

2022

NORDSON CORPORATION

Annual Report



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Dear Nordson shareholder,

It's in challenging times that you see what people are made of, and I could not be more impressed and humbled by the strength and resilience of our Nordson employees. After several years of macro-pressures, 2022 dealt us supply chain constraints, inflation at a 40-year high, increasing foreign currency pressures, COVID-19 shutdowns and continuing labor challenges. Through it all, our incredible teams remained true to Nordson's core values, exemplifying excellence, energy and respect for people, while innovating and solving complex problems for our customers. In each meeting, call, plant tour and visit, I met energetic employees striving to serve the customer, doing their best and aspiring to win at every turn.

Simultaneously, our employees are advancing the Ascend Strategy that we launched in 2021. When I joined Nordson in 2019, I found a strong company whose greatest opportunity was profitable growth. We launched the Ascend Strategy to revitalize our long-term potential and achieve top-tier growth with leading margins and returns. It encompasses three interconnected pillars: NBS Next growth framework, Owner Mindset and Winning Teams. The successful execution of this Strategy is targeted to deliver \$3 billion in sales at a sustained 30% EBITDA margin by 2025. I am very excited about the progress toward this goal, most notably the broad deployment of the NBS Next growth framework.

NBS Next is a data-driven segmentation framework that identifies the best profitable growth opportunities in each of our divisions. Having a crystal-clear understanding of growth priorities enables our divisions to dedicate their time and resources to the best customer and product opportunities. This is a new capability at Nordson. We now have increased clarity and our division-led owner mindset empowers our teams to take action. For example, when supply chain constraints could have limited our growth, our divisions used NBS Next to prioritize their resources to serve our best customers. It was a differentiator and competitive advantage.

As I've traveled to our North American and European sites, it's been exciting to see the adoption of NBS Next beyond the pilot businesses. Our teams across Nordson are asking the right questions, leading change and delivering differentiated business results. They are clearly motivated to learn more, and we've introduced a variety of training and leadership development programs to grow their competency and enhance our pipeline of winning teams.

In addition, our execution of the Ascend Strategy is delivering acquisitive growth. On November 3, 2022, we completed our acquisition of CyberOptics Corporation. This is an exciting company that will enhance our test and inspection platform, providing innovative technology that expands our product offering in the semiconductor and electronics industries. With this acquisition, as well as NDC Technologies (2021) and Fluortek (2020), we have completed approximately \$210 million of our 2025 target of \$500 million in acquired revenue. These great companies are fitting into the Nordson culture and enhancing our precision technology portfolio. As we grow both organically and through acquisition to reach \$3 billion in sales, we have delivered above our 30% EBITDA margin target – an important long-term objective we will work to sustain.

In 2022, the Ascend Strategy transitioned from an aspiration into a competitive advantage that positions us to navigate and thrive in a variety of challenging macro-economic scenarios. We are creating an entrepreneurial organization that empowers our employees to make choices and drive focus toward our greatest opportunities for profitable growth. I am very pleased with our progress and look forward to continuously celebrating the teams who are making it happen.

I am grateful for the deep support of our employees, customers and shareholders, as we continue make this strong company even stronger. It is an honor to lead this great company.



Sincerely,

A handwritten signature in black ink that reads "S. Nagarajan". The signature is fluid and cursive, with a double underline at the end.

Sundaram Nagarajan
President and Chief Executive Officer

2022

NORDSON CORPORATION

Annual Report

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

(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, 2022

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

(State of incorporation)

28601 Clemens Road Westlake, Ohio

(Address of principal executive offices)

34-0590250

(I.R.S. Employer Identification No.)

44145

(Zip Code)

(440) 892-1580

(Registrant's Telephone Number, including area code)

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

<u>Title of Each Class</u>	<u>Trading Symbol(s)</u>	<u>Name of Each Exchange on which Registered</u>
Common Shares, without par value	NDSN	Nasdaq Stock Market LLC

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

None

Indicate by check mark if the Registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes 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 every Interactive Data File required to be submitted 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 such files). Yes No

Indicate by check mark whether the Registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act:

Large accelerated filer	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Smaller reporting company	<input type="checkbox"/>
Emerging growth company	<input type="checkbox"/>		

If an emerging growth company, indicate by check mark if the Registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act

Indicate by check mark whether the Registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report.

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 29, 2022 was approximately \$12,407,909,520.

There were 57,156,824 Common Shares outstanding as of November 30, 2022.

Documents incorporated by reference:

Portions of the Proxy Statement for the 2023 Annual Meeting - Part III of the Form 10-K

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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 otherwise indicated. 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 is an innovative precision technology company that leverages a scalable growth framework to deliver top tier growth with leading margins and returns. We engineer, manufacture and market differentiated products and systems used for precision dispensing, applying and controlling of adhesives, coatings, polymers, sealants, biomaterials, and other fluids, to test and inspect for quality, and to treat and cure surfaces and various medical products such as: catheters, cannulas, medical balloons and medical tubing. 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, 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 were incorporated in the State of Ohio in 1954 and are headquartered in Westlake, Ohio. Our products are marketed through a network of direct operations in more than 35 countries. Consistent with this global strategy, approximately 67 percent of our revenues were generated outside the United States in 2022.

We have 7,331 employees worldwide. Our principal manufacturing facilities are located in the United States, the People's Republic of China, Germany, Ireland, Israel, Mexico, the Netherlands and the United Kingdom.

CyberOptics Acquisition

On November 3, 2022, the Company completed the acquisition of CyberOptics Corporation ("CyberOptics") pursuant to the terms of the Agreement and Plan of Merger, dated as of August 7, 2022, by and among the Company, Meta Merger Company and CyberOptics. CyberOptics is a leading global developer and manufacturer of high-precision 3D optical sensing technology solutions. The CyberOptics acquisition expanded our test and inspection platform, providing differentiated technology that expands our product offering in the semiconductor and electronics industries and will be reported in our Advanced Technology Solutions segment. The all-cash transaction of approximately \$380,000, net of cash acquired, was funded using our revolving credit facility and is not expected to have a material impact on our Consolidated Financial Statements.

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.

We focus on long-term growth and returns. Each quarter, we may not produce increased sales, net income, or earnings per share, or exceed the comparative prior year's quarter. When short-term swings occur, we do not intend to alter our foundational objectives in efforts to mitigate the impact of these temporary occurrences.

In 2021, we launched the Ascend strategy, which is designed to deliver top tier revenue growth with leading margins and returns. Ascend is driven by three interconnected pillars: the NBS (Nordson Business System) Next growth framework; Owner Mindset, our division-led organizational structure; and Winning Teams, our talent strategy. These three pillars are built upon the foundation of what makes Nordson special: our culture and our values.

The NBS Next growth framework, the heart of the Ascend strategy, uses data-based segmentation to identify our greatest opportunities for profitable growth and ensure we are investing our resources disproportionately in those areas. Using data in a consistent and disciplined way, leaders across the Company are defining their strategic business priorities.

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 leveraging existing technology into new applications. Additional growth comes through the acquisition of companies that have differentiated precision technology-based product portfolios, serve attractive high-growth end-markets applications and have a customer-centric business model. The

primary goals of our acquisition strategy are to complement our current capabilities, diversify our business into new industry sectors with new customers and expand the scope of the solutions we can offer to our customers.

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. For more information, see "Human Capital Resources" below.

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

We are an equal opportunity employer.

At Nordson, we have a long and proud history of investing in the communities where we live and work. We are committed to contributing approximately five percent of domestic pretax earnings to education, human welfare services and other charitable activities, particularly in communities where we have significant operations. Through the Nordson Corporation Foundation (the "Foundation"), we give back by providing grants to nonprofits in communities where we have facilities employing approximately 100 people. In recent years, we have extended our reach internationally, with giving programs in 11 international locations. We also expanded our Matching Gifts program internationally in 2022, which further expands our culture of giving around the world. Since 1989, we have donated more than \$148 million to communities where we live and work. In addition, our employees volunteered more than 107,000 hours through our Time 'N Talent and Dollars for Doers programs.

Principal Products and Uses

We engineer, manufacture and market differentiated products and systems used to dispense, apply and control adhesives, coatings, polymers, sealants, biomaterials, medical components, and other fluids, to test and inspect for quality, and to treat and cure surfaces. Our precision technology 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. We serve a broad customer base, both in terms of industries and geographic regions. In 2022, no single customer accounted for ten percent or more of sales.

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

Industrial Precision Solutions

This segment delivers proprietary dispensing and material processing technology, as well as measurement, inspection and control solutions to diverse end markets. Product line specific solutions reduce material consumption, increase line efficiency and enhance product quality and appearance. Technologies are used for processing polymers, inspection and measurement of food, tubing and films and dispensing adhesives, coatings and sealants. This segment primarily serves the industrial, consumer durables and non-durables markets.

- **Industrial Coatings** – Automated and manual dispensing products and systems for cold materials, container coating, liquid finishing and powder coating, as well as ultraviolet equipment used primarily in curing and drying operations. Key strategic markets include beverage containers and food cans, electric battery, appliances, automotive, building and construction, composites, electronics and medical.
- **Measurement and Control Solutions** – In-line measurement sensors, gauges and analyzers using near-infrared, laser, X-ray, optical and nucleonic technologies, as well as proprietary algorithms and software. These precision applications ensure quality and reliability within the customers' manufacturing processes. Key strategic markets include consumer non-durable, film extrusion and converting, cable and tubing and energy storage.
- **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, 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 packaging for food and beverage, pharmaceutical and other consumer goods.
- **Polymer Processing** – Components and systems used in the thermoplastic and biopolymer melt stream in 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.

Medical and Fluid Solutions

This segment includes fluid management solutions for medical, high-tech industrial and other diverse end markets.

- **Medical** – Components used for minimally invasive interventional delivery of medical devices, including cannulas, catheters and medical balloons. Products also include proprietary single-use plastic components in medical applications, including biopharmaceutical, patient care/surgical and diagnostic systems.
- **Fluid Management** – Precision manual and semi-automated dispensers and highly engineered single-use plastic molded syringes, cartridges, tips and fluid connection components. Products are used within critical industrial production processes and for applying and controlling the flow of adhesives, sealants and lubricants. Key strategic markets include electronics, industrial and animal health.

Advanced Technology Solutions

This segment integrates our proprietary product technologies into the progressive stages of a customer's production processes, such as surface treatment, precisely controlled dispensing of material and pre- and post-dispense test and inspection to ensure quality. This segment predominantly serves customers in the electronics end markets.

- **Electronics 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 the breadth of the electronics industry manufacturing supply chain that produces semiconductor, printed circuit board assemblies and electronic components.
- **Test and Inspection** – Bond testing and automated optical, acoustic microscopy 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, flexible circuits, micro mechanical systems and semiconductor packaging.

Manufacturing, Raw Materials and Other Resources

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, Connecticut, Illinois, Massachusetts, Michigan, Minnesota, New Jersey, Rhode Island, Tennessee and Wisconsin; as well as in the People's Republic of China, Germany, Ireland, Israel, Mexico, the Netherlands 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. Most significant raw materials that we use are available through multiple sources. We purchase most raw materials and other components on the open market and rely on third parties to provide certain finished goods. While these items are generally available from multiple sources, the cost of products sold may be affected by changes in the market price of raw materials and tariffs on certain raw materials, particularly imports from China, as well as disruptions in availability of raw materials, components and sourced finished goods.

We monitor and investigate alternative suppliers and materials based on numerous attributes including quality, service, financial stability and price. We currently source raw materials and components from a number of suppliers, but our ongoing efforts to improve the cost effectiveness of our products and services may result in a reduction in the number of our suppliers.

Senior operating management supervises 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.

Though the COVID-19 pandemic disrupted the global supply chain, we have not experienced significant supply disruption from third-party component suppliers. However, we have faced and continue to face some supply chain constraints, primarily related to electronic component availability. While logistics flow continues to improve, we are experiencing much higher costs than pre-pandemic rates due to carrier rate increases, mode changes, fuel costs, port backlog and other factors. In addition, shipments between countries have been impacted and we have experienced delays due to a variety of factors related to supply chain disruption.

Intellectual Property

We rely on a combination of intellectual property rights, including patents, trademarks, copyrights, trade secrets, and contractual provisions to protect our intellectual property. Our worldwide intellectual property portfolio is strengthened through innovation and brand recognition, and our comprehensive approach for protection and enforcement. We enter into confidentiality and intellectual property agreements with our employees that require them to disclose any inventions created in the scope of employment, convey all rights to those inventions to us, and restrict the distribution of proprietary information. Risk factors associated with our intellectual property are discussed in Item 1A, "Risk Factors".

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 rights to sell our products both domestically and internationally. Although in the aggregate, our global portfolio of more than 2,100 granted and pending patents and more than 1,000 trademarks are valuable assets that are important to our operations, we believe that our competitive advantage is also largely attributable to the technical, marketing, and sales competence and capabilities of our employees, rather than on any individual patent or trademark. Therefore, we do not consider the expiration or loss of any single patent, trademark, or intellectual property right, to be material to our business as a whole.

Seasonal Variation in Business

Historically, the highest volume of sales occurs in the second half of the fiscal year due in large part to the timing of customers' capital spending programs. Accordingly, fiscal first quarter sales volume is typically the lowest of the year due to timing of customers' capital spending programs and customer holiday shutdowns. However, the COVID-19 pandemic, supply chain disruptions, historic backlog and other unusual events have impacted this historical trend to a degree.

Competitive Conditions

We operate in a competitive global marketplace and compete with many large, well-established and highly competitive manufacturers and service providers. Our business is affected by a range of macroeconomic conditions, including industry capacity changes, global competition and economic conditions in the U.S. and abroad, as well as fluctuations in currency exchange rates. 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 global 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.

