10.20	2015 Equity Incentive Plan (incorporated herein by reference to Exhibit 10.1 to the Company's current report on Form 8-K, filed on February 5, 2015).
10.21	Form of Restricted Stock Agreement (incorporated herein by reference to Exhibit 10.21 to the 2010 10-K).

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10.22	Form of Restricted Stock Unit Award Notice (incorporated herein by reference to Exhibit 10.18 to the Company's annual report on Form 10-K for the fiscal year ended September 30, 2011, as filed on November 28, 2011 (the "2011 10-K")) .
10.23	Executive Performance-Based Variable Compensation Plan (incorporated herein by reference to Exhibit 10.01 to the Company's current report on Form 8-K, filed on January 29, 2016).
10.24	Non-Employee Directors Stock Grant/Restricted Stock Unit Election Form (incorporated herein by reference to Exhibit 10.40 to the 2010 10-K).
10.25	Brooks Automation, Inc. Deferred Compensation Plan, as amended (incorporated herein by reference to Exhibit 10.25 to the 2010 10-K).
10.26	Amendment No. 2008-01 to the Brooks Automation, Inc. Deferred Compensation Plan (incorporated herein by reference to Exhibit 10.01 to the Company's quarterly report on Form 10-Q for the quarter ended June 30, 2008, filed on August 8, 2008).
10.27	Lease, dated May 14, 1999, between MUM IV, LLC as Lessor and the Company as Lessee (incorporated herein by reference to Exhibit 10.30 to the 2010 10-K).
10.28	Credit Agreement by and among Brooks Automation, Inc., Wells Fargo Bank, National Association and the Lenders parties thereto (incorporated herein by reference to Exhibit 10.2 to the Company's quarterly report on Form 10-Q for the quarter ended June 30, 2016 filed on July 28, 2016).
10.29	Guaranty and Security Agreement by and among Wells Fargo Bank, National Association and the Grantors and members of the Lender Group parties thereto (incorporated herein by reference to Exhibit 10.3 to the Company's quarterly report on Form 10-Q for the quarter ended June 30, 2016 filed on July 28, 2016).
21.01	Subsidiaries of the Company.
23.01	Consent of PricewaterhouseCoopers LLP
23.02	Consent of BDO USA, LLP
31.01	Certification of the Company's Principal Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.02	Certification of the Company's Principal Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32	Certification of the Company's Principal Executive Officer and Principal Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101	The following material from the Company's Annual Report on Form 10-K, for the year ended September 30, 2016, formatted in XBRL (Xtensible Business Reporting Language): (i) the Consolidated Balance Sheets; (ii) the Consolidated Statements of Operations; (iii) the Consolidated Statements of Comprehensive (Loss) Income; (iv) the Consolidated Statements of Cash Flows; (v) the Consolidated Statements of Changes in Equity; and (vi) the Notes to Consolidated Financial Statements.

99.1	Report of Independent Auditors of ULVAC Cryogenics, Inc.
99.2	Consolidated Financial Statements of ULVAC Cryogenics, Inc. as of June 30, 2016 and 2015 and July 1, 2014 (the date of transition) and for each of the periods ended June 30, 2016 and 2015.

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SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) 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.

BROOKS AUTOMATION, INC.

By: /S/ STEPHEN S. SCHWARTZ
Stephen S. Schwartz
Chief Executive Officer

Date: November 29, 2016

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/S/ STEPHEN S. SCHWARTZ Stephen S. Schwartz	Director and Chief Executive Officer (Principal Executive Officer)	November 29, 2016
/S/ LINDON G. ROBERTSON Lindon G. Robertson	Executive Vice President and Chief Financial Officer (Principal Financial Officer)	November 29, 2016
/S/ DAVID PIETRANTONI David Pietrantoni	Vice President - Finance and Corporate Controller (Principal Accounting Officer)	November 29, 2016
/S/ A. CLINTON ALLEN A. Clinton Allen	Director	November 29, 2016
/S/ ROBYN C. DAVIS Robyn C. Davis	Director	November 29, 2016
/S/ JOSEPH R. MARTIN Joseph R. Martin	Director	November 29, 2016
/S/ JOHN K. MCGILLICUDDY John K. McGillicuddy	Director	November 29, 2016
/S/ KRISHNA G. PALEPU Krishna G. Palepu	Director	November 29, 2016
/S/ KIRK P. POND Kirk P. Pond	Director	November 29, 2016
/S/ ALFRED WOOLLACOTT III Alfred Woollacott III	Director	November 29, 2016
/S/ MARK S. WRIGHTON Mark S. Wrighton	Director	November 29, 2016

/S/ ELLEN M. ZANE Ellen M. Zane	Director	November 29, 2016

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