

NORDSON CORP  
Form 10-K  
December 15, 2016

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

ANNUAL REPORT PURSUANT TO SECTIONS 13 OR 15(d) OF  
THE SECURITIES EXCHANGE ACT OF 1934

(Mark One)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934  
For the fiscal year ended October 31, 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 0-7977

NORDSON CORPORATION

(Exact name of Registrant as specified in its charter)

Ohio	34-0590250
(State of incorporation)	(I.R.S. Employer
	Identification No.)
28601 Clemens Road Westlake, Ohio	44145
(Address of principal executive offices)	(Zip Code)

(440) 892-1580

(Registrant's Telephone Number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Common Shares, without par value

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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 No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes No

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, and (2) has been subject to such filing requirements for the past 90 days. Yes 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 (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the Registrant was required to submit and post such files). Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 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 this 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 definition of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer

Accelerated filer

Non-accelerated filer (Do not check if smaller reporting company) Smaller reporting company

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

The aggregate market value of Common Shares, no par value per share, held by nonaffiliates (based on the closing sale price on the Nasdaq Stock Market) as of April 30, 2016 was approximately \$4,357,415,366.

There were 57,348,873 Common Shares outstanding as of November 30, 2016.

Documents incorporated by reference: Portions of the Proxy Statement for the 2017 Annual Meeting - Part III



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## PART I

### NOTE REGARDING AMOUNTS AND FISCAL YEAR REFERENCES

In this annual report, all amounts related to United States dollars and foreign currency and to the number of Nordson Corporation's common shares, except for per share earnings and dividend amounts, are expressed in thousands. Unless the context otherwise indicates, all references to "we," "us," "our," or the "Company" mean Nordson Corporation.

Unless otherwise noted, all references to years relate to our fiscal year ending October 31.

#### Item 1. Business

##### General Description of Business

Nordson engineers, manufactures and markets differentiated products and systems used to dispense, apply and control adhesives, coatings, polymers, sealants, biomaterials, and other fluids, to test and inspect for quality, and to treat and cure surfaces. These products are supported with extensive application expertise and direct global sales and service. We serve a wide variety of consumer non-durable, consumer durable and technology end markets including packaging, nonwovens, electronics, medical, appliances, energy, transportation, building and construction, and general product assembly and finishing.

Our strategy for long-term growth is based on solving customers' needs globally. We are headquartered in Westlake, Ohio, and our products are marketed through a network of direct operations in more than 35 countries. Consistent with this global strategy, approximately 71 percent of our revenues were generated outside the United States in 2016.

We have 6,127 employees worldwide. Principal manufacturing facilities are located in the United States, the People's Republic of China, Germany, Mexico, the Netherlands, Thailand and the United Kingdom.

##### Corporate Purpose and Goals

We strive to be a vital, self-renewing, worldwide organization that, within the framework of ethical behavior and enlightened citizenship, grows and produces wealth for our customers, employees, shareholders and communities.

We operate for the purpose of creating balanced, long-term benefits for all of our constituencies.

Although every quarter may not produce increased sales, net income and earnings per share, or exceed the comparative prior year's quarter, we do expect to produce long-term gains. When short-term swings occur, we do not intend to alter our basic objectives in efforts to mitigate the impact of these temporary occurrences.

We drive organic growth by continually introducing new products and technology, providing high levels of customer service and support, capturing rapidly expanding opportunities in emerging geographies, and by leveraging existing technology into new applications. Additional growth comes through the acquisition of companies that serve international growth markets, share our business model characteristics and can leverage our global infrastructure.

We create benefits for our customers through a Package of Values®, which includes carefully engineered, durable products; strong service support; the backing of a well-established, worldwide company with financial and technical strengths; and a corporate commitment to deliver what was promised.

We strive to provide genuine customer satisfaction; it is the foundation upon which we continue to build our business.

Complementing our business strategy is the objective to provide opportunities for employee self-fulfillment, growth, security, recognition and equitable compensation. This goal is met through the Human Resources department's facilitation of employee training, leadership training and the creation of on-the-job growth opportunities. The result is a highly qualified and professional global team capable of meeting corporate objectives.

We recognize the value of employee participation in the planning process. Strategic and operating plans are developed by all business units, resulting in a sense of ownership and commitment on the part of employees in accomplishing our objectives.

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We drive continuous improvement in all areas of the company through the Nordson Business System (NBS), our collected set of tools and best practices. Rooted in Lean Six Sigma methodologies, the NBS is applied throughout all business units and corporate functions. Closely tied to the NBS are a set of key performance indicators that help define and measure progress toward corporate goals. The NBS is underpinned by our timeless corporate values of customer passion, energy, excellence, integrity and respect for people.

We are an equal opportunity employer.

We are committed to contributing approximately five percent of domestic pretax earnings to human welfare services, education and other charitable activities, particularly in communities where we have significant operations.

#### Financial Information About Operating Segments, Foreign and Domestic Operations and Export Sales

In accordance with generally accepted accounting standards, we have reported information about our three operating segments, including information about our foreign and domestic operations. This information is contained in Note 16 of Notes to Consolidated Financial Statements, which can be found in Part II, Item 8 of this Annual Report.

#### Principal Products and Uses

We engineer, manufacture and market differentiated products and systems used to dispense, apply and control adhesives, coatings, polymers, sealants, biomaterials, and other fluids, to test and inspect for quality, and to treat and cure surfaces. Our technology-based systems can be found in manufacturing facilities around the world producing a wide range of goods for consumer durable, consumer non-durable and technology end markets. Equipment ranges from single-use components to manual, stand-alone units for low-volume operations to microprocessor-based automated systems for high-speed, high-volume production lines.

We market our products globally, primarily through a direct sales force, and also through qualified distributors and sales representatives. We have built a worldwide reputation for creativity and expertise in the design and engineering of high-technology application equipment that meets the specific needs of our customers. We create value for our customers by developing solutions that increase uptime, enable faster line speeds and reduce consumption of materials.

The following is a summary of the product lines and markets served by our operating segments:

##### 1. Adhesive Dispensing Systems

This segment delivers our proprietary precision dispensing and processing technology to diverse markets for applications that commonly reduce material consumption, increase line efficiency and enhance product strength, durability, brand and appearance.

• **Nonwovens** – Dispensing, coating and laminating systems for applying adhesives, lotions, liquids and fibers to disposable products and continuous roll goods. Key strategic markets include adult incontinence products, baby diapers and child-training pants, feminine hygiene products and surgical drapes, gowns, shoe covers and face masks.

• **Packaging** – Automated adhesive dispensing systems used in the rigid packaged goods industries. Key strategic markets include food and beverage packaging, pharmaceutical packaging, and other consumer goods packaging.

• **Polymer Processing** – Components and systems used in the thermoplastic melt stream in plastic extrusion, injection molding, compounding, polymerization and recycling processes. Key strategic markets include flexible packaging, electronics, medical, building and construction, transportation and aerospace, and general consumer goods.

• **Product Assembly** – Dispensing, coating and laminating systems for the assembly of plastic, metal and wood products, for paper and paperboard converting applications and for the manufacturing of continuous roll goods. Key strategic

markets include appliances, automotive components, building and construction materials, electronics, furniture, solar energy, and the manufacturing of bags, sacks, books, envelopes and folding cartons.

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## 2. Advanced Technology Systems

This segment integrates our proprietary product technologies found in progressive stages of a customer's production process, such as surface treatment, precisely controlled automated, semi-automated or manual dispensing of material, and post-dispense bond testing, optical inspection and X-ray inspection to ensure quality. Related single-use plastic molded syringes, cartridges, tips, tubing and fluid connection components are used to dispense or control fluids in production processes or within customers' end products. This segment primarily serves the specific needs of electronics, medical and related high-tech industries.

**Electronic Systems** - Automated dispensing systems for high-speed, accurate application of a broad range of attachment, protection and coating fluids, and related gas plasma treatment systems for cleaning and conditioning surfaces prior to dispense. Key strategic markets include mobile phones, tablets, personal computers, wearable technology, liquid crystal displays, micro hard drives, microprocessors, printed circuit boards, micro-electronic mechanical systems (MEMS), and semiconductor packaging.

**Fluid Management** – Precision manual and semi-automated dispensers, highly engineered single-use plastic molded syringes, cartridges, tips, fluid connection components, tubing and catheters. Products are used for applying and controlling the flow of adhesives, sealants, lubricants, and biomaterials in critical industrial production processes and within medical equipment and related surgical procedures. Key strategic markets include consumer goods, electronics, industrial assembly, and medical.

**Test and Inspection** - Bond testing and automated optical and x-ray inspection systems used in the semiconductor and printed circuit board industries. Key strategic markets include mobile phones, tablets, personal computers, wearable technology, liquid crystal displays, micro hard drives, microprocessors, printed circuit boards, MEMS, and semiconductor packaging.

## 3. Industrial Coating Systems

This segment provides both standard and highly-customized equipment used primarily for applying coatings, paint, finishes, sealants and other materials, and for curing and drying of dispensed material. This segment primarily serves the consumer durables market.

**Cold Materials** – Automated and manual dispensing products and systems used to apply multiple component adhesive and sealant materials in the general industrial and transportation manufacturing industries. Key strategic markets include aerospace, alternative energy, appliances, automotive, building and construction, composites, electronics and medical.

**Container Coating** – Automated and manual dispensing and curing systems used to coat and cure containers. Key strategic markets include beverage containers and food cans.

**Curing and Drying Systems** – Ultraviolet equipment used primarily in curing and drying operations for specialty coatings, semiconductor materials and paints. Key strategic markets include electronics, containers, and durable goods products.

**Liquid Finishing** – Automated and manual dispensing systems used to apply liquid paints and coatings to consumer and industrial products. Key strategic markets include automotive components, agriculture, construction, metal shelving and drums.

**Powder Coating** – Automated and manual dispensing systems used to apply powder paints and coatings to a variety of metal, plastic and wood products. Key strategic markets include agriculture and construction equipment, appliances, automotive components, home and office furniture, lawn and garden equipment, pipe coating, and wood and metal shelving.

## Manufacturing and Raw Materials

Our production operations include machining, molding and assembly. We manufacture specially designed parts and assemble components into finished equipment. Many components are made in standard modules that can be used in more than one product or in combination with other components for a variety of models. We have principal manufacturing operations and sources of supply in the United States in Ohio, Georgia, California, Colorado, Michigan, New Jersey, North Carolina, Pennsylvania, Rhode Island, Virginia and Wisconsin; as well as in the People's Republic of China, Germany, Mexico, the Netherlands, Thailand and the United Kingdom.

Principal materials used to make our products are metals and plastics, typically in sheets, bar stock, castings, forgings, tubing and pellets. We also purchase many electrical and electronic components, fabricated metal parts, high-pressure fluid hoses, packings, seals and other items integral to our products. Suppliers are competitively selected based on cost, quality and service. All significant raw materials that we use are available through multiple sources.

Senior operating executives supervise an extensive quality control program for our equipment, machinery and systems, and manufacturing processes.

Natural gas and other fuels are our primary energy sources. However, standby capacity for alternative sources is available if needed.

## Intellectual Property

We maintain procedures to protect our intellectual property (including patents, trademarks and copyrights) both domestically and internationally. Risk factors associated with our intellectual property are discussed in Item 1A, Risk Factors.

Our intellectual property portfolios include valuable patents, trade secrets, know-how, domain names, trademarks and trade names. As of October 31, 2016, we held 541 United States patents and 1,207 foreign patents and had 212 United States patent applications pending and 878 foreign patent applications pending, but there is no assurance that any patent application will be issued. We continue to apply for and obtain patent protection for new products on an ongoing basis.

Patents covering individual products extend for varying periods according to the date of filing or grant and legal term of patents in various countries where a patent is obtained. Our current patent portfolio has expiration dates ranging from November 2016 to February 2041. The actual protection a patent provides, which can vary from country to country, depends upon the type of patent, the scope of its coverage, and the availability of legal remedies in each country. We believe, however, that the duration of our patents generally exceeds the life cycles of the technologies disclosed and claimed in the patents.

We believe our trademarks are important assets and we aggressively manage our brands. We also own a number of trademarks in the United States and foreign countries, including registered trademarks for Nordson, Asymtek, Dage, EFD, Value Plastics, and Xaloy and various common law trademarks which are important to our business, inasmuch as they identify Nordson and our products to our customers. As of October 31, 2016, we had a total of 2,084 trademark registrations in the United States and in various foreign countries.

We rely upon a combination of nondisclosure and other contractual arrangements and trade secret laws to protect our proprietary rights and also enter into confidentiality and intellectual property agreements with our employees that require them to disclose any inventions created during employment, convey all rights to inventions to us, and restrict the distribution of proprietary information.

We protect and promote our intellectual property portfolio and take those actions we deem appropriate to enforce our intellectual property rights and to defend our right to sell our products. Although in aggregate our intellectual property is important to our operations, we do not believe that the loss of any one patent, trademark, or group of related patents or trademarks would have a material adverse effect on our results of operations or financial position of our overall business.

#### Seasonal Variation in Business

Generally, the highest volume of sales occurs in the second half of the year due in large part to the timing of customers' capital spending programs. Accordingly, first quarter sales volume is typically the lowest of the year due to timing of customers' capital spending programs and customer holiday shutdowns.

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### Working Capital Practices

No special or unusual practices affect our working capital. We generally require advance payments as deposits on customized equipment and systems and, in certain cases, require progress payments during the manufacturing of these products. We continue to initiate new processes focused on reduction of manufacturing lead times, resulting in lower investment in inventory while maintaining the capability to respond promptly to customer needs.