Compliance with Governmental Regulations

As a U.S. public company that supports manufacturing, designing and servicing highly complex products in regulated environments, our global operations are subject to a variety of laws, regulations and compliance obligations. We have robust internal controls, quality management systems, and management systems of compliance that govern our internal actions and mitigate our risk of non-compliance. We also have safeguards established to identify non-compliance concerns through internal and external audits and risk assessments, as well as an ethics helpline reporting system.

We are also required to comply with increasingly complex and changing laws and regulations enacted to protect business and personal data in the United States and other jurisdictions regarding privacy, data protection and data security, including those

related to the collection, storage, use, transmission and protection of personal information and other consumer, customer, vendor or employee data. Such privacy and data protection laws and regulations, including with respect to the European Union's General Data Protection Regulation ("GDPR"), the Brazilian General Data Protection Law, and the California Consumer Privacy Act of 2018 ("CCPA"), and the interpretation and enforcement of such laws and regulations, are continuously developing and evolving and there is significant uncertainty with respect to how compliance with these laws and regulations may evolve and the costs and complexity of future compliance.

We are also 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.

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 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 2022 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 ensure that material environmental liabilities may not arise in the future.

For a discussion of the risks associated with these laws and regulations, see Part I, Item 1A, "Risk Factors."

Human Capital Resources

Employee Profile

As of October 31, 2022, we had 7,331 full-time and part-time employees, including 128 at our Amherst, Ohio, facility who are represented by a collective bargaining agreement that expires on November 16, 2025.

Total Rewards

As part of our compensation philosophy, we believe that we must offer and maintain market competitive total rewards programs for our employees in order to attract and retain superior talent. These programs not only include base wages and incentives in support of our pay for performance culture, but also health, welfare and retirement benefits. We focus many programs on employee wellness and have implemented solutions including mental health support access, telemedicine and healthy weight loss programs. We believe that these solutions have helped us successfully manage healthcare and prescription drug costs for our employee population.

In the U.S., we match contributions to a tax-qualified defined contribution retirement savings plan (the "Savings Plan") for all eligible employees, in an amount equal to 50 cents for every dollar contributed by the employee until the employee contributions reach 6% of her or his base compensation. In addition, non-union new hires and re-hires as of July 1, 2021 are eligible for an additional enhanced 401(k) contribution of 3% eligible earnings. All contributions by employees into the Savings Plan are fully vested immediately. Company contributions, both the match and enhanced contribution, have a three-year graded vesting schedule and vest at 33 1/3% each year until fully vested after three years of employment. We also maintain a non-qualified, unfunded and unsecured deferred compensation plan for the benefit of eligible management employees whose benefits under the Savings Plan are limited by the benefit restrictions of Section 415 of the Internal Revenue Code. In addition, non-union employees hired prior to July 1, 2021 are eligible to participate in a Company-sponsored tax-qualified pension plan for U.S.-based employees (the "Salaried Pension Plan"). The Salaried Pension Plan is designed to work together with social security benefits to provide employees with up to 30 years of service retirement income replacement that is approximately 55% of eligible compensation, subject to the Internal Revenue Code maximum monthly benefit. Participants fully vest in the Salaried

Pension Plan after five years of service. All eligible union employees hired prior to November 1, 2004 participate in a Company-sponsored tax-qualified pension plan for U.S.-based employees (the “Hourly Pension Plan”). The Hourly Pension Plan provides a multiplier for each year of service to supplement employees’ retirement income. We also maintain a supplemental retirement benefit restoration plan (“Excess Defined Benefit Pension Plan”), which is an unfunded, non-qualified plan that is designed to provide retirement benefits to U.S.-based eligible participants hired prior to July 1, 2021, as a replacement for retirement benefits limited by regulations under the Internal Revenue Code.

In 2022, we launched a global recognition program that allows managers and peers to recognize the special achievements of others through both written recognition shared on a company awards feed, as well as monetary recognition that allows a recipient to choose a physical gift, gift card or donate the value of their recognition to charity. We also continue our service award program, which demonstrates appreciation and thanks to longstanding employees with five or more years of service. Service milestones are recognized at each five-year increment by presentation of a digital and/or printed certificate with an invitation to select a recognition award via an online catalog.

Talent

Our key talent philosophy is to develop talent from within and supplement with external hires. This approach has yielded a deep understanding among our employee base of our business, products and customers, while adding new employees and ideas in support of our continuous improvement mindset. Attracting and retaining the best talent relies on our ability to provide a diverse and inclusive workplace, personal and professional growth opportunities, and a rewarding employee experience. We strive to uphold a culture of shared knowledge, appreciation and success. We believe that our average tenure across the globe reflects our positive workplace culture and the strong engagement of our employees. Our talent acquisition team uses internal and external resources to recruit highly skilled and talented workers, and we encourage employee referrals for open positions.

Talent development and succession planning for critical roles is a cornerstone of our talent program. Development plans are created and monitored to ensure progress is made along the established timelines. Development plans also intersect with our mission, particularly as we strive to be responsible to our communities.

One of our core values—Respect for People—reflects the behavior we strive to include in every aspect of the way we conduct business. Our approach encompasses inclusion awareness and skill-building, intentionality with respect to diversity in our hiring and selection process and performance management and succession planning that recognizes the importance of diversity. We strive to promote inclusion through ongoing “Inclusive Leadership” and unconscious bias training across the Company. We regularly reflect on our progress and explore opportunities to improve our inclusion and diversity programs, including at the executive leadership and Board levels.

Available Information

Our annual report (Form 10-K), quarterly reports (Form 10-Q) and current reports (Form 8-K) and amendments to those reports filed or furnished with the Securities and Exchange Commission (“SEC”) pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 are available free of charge at <https://investors.nordson.com> 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 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 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 because these factors could cause our actual results and financial condition to differ materially from those projected in forward-looking statements. You should not interpret the disclosure of any risk factor to imply that the risk factor has not already materialized. Additional risks factors may exist that are not presently known by the Company or that are currently deemed immaterial may also be present.

Risks Related to Economic Conditions

The COVID-19 pandemic has negatively disrupted, and may continue to negatively disrupt, our business and results of operations.

Throughout the COVID-19 pandemic, we have supported, and continue to support, multiple “critical infrastructure” sectors by manufacturing materials and products needed for medical supply chains, packaging, transportation, energy, communications, and other critical infrastructure industries. We have continued to operate during the COVID-19 pandemic in all our production

facilities, having taken the recommended public health measures to ensure worker and workplace safety. As a result, there have been unfavorable impacts on our manufacturing efficiencies.

We continue to actively monitor the evolving circumstances and impact of the COVID-19 pandemic, which has negatively disrupted, and may continue to negatively disrupt, our business and results of operations in the future. For example, in the second quarter of 2022, our revenue growth in Asia-Pacific was negatively impacted by COVID-19 lockdowns in China. COVID-19 lockdown restrictions in China continue to be implemented from time to time. The full extent of the COVID-19 pandemic on our operations and the markets we serve remains highly uncertain and will depend largely on future developments related to the COVID-19 pandemic, including infection rates increasing or returning in various geographic areas, variations of COVID-19, the ultimate duration of the COVID-19 pandemic, actions by government authorities to contain the outbreak or treat its impact, such as reimposing previously lifted measures or putting in place additional restrictions, and the widespread distribution and acceptance of an effective vaccine, among other things. These developments are constantly evolving and cannot be accurately predicted.

Changes in United States or international economic conditions, including declines in the industries we serve, could adversely affect the profitability of any of our operations.

In 2022, approximately 33 percent of our revenue was generated in the United States, while approximately 67 percent was generated outside the United States. The COVID-19 pandemic and related preventative and mitigation measures implemented by governments around the world and the conflict between Russia and Ukraine have to date negatively impacted the global economy and created significant volatility and disruption of financial markets.

A general sustained slowdown in the global economy or in a particular region or industry or an increase in trade tensions with U.S. trading partners could negatively impact our business, financial condition or liquidity. Our largest markets include consumer non-durable, industrial, medical, electronics, consumer durable and automotive. 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 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, or any recession, depression or other sustained adverse market event, including inflationary pressures, could have an adverse effect on our revenues and financial performance, resulting in impairment of assets. We cannot predict the strength or duration of any economic slowdown and instability or the timing of any recovery.

Our results have been and could continue to be impacted by uncertainty in U.S. trade policy, including uncertainty surrounding changes in tariffs, trade agreements or other trade restrictions imposed by the U.S. or other governments.

Our ability to conduct business can be significantly impacted by changes in tariffs, changes or repeals of trade agreements, including the impact of the "United States-Mexico-Canada Agreement" with Mexico and Canada, which replaced the North American Free Trade Agreement, or the imposition of other trade restrictions or retaliatory actions imposed by various governments. Other effects of these changes, including impacts on the price of raw materials, responsive actions from governments and the opportunity for competitors to establish a presence in markets where we participate, could also have significant impacts on our results. We cannot predict what further action may be taken with respect to tariffs or trade relations between the U.S. and other governments, and any further changes in U.S. or international trade policy could have an adverse impact on our business. Further, the level of impact from the COVID-19 pandemic and the reactions of governmental authorities and others thereto as well as the conflict between Russia and Ukraine may have significant adverse effects on international trade policy.

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 Part II, Item 7A, Quantitative and Qualitative Disclosure About Market Risk.

A significant portion of our consolidated revenues in 2022 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 may continue to cause foreign currency transaction and translation movements, 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 applicable, but we cannot assure that our strategies will adequately protect our consolidated operating results from the effects of exchange rate fluctuations. For example, uncertainty surrounding the impact of the COVID-19 pandemic, the impact of the conflict between Russia and Ukraine, changes in monetary policies and the effects of the departure of the United Kingdom from the European Union ("Brexit") have caused increased volatility in global currency exchange rates that have resulted in the strengthening of the United States dollar against the foreign currencies in which we conduct business. Future adverse consequences arising from the COVID-19 pandemic, the conflict between Russia and Ukraine, and 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.

Risks Related to Our Business and Operations

A disruption in, shortage of, or price increases for, supply of our components and raw materials may adversely impact our business, financial condition, results of operations and cash flows.

While we manufacture certain parts and components used in our products, we require substantial amounts of raw materials and purchase some parts and components from suppliers. The availability and prices for raw materials, parts and components may be subject to curtailment or change due to, among other things, suppliers' allocation to other purchasers, interruptions in production by suppliers and changes in exchange rates and prevailing price levels, including as a result of inflation. The COVID-19 pandemic and the conflict between Russia and Ukraine have negatively impacted, and may continue to negatively impact, the availability and prices for raw materials, parts, and components. While we generally attempt to pass along higher raw material, part and component costs to our customers in the form of price increases, there historically has been a delay between an increase in our raw material costs and our ability to increase the prices of our products. Additionally, we may not be able to increase the prices of our products due to competitive pricing pressure and other factors. Shortages in raw materials or our inability to pass along price increases could affect the prices we charge, our operating costs and our competitive position, which could adversely affect our business, financial condition, results of operations and cash flows.

In addition, our facilities, supply chains, distribution systems and products may be impacted by natural or man-made disruptions, including armed conflict, demand surges, damaging weather or other acts of nature (including weather or other acts of nature caused by climate change), pandemics or other public health crises. A shutdown of, or inability to utilize, one or more of our facilities, our supply chain, or our distribution system could significantly disrupt our operations, delay production and shipments, impact our relationships and reputation with customers, suppliers, employees and others, result in lost or decreased sales, or result in legal exposure and large remediation or other expenses, which could adversely affect our business, financial condition, results of operations and cash flows.

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.

The COVID-19 pandemic has created labor force disruptions impacting factory production and other operations. 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, including factory production workers and other staff, to support our growth and operational initiatives and replace those who retire or resign. Failure to retain our leadership team and workforce and to 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 Company may be subject to risks relating to organizational changes.

We regularly execute organizational changes such as acquisitions, divestitures and realignments to support our growth and cost management strategies. We also engage in initiatives aimed to increase productivity, efficiencies and cash flow and to reduce costs. The Company commits significant resources to identify, develop and retain key employees to ensure uninterrupted leadership and direction. If we are unable to successfully manage these and other organizational changes, the ability to complete such activities and realize anticipated synergies or cost savings as well as our results of operations and financial condition could be materially adversely affected. We cannot offer assurances that any of these initiatives will be beneficial to the extent

anticipated, or that the estimated efficiency improvements, incremental cost savings or cash flow improvements will be realized as anticipated or at all.

Political conditions in and between the United States and 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 both within and 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 to varying degrees of risks inherent in doing business outside the United States. Such risks include, but are not limited to, the following:

- risks of political or economic instability;
- unanticipated or unfavorable circumstances arising from host country laws or regulations;
- threats of war, terrorism or governmental instability, including the conflict between Russia and Ukraine;
- changes in tax rates, adoption of new tax laws or other additional tax policies, and other proposals to reform United States and foreign tax laws that impact how United States multinational corporations are taxed on foreign earnings;
- 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 other potential changes in trade policies and relations arising from policy initiatives implemented by the U.S. presidential administration;
- 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; and
- government responses to the COVID-19 pandemic.

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. The current U.S. presidential administration has criticized existing trade agreements, and while it remains unclear what actions the current or future administration may take with respect to existing and proposed trade agreements, or restrictions on trade generally, more stringent export and import controls may be ultimately imposed in the future.

Increased information technology threats and more sophisticated and targeted cybercrime could pose a risk to our systems, networks, products, solutions and services.