### Customers

We serve a broad customer base, both in terms of industries and geographic regions. In 2016, no single customer accounted for ten percent or more of sales.

### Backlog

Our backlog of open orders increased to approximately \$274,000 at October 31, 2016 from approximately \$228,000 at October 31, 2015. The amounts for both years were calculated based upon exchange rates in effect at October 31, 2016. The increase is primarily due to orders within the Advanced Technology Systems segment. All orders in the 2016 year-end backlog are expected to be shipped to customers in 2017.

### Government Contracts

Our business neither includes nor depends upon a significant amount of governmental contracts or subcontracts. Therefore, no material part of our business is subject to renegotiation or termination at the option of the government.

### Competitive Conditions

Our equipment is sold in competition with a wide variety of alternative bonding, sealing, finishing, coating, processing, testing, inspecting, and fluid control techniques. Potential uses for our equipment include any production processes that require preparation, modification or curing of surfaces; dispensing, application, processing or control of fluids and materials; or testing and inspecting for quality.

Many factors influence our competitive position, including pricing, product quality and service. We maintain a leadership position in our business segments by delivering high-quality, innovative products and technologies, as well as service and technical support. Working with customers to understand their processes and developing the application solutions that help them meet their production requirements also contributes to our leadership position. Our worldwide network of direct sales and technical resources also is a competitive advantage.

### Research and Development

Investments in research and development are important to our long-term growth, enabling us to keep pace with changing customer and marketplace needs through the development of new products and new applications for existing products. We place strong emphasis on technology developments and improvements through internal engineering and research teams. Research and development expenses were approximately \$46,247 in 2016, compared with approximately \$46,689 in 2015 and \$47,536 in 2014. As a percentage of sales, research and development expenses were approximately 2.6, 2.8 and 2.8 percent in 2016, 2015 and 2014, respectively.

### Environmental Compliance

We are subject to federal, state, local and foreign environmental, safety and health laws and regulations concerning, among other things, emissions to the air, discharges to land and water and the generation, handling, treatment and disposal of hazardous waste and other materials. Under certain of these laws, we can be held strictly liable for hazardous substance contamination of any real property we have ever owned, operated or used as a disposal site or for natural resource damages associated with such contamination. We are also required to maintain various related permits and licenses, many of which require periodic modification and renewal. The operation of manufacturing plants unavoidably entails environmental, safety and health risks, and we could incur material unanticipated costs or liabilities in the future if any of these risks were realized in ways or to an extent that we did not anticipate.

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We believe that we operate in compliance, in all material respects, with applicable environmental laws and regulations. Compliance with environmental laws and regulations requires continuing management effort and expenditures. We have incurred, and will continue to incur, costs and capital expenditures to comply with these laws and regulations and to obtain and maintain the necessary permits and licenses. We believe that the cost of complying with environmental laws and regulations will not have a material effect on our earnings, liquidity or competitive position but cannot assure that material compliance-related costs and expenses may not arise in the future. For example, future adoption of new or amended environmental laws, regulations or requirements or newly discovered contamination or other circumstances that could require us to incur costs and expenses that may have a material effect, but cannot be presently anticipated.

We believe that policies, practices and procedures have been properly designed to prevent unreasonable risk of material environmental damage arising from our operations. We accrue for estimated environmental liabilities with charges to expense and believe our environmental accrual is adequate to provide for our portion of the costs of all such known environmental liabilities. Compliance with federal, state, local and foreign environmental protection laws during 2016 had no material effect on our capital expenditures, earnings or competitive position. Based upon consideration of currently available information, we believe liabilities for environmental matters will not have a material adverse effect on our financial position, operating results or liquidity, but we cannot assure that material environmental liabilities may not arise in the future.

#### Employees

As of October 31, 2016, we had 6,127 full-time and part-time employees, including 149 at our Amherst, Ohio, facility who are represented by a collective bargaining agreement that expires on November 3, 2019 and 37 at our New Castle, Pennsylvania facility who are represented by collective bargaining agreements that expire on August 31, 2017. No work stoppages have been experienced at any of our facilities during any of the periods covered by this report.

#### Available Information

Our proxy statement, annual report to the Securities and Exchange Commission (Form 10-K), quarterly reports (Form 10-Q) and current reports (Form 8-K) and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 are available free of charge at <http://www.nordson.com/investors> as soon as reasonably practical after such material is electronically filed with, or furnished to, the SEC. Copies of these reports may also be obtained free of charge by sending written requests to Corporate Communications, Nordson Corporation, 28601 Clemens Road, Westlake, Ohio 44145. The contents of our Internet website are not incorporated by reference herein and are not deemed to be a part of this report.



## Item 1A. Risk Factors

In an enterprise as diverse as ours, a wide range of factors could affect future performance. We discuss in this section some of the risk factors that, if they actually occurred, could materially and adversely affect our business, financial condition, value and results of operations. You should consider these risk factors in connection with evaluating the forward-looking statements contained in this Annual Report on Form 10-K because these factors could cause our actual results and financial condition to differ materially from those projected in forward-looking statements.

The significant risk factors affecting our operations include the following:

Changes in United States or international economic conditions could adversely affect the profitability of any of our operations.

In 2016, approximately 29 percent of our revenue was generated in the United States, while approximately 71 percent was generated outside the United States. Our largest markets include appliance, automotive, construction, container, electronics assembly, food and beverage, furniture, medical, metal finishing, nonwovens, packaging, paper and paperboard converting, plastics processing and semiconductor. A slowdown in any of these specific end markets could directly affect our revenue stream and profitability.

A portion of our product sales is attributable to industries and markets, such as the semiconductor, mobile electronics, polymer processing and metal finishing industries, which historically have been cyclical and sensitive to relative changes in supply and demand and general economic conditions. The demand for our products depends, in part, on the general economic conditions of the industries or national economies of our customers. Downward economic cycles in our customers' industries or countries may reduce sales of some of our products. It is not possible to predict accurately the factors that will affect demand for our products in the future.

Any significant downturn in the health of the general economy, globally, regionally or in the markets in which we sell products, could have an adverse effect on our revenues and financial performance, resulting in impairment of assets.

Significant movements in foreign currency exchange rates or change in monetary policy may harm our financial results.

We are exposed to fluctuations in foreign currency exchange rates, particularly with respect to the euro, the yen, the pound sterling and the Chinese yuan. Any significant change in the value of the currencies of the countries in which we do business against the United States dollar could affect our ability to sell products competitively and control our cost structure, which could have a material adverse effect on our business, financial condition and results of operations. For additional detail related to this risk, see Item 7A, Quantitative and Qualitative Disclosure About Market Risk.

The majority of our consolidated revenues in 2016 were generated in currencies other than the United States dollar, which is our reporting currency. We recognize foreign currency transaction gains and losses arising from our operations in the period incurred. As a result, currency fluctuations between the United States dollar and the currencies in which we do business have caused and will continue to cause foreign currency transaction and translation gains and losses, which historically have been material and could continue to be material. We cannot predict the effects of exchange rate fluctuations upon our future operating results because of the number of currencies involved, the variability of currency exposures and the potential volatility of currency exchange rates. We take actions to manage our foreign currency exposure, such as entering into hedging transactions, where available, but we cannot assure that our strategies will adequately protect our consolidated operating results from the effects of exchange rate fluctuations. For example, the announcement of Brexit caused volatility in global currency exchange rate fluctuations

that resulted in the strengthening of the United States dollar against foreign currencies in which we conduct business. Future adverse consequences arising from Brexit may include continued volatility in exchange rates. Any significant fluctuation in exchange rates may be harmful to our financial condition and results of operations. We also face risks arising from the imposition of exchange controls and currency devaluations. Exchange controls may limit our ability to convert foreign currencies into United States dollars or to remit dividends and other payments by our foreign subsidiaries or customers located in or conducting business in a country imposing controls. Currency devaluations diminish the United States dollar value of the currency of the country instituting the devaluation and, if they occur or continue for significant periods, could adversely affect our earnings or cash flow.

If we fail to develop new products, or our customers do not accept the new products we develop, our revenue and profitability could be adversely impacted.

Innovation is critical to our success. We believe that we must continue to enhance our existing products and to develop and manufacture new products with improved capabilities in order to continue to be a leading provider of precision technology solutions for the industrial equipment market. We also believe that we must continue to make improvements in our productivity in order to maintain our competitive position. Difficulties or delays in research, development or production of new products or failure to gain market acceptance of new products and technologies may reduce future sales and adversely affect our competitive position. We

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continue to invest in the development and marketing of new products. There can be no assurance that we will have sufficient resources to make such investments, that we will be able to make the technological advances necessary to maintain competitive advantages or that we can recover major research and development expenses. If we fail to make innovations, launch products with quality problems or the market does not accept our new products, our financial condition, results of operations, cash flows and liquidity could be adversely affected. In addition, as new or enhanced products are introduced, we must successfully manage the transition from older products to minimize disruption in customers' ordering patterns, avoid excessive levels of older product inventories and ensure that we can deliver sufficient supplies of new products to meet customers' demands.

Our growth strategy includes acquisitions, and we may not be able to execute on our acquisition strategy or integrate acquisitions successfully.

Our recent historical growth has depended, and our future growth is likely to continue to depend, in part on our acquisition strategy and the successful integration of acquired businesses into our existing operations. We intend to continue to seek additional acquisition opportunities both to expand into new markets and to enhance our position in existing markets throughout the world. We cannot assure we will be able to successfully identify suitable acquisition opportunities, prevail against competing potential acquirers, negotiate appropriate acquisition terms, obtain financing that may be needed to consummate such acquisitions, complete proposed acquisitions, successfully integrate acquired businesses into our existing operations or expand into new markets. In addition, we cannot assure that any acquisition, once successfully integrated, will perform as planned, be accretive to earnings, or prove to be beneficial to our operations and cash flow.

The success of our acquisition strategy is subject to other risks and uncertainties, including:

- our ability to realize operating efficiencies, synergies or other benefits expected from an acquisition, and possible delays in realizing the benefits of the acquired company or products;
- diversion of management's time and attention from other business concerns;
- difficulties in retaining key employees, customers or suppliers of the acquired business;
- difficulties in maintaining uniform standards, controls, procedures and policies throughout acquired companies;
- adverse effects on existing business relationships with suppliers or customers;
- the risks associated with the assumption of contingent or undisclosed liabilities of acquisition targets; and
- the ability to generate future cash flows or the availability of financing.

In addition, an acquisition could adversely impact our operating performance as a result of the incurrence of acquisition-related debt, pre-acquisition potential tax liabilities, acquisition expenses, the amortization of acquisition-acquired assets, or possible future impairments of goodwill or intangible assets associated with the acquisition.

We may also face liability with respect to acquired businesses for violations of environmental laws occurring prior to the date of our acquisition, and some or all of these liabilities may not be covered by environmental insurance secured to mitigate the risk or by indemnification from the sellers from which we acquired these businesses. We could also incur significant costs, including, but not limited to, remediation costs, natural resources damages, civil or criminal fines and sanctions and third-party claims, as a result of past or future violations of, or liabilities associated with environmental laws.

Increased IT security threats and more sophisticated and targeted computer crime could pose a risk to our systems, networks, products, solutions and services.

Increased global IT security threats and more sophisticated and targeted computer crime pose a risk to the security of our systems and networks and the confidentiality, availability and integrity of our data. While we attempt to mitigate these risks by employing a number of measures, including employee training, comprehensive monitoring of our networks and systems, and maintenance of backup and protective systems, our systems, networks, products, solutions and services remain potentially vulnerable to advanced persistent threats. Depending on their nature and scope, such threats could potentially lead to the compromising of confidential information, including but not limited to confidential information relating to customer or employee data, improper use of our systems and networks, manipulation and destruction of data, defective products, production downtimes and operational disruptions, which in turn could adversely affect our reputation, competitiveness and results of operations.

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If our intellectual property protection is inadequate, others may be able to use our technologies and tradenames and thereby reduce our ability to compete, which could have a material adverse effect on us, our financial condition and results of operations.

We regard much of the technology underlying our products and the trademarks under which we market our products as proprietary. The steps we take to protect our proprietary technology may be inadequate to prevent misappropriation of our technology, or third parties may independently develop similar technology. We rely on a combination of patents, trademark, copyright and trade secret laws, employee and third-party non-disclosure agreements and other contracts to establish and protect our technology and other intellectual property rights. The agreements may be breached or terminated, and we may not have adequate remedies for any breach, and existing trade secrets, patent and copyright law afford us limited protection. Policing unauthorized use of our intellectual property is difficult. A third party could copy or otherwise obtain and use our products or technology without authorization. Litigation may be necessary for us to defend against claims of infringement or to protect our intellectual property rights and could result in substantial cost to us and diversion of our efforts. Further, we might not prevail in such litigation, which could harm our business.

Our products could infringe on the intellectual property of others, which may cause us to engage in costly litigation and, if we are not successful, could cause us to pay substantial damages and prohibit us from selling our products.

Third parties may assert infringement or other intellectual property claims against us based on their patents or other intellectual property claims, and we may have to pay substantial damages, possibly including treble damages, if it is ultimately determined our products infringe. We may have to obtain a license to sell our products if it is determined that our products infringe upon another party's intellectual property. We might be prohibited from selling our products before we obtain a license, which, if available at all, may require us to pay substantial royalties. Even if infringement claims against us are without merit, defending these types of lawsuits takes significant time, may be expensive and may divert management attention from other business concerns.