We have experienced and expect to continue to experience cyber-attacks to our systems and networks. To date, we have not experienced any material breaches or material losses related to cyber-attacks. To conduct our business, we rely extensively on information technology systems, networks and services, some of which are managed, hosted and provided by third-party service providers. Increased global information technology security threats, more sophisticated and targeted computer crime and cyberterrorism pose a risk to the security of our systems and networks and those of our third-party service providers and the confidentiality, availability and integrity of our data. 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. A cyber-attack or other disruption may also result in financial loss, including potential fines for failure to safeguard data or losses in connection with any litigation that may result from a cyber-attack. Our insurance coverage may not be adequate to cover all the costs arising from such events.

We have taken steps and incurred costs to further strengthen the security of our computer systems and continue to assess, maintain and enhance the ongoing effectiveness of our information security systems. 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. The techniques used by criminals to obtain unauthorized access to sensitive data

change frequently and often are not recognizable until launched against a target. Accordingly, we may be unable to anticipate these techniques or implement adequate preventative measures. It is therefore possible that in the future we may suffer a criminal attack, unauthorized parties may gain access to personal information in our possession and we may not be able to identify any such incident in a timely manner.

The interpretation and application of data protection laws, including federal, state and international laws, relating to the collection, use, retention, disclosure, security and transfer of personally identifiable data in the U.S., Europe and elsewhere (including but not limited to the European Union's GDPR, the Brazilian General Data Protection Law and the CCPA), are uncertain and evolving. It is possible that these laws may be interpreted and applied in a manner that is inconsistent with our data practices. In addition, as a result of existing or new data protection requirements, we incur and expect to continue to incur significant ongoing operating costs as part of our significant efforts to protect and safeguard our sensitive data and personal information. These efforts also may divert management and employee attention from other business and growth initiatives. A breach in information privacy could result in legal or reputational risks and could have a negative impact on our revenues and results of operations.

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.

Risks Related to the Execution of Our Strategy

We continually assess the strategic fit of our existing businesses and may divest or otherwise dispose of businesses that are deemed not to fit with our strategic plan or are not achieving the desired return on investment, and we cannot be certain that our business, operating results and financial condition will not be materially and adversely affected.

A successful divestiture depends on various factors, including reaching an agreement with potential buyers on terms we deem attractive, as well as our ability to effectively transfer liabilities, contracts, facilities, and employees to any purchaser, identify and separate the intellectual property to be divested from the intellectual property that we wish to retain, reduce fixed costs previously associated with the divested assets or business, and collect the proceeds from any divestitures. These efforts require varying levels of management resources, which may divert our attention from other business operations. If we do not realize the expected benefits of any divestiture transaction, our consolidated financial position, results of operations and cash flows could be negatively impacted. In addition, divestitures of businesses involve a number of risks, including significant costs and expenses, the loss of customer relationships and a decrease in revenues and earnings associated with the divested business. Furthermore, divestitures potentially involve significant post-closing separation activities, which could involve the expenditure of material financial resources and significant employee resources. Any divestiture may result in a dilutive impact to our future earnings if we are unable to offset the dilutive impact from the loss of revenue associated with the divestiture, as well as significant write-offs, including those related to goodwill and other intangible assets, which could have a material adverse effect on our results of operations and financial condition.

If we fail to develop new products or enhance existing products, or our customers do not accept the new or enhanced 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. 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 or enhanced products or failure to gain market acceptance of new or enhanced products and technologies may reduce future sales and adversely affect our competitive position. We continue to invest in the development and marketing of new or enhanced 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. For example, in November 2022, we completed our acquisition of CyberOptics. 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, including the recent acquisition of CyberOptics, 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 product liabilities or 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.

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.

Risks Related to Legal, Compliance and Regulatory Matters

Changes in United States and international tax laws may have a material adverse effect on our business, financial condition and results of operations.

We are subject to income taxes in the United States and various foreign jurisdictions. Changes in applicable domestic or foreign tax laws and regulations, or their interpretation and application, including the possibility of retroactive effect, could affect our business, financial condition and profitability by increasing our tax liabilities. Our future results of operations could be adversely affected by changes in our effective tax rate as a result of a change in the mix of earnings in jurisdictions with differing statutory tax rates, changes in our overall profitability, changes in tax legislation and rates, changes in generally accepted accounting principles and changes in the valuation of deferred tax assets and liabilities. The U.S. federal government may adopt changes to international trade agreements, tariffs, taxes and other government rules and regulations. While we cannot predict what changes will actually occur with respect to any of these items, such changes could affect our business and results of operations.

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, UK Bribery Act 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.

The level of returns on pension plan assets, changes in the actuarial assumptions used and management of pension liabilities 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 and how the Company manages pension liabilities could lead to variability in financial results and could have a material adverse impact on liquidity.

Our global operations are subject to increasingly complex environmental regulatory requirements, and compliance with evolving environmental regulatory requirements could negatively impact our business, capital expenditures, results of operations, financial condition and competitive position.

We are subject to increasingly complex environmental regulations affecting international manufacturers, including those related to air and water emissions, waste management and climate change. Some environmental laws impose strict, retroactive and joint and several liability for the remediation of the release of hazardous substances, even for conduct that was lawful at the time it occurred, or for the conduct of or conditions caused by prior operators, predecessors or third parties. Failure to comply with environmental laws could expose us to penalties or clean-up costs, civil or criminal liability and sanctions on certain of our activities, as well as damage to property or natural resources. These liabilities, sanctions, damages and remediation efforts related to any non-compliance with such laws and regulations could negatively impact our ability to conduct our operations and our financial condition and results of operations. In addition, there can be no assurances that we will not be adversely affected by costs, liabilities or claims with respect to existing or subsequently acquired operations or under present laws and regulations or those that may be adopted or imposed in the future.

Changes in environmental laws or regulations could result in higher expenses and payments, and uncertainty relating to environmental laws or regulations may also affect how we conduct our operations and structure our investments and could limit our ability to enforce our rights. Changes in environmental and climate change laws or regulations, including laws relating to greenhouse gas emissions, could subject us to additional costs and restrictions, including increased energy and raw material

costs. If environmental laws or regulations are either changed or adopted and impose significant operational restrictions and compliance requirements upon us or our products, they could negatively impact our business, capital expenditures, results of operations, financial condition and competitive position.

It is our policy to apply strict standards for environmental protection to all of our operations within and outside of the United States, even when we are not subject to local government regulations. We may incur substantial costs, including cleanup costs, fines and civil or criminal sanctions, liabilities resulting from third-party property damage or personal injury claims, or our products could be prohibited from entering certain jurisdictions, if we were to violate or become liable under environmental laws, if our products become non-compliant with environmental laws or if we were to undertake environmental protection actions voluntarily.

Expectations relating to environmental, social and governance considerations expose us to potential liabilities, increased costs, reputational harm and other adverse effects on our business.

Many governments, regulators, investors, employees, customers and other stakeholders are increasingly focused on environmental, social and governance considerations relating to businesses, including climate change and greenhouse gas emissions, human capital and diversity, equity and inclusion. We make statements about our environmental, social and governance goals and initiatives through information provided on our website, press statements and other communications, including through our ESG Report. Responding to these environmental, social and governance considerations and implementation of these goals and initiatives involves risks and uncertainties, requires investments and are impacted by factors that may be outside our control. In addition, some stakeholders may disagree with our goals and initiatives and the focus of stakeholders may change and evolve over time. Stakeholders also may have very different views on where environmental, social and governance focus should be placed, including differing views of regulators in various jurisdictions in which we operate. Any failure, or perceived failure, by us to achieve our goals, further our initiatives, adhere to our public statements, comply with federal, state or international environmental, social and governance laws and regulations, or meet evolving and varied stakeholder expectations and standards could result in legal and regulatory proceedings against us and materially adversely affect our business, reputation, results of operations, financial condition and stock price.

Risks Related to Our Capital Structure

Our inability to comply with our existing credit facilities' restrictive covenants or to access additional sources of capital could impede our 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.

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 adversely affect our profitability. As of October 31, 2022, we had \$738,822 of total debt outstanding, of which 35 percent was priced at interest rates that float with the market. A one percentage point increase in the interest rate on the floating rate debt in 2022 would have resulted in approximately \$2,841 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 Part II, Item 7A, Quantitative and Qualitative Disclosures About Market Risk.

General Risk Factors

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 or deny our claims. 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.

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, including any that may be caused by global climate change, such as hurricanes or tornadoes, as well as major earthquakes, wildfires 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.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Our principal owned and leased properties (defined as greater than 20,000 square feet or related to a principal operation) as of October 31, 2022 were as follows:

Location	Description of Property	Approximate Square Feet
United States		
Amherst, Ohio ¹	A manufacturing, laboratory and office complex	521,000
Norwich, Connecticut ²	A manufacturing, laboratory and office building	212,000
Carlsbad, California ³	Three manufacturing and office buildings (leased)	181,000
Duluth, Georgia ¹	A manufacturing, laboratory and office building	176,000
Chippewa Falls, Wisconsin ¹	A manufacturing, warehouse and office building (leased)	145,000
Swainsboro, Georgia ¹	A manufacturing building	136,000
East Providence, Rhode Island ²	A manufacturing, warehouse and office building	116,000
Loveland, Colorado ²	A manufacturing, warehouse and office building	115,000
Salem, New Hampshire ²	Two manufacturing, warehouse and office buildings (leased)	83,000
Minneapolis, Minnesota ²	Two office, laboratory and warehouse buildings (leased)	69,000
Wixom, Michigan ¹	A manufacturing, warehouse and office building (leased)	64,000
Irwindale, California ¹	An office building and lab	48,000
Dayton, Ohio ¹	A manufacturing, warehouse and office building	43,000
Vista, California ³	A manufacturing building (leased)	41,000
Hickory, North Carolina ¹	A manufacturing, warehouse and office building (leased)	41,000
Elk Grove, Illinois ³	A manufacturing, warehouse and office building (leased)	40,000
San Jose, CA ²	A manufacturing, warehouse and office building (leased)	37,000
Westlake, Ohio	Corporate headquarters	28,000
Liberty Lake, Washington ³	A manufacturing, warehouse and office building (leased)	27,000
Chattanooga, Tennessee ²	A manufacturing, warehouse and office building (leased)	25,000
Huntington Beach, California ²	An office, laboratory and warehouse building (leased)	21,000
International		
Münster, Germany ¹	Two manufacturing, warehouse and office buildings (leased)	260,000
Shanghai, China ¹	Seven manufacturing, warehouse, laboratory and office buildings	178,000
Lüneburg, Germany ¹	A manufacturing and laboratory building	129,000
Guaymas, Mexico ²	Two manufacturing, warehouse and office buildings (leased)	89,000
Tokyo, Japan ^{1,2}	Four office, laboratory and warehouse buildings (leased)	76,000
Suzhou, China ³	Two manufacturing, warehouse and office buildings (leased)	75,000
Tecate, Mexico ²	A manufacturing, warehouse and office building (leased)	59,000
Bangalore, India ^{1,2}	An assembly, warehouse and office building	56,000
Maastricht, Netherlands ¹	A manufacturing, warehouse and office building	54,000
Erkrath, Germany ^{1,2}	An office, laboratory and warehouse building (leased)	50,000
Boyle, Ireland ²	A manufacturing, warehouse and office building	47,000
Deurne, Netherlands ¹	A manufacturing, warehouse and office building (leased)	46,000
Aylesbury, U.K. ³	A manufacturing, warehouse and office building (leased)	36,000
Galway, Ireland ²	An office, laboratory and warehouse building (leased)	36,000
Seongnam-City, South Korea ^{1,2}	An office, laboratory and warehouse building (leased)	35,000
Geleen, Limburg ¹	A warehouse and office building	30,000
Sao Paulo, Brazil ¹	An office, laboratory and warehouse building (leased)	23,000
El Marques, Mexico ¹	A warehouse and office building	22,000
Singapore ¹	Two warehouse and office buildings (leased)	22,000
Katzrin, Israel ²	An office, laboratory and warehouse building (leased)	20,000

Business Segment - Property Identification Legend

¹ - Industrial Precision Solutions

² - Medical Fluid Systems

³ - Advanced Technology Solutions

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

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

None.

Item 4. Mine Safety Disclosures

Not applicable.

Information About Our Executive Officers

Our executive officers as of October 31, 2022, were as follows:

Name	Age	Officer Since	Position or Office with The Company and Business Experience During the Past Five (5) Year Period
Sundaram Nagarajan	60	2019	President and Chief Executive Officer, 2019
Joseph P. Kelley	50	2020	Executive Vice President, Chief Financial Officer, 2020
James E. DeVries	63	2012	Executive Vice President, 2012
Stephen P. Lovass	53	2017	Executive Vice President, 2017
Jennifer McDonough	51	2021	Executive Vice President, General Counsel and Secretary, 2021
Shelly M. Peet	57	2007	Executive Vice President, 2009
Jeffrey A. Pembroke	55	2015	Executive Vice President, 2015
Srinivas Subramanian	52	2022	Executive Vice President, 2022

Effective August 1, 2019, Sundaram Nagarajan was appointed President and Chief Executive Officer and as a member of the Board of Directors of the Company. Prior to becoming our President and Chief Executive Officer, Mr. Nagarajan served as Executive Vice President, Automotive OEM Segment, with Illinois Tool Works Inc. (NYSE: ITW), a global manufacturer of a diversified range of industrial products and equipment, since 2015. Prior to that, Mr. Nagarajan served as Executive Vice President, Welding Segment, with Illinois Tool Works from 2010 to 2015. Mr. Nagarajan joined the Board of Directors of Wesco International (NYSE: WCC) in 2022. He previously served as a member of the Board of Directors of Sonoco Products Company (NYSE: SON) from 2015 to 2022.