Any impairment in the value of our intangible assets, including goodwill, would negatively affect our operating results and total capitalization.

Our total assets reflect substantial intangible assets, primarily goodwill. The goodwill results from our acquisitions and represents the excess of cost over the fair value of the identifiable net assets we acquired. We assess at least annually whether there has been any impairment in the value of our intangible assets. If future operating performance at one or more of our business units were to fall significantly below current levels, if competing or alternative technologies emerge, if market conditions for acquired businesses decline, if significant and prolonged negative industry or economic trends exist, if our stock price and market capitalization declines, or if future cash flow estimates decline, we could incur, under current applicable accounting rules, a non-cash charge to operating earnings for goodwill impairment. Any determination requiring the write-off of a significant portion of unamortized intangible assets would negatively affect our results of operations and equity book value, the effect of which could be material.

We may be exposed to liabilities under the Foreign Corrupt Practices Act (FCPA), which could have a material adverse effect on our business.

We are subject to compliance with various laws and regulations, including the FCPA and similar worldwide anti-bribery and anti-corruption laws, which generally prohibit companies and their intermediaries from engaging in bribery or making other improper payments to private or public parties for the purpose of obtaining or retaining business or gaining an unfair business advantage. The FCPA also requires proper record keeping and characterization of such payments in our reports filed with the SEC. Our employees are trained and required to comply with these laws, and we are committed to legal compliance and corporate ethics. Violations of these laws could result in severe

criminal or civil sanctions and financial penalties and other consequences that may have a material adverse effect on our business, reputation, financial condition or results of operations.

Inability to access capital could impede growth or the repayment or refinancing of existing indebtedness.

The limits imposed on us by the restrictive covenants contained in our credit facilities could prevent us from making acquisitions or cause us to lose access to these facilities.

Our existing credit facilities contain restrictive covenants that limit our ability to, among other things:

- borrow money or guarantee the debts of others;
- use assets as security in other transactions;
- make restricted payments or distributions; and
- sell or acquire assets or merge with or into other companies.

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In addition, our credit facilities require us to meet financial ratios, including a “Leverage Ratio” and an “Interest Coverage Ratio”, both as defined in the credit facilities.

These restrictions could limit our ability to plan for or react to market conditions or meet extraordinary capital needs and could otherwise restrict our financing activities.

Our ability to comply with the covenants and other terms of our credit facilities will depend on our future operating performance. If we fail to comply with such covenants and terms, we may be in default and the maturity of the related debt could be accelerated and become immediately due and payable. We may be required to obtain waivers from our lenders in order to maintain compliance under our credit facilities, including waivers with respect to our compliance with certain financial covenants. If we are unable to obtain necessary waivers and the debt under our credit facilities is accelerated, we would be required to obtain replacement financing at prevailing market rates.

We may need new or additional financing in the future to expand our business or refinance existing indebtedness. If we are unable to access capital on satisfactory terms and conditions, we may not be able to expand our business or meet our payment requirements under our existing credit facilities. Our ability to obtain new or additional financing will depend on a variety of factors, many of which are beyond our control. We may not be able to obtain new or additional financing because we have substantial debt or because we may not have sufficient cash flow to service or repay our existing or future debt. In addition, depending on market conditions and our financial performance, neither debt nor equity financing may be available on satisfactory terms or at all. Finally, as a consequence of worsening financial market conditions, our credit facility providers may not provide the agreed credit if they become undercapitalized.

Changes in interest rates could adversely affect us.

Any period of interest rate increases may also adversely affect our profitability. At October 31, 2016, we had \$984,787 of total debt and notes payable outstanding, of which 64 percent was priced at interest rates that float with the market. A one percent increase in the interest rate on the floating rate debt in 2016 would have resulted in approximately \$7,205 of additional interest expense. A higher level of floating rate debt would increase the exposure to changes in interest rates. For additional detail related to this risk, see Item 7A, Quantitative and Qualitative Disclosure About Market Risk.

Failure to retain our existing senior management team or the inability to attract and retain qualified personnel could hurt our business and inhibit our ability to operate and grow successfully.

Our success will continue to depend to a significant extent on the continued service of our executive management team and the ability to recruit, hire and retain other key management personnel to support our growth and operational initiatives and replace executives who retire or resign. Failure to retain our leadership team and attract and retain other important management and technical personnel could place a constraint on our global growth and operational initiatives, possibly resulting in inefficient and ineffective management and operations, which would likely harm our revenues, operations and product development efforts and eventually result in a decrease in profitability.

The level of returns on pension plan assets and changes in the actuarial assumptions used could adversely affect us.

Our operating results may be positively or negatively impacted by the amount of expense we record for our defined benefit pension plans. U.S. GAAP requires that we calculate pension expense using actuarial valuations, which are dependent upon our various assumptions including estimates of expected long-term rate of return on plan assets, discount rates for future payment obligations, and the expected rate of increase in future compensation levels. Our pension expense and funding requirements may also be affected by our actual return on plan assets and by legislation

and other government regulatory actions. Changes in assumptions, laws or regulations could lead to variability in operating results and could have a material adverse impact on liquidity.

Regulations related to conflict-free minerals may result in additional expenses that could affect our financial condition and business operations.

Pursuant to the Dodd-Frank Wall Street Reform and Consumer Protection Act, the SEC promulgated final rules regarding disclosure of the use of certain minerals, known as conflict minerals, which are mined from the Democratic Republic of the Congo and adjoining countries, as well as procedures regarding a manufacturer's efforts to prevent the sourcing of such minerals and metals produced from those minerals. These new disclosure obligations will require continuing due diligence efforts to support our future disclosure requirements. We incurred and will continue to incur costs associated with complying with such disclosure requirements, including costs associated with canvassing our supply chain to determine the source country of any conflict minerals incorporated in our products, in addition to the cost of remediation and other changes to products, processes, or sources of supply as a consequence of such verification activities. In addition, the implementation of these rules could adversely affect the sourcing, supply, and pricing of materials used in our products.

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Political conditions in foreign countries in which we operate could adversely affect us.

We conduct our manufacturing, sales and distribution operations on a worldwide basis and are subject to risks associated with doing business outside the United States. In 2016, approximately 71 percent of our total sales were generated outside the United States. We expect that international operations and United States export sales will continue to be important to our business for the foreseeable future. Both sales from international operations and export sales are subject in varying degrees to risks inherent in doing business outside the United States. Such risks include, but are not limited to, the following:

- risks of economic instability;
- unanticipated or unfavorable circumstances arising from host country laws or regulations;
- threats of war, terrorism or governmental instability;
- significant foreign and U.S. taxes on repatriated cash;
- restrictions on the transfer of funds into or out of a country;
- potential negative consequences from changes to taxation policies;
- the disruption of operations from labor and political disturbances;
- the imposition of tariffs, import or export licensing requirements; and
- exchange controls or other trade restrictions including transfer pricing restrictions when products produced in one country are sold to an affiliated entity in another country.

Any of these events could reduce the demand for our products, limit the prices at which we can sell our products, interrupt our supply chain, or otherwise have an adverse effect on our operating performance.

Our international operations also depend upon favorable trade relations between the U.S. and those foreign countries in which our customers, subcontractors and materials suppliers have operations. A protectionist trade environment in either the U.S. or those foreign countries in which we do business, such as a change in the current tariff structures, export compliance or other trade policies, may materially and adversely affect our ability to sell our products in foreign markets.

Our business and operating results may be adversely affected by natural disasters or other catastrophic events beyond our control.

While we have taken precautions to prevent production and service interruptions at our global facilities, severe weather conditions such as hurricanes or tornadoes, as well major earthquakes and other natural disasters, in areas in which we have manufacturing facilities or from which we obtain products may cause physical damage to our properties, closure of one or more of our manufacturing or distribution facilities, lack of an adequate work force in a market, temporary disruption in the supply of inventory, disruption in the transport of products and utilities, and delays in the delivery of products to our customers. Any of these factors may disrupt our operations and adversely affect our financial condition and results of operations.

The insurance that we maintain may not fully cover all potential exposures.

We maintain property, business interruption and casualty insurance but such insurance may not cover all risks associated with the hazards of our business and is subject to limitations, including deductibles and maximum liabilities covered. We are potentially at risk if one or more of our insurance carriers fail. Additionally, severe disruptions in the domestic and global financial markets could adversely impact the ratings and survival of some insurers. In the future, we may not be able to obtain coverage at current levels, and our premiums may increase significantly on coverage that we maintain.

Item 1B. Unresolved Staff Comments

None.

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## Item 2. Properties

The following table summarizes our principal properties as of October 31, 2016:

Location	Description of Property	Approximate Square Feet
Amherst, Ohio <sup>2,3</sup>	A manufacturing, laboratory and office complex	521,000
Carlsbad, California <sup>2</sup>	Three manufacturing and office buildings (leased)	181,000
Duluth, Georgia <sup>1</sup>	A manufacturing, laboratory and office building	176,000
Chippewa Falls, Wisconsin <sup>1</sup>	Three manufacturing, warehouse, and office buildings (leased)	151,000
Swainsboro, Georgia <sup>1</sup>	A manufacturing building (leased)	136,000
East Providence, Rhode Island <sup>2</sup>	A manufacturing, warehouse and office building	116,000
Loveland, Colorado <sup>2</sup>	A manufacturing, warehouse and office building	115,000
Pulaski, Virginia <sup>1</sup>	A manufacturing, warehouse and office building	101,000
Robbinsville, New Jersey <sup>2</sup>	A manufacturing, warehouse and office building (leased)	88,000
New Castle, Pennsylvania <sup>1</sup>	A manufacturing, warehouse and office building	76,000
Youngstown, Ohio <sup>1</sup>	A manufacturing, warehouse and office building (leased)	58,000
Vista, California <sup>2</sup>	A manufacturing building (leased)	41,000
Hickory, North Carolina <sup>1</sup>	A manufacturing, warehouse and office building (leased)	41,000
Rancho Dominguez, California <sup>2</sup>	A manufacturing and office building (leased)	40,000
Plymouth, Michigan <sup>3</sup>	Two manufacturing, warehouse and office buildings (leased)	35,000
Westlake, Ohio	Corporate headquarters	28,000
Concord, California <sup>2</sup>	A manufacturing and office building (leased)	11,000
San Diego, California <sup>2</sup>	A manufacturing and office building (leased)	7,000
Shanghai, China <sup>1,3</sup>	Four manufacturing, warehouse and office buildings (leased)	311,000
Lüneburg, Germany <sup>1</sup>	A manufacturing and laboratory building	129,000
Münster, Germany <sup>1</sup>	Four manufacturing, warehouse and office building (leased)	112,000
Shanghai, China <sup>1,2,3</sup>	Two office, laboratory and engineering buildings	110,000
Guaymas, Mexico <sup>2</sup>	Two manufacturing, warehouse and office buildings (leased)	71,000
Bangalore, India <sup>1,2,3</sup>	A manufacturing, warehouse and office building	56,000
Maastricht, Netherlands <sup>1,2,3</sup>	A manufacturing, warehouse and office building	54,000
Chonburi, Thailand <sup>1</sup>	A manufacturing, warehouse and office building	52,000
Tokyo, Japan <sup>1,2,3</sup>	Three office, laboratory and warehouse buildings (leased)	49,000
Erkrath, Germany <sup>1,2,3</sup>	An office, laboratory and warehouse building (leased)	48,000
Deurne, Netherlands <sup>2</sup>	A manufacturing, warehouse and office building (leased)	46,000
Temse, Belgium <sup>1</sup>	A manufacturing, warehouse and office building (leased)	43,000
Suzhou, China <sup>2</sup>	A manufacturing, warehouse and office building (leased)	42,000
Aylesbury, U.K. <sup>1,2</sup>	A manufacturing, warehouse and office building (leased)	36,000
Seongnam-City, South Korea <sup>1,2,3</sup>	An office, laboratory and warehouse building (leased)	35,000
Pirmasens, Germany <sup>1</sup>	A manufacturing, warehouse and office building (leased)	32,000
Sao Paulo, Brazil <sup>1,2,3</sup>	An office, laboratory and warehouse building (leased)	23,000
El Marques, Mexico <sup>1,2,3</sup>	A warehouse and office building (leased)	22,000
Munich, Germany <sup>2</sup>	An office, laboratory and warehouse building (leased)	21,000
Singapore <sup>1,2,3</sup>	Two warehouse and office buildings (leased)	16,000
Billerbeck, Germany <sup>1</sup>	An office and warehouse building (leased)	16,000

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Lagny Sur Marne, France <sup>1, 3</sup>	An office building (leased)	6,000
Segrate, Italy <sup>1, 3</sup>	An office, laboratory and warehouse building (leased)	5,000

Business Segment - Property Identification Legend

1 - Adhesive Dispensing Systems

2 - Advanced Technology Systems

3 - Industrial Coating Systems

The facilities listed have adequate, suitable and sufficient capacity (production and nonproduction) to meet present and foreseeable demand for our products.

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Other properties at international subsidiary locations and at branch locations within the United States are leased. Lease terms do not exceed 25 years and generally contain a provision for cancellation with some penalty at an earlier date. Information about leases is reported in Note 11 of Notes to Consolidated Financial Statements that can be found in Part II, Item 8 of this document.

### Item 3. Legal Proceedings

We are involved in pending or potential litigation regarding environmental, product liability, patent, contract, employee and other matters arising from the normal course of business. Including the environmental matter discussed below, after consultation with legal counsel, we believe that the probability is remote that losses in excess of the amounts we have accrued would have a material adverse effect on our financial condition, quarterly or annual operating results or cash flows.