Effective July 6, 2020, Joseph P. Kelley was appointed as Executive Vice President, Chief Financial Officer of the Company. Mr. Kelley had previously served as Chief Financial Officer of Materion Corporation, (NYSE: MTRN), an advanced materials company, since 2015. Throughout his career, he served in roles of increasing financial responsibility at Materion, Avient Corporation (formerly known as PolyOne Corporation) (NYSE: AVNT), a specialty chemicals company, and Lincoln Electric (Nasdaq: LECO), a global manufacturer.

Effective August 1, 2022, Stephen P. Lovass was named Executive Vice President - Medical and Fluid Solutions. Previously, Mr. Lovass served as Corporate Vice President since November 2016. Prior to joining the Company, Mr. Lovass served as President for one of the global sensors and controls businesses for Danaher Corporation (NYSE: DHR), an international Fortune 200, diversified science and technology company, from 2012 to 2016. Prior to joining Danaher, Mr. Lovass served as a Senior Vice President and Corporate Officer for Gerber Scientific, Inc., an automated systems manufacturer for sign-making, specialty graphics and packaging.

Effective November 1, 2021, Jennifer L. McDonough was named Executive Vice President, General Counsel and Secretary and leads the Company's global legal function in ethics and compliance, intellectual property and other general corporate legal matters. Ms. McDonough brings over 20 years of experience advising companies on wide-ranging, critical corporate initiatives and most recently served as Vice President, Deputy General Counsel and Assistant Secretary at PPL Corporation (NYSE: PPL), a Fortune 500 utility company, where she was responsible to deliver extensive legal counsel and services, including in the areas of general corporate law, mergers and acquisitions, corporate venture capital and investment transactions, securities and finance. Prior to joining PPL in 2017, Ms. McDonough served as Senior Vice President, General Counsel and Secretary at REX Energy Corporation, an independent condensate, NGL and natural gas company, having joined REX Energy in April 2011, and before that as Assistant General Counsel and Assistant Secretary at Kennametal Inc., a global manufacturer and provider of engineered products and solutions (NYSE: KMT), which she joined in May 2005. She began her career as a business and finance attorney with the international law firm Morgan, Lewis and Bockius LLP.

Effective August 1, 2022, Srinivas Subramanian was named Executive Vice President - Advanced Technology Solutions. Previously, Mr. Subramanian served as Vice President of the Electronics Processing Solutions business, having served in various roles of increasing responsibility since joining the Company in 2006.

PART II

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

Market Information and Dividends

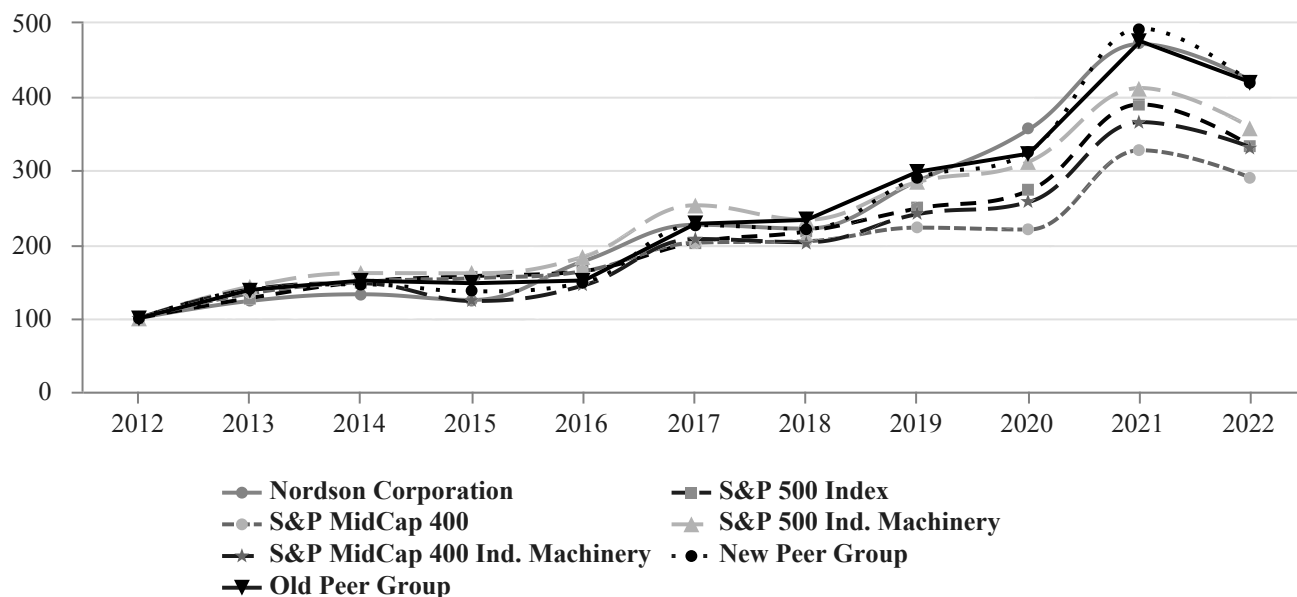
Our common shares are listed on the Nasdaq Global Select Market under the symbol NDSN. As of November 30, 2022, there were 1,185 record shareholders.

While we have historically paid dividends to holders of our common shares 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 graph compares the 10-year cumulative return, calculated on a dividend-reinvested basis, from investing \$100 on November 1, 2012 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 New Peer Group, which includes: AME, B, DCI, ENTG, GGG, GTLS, IEX, ITT, KEYS, LECO, MKSI, NATI, TER, TRMB, WTS and WWD. For 2022, the Company made changes to its peer group to remove Enerpac Tool Group Corp., Albany International Corp., Gardner Denver Holdings, Inc. (fka Ingersoll Rand Inc.) and Roper Technologies, Inc., because each had fallen outside of the parameters used to establish the peer group and to add MKS Instruments, Inc. and Trimble Inc., which fell within such parameters. FLIR Systems, Inc. was also removed from the New Peer Group because it was acquired by Teledyne Technologies Incorporated (NYSE: TDY) and ceased to be an independent public company.

Comparison of 10 Year Cumulative Total Return
Assumes Initial Investment of \$100 on November 1, 2012
Fiscal Year Ending October 31, 2022



Company/Market/Peer Group	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Nordson Corporation	\$ 100.00	\$ 123.28	\$ 132.25	\$ 124.58	\$ 177.43	\$ 226.60	\$ 221.44	\$ 286.25	\$ 356.25	\$ 472.06	\$ 421.83
S&P 500 Index	\$ 100.00	\$ 127.18	\$ 149.14	\$ 156.89	\$ 163.97	\$ 202.72	\$ 217.61	\$ 248.78	\$ 272.94	\$ 390.07	\$ 333.08
S&P MidCap 400	\$ 100.00	\$ 133.48	\$ 149.04	\$ 154.14	\$ 163.78	\$ 202.23	\$ 204.30	\$ 222.72	\$ 220.16	\$ 327.82	\$ 289.99
S&P 500 Ind. Machinery	\$ 100.00	\$ 142.79	\$ 161.02	\$ 160.77	\$ 183.57	\$ 253.08	\$ 233.52	\$ 284.79	\$ 312.37	\$ 412.31	\$ 357.98
S&P MidCap 400 Ind. Machinery	\$ 100.00	\$ 138.84	\$ 147.12	\$ 123.15	\$ 144.53	\$ 207.30	\$ 202.93	\$ 241.15	\$ 257.68	\$ 366.04	\$ 331.62
New Peer Group	\$ 100.00	\$ 138.62	\$ 145.80	\$ 136.18	\$ 148.19	\$ 226.15	\$ 221.17	\$ 290.09	\$ 326.22	\$ 493.24	\$ 418.37
Old Peer Group	\$ 100.00	\$ 138.31	\$ 150.81	\$ 147.25	\$ 151.00	\$ 227.92	\$ 233.26	\$ 298.70	\$ 323.26	\$ 475.86	\$ 419.71

Source: Zack's Investment Research

Common Share Repurchases

<i>(in whole shares)</i>	Total Number of Shares Repurchased ⁽¹⁾	Average Price Paid per Share	Total Number of Shares Repurchased as Part of Publicly Announced Plans or Programs ⁽²⁾	Maximum Value of Shares That May Yet Be Purchased Under the Plans or Programs ⁽²⁾
August 1, 2022 to August 31, 2022	3,156	\$ 224.00	3,027	\$ 160,023
September 1, 2022 to September 30, 2022	66,415	\$ 218.00	66,404	\$ 645,547
October 1, 2022 to October 31, 2022	64,197	\$ 215.01	64,017	\$ 631,782
Total	<u>133,768</u>		<u>133,448</u>	

⁽¹⁾ Includes shares tendered for taxes related to stock option exercises and vesting of restricted stock.

⁽²⁾ In December 2014, the board of directors authorized a \$300,000 common share repurchase program. In August 2015, the board of directors authorized the repurchase of up to an additional \$200,000 of the Company's common shares. In August 2018, the board of directors authorized the repurchase of an additional \$500,000 of the Company's common shares. In September 2022, the board of directors authorized the repurchase of up to an additional \$500,000 of the Company's common shares. Approximately \$631,782 of the total \$1,500,000 authorized remained available for share repurchases at October 31, 2022. Uses for repurchased shares include the funding of benefit programs including stock options and restricted stock. Shares purchased are treated as treasury shares until used for such purposes. The repurchase program will be funded using cash from operations and proceeds from borrowings under our credit facilities. The repurchase program does not have an expiration date.

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 - A contract exists when it has approval and commitment from both parties, the rights of the parties are identified, payment terms are identified, the contract has commercial substance and collectability of the consideration is probable. Revenue is recognized when performance obligations under the terms of the contract with a customer are satisfied. Generally, our revenue results from short-term, fixed-price contracts and is recognized as of a point in time when the product is shipped or at a later point when the control of the product transfers to the customer. Refer to Note 1 to the Consolidated Financial Statements for further discussion regarding the Company's revenue recognition policy.

Business combinations - The acquisitions of our businesses are accounted for under the acquisition method of accounting. The amounts assigned to the identifiable assets acquired and liabilities assumed in connection with acquisitions are based on estimated fair values as of the date of the acquisition, with the remainder, if any, recorded as goodwill. The fair values are determined by management, taking into consideration information supplied by the management of the acquired entities, and other relevant information. Such information typically includes valuations obtained from independent appraisal experts, which management reviews and considers in its estimates of fair values. The valuations are generally based upon future cash flow projections for the acquired assets, discounted to present value. The determination of fair values requires significant judgment by management, particularly with respect to the value of identifiable intangible assets. This judgment could result in either a higher or lower value assigned to amortizable or depreciable assets. The impact could result in either higher or lower amortization and/or depreciation expense.

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.

We test goodwill in accordance with Accounting Standards Codification ("ASC") 350. We did not record any goodwill impairment charges in 2022. We use an independent valuation specialist to assist with refining our assumptions and methods used to determine fair values. To test for goodwill impairment, we estimate the fair value of each of our reporting units using a combination of the Income Approach and the Market Approach. Effective in the fourth quarter of 2022, we realigned our former two operating segments into three: Industrial Precision Solutions, Medical and Fluid Solutions, and Advanced Technology Solutions. Previously, Advanced Technology Solutions was comprised of Medical and Fluid Solutions and the former Advanced Technology Solutions. Our segment change did not have any impact on our reporting units.

The discounted cash flow method (Income Approach) uses assumptions for revenue growth, operating margin and working capital turnover that are based on 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 2022, the WACC rates used ranged from 8.3 percent to 11.0 percent depending upon the reporting unit's size, end market volatility and projection risk. See Note 6 - Goodwill and intangible assets for further details regarding the valuation methodologies used.

In 2022, 2021 and 2020, the results of our annual impairment tests indicated no impairment.

The fair value ("FV") was compared to the carrying value ("CV") for each reporting unit. Based on the results shown in the table below and based on our measurement date of August 1, 2022, our conclusion is that no goodwill was impaired in 2022. Potential events or circumstances, such as a sustained downturn in global economies, could have a negative effect on estimated fair values.

	WACC	Excess of FV over CV	Goodwill
Industrial Precision Solutions Segment - Adhesives	8.3%	619%	\$ 501,082
Industrial Precision Solutions Segment - Industrial Coating Systems	11.0%	745%	\$ 24,083
Advanced Technology Solutions Segment - Electronics Systems	9.5%	497%	\$ 27,110
Advanced Technology Solutions Segment - Test & Inspection	11.0%	354%	\$ 87,248
Medical and Fluid Solutions Segment - Fluid Management	9.5%	237%	\$ 1,713,531

Pension plan in the United States - The measurement of the liabilities related to our domestic pension plan 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 liabilities associated with the Company's international pension plans and OPEB are not as materially sensitive to changes in assumptions as the pension plan in the United States.

The weighted-average discount rate used to determine the present value of our domestic pension plan obligations was 5.70 percent at October 31, 2022 and 3.02 percent at October 31, 2021. The discount rate used was 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 5.75 percent in both 2022 and 2021.

The assumed rate of compensation increases used to determine the present value of our domestic pension plan obligations was 4.30 percent and 4.00 percent at October 31, 2022 and October 31, 2021, respectively.

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	
	1% Point Increase	1% Point Decrease
Discount rate:		
Effect on total net periodic pension cost in 2022	\$ (6,706)	\$ 8,128
Effect on pension obligation as of October 31, 2022	\$ (39,523)	\$ 48,781
Expected return on assets:		
Effect on total net periodic pension cost in 2022	\$ (5,094)	\$ 4,994
Compensation increase:		
Effect on total net periodic pension cost in 2022	\$ 5,654	\$ (4,965)
Effect on pension obligation as of October 31, 2022	\$ 16,488	\$ (14,861)

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.