Environmental – We have voluntarily agreed with the City of New Richmond, Wisconsin and other Potentially Responsible Parties to share costs associated with the remediation of the City of New Richmond municipal landfill (the “Site”) and constructing a potable water delivery system serving the impacted area down gradient of the Site. At October 31, 2016 and 2015, our accrual for the ongoing operation, maintenance and monitoring obligation at the Site was \$516 and \$565, respectively.

The liability for environmental remediation represents management’s best estimate of the probable and reasonably estimable undiscounted costs related to known remediation obligations. The accuracy of our estimate of environmental liability is affected by several uncertainties such as additional requirements that may be identified in connection with remedial activities, the complexity and evolution of environmental laws and regulations, and the identification of presently unknown remediation requirements. Consequently, our liability could be different than our current estimate. However, we do not expect that the costs associated with remediation will have a material adverse effect on our financial condition or results of operations.

### Item 4. Mine Safety Disclosures

None.

#### Executive Officers of the Company

Our executive officers as of October 31, 2016, were as follows:

Name	Officer Age	Since	Position or Office with The Company and Business Experience During the Past Five (5) Year Period
Michael F. Hilton	62	2010	President and Chief Executive Officer, 2010
John J. Keane	55	2003	Senior Vice President, 2005
Gregory P. Merk	45	2006	Senior Vice President, 2013 Vice President, 2006
Gregory A. Thaxton	55	2007	Senior Vice President, Chief Financial Officer, 2012 Vice President, Chief Financial Officer, 2008

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Douglas C. Bloomfield	57	2005	Vice President, 2005
James E. DeVries	57	2012	Vice President, 2012 Vice President, Global Continuous Improvement, 2011
Shelly M. Peet	51	2007	Vice President, 2009
Jeffrey A. Pembroke	49	2015	Vice President, 2015
Joseph Stockunas	56	2015	Vice President, 2015
Robert E. Veillette	64	2007	Vice President, General Counsel and Secretary, 2007

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## PART II

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

## Market Information and Dividends

(a) Our common shares are listed on the Nasdaq Global Select Market under the symbol NDSN. As of November 30, 2016, there were 1,494 registered shareholders. The table below is a summary of dividends paid per common share and the range of high and low sales prices during each quarter of 2016 and 2015.

Quarters	Dividend Paid	Common Share Price	
		High	Low
2016:			
First	\$ .24	\$74.24	\$51.89
Second	.24	80.50	56.63
Third	.24	89.42	74.49
Fourth	.27	102.57	87.63
2015:			
First	\$ .22	\$80.42	\$71.58
Second	.22	81.05	72.10
Third	.22	84.45	71.75
Fourth	.24	75.95	58.52

Source: NASDAQ OMX

While we have historically paid dividends to shareholders of our common stock on a quarterly basis, the declaration and payment of future dividends will depend on many factors, including but not limited to, our earnings, financial condition, business development needs and regulatory considerations, and are at the discretion of our board of directors.

## Performance Graph

The following is a graph that compares the five-year cumulative return, calculated on a dividend-reinvested basis, from investing \$100 on November 1, 2011 in Nordson common shares, the S&P 500 Index, the S&P MidCap 400 Index, the S&P 500 Industrial Machinery Index, the S&P MidCap 400 Industrial Machinery Index and our Proxy Peer Group, which includes: AIN, AME, ATU, B, CLC, DCI, ENTG, ESL, FLIR, GGG, GTLS, IEX, ITT, LECO, ROP, TER, WTS, and WWD.

Company/Market/Peer Group	2011	2012	2013	2014	2015	2016
Nordson Corporation	\$100.00	\$129.96	\$160.22	\$171.87	\$161.91	\$230.59
S&P 500 Index	\$100.00	\$115.21	\$146.52	\$171.82	\$180.75	\$188.90
S&P MidCap 400	\$100.00	\$112.11	\$149.64	\$167.08	\$172.80	\$183.61
S&P 500 Ind. Machinery	\$100.00	\$119.68	\$170.88	\$192.70	\$192.41	\$219.70
S&P MidCap 400 Ind. Machinery	\$100.00	\$109.21	\$151.63	\$160.68	\$134.50	\$157.85
Proxy Peer Group	\$100.00	\$113.38	\$157.20	\$173.54	\$165.40	\$173.92

Source: Zack's Investment Research

(b) Use of Proceeds. Not applicable.

(c) Issuer Purchases of Equity Securities

	Total Number of Shares Repurchased	Average Price Paid per Share	Total Number of Shares Repurchased as Part of Publicly Announced Plans or Programs	Maximum Value of Shares That May Yet Be Purchased Under the Plans or Programs
August 1, 2016 to August 31, 2016	—	\$ —	—	\$ 118,971
September 1, 2016 to September 30, 2016	—	\$ —	—	\$ 118,971
October 1, 2016 to October 31, 2016	—	\$ —	—	\$ 118,971
Total	—		—	

In December 2014, the board of directors authorized a new \$300,000 common share repurchase program. This program replaced the \$200,000 program approved by the board in August 2013. In August 2015, the board of directors authorized the repurchase of up to an additional \$200,000 of the Company's common shares. This new authorization added capacity to the board's December 2014 authorization to repurchase \$300,000 of shares. Approximately \$118,971 remained available for share repurchases at October 31, 2016. Uses for repurchased shares include the funding of benefit programs including stock options, restricted stock and 401(k) matching. Shares purchased are treated as treasury shares until used for such purposes. The repurchase program is being funded using cash from operations and proceeds from borrowings under our credit facilities.



## Item 6. Selected Financial Data

	2016	2015	2014	2013	2012
(In thousands except for per-share amounts)					
Operating Data (a)					
Sales	\$1,808,994	\$1,688,666	\$1,704,021	\$1,542,921	\$1,409,578
Cost of sales	815,495	774,702	758,923	676,777	586,289
% of sales	45	46	45	44	42
Selling and administrative expenses	594,293	584,823	575,442	541,169	485,285
% of sales	33	35	34	35	34
Severance and restructuring costs	10,775	11,411	2,551	1,126	2,524
Long-lived asset impairments	—	—	—	—	—
Operating profit	388,431	317,730	367,105	323,849	335,480
% of sales	21	19	22	21	24
Net income	271,843	211,111	246,773	221,817	224,829
% of sales	15	13	14	14	16
Financial Data (a)					
Working capital	\$414,032	\$420,815	\$301,815	\$365,269	\$242,939
Net property, plant and equipment and other non-current assets	1,676,790	1,648,853	1,607,447	1,451,113	1,242,892
Total capital (b)	1,769,151	1,726,341	1,662,283	1,498,082	1,261,962
Total assets	2,422,365	2,360,444	2,280,130	2,053,179	1,829,515
Long-term liabilities	1,239,219	1,409,652	1,004,465	928,519	816,061
Shareholders' equity	851,603	660,016	904,797	887,863	669,770
Return on average total capital — % (c)	16	13	17	18	23
Return on average shareholders' equity — % (d)	37	26	27	29	38
Per-Share Data (a)					
Average number of common shares	57,060	60,652	63,656	64,214	64,407
Average number of common shares and common share equivalents	57,530	61,151	64,281	64,908	65,103
Basic earnings per share	\$4.76	\$3.48	\$3.88	\$3.45	\$3.49
Diluted earnings per share	4.73	3.45	3.84	3.42	3.45
Dividends per common share	0.99	0.90	0.76	0.63	0.525
Book value per common share	14.85	11.51	14.49	13.83	10.42

(a) See accompanying Notes to Consolidated Financial Statements.

(b) Notes payable, plus current portion of long-term debt, plus long-term debt, minus cash and marketable securities, plus shareholders' equity.

(c) Net income plus after-tax interest expense on borrowings as a percentage of the average of quarterly borrowings (net of cash) plus shareholders' equity over five accounting periods.

(d) Net income as a percentage of average quarterly shareholders' equity over five accounting periods.



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

NOTE REGARDING AMOUNTS AND FISCAL YEAR REFERENCES

In this annual report, all amounts related to United States dollars and foreign currency and to the number of Nordson Corporation's common shares, except for per share earnings and dividend amounts, are expressed in thousands. Unless the context otherwise indicates, all references to "we," "us," "our," or the "Company" mean Nordson Corporation.

Unless otherwise noted, all references to years relate to our fiscal year ending October 31.

Critical Accounting Policies and Estimates

Our consolidated financial statements and accompanying notes have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these financial statements requires management to make estimates, judgments and assumptions that affect reported amounts of assets, liabilities, revenues and expenses. On an ongoing basis, we evaluate the accounting policies and estimates that are used to prepare financial statements. We base our estimates on historical experience and assumptions believed to be reasonable under current facts and circumstances. Actual amounts and results could differ from these estimates used by management.

Certain accounting policies that require significant management estimates and are deemed critical to our results of operations or financial position are discussed below. On a regular basis, critical accounting policies are reviewed with the Audit Committee of the board of directors.

Revenue recognition – Most of our revenues are recognized upon shipment, provided that persuasive evidence of an arrangement exists, the sales price is fixed or determinable, collectibility is reasonably assured, and title and risk of loss have passed to the customer. Certain arrangements may include installation, installation supervision, training, and spare parts, which tend to be completed in a short period of time, at an insignificant cost, and utilizing skills not unique to us, and, therefore, are typically regarded as inconsequential or perfunctory. Revenue for undelivered items is deferred and included within accrued liabilities in the accompanying balance sheet. Revenues deferred in 2016, 2015 and 2014 were not material.

Translation of foreign currency financial statements and foreign currency transactions – Our reporting currency is the U.S. dollar. However, the functional currency for each of our foreign subsidiaries is its principal operating currency. We translate the amounts included in our Consolidated Statements of Income from our foreign subsidiaries into U.S. dollars at weighted-average exchange rates, which we believe are representative of the actual exchange rates on the dates of the transactions. Our foreign subsidiaries' assets and liabilities are translated into U.S. dollars from local currency at the actual exchange rates as of the end of each reporting date, and we record the resulting foreign exchange translation adjustments in our Consolidated Balance Sheets as a component of accumulated other comprehensive income (loss). If the U.S. dollar strengthens, we reflect the resulting losses as a component of accumulated other comprehensive income (loss). Conversely, if the U.S. dollar weakens, foreign exchange translation gains result, which favorably impact accumulated other comprehensive income (loss). Translation adjustments may be included in net earnings in the event of a sale or liquidation of certain of our underlying foreign investments. If we determine that the functional currency of any of our foreign subsidiaries should be the U.S. dollar, our financial statements will be affected. Should this occur, we will adjust our reporting to appropriately account for any such changes.

As appropriate, we use permanently invested intercompany loans as a source of capital to reduce exposure to foreign currency fluctuations at our foreign subsidiaries. These loans, on a consolidated basis, are treated as being analogous to equity for accounting purposes. Therefore, foreign exchange gains or losses on these intercompany loans are

recorded in accumulated other comprehensive income (loss).

Goodwill – Goodwill is the excess of purchase price over the fair value of tangible and identifiable intangible net assets acquired in various business combinations. Goodwill is not amortized but is tested for impairment annually at the reporting unit level, or more often if indications of impairment exist. Our reporting units are the Adhesive Dispensing Systems segment, the Industrial Coating Systems segment and one level below the Advanced Technology Systems segment.

We test goodwill in accordance with Accounting Standards Codification (ASC) 350. The goodwill impairment test is a two-step process. In the first step, performed in the fourth quarter of each year, we estimate a reporting unit's fair value using a combination of the discounted cash flow method of the Income Approach and the guideline public company method of the Market Approach and compare the result against the reporting unit's carrying value of net assets. If the carrying value of a reporting unit exceeds its fair value, then a second step is performed to determine if goodwill is impaired. We use an independent valuation specialist to assist with

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refining our assumptions and methods used to determine fair values using these methods. In step one, the discounted cash flow method uses assumptions for revenue growth, operating margin, and working capital turnover that are based on general management's strategic plans tempered by performance trends and reasonable expectations about those trends. Terminal value calculations employ a published formula known as the Gordon Growth Model Method that essentially captures the present value of perpetual cash flows beyond the last projected period assuming a constant Weighted Average Cost of Capital (WACC) methodology and growth rate. For each reporting unit, a sensitivity analysis is performed to vary the discount and terminal growth rates in order to provide a range of reasonableness for detecting impairment.

Discount rates are developed using a WACC methodology. The WACC represents the blended average required rate of return for equity and debt capital based on observed market return data and company specific risk factors. For 2016, the discount rates used ranged from 9 percent to 15 percent depending upon the reporting unit's size, end market volatility, and projection risk. The calculated internal rate of return for the discounted cash flow method was 10 percent, the same as the calculated WACC for total Nordson. In the application of the guideline public company method, fair value is determined using transactional evidence for similar publicly traded equity. The comparable company guideline group is determined based on relative similarities to each reporting unit since exact correlations are not available. An indication of fair value for each reporting unit is based on the placement of each reporting unit within a range of multiples determined for its comparable guideline company group. Valuation multiples are derived by dividing latest twelve month performance for revenues and EBITDA into total invested capital, which is the sum of traded equity plus interest bearing debt less cash. These multiples are applied against the revenue and EBITDA of each reporting unit. While the implied indications of fair value using the guideline public company method yield meaningful results, the discounted cash flow method of the income approach includes management's thoughtful projections and insights as to what the reporting units will accomplish in the near future. Accordingly, the reasonable, implied fair value of each reporting unit is a blend based on the relative strength of the approaches employed.