CyberOptics Acquisition

On November 3, 2022, the Company completed the acquisition of CyberOptics Corporation (“CyberOptics”) pursuant to the terms of the Agreement and Plan of Merger, dated as of August 7, 2022, by and among the Company, Meta Merger Company and CyberOptics. CyberOptics is a leading global developer and manufacturer of high-precision 3D optical sensing technology solutions. The CyberOptics acquisition expanded our test and inspection platform, providing differentiated technology that expands our product offering in the semiconductor and electronics industries and will be reported in our Advanced Technology Solutions segment. The all-cash transaction of approximately \$380,000, net of cash acquired, was funded using our revolving credit facility and is not expected to have a material impact on our Consolidated Financial Statements

Results of Operations

Effective in the fourth quarter of 2022, we realigned and separated our two former operating segments into the following three operating segments: Industrial Precision Solutions, Medical and Fluid Solutions, and Advanced Technology Solutions. Previously, Advanced Technology Solutions was comprised of Medical and Fluid Solutions and the former Advanced Technology Solutions. Existing product lines were unchanged as part of this new structure. We made these changes to realign our management team and our operating segments. We believe this realignment gives us better visibility into our medical and electronics platforms, which have grown significantly through both organic and acquisitive opportunities, including through the recent acquisition of CyberOptics. We also believe that the three revised operating segments better reflect how we now manage the Company, allocate resources and assess performance of the businesses. We also revised our geographic regions, such that the United States and Japan are now included in the Americas and Asia Pacific regions, respectively. As such, our geographical regions as used throughout this annual report include the Americas (United States, Canada, Mexico and Central and South America), Asia Pacific (including Japan) and Europe.

Below is a detailed discussion comparison of our results of operations for the fiscal years ended October 31, 2022 and October 31, 2021 as well as a comparison of sales and segment results for fiscal years October 31, 2021 and October 31, 2020 due to our change in operating segments and geographic regions. For a discussion of other changes from the fiscal year ended October 31, 2021 to the fiscal year ended October 31, 2020, refer to Part II, Item 7, Management’s Discussion and Analysis of Financial Condition and Results of Operations, of our Annual Report on Form 10-K for the fiscal year ended October 31, 2021.

2022 compared to 2021

Worldwide sales for 2022 were \$2,590,278, an increase of 9.7 percent from 2021 sales of \$2,362,209. The increase consisted of a 10.8 percent improvement in organic sales, inclusive of pricing to offset inflation, and a net 3.3 percent increase from acquisitions and divestitures, partially offset by unfavorable currency translation effects that decreased sales by 4.4 percent.

Sales outside the United States accounted for 66.8 percent of total sales in 2022, as compared to 66.6 percent in 2021. On a geographic basis, sales in the Americas region were \$1,096,596, an increase of 13.2 percent from 2021, with sales volume increasing 10.9 percent and a net 2.8 percent increase from acquisitions and divestitures, partially offset by unfavorable currency effect of 0.5 percent. Sales in the Asia Pacific region were \$848,079, an increase of 9.3 percent from 2021, with sales volume increasing 11.0 percent and a net 3.2 percent increase from acquisitions and divestitures, partially offset by unfavorable currency effects of 4.9 percent. Sales in Europe were \$645,603, an increase of 4.6 percent from 2021. The increase in sales

consisted of a 10.7 percent organic sales volume increase and a net 3.9 percent increase from acquisitions and divestitures, partially offset by unfavorable currency effects of 10.0 percent.

Cost of sales were \$1,163,742 in 2022, up 12.1 percent from \$1,038,129 in 2021. Gross profit, expressed as a percentage of sales, decreased to 55.1 percent in 2022 from 56.1 percent in 2021. The 1.0 percentage point decrease in gross margin was driven by the impact of passing through inflationary cost increases, partially offset by a favorable divestiture impact.

Selling and administrative expenses were \$724,176 in 2022, up from \$708,953 in 2021. The 2.1 percent increase was driven by a 5.3 percent first-year effect of an acquisition impact and base business growth of 0.3 percentage points, partially offset by favorable currency translation effects which decreased costs 3.5 percentage points. Selling and administrative expenses as a percentage of sales decreased to 28.0 percent in 2022 from 30.0 percent in 2021. The 2.0 percentage point decrease was due primarily to sales growth leverage.

Operating profit as a percentage of sales increased to 27.1 percent in 2022 compared to 26.0 percent in 2021. The 1.1 percent increase in operating margin was primarily driven by selling and administrative expense leverage due to the 10.8 percent increase in organic sales, partially offset by the impact of passing through inflationary cost increases.

Operating capacity for each of our segments can support fluctuations in order activity without significant changes in operating costs. Operating margins for each segment were unfavorably impacted by a stronger dollar primarily against all major currencies during 2022 as compared to 2021.

Interest expense in 2022 was \$22,413, a decrease of \$3,078, or 12.1 percent, from 2021. The decrease was due to lower average debt levels compared to the prior year. During 2022, the Company recognized non-cash pension settlement charges of \$41,221 related to the purchase of an annuity contract to relieve the Company of certain U.S. pension benefit obligations. Other income in 2022 was \$8,527 compared to other expense of \$17,610 in 2021. Included in other income in 2022 were \$6,270 in net foreign currency gains. Included in the prior year's other expense were pension costs of 9,484 and \$5,926 in foreign currency losses. The decrease in pension cost was principally attributable to decreased amortization of net actuarial losses.

Income tax expense in 2022 was \$136,176, or 21.0 percent of pre-tax income, as compared to \$119,808, or 20.9 percent of pre-tax income in 2021. The income tax provision for 2022 included a tax benefit of \$3,273 due to our share-based payment transactions. Our income tax provision for 2021 included a tax benefit of \$5,982 due to our share-based payment transactions.

Net income was \$513,103, or \$8.81 per diluted share, in 2022, compared to net income of \$454,368, or \$7.74 per diluted share, in 2021. This represented a 12.9 percent increase in net income and a 13.8 percent increase in diluted earnings per share. The increase of \$1.07 per diluted share was primarily driven by sales growth, strong gross margins and selling and administrative expense leverage.

Industrial Precision Solutions

Sales of the Industrial Precision Solutions segment were \$1,337,242 in 2022, an increase of 7.2 percent, from 2021 sales of \$1,246,947. The increase was the result of an organic sales increase of 7.0 percent and a net acquisition / divestiture impact of 6.1 percent, partially offset by unfavorable currency effects of 5.9 percent. Organic sales growth occurred in all product lines, except nonwovens. Sales growth was generally strong across all product lines and in all regions, except for nonwovens which had sales declines in all regions.

Operating profit as a percentage of sales decreased to 32.5 percent in 2022 compared to 33.2 percent in 2021. The 0.7 percentage point decline in operating margin was the result of the impact of passing through inflationary cost increases, partially offset by selling and administrative expense leverage due to the increase in sales.

Medical and Fluid Solutions

Sales of the Medical and Fluid Solutions segment were \$690,177 in 2022, an increase of 7.6 percent from 2021 sales of \$641,654. The increase was the result of an organic sales increase of 9.7 percent partially offset by unfavorable currency effects that decreased sales by 2.1 percent. Sales growth was generally strong across all product lines and in all regions.

Operating profit as a percentage of sales increased to 31.5 percent in 2022 compared to 30.9 percent in 2021. The 0.6 percent percentage point improvement in operating margin was principally driven by greater selling and administrative expense leverage which contributed 1.6 percentage points, principally associated with the sales volume growth, partially offset by the impact of passing through inflationary cost increases.

Advanced Technology Solutions

Sales of the Advanced Technology Solutions segment were \$562,859 in 2022, an increase of 18.8 percent from 2021 sales of \$473,608. The increase was the result of an organic sales increase of 22.4 percent partially offset by unfavorable currency effects that decreased sales by 3.6 percent. Sales growth was strong across all product lines and in all regions.

Operating profit as a percentage of sales increased to 23.7 percent in 2022 compared to 15.5 percent in 2021. The 8.2 percentage point improvement in operating margin was driven by greater selling and administrative expense leverage associated with the sales volume growth.

2021 compared to 2020

Due to the change in our operating segments and geographical regions, the following comparison of our sales and segment results are being provided.

Worldwide sales for 2021 were \$2,362,209, an increase of 11.4 percent from 2020 sales of \$2,121,100. The increase consisted of a 11.3 percent improvement in organic sales volume and favorable currency translation effects, which increased sales by 2.7 percent, partially offset by a net 2.6 percent decrease from acquisitions and divestitures.

On a geographic basis, sales in the Americas region were \$969,110, an increase of 8.0 percent from 2020, with organic sales volume increasing 10.7 percent and a favorable currency effect of 0.4 percent, partially offset by a net 3.0 percent decrease from acquisitions and divestitures. Sales in the Asia Pacific region were \$775,607, an increase of 12.8 percent from 2020, with organic sales volume increasing 11.8 percent and favorable currency effects of 3.3 percent, partially offset by a net 2.3 percent decrease from acquisitions and divestitures. Sales in Europe were \$617,492, an increase of 15.1 percent from 2020. The increase in sales consisted of a 11.4 percent organic sales volume increase and favorable currency effects of 5.7 percent, partially offset by a 2.0 percent decrease from acquisitions and divestitures.

Industrial Precision Solutions

Sales of the Industrial Precision Solutions segment were \$1,246,947 in 2021, an increase of 9.1 percent, from 2020 sales of \$1,143,423. The increase was the result of an organic sales volume increase of 11.7 percent and favorable currency effects that increased sales by 3.4 percent, partially offset by a divestiture impact of 6.0 percent. Growth occurred in all product lines, except nonwovens, and in all regions except for Japan.

Operating profit as a percentage of sales increased to 33.2 percent in 2021 compared to 18.2 percent in 2020. The 15.0 percentage point improvement in operating margin was the result of improved operating results, specifically favorable absorption from higher sales volume and favorable product mix driven by a divestiture, and 2020 operating profit negatively impacted by an assets held for sale impairment charge related to a divestiture.

Medical and Fluid Solutions

Sales of the Medical and Fluid Solutions segment were \$641,654 in 2021, an increase of 13.6 percent from 2020 sales of \$564,899. The increase was the result of an organic sales volume increase of 9.8 percent, a positive acquisition impact of 2.3 percent and favorable currency effects that increased sales by 1.5 percent. Sales growth was generally strong across all product lines and in all regions.

Operating profit as a percentage of sales increased to 30.9 percent in 2021 compared to 26.6 percent in 2020. The 4.3 percentage point improvement in operating margin was principally driven by greater selling and administrative expense leverage associated with the sales volume growth.

Advanced Technology Solutions

Sales of the Advanced Technology Solutions segment were \$473,608 in 2021, an increase of 14.7 percent from 2020 sales of \$412,778. The increase was the result of an organic sales volume increase of 12.4 percent and favorable currency effects that increased sales by 2.3 percent. Sales growth was generally strong across all product lines and in all regions.

Operating profit as a percentage of sales increased to 15.5 percent in 2021 compared to 10.0 percent in 2020. The 5.5 percentage point improvement in operating margin was principally driven by greater selling and administrative expense leverage associated with the sales volume growth and cost simplification actions taken in 2020.

Liquidity and Capital Resources

Cash and cash equivalents decreased \$136,515 in 2022 to \$163,457 as of October 31, 2022 compared to \$299,972 as of October 31, 2021. Approximately 53 percent of our consolidated cash and cash equivalents were held at various foreign subsidiaries as of October 31, 2022. On November 3, 2022, net cash of \$380,000 was used to fund the acquisition of CyberOptics as disclosed in Note 19 to these Consolidated Financial Statements.

Cash provided by operating activities was \$513,131 in 2022, compared to \$545,927 in 2021. The primary sources were net income adjusted for non-cash income and expenses (consisting of depreciation and amortization, non-cash stock compensation, provision for losses on receivables, deferred income taxes, other non-cash expense, gain/loss on sale of property, plant and equipment, and non-cash pension settlement charges), which were \$676,200 in 2022, compared to \$590,607 in 2021. Changes in working capital items used cash of \$107,314 compared to \$29,011 provided in 2021 as increases in receivables and inventory

based on sales growth were partially offset by increases in other liabilities. In addition, cash used for other operating items decreased by \$17,936 in 2022 compared to 2021.

Cash used in investing activities was \$222,761 in 2022, compared to \$33,169 in 2021. In 2022, \$171,613 in cash was used, utilizing cash from operations, for acquisitions compared to \$0 used in 2021. Capital expenditures were \$51,428 in 2022 compared to \$38,303 in 2021.

Cash used in financing activities was \$416,006 in 2022, compared to \$422,913 cash used in 2021. Net repayment of long-term debt and long-term borrowings used \$33,908 of cash in 2022, compared to \$289,416 used in 2021. In 2022, cash of \$262,869 was used for the purchase of treasury shares, up from \$60,970 used in 2021. Dividend payments were \$125,914 in 2022, up from \$97,683 in 2021 due to an increase in dividend on our common shares, on an annual basis, to \$2.18 per share from \$1.69 per share. Issuance of common shares related to employee benefit plans generated \$12,124 of cash in 2022, down from \$31,780 in 2021.

The following is a summary of significant changes by balance sheet caption from October 31, 2021 to October 31, 2022. Receivables-net and inventories-net combined increased \$104,127 due to increased business activity during the year. Goodwill increased \$131,129 due to the acquisition of NDC Technologies. Intangible assets-net decreased \$27,965 primarily due to amortization expense. Pension obligations decreased \$40,033 primarily due to a decrease in discount rates.

We have a \$850,000 unsecured multi-currency revolving credit facility with a group of banks that expires in April 2024. At October 31, 2022 and October 31, 2021, we had no balances outstanding under the revolving credit facility. In connection with the CyberOptics acquisition, we borrowed under the revolving credit facility.

Our operating performance, balance sheet position and financial ratios for 2022 remained strong. Total debt decreased \$78,040 during 2022. The Company is well-positioned to manage liquidity needs that arise from working capital requirements, capital expenditures, and contributions related to pension and postretirement obligations as well as principal and interest payments on our outstanding debt. Primary sources of capital to meet these needs, as well as other opportunistic investments, are a combination of cash provided by operations and borrowings under our loan agreements. Cash from operations, which when combined with our available borrowing capacity and ready access to capital markets, is expected to be more than adequate to fund our liquidity needs over the twelve months and the foreseeable future thereafter. The company believes it has the ability to generate and obtain adequate amounts of cash to meet its long-term needs for cash.

Contractual and Other Material Cash Obligations

The following table summarizes contractual and other material cash obligations as of October 31, 2022:

	Payments Due by Period				
	Total	Less than 1 Year	1-3 Years	4-5 Years	After 5 Years
Debt ⁽¹⁾	\$ 738,822	\$ 392,537	\$ 196,285	\$ 60,000	\$ 90,000
Interest payments on long-term debt ⁽¹⁾	50,846	16,222	19,720	9,214	5,690
Finance lease obligations ⁽²⁾	17,826	4,907	5,439	1,367	6,113
Operating leases ⁽²⁾	117,411	15,738	26,470	21,327	53,876
Contributions related to pension and postretirement benefits ⁽³⁾	6,335	6,335	—	—	—
Purchase obligations ⁽⁴⁾	238,530	232,675	5,855	—	—
Total obligations	<u>\$ 1,169,770</u>	<u>\$ 668,414</u>	<u>\$ 253,769</u>	<u>\$ 91,908</u>	<u>\$ 155,679</u>

(1) Refer to Note 10 to the Consolidated Financial Statements for further discussion.

(2) Refer to Note 11 to the Consolidated Financial Statements for further discussion.

(3) Pension and postretirement plan funding amounts will be determined based on the future funded status of the plans and therefore cannot be estimated at this time. Refer to Note 7 to the Consolidated Financial Statements for further discussion.

(4) 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 such as our credit facilities, including our revolving credit facility, are more than adequate to meet cash requirements for the twelve months and the foreseeable future thereafter. There are no significant restrictions limiting the transfer of funds from international subsidiaries to the parent company.

New Accounting Standards

There have been no new accounting standards issued which would require either disclosure or adoption during the current period by the Company.

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 2022, as compared with 2021, the United States dollar was generally stronger against foreign currencies. If 2021 exchange rates had been in effect during 2022, sales would have been approximately \$103,829 higher and third-party costs would have been approximately \$68,788 higher. In 2021, as compared with 2020, the United States dollar was generally weaker against foreign currencies. If 2020 exchange rates had been in effect during 2021, sales would have been approximately \$55,200 lower and third-party costs would have been approximately \$24,600 lower. These effects on reported sales do not include the impact of local price adjustments made in response to changes in currency exchange rates.

Trends

Our solid historical performance is attributed to our diverse geographic and end market participation 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 annual report, particularly "Management's Discussion and Analysis of Financial Condition and Results of Operations," 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 annual report 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," "could," "hope," "forecast," "management is of the opinion," use of the future tense and similar words or phrases. These statements reflect management's current expectations and involve a number of risks and uncertainties. These risks and uncertainties include, but are not limited to, U.S. and international economic conditions; financial and market conditions; currency exchange rates and devaluations; possible acquisitions including the Company's ability to complete and successfully integrate acquisitions, including the integration of CyberOptics; the Company's ability to successfully divest or dispose of businesses that are deemed not to fit with its strategic plan; the effects of changes in U.S. trade policy and trade agreements; the effects of changes in tax law; and the possible effects of events beyond our control, such as political unrest, including the conflict between Russia and Ukraine, acts of terror, natural disasters and pandemics, including the COVID-19 pandemic.

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 Part 1, Item 1A, Risk Factors of this annual report.

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. We use foreign exchange contracts on a routine basis to help mitigate the risks related to transactions denominated in foreign currencies.

Refer to Note 13 to the Consolidated Financial Statements for further discussion 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.

At October 31, 2022	2023	2024	2025	2026	2027	Thereafter	Total Value	Fair Value
Annual repayments of long-term debt	\$130,643	\$110,643	\$85,642	\$50,000	\$10,000	\$90,000	\$476,928	\$452,879
Average interest rate on total borrowings outstanding during the year	3.7%	3.8%	3.9%	4.0%	4.0%	4.1%	3.7%	
At October 31, 2021	2022	2023	2024	2025	2026	Thereafter	Total Value	Fair Value
Annual repayments of long-term debt	\$30,643	\$130,643	\$110,643	\$85,643	\$50,000	\$100,000	\$507,572	\$549,895
Average interest rate on total borrowings outstanding during the year	3.7%	3.7%	3.8%	3.9%	4.0%	4.0%	3.7%	

We also have variable-rate long-term debt. The weighted average interest rate of this variable-rate debt was 1.74 percent at October 31, 2022 and 0.71 percent at October 31, 2021. A one percent increase in interest rates would have resulted in additional interest expense of approximately \$2,841 on the variable rate long-term debt in 2022.

Item 8. Financial Statements and Supplementary Data

Consolidated Statements of Income

Years ended October 31, 2022, 2021 and 2020

(In thousands except for per-share amounts)

	2022	2021	2020
Sales	\$ 2,590,278	\$ 2,362,209	\$ 2,121,100
Operating costs and expenses:			
Cost of sales	1,163,742	1,038,129	990,632
Selling and administrative expenses	724,176	708,953	693,552
Assets held for sale impairment charge	—	—	87,371
	<u>1,887,918</u>	<u>1,747,082</u>	<u>1,771,555</u>
Operating profit	702,360	615,127	349,545
Other income (expense):			
Interest expense	(22,413)	(25,491)	(32,160)
Interest and investment income	2,026	2,150	1,681
Pension settlement charge for U.S. Plans	(41,221)	—	—
Other - net	8,527	(17,610)	(17,577)
	<u>(53,081)</u>	<u>(40,951)</u>	<u>(48,056)</u>
Income before income taxes	649,279	574,176	301,489
Income tax provision:			
Current	146,908	115,737	65,906
Deferred	(10,732)	4,071	(13,956)
	<u>136,176</u>	<u>119,808</u>	<u>51,950</u>
Net income	\$ 513,103	\$ 454,368	\$ 249,539
Average common shares	57,629	58,091	57,757
Incremental common shares attributable to equity compensation	620	643	716
Average common shares and common share equivalents	58,249	58,734	58,473
Basic earnings per share	\$ 8.90	\$ 7.82	\$ 4.32
Diluted earnings per share	\$ 8.81	\$ 7.74	\$ 4.27
Dividends declared per common share	\$ 2.18	\$ 1.69	\$ 1.53

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

Consolidated Statements of Comprehensive Income

Years ended October 31, 2022, 2021 and 2020

(In thousands)

	2022	2021	2020
Net income	\$ 513,103	\$ 454,368	\$ 249,539
Components of other comprehensive income (loss), net of tax:			
Foreign currency translation adjustments	(126,657)	7,033	12,910
Pension and postretirement benefit plans:			
Prior service (cost) credit arising during the year	—	124	(6)
Net actuarial gain (loss) arising during the year	54,065	25,289	(21,607)
Amortization of prior service cost	(201)	(304)	(232)
Amortization of actuarial loss	7,575	14,954	12,767
Curtailment gain	1,052	—	—
Settlement loss recognized	32,219	3,187	1,931
Total pension and postretirement benefit plans	94,710	43,250	(7,147)
Total other comprehensive income (loss)	(31,947)	50,283	5,763
Total comprehensive income	\$ 481,156	\$ 504,651	\$ 255,302

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

Consolidated Balance Sheets

October 31, 2022 and 2021

(In thousands)

Assets

Current assets:	2022	2021
Cash and cash equivalents	\$ 163,457	\$ 299,972
Receivables - net	537,313	489,389
Inventories - net	383,398	327,195
Prepaid expenses and other current assets	48,803	48,282
Total current assets	1,132,971	1,164,838
Goodwill	1,804,693	1,713,148
Property, plant and equipment - net	353,442	355,565
Intangible assets - net	329,402	357,367
Operating right of use lease assets	102,279	110,851
Deferred income taxes	10,447	11,381
Other assets	87,141	77,811
	\$ 3,820,375	\$ 3,790,961

Liabilities and shareholders' equity

Current liabilities:		
Current maturities of long - term debt	\$ 392,537	\$ 34,188
Accrued liabilities	206,828	201,992
Accounts payable	99,276	91,689
Customer advance payments	92,584	77,868
Income taxes payable	22,333	16,636
Operating lease liability - current	15,738	17,222
Finance lease liability	4,907	5,799
Total current liabilities	834,203	445,394
Long-term debt	345,320	781,709
Operating lease liability - noncurrent	90,768	97,685
Deferred income taxes	110,781	88,467
Postretirement obligations	56,804	82,652
Pension obligations	40,551	80,584
Finance lease liability - noncurrent	11,184	14,944
Other long-term liabilities	36,389	40,396
Shareholders' equity:		
Preferred shares, no par value; 10,000 shares authorized; none issued	—	—
Common shares, no par value; 160,000 shares authorized; 98,023 shares issued at October 31, 2022 and 2021	12,253	12,253
Capital in excess of stated value	626,697	585,334
Retained earnings	3,652,216	3,265,027
Accumulated other comprehensive loss	(207,782)	(175,835)
Common shares in treasury, at cost	(1,789,009)	(1,527,649)
Total shareholders' equity	2,294,375	2,159,130
	\$ 3,820,375	\$ 3,790,961

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

Consolidated Statements of Shareholders' Equity

Years ended October 31, 2022, 2021
and 2020

(In thousands, except for per share
data)

	Common Shares	Additional Paid-in- Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Common Shares in Treasury, at cost	TOTAL
October 31, 2019	\$ 12,253	\$ 483,116	\$ 2,747,650	\$ (231,881)	\$ (1,430,093)	\$ 1,581,045
Shares issued under company stock and employee benefit plans	—	38,712	—	—	12,141	50,853
Stock-based compensation	—	12,856	—	—	—	12,856
Purchase of treasury shares (384,498 shares)	—	—	—	—	(52,614)	(52,614)
Dividends declared (\$1.53 per share)	—	—	(88,347)	—	—	(88,347)
Net income	—	—	249,539	—	—	249,539
Reclassification due to adoption of ASU 2016-02	—	—	(104)	—	—	(104)
Other comprehensive income (loss):						
Foreign currency translation adjustments	—	—	—	12,910	—	12,910
Defined benefit pension and post-retirement plans adjustment	—	—	—	(7,147)	—	(7,147)
October 31, 2020	\$ 12,253	\$ 534,684	\$ 2,908,738	\$ (226,118)	\$ (1,470,566)	\$ 1,758,991
Shares issued under company stock and employee benefit plans	—	27,893	—	—	3,887	31,780
Stock-based compensation	—	22,757	—	—	—	22,757
Purchase of treasury shares (291,253 shares)	—	—	—	—	(60,970)	(60,970)
Dividends declared (\$1.69 per share)	—	—	(97,683)	—	—	(97,683)
Net income	—	—	454,368	—	—	454,368
Impact of adoption of ASU 2016-13	—	—	(396)	—	—	(396)
Other comprehensive income (loss):						
Foreign currency translation adjustments	—	—	—	7,033	—	7,033
Defined benefit pension and post-retirement plans adjustment	—	—	—	43,250	—	43,250
October 31, 2021	\$ 12,253	\$ 585,334	\$ 3,265,027	\$ (175,835)	\$ (1,527,649)	\$ 2,159,130
Shares issued under company stock and employee benefit plans	—	10,615	—	—	1,509	12,124
Stock-based compensation	—	30,748	—	—	—	30,748
Purchase of treasury shares (1,200,546 shares)	—	—	—	—	(262,869)	(262,869)
Dividends declared (\$2.18 per share)	—	—	(125,914)	—	—	(125,914)
Net income	—	—	513,103	—	—	513,103
Other comprehensive income (loss):						
Foreign currency translation adjustments	—	—	—	(126,657)	—	(126,657)
Pension plan settlement adjustment	—	—	—	33,271	—	33,271
Defined benefit pension and post-retirement plans adjustment	—	—	—	61,439	—	61,439
October 31, 2022	\$ 12,253	\$ 626,697	\$ 3,652,216	\$ (207,782)	\$ (1,789,009)	\$ 2,294,375

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

Consolidated Statements of Cash Flows

Years ended October 31, 2022, 2021 and 2020

(In thousands)

Cash flows from operating activities:	2022	2021	2020
Net income	\$ 513,103	\$ 454,368	\$ 249,539
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation	49,098	53,332	56,323
Amortization	50,825	50,551	56,979
Provision for losses on receivables	1,259	32	2,165
Deferred income taxes	(10,732)	4,071	(13,956)
Non-cash stock compensation	30,748	22,757	12,856
Loss (gain) on sale of property, plant and equipment	(581)	589	484
Impairment loss on assets held for sale	—	—	87,371
Pension settlement charge for U.S. Plans	41,221	—	—
Other non-cash	1,259	4,907	3,729
Changes in operating assets and liabilities:			
Receivables	(72,907)	(13,720)	50,098
Inventories	(69,132)	(50,584)	5,785
Prepaid expenses	(1,708)	(5,209)	1,978
Accounts payable	10,671	20,769	(10,673)
Income taxes payable	6,155	8,659	(7,816)
Accrued liabilities	925	32,929	6,360
Customer advance payments	18,682	36,167	(619)
Other	(55,755)	(73,691)	1,818
Net cash provided by operating activities	<u>513,131</u>	<u>545,927</u>	<u>502,421</u>
Cash flows from investing activities:			
Additions to property, plant and equipment	(51,428)	(38,303)	(50,535)
Proceeds from sale of property, plant and equipment	280	163	840
Acquisition of businesses, net of cash acquired	(171,613)	—	(142,414)
Other	—	4,971	(2,000)
Net cash used in investing activities	<u>(222,761)</u>	<u>(33,169)</u>	<u>(194,109)</u>
Cash flows from financing activities:			
Proceeds from long-term debt	63,067	9,414	165,734
Repayment of long-term debt	(96,975)	(298,830)	(319,550)
Repayment of capital lease obligations	(5,439)	(6,624)	(7,605)
Issuance of common shares	12,124	31,780	50,853
Purchase of treasury shares	(262,869)	(60,970)	(52,614)
Dividends paid	(125,914)	(97,683)	(88,347)
Net cash used in financing activities	<u>(416,006)</u>	<u>(422,913)</u>	<u>(251,529)</u>
Effect of exchange rate changes on cash	<u>(10,879)</u>	<u>1,834</u>	<u>346</u>
Increase (decrease) in cash and cash equivalents	<u>(136,515)</u>	<u>91,679</u>	<u>57,129</u>
Cash and cash equivalents at beginning of year	<u>299,972</u>	<u>208,293</u>	<u>151,164</u>
Cash and cash equivalents at end of year	<u>\$ 163,457</u>	<u>\$ 299,972</u>	<u>\$ 208,293</u>

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

Notes to Consolidated Financial Statements

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" or the "Company" mean Nordson Corporation.