To test the reasonableness of the aggregate fair value, we performed the control premium test, which compares the sum of the implied fair values calculated for our reporting units (net of debt) to the market value of equity. The control premium was 1 percent as of the test date of August 1, 2016 and a slight discount to the market value of equity as of October 31, 2016. The control premium indicated that the discounted cash flow valuation was reasonable.

In 2016 and 2015, the results of our step one testing indicated no impairment; therefore, the second step of impairment testing was not necessary.

The excess of fair value (FV) over carrying value (CV) was compared to the carrying value for each reporting unit. Based on the results shown in the table below and based on our measurement date of August 1, 2016, our conclusion is that no indicators of impairment exist in 2016. Potential events or circumstances, such as a sustained downturn in global economies, could have a negative effect on estimated fair values.

	WACC	CV	Excess of FV over Goodwill
Adhesive Dispensing Systems Segment	9%	402%	\$387,649
Industrial Coating Systems Segment	12%	287%	\$24,058
Advanced Technology Systems Segment - Electronics	11%	235%	\$17,495

Systems			
Advanced Technology Systems Segment - Fluid			
Management	10%	92%	\$608,955
Advanced Technology Systems Segment - Test & Inspection	15%	33%	\$46,650

The table above does not include acquisitions that occurred after the August 1 measurement date but before our fiscal year-end. We acquired LinkTech™ Quick Couplings, Inc. (“LinkTech”) on September 1, 2016. Determination of the preliminary goodwill associated with this acquisition was completed with the assistance of an independent valuation specialist in the fourth quarter of 2016. Since the date of the valuation, no events or changes in circumstances have occurred that would more likely than not reduce the fair value of the acquisition below its carrying value. For future valuation purposes, LinkTech will be included in the Advanced Technology Systems – Fluid Management reporting unit.

Other long-lived assets – We test other depreciable and amortizable long-lived assets for recoverability in accordance with ASC 360 using undiscounted cash flows if indicators of impairment exist. The total carrying value of long-lived assets for each reporting unit is compared to the forecasted cash flows of each reporting unit’s long-lived assets being tested. Cash flows have been defined as earnings before interest, taxes, depreciation, and amortization, less annual maintenance capital spending.

Inventories - Inventories are valued at the lower of cost or market. Cost was determined using the last-in, first-out (LIFO) method for 20 percent of consolidated inventories at October 31, 2016 and October 31, 2015, with the first-in, first-out (FIFO) method used for the remaining inventory. On an ongoing basis, inventory is tested for technical obsolescence, as well as for future demand and changes in market conditions. We have historically maintained inventory reserves to reflect those conditions when the cost of inventory is not expected to be recovered. Reserves are also maintained for inventory used for demonstration purposes. The inventory reserve balance was \$29,324, \$28,230 and \$26,744 at October 31, 2016, 2015 and 2014, respectively.

Pension plans and postretirement medical plans - The measurement of liabilities related to our pension plans and postretirement medical plans is based on management's assumptions related to future factors, including interest rates, return on pension plan assets, compensation increases, mortality and turnover assumptions, and health care cost trend rates.

The weighted-average discount rate used to determine the present value of our domestic pension plan obligations was 3.94 percent at October 31, 2016 and 4.39 percent at October 31, 2015. The weighted-average discount rate used to determine the present value of our various international pension plan obligations was 1.86 percent at October 31, 2016, compared to 2.81 percent at October 31, 2015. The discount rates used for all plans were determined by using quality fixed income investments with a duration period approximately equal to the period over which pension obligations are expected to be settled.

In determining the expected return on plan assets, we consider both historical performance and an estimate of future long-term rates of return on assets similar to those in our plans. We consult with and consider the opinions of financial and actuarial experts in developing appropriate return assumptions. The expected rate of return (long-term investment rate) on domestic pension assets used to determine net benefit costs was 6.72 percent in 2016 and 6.76 percent in 2015. The average expected rate of return on international pension assets used to determine net benefit costs was 4.22 percent in 2016 and 4.39 percent in 2015.

The assumed rate of compensation increases used to determine the present value of our domestic pension plan obligations was 3.61 percent at October 31, 2016, compared to 3.50 percent at October 31, 2015. The assumed rate of compensation increases used to determine the present value of our international pension plan obligations was 3.12 percent at October 31, 2016, compared to 3.22 percent at October 31, 2015.

Annual expense amounts are determined based on the discount rate used at the end of the prior year. Differences between actual and assumed investment returns on pension plan assets result in actuarial gains or losses that are amortized into expense over a period of years.

Economic assumptions have a significant effect on the amounts reported. The effect of a one percent change in the discount rate, expected return on assets and compensation increase is shown in the table below. Bracketed numbers represent decreases in expense and obligation amounts.

	United States		International	
	1% Point	1% Point	1% Point	1% Point
	Increase	Decrease	Increase	Decrease
Discount rate:				
Effect on total service and interest cost components in	\$ (5,561 )	\$ 6,767	\$ (887 )	\$ 1,048

2016				
Effect on pension obligation as of October 31, 2016	\$(54,984)	\$69,133	\$(15,416)	\$19,961
Expected return on assets:				
Effect on total service and interest cost components in				
2016	\$(3,017 )	\$3,017	\$(361 )	\$361
Compensation increase:				
Effect on total service and interest cost components in				
2016	\$4,017	\$(2,394 )	\$708	\$(638 )
Effect on pension obligation as of October 31, 2016	\$21,485	\$(13,463)	\$3,626	\$(3,289 )

With respect to the domestic postretirement medical plan, the discount rate used to value the benefit plan was 4.05 percent at October 31, 2016 and 4.50 percent at October 31, 2015. The annual rate of increase in the per capita cost of covered benefits (the health care cost trend rate) is assumed to be 3.63 percent in 2017, decreasing gradually to 3.24 percent in 2026.

For the international postretirement plan, the discount rate used to value the benefit obligation was 3.40 percent at October 31, 2016 and 4.35 percent at October 31, 2015. The annual rate of increase in the per capita cost of covered benefits (the health care cost trend rate) is assumed to be 6.13 percent in 2017, decreasing gradually to 3.50 percent in 2031.



The discount rate and the health care cost trend rate assumptions have a significant effect on the amounts reported. For example, a one-percentage point change in the discount rate and the assumed health care cost trend rate would have the following effects. Bracketed numbers represent decreases in expense and obligation amounts.

	United States		International	
	1% Point	1% Point	1% Point	1% Point
	Increase	Decrease	Increase	Decrease
<b>Discount rate:</b>				
Effect on total service and interest cost				
components in 2016	\$(710 )	\$ 860	\$(6 )	\$ 6
Effect on postretirement obligation as of				
October 31, 2016	\$(10,287)	\$ 12,776	\$(94 )	\$ 123
<b>Health care trend rate:</b>				
Effect on total service and interest cost				
components in 2016	\$ 628	\$(495 )	\$ 10	\$( 8 )
Effect on postretirement obligation as of				
October 31, 2016	\$ 11,024	\$(8,836 )	\$ 146	\$( 113 )

Employees hired after January 1, 2002, are not eligible to participate in the domestic postretirement medical plan.

In the fourth quarter of 2016, we adopted a change in the method used to estimate the service and interest cost components of net periodic benefit cost for defined benefit pension plans and postretirement benefit plans. Historically, for the vast majority of our plans, the service and interest cost components were estimated using a single weighted-average discount rate derived from the yield curve used to measure the benefit obligation at the beginning of the period. Beginning in 2017, we will use a spot rate approach by applying the specific spot rates along the yield curve to the relevant projected cash flows in the estimation of the service and interest components of benefit cost, resulting in a more precise measurement. This change does not affect the measurement of total benefit obligations. The change will be accounted for as a change in estimate that is inseparable from a change in accounting principle and, accordingly, will be accounted for prospectively starting in 2017. The reductions in service and interest costs for 2017 associated with this change are expected to be \$1,100 and \$3,700, respectively.

Pension and postretirement expenses in 2017 are expected to be approximately \$1,211 lower than 2016, primarily due to the adoption of the spot rate approach as noted above.

Income taxes – Income taxes are estimated based on income for financial reporting purposes. Deferred income taxes reflect the net tax effect of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes and certain changes in valuation allowances. We provide valuation allowances against deferred tax assets if, based on available evidence, it is more likely than not that some portion or all of the deferred tax assets will not be realized.

Management believes the valuation allowances are adequate after considering future taxable income, allowable carryforward periods and ongoing prudent and feasible tax planning strategies. In the event we were to determine that we would be able to realize the deferred tax assets in the future in excess of the net recorded amount (including the valuation allowance), an adjustment to the valuation allowance would increase income in the period such determination was made. Conversely, should we determine that we would not be able to realize all or part of the net deferred tax asset in the future, an adjustment to the valuation allowance would be expensed in the period such determination was made.

Further, at each interim reporting period, we estimate an effective income tax rate that is expected to be applicable for the full year. Significant judgment is involved regarding the application of global income tax laws and regulations and when projecting the jurisdictional mix of income. Additionally, interpretation of tax laws, court decisions or other guidance provided by taxing authorities influences our estimate of the effective income tax rates. As a result, our actual effective income tax rates and related income tax liabilities may differ materially from our estimated effective tax rates and related income tax liabilities. Any resulting differences are recorded in the period they become known.

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Financial instruments - Assets, liabilities and commitments that are to be settled in cash and are denominated in foreign currencies are sensitive to changes in currency exchange rates. We enter into foreign currency forward contracts, which are derivative financial instruments, to reduce the risk of foreign currency exposures resulting from the collection of receivables, payables and loans denominated in foreign currencies. The maturities of these contracts are usually less than 90 days. Forward contracts are not designated as hedging instruments and therefore are marked to market each accounting period, and the resulting gains or losses are included in “other-net” within other income (expense) in the Consolidated Statement of Income.

Warranties - We provide customers with a product warranty that requires us to repair or replace defective products within a specified period of time (generally one year) from the date of delivery or first use. An accrual is recorded for expected warranty costs for products shipped through the end of each accounting period. In determining the amount of the accrual, we rely primarily on historical warranty claims. Amounts charged to the warranty reserve were \$14,487, \$12,531 and \$10,813 in 2016, 2015 and 2014, respectively. The reserve balance was \$11,770, \$10,537 and \$9,918 at October 31, 2016, 2015 and 2014, respectively.

Performance share incentive awards - Executive officers and selected other key employees are eligible to receive share awards with payouts based on corporate financial performance over three-year periods. Award payouts vary based on the degree to which corporate financial performance equals or exceeds predetermined threshold, target and maximum performance levels at the end of a performance period. No award payout will occur unless certain threshold performance levels are equaled or exceeded. The amount of compensation expense is based upon current performance projections for each three-year performance period and the percentage of the requisite service that has been rendered. The calculations are also based upon the grant date fair value determined using the closing market price of Nordson Common Stock at the grant date, reduced by the implied value of dividends not to be paid. Awards are recorded as capital in excess of stated value in shareholders’ equity. The cumulative amount recorded at October 31, 2016 for the plans originating in 2014, 2015 and 2016 was \$10,951. Compensation expense attributable to all performance share incentive award periods for executive officers and selected other key employees for 2016, 2015 and 2014 was \$7,083, \$3,459 and \$4,304, respectively.

#### 2016 compared to 2015

Sales – Worldwide sales for 2016 were \$1,808,994, an increase of 7.1 percent from 2015 sales of \$1,688,666. Sales volume increased 8.5 percent and unfavorable currency translation effects reduced sales by 1.4 percent. The volume increase consisted of 6.5 percent from organic growth and 2.0 percent from acquisitions. We had one acquisition during 2016, LinkTech, which is included within the Advanced Technology Systems segment. Three acquisitions were made during 2015: Liquidyn GmbH (“Liquidyn”) and MatriX Technologies GmbH (“MatriX”), which were included within the Advanced Technology Systems segment, and WAFO Produktionsgesellschaft GmbH (“WAFO”), which was included in the Adhesives Dispensing Systems segment. As used throughout this Form 10-K, geographic regions include the Americas (Canada, Mexico and Central and South America), Asia Pacific (excluding Japan), Europe, Japan, and the United States.

Sales of the Adhesive Dispensing Systems segment were \$879,573 in 2016, an increase of \$43,507, or 5.2 percent, from 2015 sales of \$836,066. The increase was the net result of a sales volume increase of 6.9 percent partially offset by unfavorable currency effects that reduced sales by 1.7 percent. The sales volume increase consisted of 0.7 percent from the WAFO acquisition and 6.2 percent from organic volume. Within this segment, sales volume increased in all geographic regions except for the Americas and Japan, and was particularly strong in Europe. Organic growth was driven by product lines serving consumer non-durable, disposable hygiene, general product assembly, rigid packaging and polymer processing end markets.

Sales of the Advanced Technology Systems segment were \$676,329 in 2016, an increase of \$82,471, or 13.9 percent, from 2015 sales of \$593,858. The increase was the result of a sales volume increase of 14.7 percent partially offset by unfavorable currency effects that reduced sales by 0.8 percent. The sales volume increase consisted of 10.1 percent from organic volume and 4.6 percent from the first-year effect of acquisitions. Within the segment, sales volume, inclusive of acquisitions, increased in all geographic regions, and was most pronounced in Japan and Asia Pacific. Growth was driven by increased demand for test and inspection and automated dispensing solutions serving electronics end markets, as well continued strength in fluid management product lines serving medical and industrial end markets.

Sales of the Industrial Coating Systems segment were \$253,092 in 2016, a decrease of \$5,650, or 2.2 percent, from 2015 sales of \$258,742. The decrease was the result of a sales volume decrease of 0.6 percent and unfavorable currency effects that reduced sales by 1.6 percent. Within this segment, sales volume increased in the Americas and Asia Pacific regions, and was offset by decreases in the United States, Europe and Japan. Growth in cold material product lines serving automotive end markets was offset by softness in powder coating and container product lines serving industrial end markets.

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Sales outside the United States accounted for 70.6 percent of our sales in 2016, as compared to 68.6 percent in 2015. On a geographic basis, sales in the United States were \$531,117, an increase of 0.2 percent from 2015. The increase in sales volume consisted of 0.4 percent from acquisitions, offset by an organic volume decline of 0.2 percent. In the Americas region, sales were \$124,657, a decrease of 3.6 percent from 2015, with volume increasing 2.5 percent offset by unfavorable currency effects of 6.1 percent. The increase in sales volume consisted of 1.7 percent from organic volume and 0.8 percent from acquisitions. Sales in Europe were \$503,869, an increase of 8.9 percent from 2015, with volume increasing 12.3 percent partially offset by unfavorable currency effects of 3.4 percent. The increase in sales volume consisted of 9.2 percent from organic volume and 3.1 percent from acquisitions. Sales in Japan were \$122,054, an increase of 13.2 percent from 2015, with volume increasing 2.2 percent and favorable currency effects of 11.0 percent. The increase in sales volume consisted of 1.9 percent from organic volume and 0.3 percent from acquisitions. Sales in the Asia Pacific region were \$527,297, an increase of 14.9 percent from the prior year, with volume increasing 17.4 percent partially offset by unfavorable currency effects of 2.5 percent. The increase in sales volume consisted of 14.0 percent from organic growth and 3.4 percent from acquisitions.

It is estimated that the effect of pricing on total revenue was not material relative to 2015.

Operating profit – Cost of sales were \$815,495 in 2016, up 5.3 percent from 2015. Gross profit, expressed as a percentage of sales, increased to 54.9 percent in 2016 from 54.1 percent in 2015. Of the 0.8 percentage point improvement in gross margin, favorable product mix added 1.3 percentage points primarily related to higher sales growth in our Adhesive Dispensing Systems and Advanced Technology Systems segments, which have higher margins relative to our Industrial Coating Systems segment. The 0.5 percentage point offset is primarily due to unfavorable currency translation effects.

Selling and administrative expenses were \$594,293 in 2016, compared to \$584,823 in 2015. The 1.6 percent increase includes 2.9 percent primarily in support of higher sales growth, offset by 1.3 percent due to currency translation effects.

Selling and administrative expenses as a percentage of sales decreased to 32.9 percent in 2016 from 34.6 percent in 2015. The 1.7 percentage point improvement is primarily due to leveraging higher sales growth in our Adhesive Dispensing Systems and Advanced Technology Systems segments.

Severance and restructuring costs of \$10,775 were recorded in 2016. Within the Adhesives Dispensing Systems segment, restructuring initiatives to optimize operations in the U.S. and Belgium and consolidate certain polymer processing product line facilities in the U.S. resulted in severance and restructuring costs of \$7,800. To enhance operational efficiency and customer service within the Advanced Technology Systems segment, a restructuring initiative resulted in severance and restructuring costs of \$1,054. Within the Industrial Coatings Systems segment, a restructuring program to enhance operational efficiency and customer service resulted in severance costs of \$1,921. Additional costs related to these initiatives are not expected to be material in future periods. All severance and restructuring costs are included in selling and administrative expenses in the Consolidated Statements of Income.

Operating capacity for each of our segments can support fluctuations in order activity without significant changes in operating costs. Also, currency translation affects reported operating margins. Operating margins for each segment were unfavorably impacted by a stronger dollar primarily against the British Pound and Chinese Yuan during 2016 as compared to 2015.

Operating profit as a percentage of sales increased to 21.5 percent in 2016 compared to 18.8 percent in 2015. Of the 2.7 percentage point improvement in operating margin, favorable leverage of our selling and administrative expenses contributed 1.8 percentage points, favorable product mix added 1.3 percentage points primarily related to higher sales growth in our Adhesives Dispensing Systems and Advanced Technology Systems segments, which have higher

margins relative to our Industrial Coating Systems segment, and lower severance and restructuring expenses contributed 0.1 percentage points. The 0.5 percentage point offset is primarily due to unfavorable currency translation effects.

For the Adhesive Dispensing Systems segment, operating profit as a percentage of sales increased to 26.1 percent in 2016 compared to 23.4 percent in 2015. Of the 2.7 percentage point improvement in operating margin, favorable leverage of our selling and administrative expenses contributed 2.0 percentage points, favorable product mix added 1.2 percentage points due to increased sales to consumer non-durable, disposable hygiene, general product assembly and rigid packaging end markets, and lower severance and restructuring expense added 0.1 percentage points. The 0.6 percentage point offset is primarily due to unfavorable currency translation effects.

For the Advanced Technology Systems segment, operating profit as a percentage of sales increased to 23.6 percent in 2016 compared to 20.4 percent in 2015. Of the 3.2 percentage point improvement in operating margin, favorable leverage of our selling and administrative expenses contributed 2.2 percentage points, favorable product mix added 0.9 percentage points, and lower severance and restructuring expenses contributed 0.3 percentage points. The 0.2 percentage point offset is primarily due to unfavorable currency translation effects.

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For the Industrial Coating Systems segment, operating profit as a percentage of sales increased to 17.2 percent in 2016 compared to 16.0 percent in 2015. Of the 1.2 percentage point improvement in operating margin, favorable product mix added 2.3 percentage points, primarily related to sales of engineered systems for which margins vary depending on the type of customer application, and favorable leverage of our selling and administrative expenses contributed 0.2 percentage points. The remaining 1.3 percentage point offset was primarily due to severance and restructuring expenses and unfavorable currency translation effects.

Interest and other income (expense) - Interest expense in 2016 was \$21,322, an increase of \$3,218, or 17.8 percent, from 2015. The increase was due to higher average borrowing levels between periods, offset by reversals of interest accruals related to the effective settlement of a tax exam. Other income in 2016 was \$657 compared to \$678 in 2015. Included in the current year's other income were a litigation settlement of \$800 and \$2,004 of foreign currency gains. These gains were partially offset by \$1,530 of charges primarily related to the reversal of an indemnification asset resulting from the effective settlement of a tax exam. Significant items in 2015 were proceeds from a favorable litigation settlement of \$1,608 and loss on disposal of fixed assets of \$653.

Income taxes – Income tax expense in 2016 was \$96,651, or 26.2 percent of pre-tax income, as compared to \$89,751, or 29.8 percent of pre-tax income in 2015.

On December 18, 2015, the Protecting Americans from Tax Hikes Act of 2015 was enacted which retroactively reinstated the Federal Research and Development Tax Credit (Federal R&D Tax Credit) as of January 1, 2015, and made it permanent. As a result, our income tax provision for 2016 includes a discrete tax benefit of \$2,200 related to 2015. The tax rate for 2016 also includes a discrete tax benefit of \$6,154 related to dividends paid from previously taxed foreign earnings generated prior to 2015, and a benefit of \$2,682 related to the effective settlement of a tax exam.

Net income – Net income was \$271,843, or \$4.73 per diluted share, in 2016, compared to net income of \$211,111, or \$3.45 per diluted share, in 2015. This represents a 28.8 percent increase in net income and a 37.1 percent increase in diluted earnings per share. The percentage change in earnings per share is more than the percentage change in net income due to a lower number of shares outstanding in the current year as a result of share repurchases.

Recently issued accounting standards – In May 2014, the Financial Accounting Standards Board (FASB) issued a new standard regarding revenue recognition. Under this standard, a company recognizes revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the company expects to be entitled in exchange for those goods or services. The standard implements a five-step process for customer contract revenue recognition that focuses on transfer of control. In August 2015, the FASB issued a standard to delay the effective date by one year. In accordance with this delay, the new standard is effective for us beginning in the first quarter of 2019. Early adoption is permitted, but not before the original effective date of the standard. The new standard is required to be applied retrospectively to each prior reporting period presented or retrospectively with the cumulative effect of initially applying it recognized at the date of initial application. We are performing a preliminary review of the new guidance as compared to our current accounting policies. We are currently assessing the impact this standard, along with the subsequent updates and clarifications, will have on our consolidated financial statements and disclosures. During 2017, we plan to assess our contracts and consider our method of adoption.

In April 2015, the FASB issued a new standard regarding the presentation of debt issuance costs. Under this standard, a company is required to present unamortized debt issuance costs related to a recognized debt liability in the balance sheet as a direct deduction from the carrying amount of that debt liability, rather than as a separate asset. The recognition and measurement guidance for debt issuance costs are not affected by this new standard. In August 2015, the FASB issued an amendment to this standard, which added clarification to the presentation of debt issuance costs. This amendment allows debt issuance costs related to line-of-credit arrangements to be presented as an asset

and subsequently amortized ratably over the term of the line-of-credit agreement, regardless of whether there are any outstanding borrowings on the line-of-credit arrangement. It will be effective for us beginning in 2017. We do not expect this standard to have a material impact on our consolidated financial statements as it will only impact presentation.

In July 2015, the FASB issued a new standard regarding the measurement of inventory. Under this standard, inventory that is measured using the first-in, first-out (“FIFO”) or average cost methods is required to be measured at the lower of cost or net realizable value. Net realizable value is the estimated selling price in the ordinary course of business, less reasonably predictable costs of completion, disposal and transportation. This standard does not impact inventory measured on a last-in, last-out (“LIFO”) method. It will be effective for us beginning in 2017. We do not expect this standard to have a material impact on our consolidated financial statements.

In September 2015, the FASB issued a new standard intended to simplify the accounting for measurement period adjustments in a business combination. Measurement period adjustments are changes to provisional amounts recorded when the accounting for a business combination is incomplete as of the end of a reporting period. The measurement period can extend for up to a year following the transaction date. During the measurement period, companies may make adjustments to provisional amounts when information



necessary to complete the measurement is received. The new guidance requires companies to recognize these adjustments, including any related impacts to net income, in the reporting period in which the adjustments are determined. Companies are no longer required to retroactively apply measurement period adjustments to all periods presented. It will be effective for us beginning in 2017. The new guidance will be applied prospectively and the impact of adoption will be dependent on the nature of measurement period adjustments that may be necessary.

In November 2015, the FASB issued a new standard regarding the balance sheet classification of deferred taxes, which will require entities to present deferred tax assets and liabilities as noncurrent on the balance sheet. This guidance simplifies the current guidance, which requires entities to separately present deferred tax assets and liabilities as current and noncurrent on the balance sheet. We have elected to early adopt this standard prospectively as of October 31, 2016, as is permitted under the standard. Due to the prospective treatment, prior periods presented in these financial statements have not been adjusted.

In February 2016, the FASB issued a new standard which requires a lessee to recognize on the balance sheet the assets and liabilities for the rights and obligations created by those leases with a lease term of more than twelve months. Leases will continue to be classified as either financing or operating, with classification affecting the recognition, measurement and presentation of expenses and cash flows arising from a lease. It will be effective for us beginning in 2020. We are currently assessing the impact this standard will have on our consolidated financial statements.

In March 2016, the FASB issued a new standard which simplifies the accounting for share-based payment transactions. This guidance requires that excess tax benefits and tax deficiencies be recognized as income tax expense or benefit in the Consolidated Statements of Income rather than additional paid-in capital. Additionally, the excess tax benefits will be classified along with other income tax cash flows as an operating activity, rather than a financing activity, on the Statement of Cash Flows. Further, the update allows an entity to make a policy election to recognize forfeitures as they occur or estimate the number of awards expected to be forfeited. It will be effective for us beginning in 2018 and should be applied prospectively, with certain cumulative effect adjustments. Early adoption is permitted. We are currently assessing the impact this standard will have on our consolidated financial statements.

#### 2015 compared to 2014

Sales – Worldwide sales for 2015 were \$1,688,666, a decrease of 0.9 percent from 2014 sales of \$1,704,021. Sales volume increased 5.8 percent, and unfavorable currency translation effects caused by the stronger U.S. dollar reduced sales by 6.7 percent. The volume increase consisted of 3.4 percent from organic growth and 2.4 percent from acquisitions. Three acquisitions were made during 2015: Liquidyn and MatriX, which are included within the Advanced Technology Systems segment, and WAFO, which is included in the Adhesives Dispensing Systems segment. Two acquisitions were made during 2014: Avalon Laboratories and Dima Group B.V., both of which were included within the Advanced Technology Systems segment. As used throughout this Form 10-K, geographic regions include the Americas (Canada, Mexico and Central and South America), Asia Pacific (excluding Japan), Europe, Japan, and the United States.

Sales of the Adhesive Dispensing Systems segment were \$836,066 in 2015, a decrease of \$63,630, or 7.1 percent, from 2014 sales of \$899,696. The decrease was the net result of a sales volume increase of 2.3 percent offset by unfavorable currency effects that reduced sales by 9.4 percent. The sales volume increase consisted of 0.3 percent from acquisitions and 2.0 percent from organic volume. Within this segment, sales volume, inclusive of acquisitions, increased in all geographic regions except for the United States, and was particularly strong in the Americas. Organic growth in product lines serving disposable hygiene, general product assembly, rigid packaging and injection molding end markets was offset by softness in product lines serving extrusion, polymer compounding and pelletizing end markets.