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

Note 1 — Significant accounting policies

Consolidation — The consolidated financial statements include the accounts of Nordson Corporation and its 100%-owned and controlled subsidiaries. Investments in affiliates and joint ventures in which our ownership is 50 percent or less or in which we do not have control but have the ability to exercise significant influence, are accounted for under the equity method. All significant intercompany accounts and transactions have been eliminated in consolidation.

Use of estimates — The preparation of financial statements in conformity with generally accepted accounting principles in the United States requires management to make estimates and assumptions that affect the amounts reported in the Consolidated Financial Statements and notes. Actual amounts could differ from these estimates.

Fiscal year — Our fiscal year is November 1 through October 31.

Revenue recognition — A contract exists when it has approval and commitment from both parties, the rights of the parties are identified, payment terms are identified, the contract has commercial substance and collectability of the consideration is probable. Revenue is recognized when performance obligations under the terms of the contract with a customer are satisfied. Generally, our revenue results from short-term, fixed-price contracts and primarily is recognized as of a point in time when the product is shipped or at a later point when the control of the product transfers to the customer. Revenue for undelivered items is deferred and included within Accrued liabilities in our Consolidated Balance Sheets. Revenues deferred as of October 31, 2022 and 2021 were not material.

However, for certain contracts related to the sale of customer-specific products within our Medical and Fluid Solutions segment, revenue is recognized for these contracts over time as we satisfy performance obligations because of the continuous transfer of control to the customer. The continuous transfer of control to the customer occurs as we enhance assets that are customer controlled and we are contractually entitled to payment for work performed to date plus a reasonable margin.

As control transfers over time for these products or services, revenue is recognized based on progress toward completion of the performance obligations. The selection method to measure progress towards completion requires judgment and is based on the nature of the products or services to be provided. We have elected to use the input method – costs incurred for these contracts because it best depicts the transfer of products or services to the customer based on incurring costs on the contract. Under this method, revenues are recorded proportionally as costs are incurred. Contract assets recognized are recorded in Prepaid expenses and other current assets and contract liabilities are recorded in Accrued liabilities in our Consolidated Balance Sheets and were not material at October 31, 2022 or 2021. Revenue recognized over time represented approximately less than ten percent of our overall consolidated revenues at October 31, 2022 or 2021.

Revenue is measured as the amount of consideration we expect to receive in exchange for transferring products or services. Taxes, including sales and value add, that we collect concurrently with revenue-producing activities are excluded from revenue. As a practical expedient, we may exclude the assessment of whether goods or services are performance obligations, if they are immaterial in the context of the contract, and combine these with other performance obligations. While payment terms and conditions vary by contract type, we have determined that our contracts generally do not include a significant financing component. We have elected to apply the practical expedient to treat all shipping and handling costs as fulfillment costs, as a significant portion of these costs are incurred prior to transfer of control to the customer. We have also elected to apply the practical expedient to expense sales commissions as they are incurred, as the amortization period resulting from capitalizing the costs is one year or less. These costs are recorded within Selling, general and administrative expenses in our Consolidated Statements of Income.

We offer assurance-type warranties on our products as well as separately sold warranty contracts. Revenue related to warranty contracts that are sold separately is recognized over the life of the warranty term and is not material. 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; therefore, these items are typically regarded as inconsequential or not material.

We disclose disaggregated revenues by operating segment and geography in accordance with the revenue standard and on the same basis used internally by the chief operating decision maker for evaluating performance of operating segments and for allocating resources. Refer to Note 16 for details on our operating segments.

Notes to Consolidated Financial Statements — (Continued)

Shipping and handling costs — Amounts billed to customers for shipping and handling are recorded as revenue. Shipping and handling expenses are included in cost of sales.

Advertising costs — Advertising costs are expensed as incurred and were \$7,028, \$5,986 and \$7,174 in 2022, 2021 and 2020, respectively.

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 costs are expensed as incurred and were \$63,031, \$59,422 and \$63,591 in 2022, 2021 and 2020, respectively.

Earnings per share — Basic earnings per share are computed based on the weighted-average number of common shares outstanding during each year, while diluted earnings per share are based on the weighted-average number of common shares and common share equivalents outstanding. Common share equivalents consist of shares issuable upon exercise of stock options computed using the treasury stock method, as well as restricted stock and deferred stock-based compensation. Options whose exercise price is higher than the average market price are excluded from the calculation of diluted earnings per share because the effect would be anti-dilutive. Options for 78 common shares were excluded from the diluted earnings per share calculation in 2022 and 46 and 95 options were excluded from the calculation of diluted earnings per share in 2021 and 2020, respectively because their effect would have been anti-dilutive. Under the 2021 Stock Incentive and Award Plan, executive officers and selected other key employees receive common share awards based on corporate performance measures over three-year performance periods. Awards for which performance measures have not been met were excluded from the calculation of diluted earnings per share.

Cash and cash equivalents — Highly liquid instruments with maturities of 90 days or less at date of purchase are considered to be cash equivalents.

Allowance for doubtful accounts — An allowance for doubtful accounts is maintained for estimated losses resulting from the inability of customers to make required payments. The amount of the allowance is determined principally on the basis of past collection experience and known factors regarding specific customers. Accounts are written off against the allowance when it becomes evident that collection will not occur. Credit is extended to customers satisfying pre-defined credit criteria. We believe we have limited concentration of credit risk due to the diversity of our customer base.

Our primary allowance for credit losses is the allowance for doubtful accounts, which is principally determined based on aging of receivables. Receivables are exposed to credit risk based on the customers' ability to pay which is influenced by, among other factors, their financial liquidity. We perform ongoing customer credit evaluation to maintain sufficient allowances for potential credit losses. Our segments perform credit evaluation and monitoring to estimate and manage credit risk through the review of customer information, credit ratings, approval and monitoring of customer credit limits, and assessment of market conditions. We may also require prepayments or bank guarantees from customers to mitigate credit risk. Our receivables are generally short-term in nature with a majority of receivables outstanding less than 90 days. Accounts receivable balances are written-off against the allowance if deemed uncollectible.

Accounts receivable are net of an allowance for credit losses of \$8,218 and \$7,522 at October 31, 2022 and October 31, 2021, respectively. The provision for losses on receivables was \$1,259 for the twelve months ended October 31, 2022 compared to \$32 for the same period a year ago. The remaining change in the allowance for credit losses is principally related to the write-off of uncollectible accounts.

Inventories — Inventories are valued at the lower of cost or net realizable value. Effective in the third quarter of 2022, we changed our accounting method for certain U.S. inventories from a last-in, first-out basis (LIFO) to a first-in, first-out basis (FIFO). Previously, the LIFO method was used to determine the cost of a portion of our inventories in the U.S. We believe this change in accounting method is preferable as it is consistent with how we manage our business, results in a uniform method to value our inventory across all regions of our business, improves comparability with our peers and is expected to better reflect the current value of inventory on the consolidated balance sheets. We applied this accounting change as a cumulative effect adjustment to cost of sales in the third quarter of 2022 and did not restate prior period financial statements because the impact was not material. Cost was determined using the LIFO method for 16 percent of consolidated inventories at October 31, 2021. Consolidated inventories would have been \$4,216 higher than reported at October 31, 2021 had the FIFO method, which approximates current cost, been used for valuation of all inventories.

Property, plant and equipment and depreciation — Property, plant and equipment are carried at cost. Additions and improvements that extend the lives of assets are capitalized, while expenditures for repairs and maintenance are expensed as incurred. Plant and equipment are depreciated for financial reporting purposes using the straight-line method over the estimated

Notes to Consolidated Financial Statements — (Continued)

useful lives of the assets or, in the case of property under finance leases, over the terms of the leases. Leasehold improvements are depreciated over the shorter of the lease term or their useful lives.

Useful lives are as follows:

Land improvements	15-25 years
Buildings	20-40 years
Machinery and equipment	3-18 years
Enterprise management systems	5-13 years

Depreciation expense is included in cost of sales and selling and administrative expenses. Internal use software costs are expensed or capitalized depending on whether they are incurred in the preliminary project stage, application development stage or the post-implementation stage. Amounts capitalized are amortized over the estimated useful lives of the software beginning with the project's completion. All re-engineering costs are expensed as incurred. Interest costs on significant capital projects are capitalized. No interest was capitalized in 2022, 2021 or 2020.

Goodwill and intangible assets — Goodwill is the excess of cost of an acquired entity over the amounts assigned to assets acquired and liabilities assumed in a business combination. Goodwill relates to and is assigned directly to specific reporting units. Goodwill is not amortized but is subject to annual impairment testing. Our annual impairment testing is performed as of August 1. Testing is done more frequently if an event occurs or circumstances change that would indicate the fair value of a reporting unit is less than the carrying amount of those assets.

Other amortizable intangible assets, which consist primarily of patent/technology costs, customer relationships, noncompete agreements and trade names, are amortized over their useful lives on a straight-line basis.

At October 31, 2022, the weighted-average useful lives for each major category of amortizable intangible assets were:

Patent/technology costs	12 years
Customer relationships	14 years
Noncompete agreements	4 years
Trade names	15 years

Foreign currency translation — The financial statements of subsidiaries outside the United States are generally measured using the local currency as the functional currency. Assets and liabilities of these subsidiaries are translated at the rates of exchange at the balance sheet dates. Income and expense items are translated at average monthly rates of exchange. The resulting translation adjustments are included in accumulated other comprehensive income (loss), a separate component of shareholders' equity. Generally, gains and losses from foreign currency transactions, including forward contracts, of these subsidiaries and the United States parent are included in net income. Gains and losses from intercompany foreign currency transactions of a long-term investment nature are included in accumulated other comprehensive income (loss).

Accumulated other comprehensive loss — Accumulated other comprehensive loss at October 31, 2022 and 2021 consisted of:

	Cumulative translation adjustments	Pension and postretirement benefit plan adjustments	Accumulated other comprehensive loss
Balance at October 31, 2021	\$ (33,389)	\$ (142,446)	\$ (175,835)
Pension and postretirement plan changes, net of tax of (\$31,007)	—	94,710	94,710
Currency translation losses	(126,657)	—	(126,657)
Balance at October 31, 2022	<u>\$ (160,046)</u>	<u>\$ (47,736)</u>	<u>\$ (207,782)</u>

Warranties — We offer warranties to our customers depending on the specific product and terms of the customer purchase agreement. A typical warranty program requires that we repair or replace defective products within a specified time period (generally one year) measured from the date of delivery or first use. We record an estimate for future warranty-related costs based on actual historical return rates. Based on analysis of return rates and other factors, the adequacy of our warranty provisions is adjusted as necessary. The liability for warranty costs is included in Accrued liabilities in the Consolidated Balance Sheet.

Notes to Consolidated Financial Statements — (Continued)

Following is a reconciliation of the product warranty liability as of October 31, 2022 and 2021:

	2022	2021
Balance at beginning of year	\$ 11,113	\$ 10,550
Accruals for warranties	17,188	16,011
Warranty payments	(14,609)	(15,475)
Currency adjustments	(1,969)	27
Balance at end of year	<u>\$ 11,723</u>	<u>\$ 11,113</u>

Note 2 — Recently issued accounting standards

There have been no new accounting standards issued that would require either disclosure or adoption for 2022 by the Company.

Note 3 — Acquisitions

Business acquisitions have been accounted for using the acquisition method, with the acquired assets and liabilities recorded at estimated fair value on the dates of acquisition. The cost in excess of the net assets of the business acquired is included in goodwill. Operating results since the respective dates of acquisitions are included in the Consolidated Statement of Income.