Sales of the Advanced Technology Systems segment were \$593,858 in 2015, an increase of \$32,074, or 5.7 percent, from 2014 sales of \$561,784. The increase was the result of a sales volume increase of 8.6 percent offset by unfavorable currency effects that reduced sales by 2.9 percent. The sales volume increase consisted of 1.7 percent from organic volume and 6.9 percent from the first-year effect of acquisitions. Within the segment, sales volume, inclusive of acquisitions, increased in all geographic regions, except for Japan, and was most pronounced in the United States, Europe and the Americas. Growth in surface treatment, test and inspection and plasma solutions in electronics end markets, as well as growth in fluid management applications serving medical end markets, was offset by lower demand for automated dispensing systems.

Sales of the Industrial Coating Systems segment were \$258,742 in 2015, an increase of \$16,201, or 6.7 percent, from 2014 sales of \$242,541. The increase was the result of a sales volume increase of 12.5 percent offset by unfavorable currency effects that reduced sales by 5.8 percent. The sales volume increase was entirely due to organic growth. Within this segment, sales volume increased in all geographic regions, and was most pronounced in the Americas and Europe. Sales growth was driven by demand in our consumer durable, automotive, cold materials, industrial and container end markets.

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Sales outside the United States accounted for 68.6 percent of our sales in 2015, as compared to 70.4 percent in 2014. On a geographic basis, sales in the United States were \$529,893, an increase of 5.2 percent from 2014. The increase consisted of 0.6 percent organic volume and 4.6 percent from acquisitions. In the Americas region, sales were \$129,325, an increase of 6.9 percent from 2014, with volume increasing 18.8 percent offset by unfavorable currency effects of 11.9 percent. The increase in sales volume consisted of 18.6 percent from organic volume and 0.2 percent from acquisitions. Sales in Europe were \$462,565, down 6.5 percent from 2014, with volume increasing 8.1 percent offset by unfavorable currency effects of 14.6 percent. The increase in sales volume consisted of 5.5 percent from organic growth and 2.6 percent from acquisitions. Sales in Japan were \$107,797, down 15.2 percent from the prior year. The decrease was due to lower volume of 1.3 percent and unfavorable currency effects of 13.9 percent. The decrease in sales volume consisted of an organic volume decline of 1.4 percent offset by a 0.1 percent increase from acquisitions. Sales in the Asia Pacific region were \$459,086, an increase of 0.3 percent from the prior year, with volume increasing 2.6 percent, offset by unfavorable currency effects of 2.3 percent. The increase in sales volume consisted of 1.4 percent from organic growth and 1.2 percent from acquisitions.

It is estimated that the effect of pricing on total revenue was not material relative to 2014.

Operating profit – Cost of sales were \$774,702 in 2015, up 2.1 percent from 2014. Gross profit, expressed as a percentage of sales, decreased to 54.1 percent in 2015 from 55.5 percent in 2014. The reduction in gross margin was primarily a result of unfavorable currency translation effects.

Selling and administrative expenses, were \$584,823 in 2015, an increase of \$9,381, or 1.6 percent, from 2014. Of the 1.6 percent increase, 7.5 percent was due to the addition of acquired businesses in the second half of 2014 and 2015 and higher compensation expenses related to increased employment levels. The 5.9 percent offset was due to unfavorable currency translation effects.

Selling and administrative expenses as a percentage of sales increased to 34.6 percent in 2015 from 33.8 percent in 2014. Of the 0.8 percent increase, 0.4 percent was due to acquisitions and higher compensation expenses related to increased employment levels and 0.4 percent was due to unfavorable currency translation effects.

Severance and restructuring costs of \$11,411 were recorded in 2015. Within the Adhesives Dispensing Systems segment, restructuring initiatives to optimize operations in the U.S. and Belgium resulted in severance and restructuring costs of \$7,972. Within the Advanced Technology Systems segment, certain restructuring programs to enhance operational efficiency and customer service in the U.S. and Germany resulted in severance and restructuring costs of \$3,060. Within the Industrial Coatings Systems segment, a restructuring program to enhance operational efficiency and customer service resulted in severance costs of \$379.

Operating capacity for each of our segments can support fluctuations in order activity without significant changes in operating costs. Also, currency translation affects reported operating margins. Operating margins for each segment were unfavorably impacted by a much stronger dollar during 2015 as compared to 2014.

Operating profit as a percentage of sales decreased to 18.8 percent in 2015 compared to 21.5 percent in 2014. Of the 2.7 percentage point decrease in operating margin, 1.9 percentage points were due to unfavorable currency translation effects, 0.5 percentage points were due to higher severance and restructuring costs and 0.3 percentage points were due to higher selling and administrative expenses.

For the Adhesive Dispensing Systems segment, operating profit as a percentage of sales decreased to 23.4 percent in 2015 compared to 25.5 percent in 2014. Of the 2.1 percentage point decline in operating margin, 2.3 percentage points were attributed to unfavorable currency translation effects, 1.5 percentage points were attributed to higher selling and administrative expenses, and 0.7 percentage points were attributed to higher severance and restructuring costs. The 2.4

percentage point offset was due to 2.2 percentage points attributed to favorable product mix and 0.2 percentage points due to lower inventory purchase price adjustments.

For the Advanced Technology Systems segment, operating profit as a percentage of sales decreased to 20.4 percent in 2015 compared to 25.0 percent in 2014. Of the 4.6 percentage point decline in operating margin, 2.2 percentage points were attributed to higher selling and administrative expenses, 1.3 percentage points were attributed to product line and customer mix, 0.7 percentage points were attributed to unfavorable currency translation effects, and 0.4 percentage points were attributed to higher severance and restructuring costs.

For the Industrial Coating Systems segment, operating profit as a percentage of sales increased to 16.0 percent in 2015 from 15.7 percent in 2014. Of the 0.3 percentage point improvement in operating margin, favorable leverage of our selling and administrative expenses contributed 2.0 percentage points and favorable product mix added 0.2 percentage points. The remaining 1.9 percentage point offset was primarily due to unfavorable currency translation effects.

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Interest and other income (expense) - Interest expense in 2015 was \$18,104, an increase of \$3,069, or 20.4 percent, from 2014. The increase was due to higher borrowing levels used primarily to fund acquisitions in the second half of 2014 and in 2015, and to fund the purchase of treasury shares in 2015.

Other income in 2015 was \$678 compared to other expense of \$138 in 2014. Significant items included in 2015 were proceeds from a favorable litigation settlement of \$1,608 and loss on disposal of fixed assets of \$653. Significant items included in 2014 were a gain on property insurance settlement of \$1,005 and foreign currency losses of \$478.

Income taxes – Income tax expense in 2015 was \$89,751, or 29.8 percent of pre-tax income, as compared to \$105,740, or 30.0 percent of pre-tax income in 2014.

On December 19, 2014, the Tax Increase Prevention Act of 2014 was enacted which retroactively reinstated the Federal Research and Development Tax Credit (Federal R&D Tax Credit) from January 1, 2014 to December 31, 2014 and extended certain other tax provisions. As a result, our income tax provision for 2015 included discrete tax benefits of \$2,486 primarily related to 2014.

Net income – Net income was \$211,111, or \$3.45 per diluted share, in 2015, compared to net income of \$246,773, or \$3.84 per diluted share, in 2014. This represents a 14.5 percent decrease in net income and a 10.2 percent decrease in diluted earnings per share.

#### Liquidity and Capital Resources

Cash and cash equivalents increased \$16,971 in 2016. Cash provided by operating activities was \$331,158 in 2016, compared to \$261,951 in 2015. The primary sources were net income adjusted for non-cash income and expenses (consisting of depreciation and amortization, non-cash stock compensation, deferred income taxes, other non-cash expense and loss on sale of property, plant and equipment) and the tax benefit from the exercise of stock options, the sum of which was \$358,984 in 2016, compared to \$291,452 in 2015. The increase in cash provided by operating activities was primarily due to higher net income. Operating assets and liabilities used \$27,826 of cash in 2016, compared to \$29,501 in 2015.

Cash used by investing activities was \$102,201 in 2016, down from \$138,535 in 2015. In the current year, cash of \$42,650 was used for the LinkTech acquisition, compared to the 2015 acquisitions of Liquidyn, WAFO and MatriX which used \$75,565 of cash.

Cash of \$210,280 was used by financing activities in 2016, compared to \$110,978 in 2015. Included in 2016 were net short and long-term repayments of \$130,217, compared to net borrowings of \$325,486 in the prior year. The change was primarily due to increased repayments on our revolving credit facility in 2016. Issuance of common shares related to employee benefit plans generated \$11,476 of cash in 2016, up from \$5,372 in 2015. This increase was the result of higher stock option exercises. In 2016 cash of \$33,421 was used for the purchase of treasury shares, down from \$383,851 in 2015. Dividend payments were \$56,436 in 2016, up from \$54,849 in 2015 due to an increase in the annual dividend to \$0.99 per share from \$0.90 per share.

The following is a summary of significant changes by balance sheet caption from October 31, 2015 to October 31, 2016. Receivables increased \$39,010 primarily due to higher year-end shipments. Net property, plant and equipment increased \$23,189 primarily due to capital expenditures and the LinkTech acquisition, partially offset by depreciation expense. Goodwill increased \$24,762 due to the LinkTech acquisition completed in 2016 that added \$25,169 of goodwill, offset by \$407 from the effects of currency translation. The decrease in net other intangibles of \$17,124 was due to \$14,610 of intangibles added as a result of the LinkTech acquisition, offset by \$29,061 of amortization expense and \$2,673 from the effects of currency translation.

The decrease in income taxes payable of \$5,880 was due to the timing of required tax payments. The increase of \$21,867 in accrued liabilities was primarily due to higher compensation-related accruals. Current maturities of long-term debt increased \$15,251 primarily as a result of the \$37,956 reclassification from long-term debt to current maturities for the scheduled repayments of our senior notes and New York Life credit facility, partially offset by \$11,287 repayments under our €100,000 agreement with The Bank of Tokyo-Mitsubishi UFJ, Ltd. and \$10,556 repayments under our New York Life credit facility. The long-term debt decrease of \$148,090 primarily reflects \$212,345 of net repayments under our revolving credit agreement, the \$37,956 reclassification from long-term debt to current maturities as noted above, partially offset by \$100,000 in borrowings under our New York Life credit facility. The \$12,305 increase in long-term pension obligations and the \$3,707 increase in postretirement obligations were primarily the result of lower global weighted-average discount rates.

In December 2014, the board of directors authorized a new \$300,000 common share repurchase program. This program replaced the \$200,000 program approved by the board in August 2013. In August 2015, the board of directors authorized the repurchase of up to an additional \$200,000 of the Company's common shares. This new authorization added capacity to the board's December 2014 authorization to repurchase \$300,000 of shares. Approximately \$118,971 remained available for share repurchases at October 31, 2016. Uses for repurchased shares include the funding of benefit programs including stock options, restricted stock and 401(k) matching. Shares purchased are treated as treasury shares until used for such purposes. The repurchase program is being funded using cash from operations and proceeds from borrowings under our credit facilities.

As of October 31, 2016, approximately 93 percent of our consolidated cash and cash equivalents were held at various foreign subsidiaries. Deferred income taxes are not provided on undistributed earnings of international subsidiaries that are intended to be permanently invested in those operations. These undistributed earnings represent the post-income tax earnings under U.S. GAAP not adjusted for previously taxed income which aggregated approximately \$757,501 and \$712,913 at October 31, 2016 and 2015, respectively. Should these earnings be distributed, applicable foreign tax credits, distributions of previously taxed income, and utilization of other attributes would substantially offset taxes due upon the distribution. It is not practical to estimate the amount of additional taxes that might be payable on such undistributed earnings.

### Contractual Obligations

The following table summarizes contractual obligations as of October 31, 2016:

	Payments Due by Period				
	Total	Less than 1 Year	1-3 Years	4-5 Years	After 5 Years
Long-term debt <sup>(1)</sup>	\$982,646	\$38,093	\$234,710	\$451,605	\$258,238
Interest payments on long-term debt <sup>(1)</sup>	54,243	11,019	17,768	12,834	12,622
Capital lease obligations <sup>(2)</sup>	19,230	5,966	6,335	1,546	5,383
Operating leases <sup>(2)</sup>	53,565	13,725	17,838	10,707	11,295
Notes payable <sup>(3)</sup>	2,141	2,141	—	—	—
Contributions related to pension and postretirement benefits <sup>(4)</sup>	20,100	20,100	—	—	—
Purchase obligations <sup>(5)</sup>	80,563	80,336	227	—	—
Total obligations	\$1,212,488	\$171,380	\$276,878	\$476,692	\$287,538

(1) In February 2015, we increased, amended and extended our existing syndicated revolving credit agreement that was scheduled to expire in December 2016. We entered into a \$600,000 unsecured, multicurrency credit facility with a group of banks. This facility has a five-year term and includes a \$50,000 subfacility for swing-line loans and may be increased from \$600,000 to \$850,000 under certain conditions. It expires in February 2020. At October 31, 2016, \$244,680 was outstanding under this facility, compared to \$457,025 outstanding at October 31, 2015. Balances outstanding under the prior credit agreement were transferred to the new credit agreement. The weighted average interest rate for borrowings under this agreement was 1.53 percent at October 31, 2016. There are two primary financial covenants that must be met under this facility. The first covenant limits the amount of total net indebtedness that can be incurred to 3.50 times consolidated trailing four-quarter EBITDA (both indebtedness and EBITDA as defined in the credit agreement). The second covenant requires consolidated trailing four-quarter EBITDA to be at least 3.0 times consolidated trailing four-quarter interest expense (both as defined in the credit agreement). At October 31, 2016, we were in compliance with all debt covenants, and the amount we could borrow under the credit facility would not have been limited by any debt covenants.

In 2011, we entered into a \$150,000 three-year Note Purchase and Private Shelf Note agreement with New York Life Investment Management LLC. In 2013, the amount of the facility was increased from \$150,000 to \$175,000. In 2015, the amount of the facility was increased to \$180,000. In 2016, the amount of the facility was increased to \$200,000. Notes issued under the agreement may have a maturity of up to 12 years, with an average life of up to 10 years, and are unsecured. The interest rate on each note can be fixed or floating and is based upon the market rate at the borrowing date. This agreement contains customary events of default and covenants related to limitations on

indebtedness and the maintenance of certain financial ratios. At October 31, 2016, there was \$157,222 outstanding under this facility, compared to \$67,778 at October 31, 2015. The interest rates for notes within this agreement were 2.21 percent and 2.56 percent at October 31, 2016. We were in compliance with all covenants at October 31, 2016, and the amount we could borrow would not have been limited by any debt covenants.

In 2012, we entered into a Note Purchase Agreement with a group of insurance companies under which we sold \$200,000 of Senior Notes. The notes mature between July 2017 and July 2025 and bear interest at fixed rates between 2.27 percent and 3.13 percent. We were in compliance with all covenants at October 31, 2016.

In 2013, we entered into a €100,000 agreement with The Bank of Tokyo-Mitsubishi UFJ, Ltd. The term of the agreement was three years and could be extended by one year at the end of the third and fourth anniversaries. The interest rate was variable based upon the EUR LIBOR rate. We paid down the remaining \$11,501 balance of the loan in 2016.

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In April 2015, we entered into a \$200,000 term loan facility with a group of banks. The interest rate is variable based on the LIBOR rate plus applicable margin based on our leverage ratio. As of October 31, 2016, \$100,000 is due in three years and has an interest rate spread of 1.00 percent over LIBOR and \$100,000 is due in five years and has an interest rate spread of 1.10 percent over LIBOR. This loan was used to pay down \$100,000 of our 364-day unsecured credit facility with PNC Bank and \$100,000 of our revolving credit facility in 2015. We were in compliance with all covenants at October 31, 2016.

In July 2015, we entered into a Note Purchase Agreement under which \$100,000 of Senior Unsecured Notes were purchased primarily by a group of insurance companies. The notes mature in July 2025 and July 2027 and bear interest at fixed rates of 2.89 percent and 3.19 percent. We were in compliance with all covenants at October 31, 2016.

In October 2015, we entered into a €70,000 agreement with Bank of America Merrill Lynch International Limited. The term of the agreement is three years and can be extended by one year on two annual occasions if notice is given between 180 days and 30 days before the maturity date. The interest rate is variable based on the LIBOR rate plus applicable margin based on our leverage ratio. The loan was amended in 2016 to extend the term by one year and increase the principal amount. At October 31, 2016, the balance outstanding was €72,300 (\$79,389) and the interest rate was 0.875 percent over LIBOR. We were in compliance with all covenants at October 31, 2016.

See Note 10 for additional information.

(2) See Note 11 for additional information.

(3) See Note 9 for additional information.

(4) Pension and postretirement plan funding amounts after 2016 will be determined based on the future funded status of the plans and therefore cannot be estimated at this time. See Note 7 for additional information.

(5) Purchase obligations primarily represent commitments for materials used in our manufacturing processes that are not recorded in our Consolidated Balance Sheet.

We believe that the combination of present capital resources, cash from operations and unused financing sources are more than adequate to meet cash requirements for 2017. There are no significant restrictions limiting the transfer of funds from international subsidiaries to the parent company.

## Outlook

Our operating performance, balance sheet position, and financial ratios for 2016 remained strong relative to recent years, although uncertainties persisted in global financial markets and the general economic environment. Going forward, we are well-positioned to manage our liquidity needs that arise from working capital requirements, capital expenditures, contributions related to pension and postretirement obligations, and principal and interest payments on indebtedness. Primary sources of capital to meet these needs as well as other opportunistic investments are cash provided by operations and borrowings under our loan agreements. In 2016, cash from operations was 18.3 percent of revenue. With respect to borrowing under existing loan agreements, as of October 31, 2016, we had \$355,320 available capacity under our five-year term, \$600,000 unsecured, multicurrency credit facility which may be increased to \$850,000 under certain conditions. This credit facility expires in February 2020. In addition, we had \$42,778 borrowing capacity remaining on our \$200,000 three-year Private Shelf agreement with New York Life Investment Management LLC. While these facilities provide the contractual terms for any borrowing, we cannot be assured that these facilities would be available in the event that these financial institutions failed to remain sufficiently capitalized.

Other loan agreements exist with no remaining borrowing capacity, but factor into debt covenant calculations that affect future borrowing capacity. In July 2012, we entered into a note purchase agreement with a group of insurance companies under which we sold \$200,000 of senior notes. The notes mature between July 2017 and July 2025 and bear interest at fixed rates between 2.27 percent and 3.13 percent. As of April 2015, we entered into a \$200,000 term

loan facility with PNC Bank. \$100,000 is due in three years and has an interest rate spread of 1 percent over LIBOR, and \$100,000 is due in five years and has an interest rate spread of 1.1 percent over LIBOR. In July 2015, we entered into a Note Purchase Agreement under which \$100,000 of senior unsecured notes were purchased primarily by a group of insurance companies. The notes consist of two tranches, Series A and B at \$50,000 each, maturing in July 2025 and July 2027, and bearing interest at fixed rates of 2.89 percent and 3.19 percent, respectively. In October 2015, we entered into a €70,000 three year term loan agreement with Bank of America Merrill Lynch International in London. This agreement was amended in September 2016 to extend the term by one year and increase the principal balance. The balance of this loan at October 31, 2016 was €72,300. The interest rate is variable based on the LIBOR rate plus applicable margin based on our leverage ratio, and was 0.875 percent over LIBOR at October 31, 2016.

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Respective to all of these loans are two primary covenants, the leverage ratio that restricts indebtedness (net of cash) to a maximum 3.50 times consolidated four-quarter trailing EBITDA and the interest coverage ratio that requires four-quarter trailing EBITDA to be at minimum 3.0 times consolidated trailing four-quarter interest expense. (Debt, EBITDA, and interest expense are as defined in respective credit agreements.) With respect to these two primary covenants as of October 31, 2016, we were approximately 54 percent of the most restrictive leverage ratio and approximately 13 percent of the most restrictive interest coverage ratio. Unused borrowing capacity under existing loan agreements would amount to an additional 23 percent of the most restrictive leverage ratio.

Regarding expectations for 2017, we are optimistic about longer term growth opportunities in the diverse consumer durable, non-durable, medical, electronics and industrial end markets we serve. However, we move forward in the near-term with caution given continued slow growth in emerging markets, expectations for global GDP indicating a low-growth macroeconomic environment, and marketplace effects of political instability in certain areas of the world. With respect to the United Kingdom's (UK) expected exit (Brexit) from the European Union (EU), resulting effects upon markets we serve and tax jurisdictions in which we operate will depend upon terms of agreements the UK makes to retain access to EU markets during the near-term and more permanently and also to national laws and regulations that may replace and diverge from EU laws and regulations. Until more specific details are determined, the economic and political uncertainty in the UK and EU likely will continue along with implications upon the global economy. While the announcement of Brexit initially resulted in significant volatility in global stock markets and currency exchange markets, the interim effects at this time upon the way we do business and results from operations have not been material.

Though the pace of improvement in the global economy remains unclear, our growth potential has been demonstrated over time from our capacity to build and enhance our core businesses by entering emerging markets and pursuing market adjacencies. We drive value for our customers through our application expertise, differentiated technology, and direct sales and service support. Our priorities also are focused on operational efficiencies by employing continuous improvement methodologies in our business processes. We expect our efforts will continue to provide more than sufficient cash from operations for meeting our liquidity needs and paying dividends to common shareholders, as well as enabling us to invest in the development of new applications and markets for our technologies. Cash from operations have been 16 to 19 percent of revenues over the past five years, resulting in more than sufficient cash for our ordinary business requirements. We believe our cash provided from operations and available borrowing capacity will enable us to make other opportunistic investments in our own common shares and strategic business combinations.

With respect to contractual spending, the table above presents our financial obligations as \$1,212,488 of which \$171,380 is payable in 2017. In August 2015, the board of directors approved a \$200,000 common share repurchase program that added capacity to the board's December 2014 approval authorizing management at its discretion to repurchase shares up to \$300,000. Approximately \$118,971 remained available for share repurchases as of October 31, 2016. The repurchase program is funded using cash from operations and proceeds from borrowings under our credit facilities. Timing and actual number of shares subject to repurchase are contingent on a number of factors including levels of cash generation from operations, cash requirements for acquisitions, repayment of debt and our share price. Capital expenditures for 2017 will be focused on continued investments in our information systems and projects that improve both capacity and efficiency of manufacturing and distribution operations.

#### Effects of Foreign Currency

The impact of changes in foreign currency exchange rates on sales and operating results cannot be precisely measured due to fluctuating selling prices, sales volume, product mix and cost structures in each country where we operate. As a general rule, a weakening of the United States dollar relative to foreign currencies has a favorable effect on sales and net income, while a strengthening of the dollar has a detrimental effect.

In 2016, as compared with 2015, the United States dollar was generally stronger against foreign currencies. If 2015 exchange rates had been in effect during 2016, sales would have been approximately \$23,249 higher and third-party costs would have been approximately \$8,332 higher. In 2015, as compared with 2014, the United States dollar was stronger against foreign currencies. If 2014 exchange rates had been in effect during 2015, sales would have been approximately \$114,844 higher and third-party costs would have been approximately \$67,414 higher. These effects on reported sales do not include the impact of local price adjustments made in response to changes in currency exchange rates.

#### Inflation

Inflation affects profit margins as the ability to pass cost increases on to customers is restricted by the need for competitive pricing. Although inflation has been modest in recent years and has had no material effect on the years covered by these financial statements, we continue to seek ways to minimize the impact of inflation through focused efforts to increase productivity.

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## Trends

The Five-Year Summary in Item 6 documents our historical financial trends. Over this period, the world's economic conditions fluctuated significantly. Our solid performance is attributed to our participation in diverse geographic and industrial markets and our long-term commitment to develop and provide quality products and worldwide service to meet our customers' changing needs.

## Safe Harbor Statements Under the Private Securities Litigation Reform Act of 1995

This Form 10-K, particularly "Management's Discussion and Analysis," contains forward-looking statements within the meaning of the Securities Act of 1933, as amended, the Securities Exchange Act of 1934, as amended, and the Private Securities Litigation Reform Act of 1995. Such statements relate to, among other things, income, earnings, cash flows, changes in operations, operating improvements, businesses in which we operate and the United States and global economies. Statements in this 10-K that are not historical are hereby identified as "forward-looking statements" and may be indicated by words or phrases such as "anticipates," "supports," "plans," "projects," "expects," "believes," "should," "would," "hope," "forecast," "management is of the opinion," use of the future tense and similar words or phrases.

In light of these risks and uncertainties, actual events and results may vary significantly from those included in or contemplated or implied by such statements. Readers are cautioned not to place undue reliance on such forward-looking statements. These forward-looking statements speak only as of the date made. We undertake no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law. Factors that could cause our actual results to differ materially from the expected results are discussed in Item 1A, Risk Factors.

## Item 7A. Quantitative and Qualitative Disclosures About Market Risk

We operate internationally and enter into intercompany transactions denominated in foreign currencies. Consequently, we are subject to market risk arising from exchange rate movements between the dates foreign currencies are recorded and the dates they are settled. We regularly use foreign exchange contracts to reduce our risks related to most of these transactions. These contracts, primarily associated with the euro, yen and pound sterling, typically have maturities of 90 days or less, and generally require the exchange of foreign currencies for United States dollars at rates stated in the contracts. Gains and losses from changes in the market value of these contracts offset foreign exchange losses and gains, respectively, on the underlying transactions. Other transactions denominated in foreign currencies are designated as hedges of our net investments in foreign subsidiaries or are intercompany transactions of a long-term investment nature. As a result of the use of foreign exchange contracts on a routine basis to reduce the risks related to most of our transactions denominated in foreign currencies, as of October 31, 2016, we did not have material foreign currency exposure.

Note 13 to the financial statements contains additional information about our foreign currency transactions and the methods and assumptions used to record these transactions.

A portion of our operations is financed with short-term and long-term borrowings and is subject to market risk arising from changes in interest rates.

The tables that follow present principal repayments and weighted-average interest rates on outstanding borrowings of fixed-rate debt.

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At October 31, 2016	2017	2018	2019	2020	2021	Thereafter	Total Value	Fair Value
Annual repayments of long-term debt	\$38,093	\$26,586	\$28,734	\$68,738	\$38,187	\$158,239	\$358,577	\$367,990
Average interest rate on total borrowings outstanding during the year	2.9 %	2.9 %	3.0 %	3.0 %	3.1 %	3.1 %	2.9 %	
At October 31, 2015	2016	2017	2018	2019	2020	Thereafter	Total Value	Fair Value
Annual repayments of long-term debt	\$11,340	\$38,093	\$26,587	\$28,734	\$			