2022 acquisition

On November 1, 2021, we acquired 100 percent of NDC Technologies (NDC), a leading global provider of precision measurement solutions for in-line manufacturing process control. NDC's technology portfolio includes in-line measurement sensors, gauges and analyzers using near-infrared, laser, X-ray, optical and nucleonic technologies, as well as proprietary algorithms and software. We acquired NDC for an aggregate purchase price of \$171,613, net of cash of approximately \$7,533 and other working capital adjustments of \$2,763, utilizing cash on hand. Based on the fair value of the assets acquired and the liabilities assumed, goodwill of \$131,129 and identifiable intangible assets of \$31,130 were recorded. The identifiable intangible assets consist primarily of \$10,800 of tradenames (amortized over 13 years), \$10,000 of technology (amortized over 7 years), \$9,500 of customer relationships (amortized over 4 years) and \$830 of non-compete agreements (amortized over 3 years). Goodwill associated with this acquisition of \$72,018 is tax deductible. This acquisition is being reported in our Industrial Precision Solutions segment and the results of NDC are not material to our Consolidated Financial Statements.

2020 acquisitions

On September 1, 2020, we acquired 100 percent of the outstanding shares of vivaMOS Ltd. ("vivaMOS"), a developer and fabricator of high-end large-area complementary metal-oxide-semiconductor ("CMOS") image sensors for a wide range of X-ray applications. We acquired vivaMOS for an aggregate purchase price of \$17,154 net of cash and other closing adjustments of approximately \$158, utilizing cash on hand. Based on the fair value of the assets acquired and the liabilities assumed, goodwill of \$14,394 and identifiable intangible assets of \$4,040 were recorded. The identifiable intangible assets consist primarily of \$3,900 of technology (amortized over 10 years) and \$140 of non-compete agreements (amortized over 3 years). Goodwill associated with this acquisition was not tax deductible. This acquisition is being reported in our Advanced Technology Solutions segment and the results of vivaMOS were not material to our Consolidated Financial Statements.

On June 1, 2020, we acquired 100 percent of the outstanding shares of Fluortek, Inc. ("Fluortek"), a precision plastic extrusion manufacturer that provides custom dimensioned tubing to the medical device industry. We acquired Fluortek for an aggregate purchase price of \$125,260, net of cash and other closing adjustments of approximately \$515, utilizing cash on hand. Based on the fair value of the assets acquired and the liabilities assumed, property, plant and equipment and working capital – net of \$19,843, goodwill of \$76,047 and identifiable intangible assets of \$29,370 were recorded. The identifiable intangible assets consist primarily of \$19,700 of customer relationships (amortized over 12 years), \$7,400 of technology (amortized over 10 years), \$1,500 of tradenames (amortized over 10 years) and \$770 of non-compete agreements (amortized over 5 years). Goodwill associated with this acquisition was tax deductible. This acquisition is being reported in our Medical and Fluid Solutions segment and the results for Fluortek were not material to the our Consolidated Financial Statements.

Notes to Consolidated Financial Statements — (Continued)

Note 4 — Divestiture

In the fourth quarter of 2020, we committed to a plan to sell our screws and barrels product line within our Industrial Precision Solutions operating segment and determined the criteria to be classified as held for sale were met. We entered into a letter of intent to sell the screws and barrels product line in October 2020, and in December 2020, we entered into a definitive agreement with the buyer. The assets and liabilities were presented as held for sale in the Condensed Consolidated Balance Sheets and measured at the lower of carrying value or fair value less cost to sell from October 31, 2020 until the transaction was completed on February 1, 2021. Before measuring the fair value less costs to sell of the disposal group as a whole, we first reviewed individual assets and liabilities to determine if any fair value adjustments were required and concluded no individual asset impairments were required. Then, based on the definitive agreement entered into by us and the buyer, we determined the fair value of the disposal group to be equal to the selling price, less costs to sell. Based on this review, we recorded a non-cash, assets held for sale impairment charge of \$87,371 in 2020. Excluding the non-cash, assets held for sale impairment charge recorded in the fourth quarter of 2020, the operating results of the screws and barrels product line were not material to our Consolidated Financial Statements for any period presented. There were no significant adjustments in 2021 to the loss recognized in 2020.

Note 5 — Details of Consolidated Balance Sheet

	<u>2022</u>	<u>2021</u>
Receivables:		
Accounts	\$ 510,300	\$ 479,594
Notes	417	2,504
Other	34,814	14,843
	<u>545,531</u>	<u>496,941</u>
Allowance for doubtful accounts	(8,218)	(7,552)
	<u>\$ 537,313</u>	<u>\$ 489,389</u>
Inventories:		
Finished goods	\$ 218,491	\$ 211,628
Raw materials and component parts	157,447	111,089
Work-in-process	53,195	54,557
	<u>429,133</u>	<u>377,274</u>
Obsolescence and other reserves	(45,735)	(50,079)
	<u>\$ 383,398</u>	<u>\$ 327,195</u>
Property, plant and equipment:		
Land	\$ 9,278	\$ 9,238
Land improvements	4,979	4,786
Buildings	271,450	263,399
Machinery and equipment	505,343	491,180
Enterprise management system	52,513	50,532
Construction-in-progress	31,466	32,719
Leased property under finance leases	27,512	37,506
	<u>902,541</u>	<u>889,360</u>
Accumulated depreciation and amortization	(549,099)	(533,795)
	<u>\$ 353,442</u>	<u>\$ 355,565</u>
Accrued liabilities:		
Salaries and other compensation	\$ 81,181	\$ 87,066
Taxes other than income taxes	14,869	13,095
Warranty	11,723	11,113
Interest	6,018	6,262
Pension and retirement	4,456	5,622
Customer commissions	3,526	10,460
Other	85,055	68,374
	<u>\$ 206,828</u>	<u>\$ 201,992</u>

Note 6 — Goodwill and intangible assets

We account for goodwill and other intangible assets in accordance with the provisions of ASC 350 and account for business combinations using the acquisition method of accounting and accordingly, the assets and liabilities of the entities acquired are recorded at their estimated fair values at the acquisition date. 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 subject to annual impairment testing. Our annual impairment testing is performed as of August 1. Testing is done more frequently if an event occurs or circumstances change that would indicate the fair value of a reporting unit is less than the carrying amount of those assets. We assess the fair value of reporting units on a non-recurring basis using a quantitative analysis that uses 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. The implied fair value of our reporting units is determined based on significant unobservable inputs, as discussed below; accordingly, these inputs fall within Level 3 of the fair value hierarchy. The discounted cash flow method (Income Approach) uses assumptions for revenue growth, operating margin and working capital turnover that are based on 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.

In the application of the guideline public company method (Market Approach), 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 Earnings Before Interest, Taxes, Depreciation and Amortization (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 consideration of both the Income and Market approaches.

An impairment charge is recorded for the amount by which the carrying value of the reporting unit exceeds the fair value of the reporting unit, as calculated in the quantitative analysis described above. Based on our annual impairment tests in 2022, 2021 and 2020, the fair value of each reporting unit exceeded its carrying value, and accordingly, we did not record any goodwill impairment charges in 2022, 2021 or 2020.

Effective in the fourth quarter of 2022, we realigned our former two operating segments into three: Industrial Precision Solutions, Medical and Fluid Solutions, and Advanced Technology Solutions. Previously, Advanced Technology Solutions was comprised of Medical and Fluid Solutions and the former Advanced Technology Solutions. Our segment change did not have any impact on our reporting units.

Our reporting units include components of the Industrial Precision Solutions, Medical and Fluid Solutions, and the Advanced Technology Solutions segments. Changes in the carrying amount of goodwill during 2022 by operating segment:

	Industrial Precision Solutions	Medical Fluid Systems	Advanced Technology Systems	Total
Balance at October 31, 2021	\$ 415,020	\$ 1,176,149	\$ 121,979	\$ 1,713,148
Acquisitions	131,129	—	—	131,129
Currency effect	(25,913)	(4,080)	(9,591)	(39,584)
Balance at October 31, 2022	<u>\$ 520,236</u>	<u>\$ 1,172,069</u>	<u>\$ 112,388</u>	<u>\$ 1,804,693</u>

The increase in goodwill for 2022 was due to the acquisition of NDC. See Note 3 for additional details.

Notes to Consolidated Financial Statements — (Continued)

Changes in the carrying amount of goodwill during 2021 by operating segment:

	Industrial Precision Solutions	Medical Fluid Systems	Advanced Technology Systems	Total
Balance at October 31, 2020	\$ 415,862	\$ 1,175,972	\$ 121,520	\$ 1,713,354
Currency effect	(842)	177	459	(206)
Balance at October 31, 2021	<u>\$ 415,020</u>	<u>\$ 1,176,149</u>	<u>\$ 121,979</u>	<u>\$ 1,713,148</u>

Accumulated impairment losses, which were recorded in 2009, were \$232,789 of which \$229,173 related to the Advanced Technology Solutions segment and \$3,616 related to the Industrial Precision Solutions segment.

Information regarding intangible assets subject to amortization:

	October 31, 2022		
	Carrying Amount	Accumulated Amortization	Net Book Value
Customer relationships	\$ 480,058	\$ 250,798	\$ 229,260
Patent/technology costs	157,549	96,426	61,123
Trade names	82,759	44,707	38,052
Noncompete agreements	10,253	9,290	963
Other	446	442	4
Total	<u>\$ 731,065</u>	<u>\$ 401,663</u>	<u>\$ 329,402</u>

	October 31, 2021		
	Carrying Amount	Accumulated Amortization	Net Book Value
Customer relationships	\$ 483,815	\$ 226,658	\$ 257,157
Patent/technology costs	154,267	89,299	64,968
Trade names	74,301	39,858	34,443
Noncompete agreements	9,896	9,099	797
Other	1,385	1,383	2
Total	<u>\$ 723,664</u>	<u>\$ 366,297</u>	<u>\$ 357,367</u>

Amortization expense for 2022, 2021 and 2020 was \$50,825, \$50,551 and \$56,979, respectively. See Note 3 for details regarding intangibles recorded due to the acquisition of NDC.

Estimated amortization expense for each of the five succeeding years:

Year	Amounts
2023	\$ 49,169
2024	46,532
2025	42,685
2026	38,625
2027	34,878

Note 7 — Retirement, pension and other postretirement plans

Retirement plans — We have funded contributory retirement plans covering certain employees. Our contributions are primarily determined by the terms of the plans, subject to the limitation that they shall not exceed the amounts deductible for income tax purposes. We also sponsor unfunded contributory supplemental retirement plans for certain employees. Generally, benefits under these plans vest gradually over a period of approximately three years from date of employment, and are based on the employee's contribution. The expense applicable to retirement plans for 2022, 2021 and 2020 was approximately \$26,635, \$22,983 and \$20,265, respectively.

Pension plans — We have various pension plans covering a portion of our United States and international employees. Pension plan benefits are generally based on years of employment and, for salaried employees, the level of compensation. Actuarially determined amounts are contributed to United States plans to provide sufficient assets to meet future benefit payment

Notes to Consolidated Financial Statements — (Continued)

requirements. We also sponsor an unfunded supplemental pension plan for certain employees. International subsidiaries fund their pension plans according to local requirements.

During the second quarter of 2022, we completed a partial plan settlement transaction in regards to two of our U.S. pension plans in which plan assets amounting to \$171,181 were used to purchase a group annuity contract from The Prudential Insurance Company of America (Prudential). The settlement resulted in a loss of \$41,221, which is included in Pension settlement charge for U.S. Plans on the Consolidated Statements of Income. This transaction relieved the Company of its responsibility for the pension obligation related to certain retired employees and transferred the obligation and payment responsibility to Prudential for retirement benefits owed to approximately 1,500 retirees and other beneficiaries. The annuity contract covered retirees who commenced receiving benefits on or before November 1, 2021. The monthly retirement benefit payment amounts currently received by retirees and their beneficiaries did not change as a result of this transaction. Plan participants not included in the transaction remain in the plans and responsibility for payment of the retirement benefits remains with the Company.

A reconciliation of the benefit obligations, plan assets, accrued benefit cost and the amount recognized in financial statements for pension plans is as follows:

	United States		International	
	2022	2021	2022	2021
Change in benefit obligation:				
Benefit obligation at beginning of year	\$ 627,271	\$ 615,768	\$ 106,049	\$ 104,849
Service cost	16,820	22,555	1,693	2,120
Interest cost	14,486	13,652	1,105	887
Participant contributions	—	—	72	80
Amendments	—	—	—	15
Settlements	(171,181)	(9,016)	(1,446)	(714)
Curtailments	(2,715)	(2,436)	(705)	—
Foreign currency exchange rate change	—	—	(14,291)	1,024
Actuarial (gain) loss	(165,697)	4,561	(29,414)	(121)
Benefits paid	(15,464)	(17,813)	(2,183)	(2,091)
Benefit obligation at end of year	<u>\$ 303,520</u>	<u>\$ 627,271</u>	<u>\$ 60,880</u>	<u>\$ 106,049</u>
Change in plan assets:				
Beginning fair value of plan assets	\$ 639,589	\$ 510,250	\$ 47,274	\$ 45,476
Actual return on plan assets	(121,912)	62,063	301	243
Company contributions	2,819	94,105	2,381	3,318
Participant contributions	—	—	72	80
Settlements	(171,181)	(9,016)	(1,446)	(714)
Foreign currency exchange rate change	—	—	(8,083)	962
Benefits paid	(15,464)	(17,813)	(2,183)	(2,091)
Ending fair value of plan assets	<u>\$ 333,851</u>	<u>\$ 639,589</u>	<u>\$ 38,316</u>	<u>\$ 47,274</u>
Funded status at end of year	<u>\$ 30,331</u>	<u>\$ 12,318</u>	<u>\$ (22,564)</u>	<u>\$ (58,775)</u>
Amounts recognized in financial statements:				
Noncurrent asset	\$ 41,548	\$ 30,840	\$ 7,588	\$ 4,086
Accrued benefit liability	(813)	(799)	(5)	—
Long-term pension obligations	(10,404)	(17,723)	(30,147)	(62,861)
Total amount recognized in financial statements	<u>\$ 30,331</u>	<u>\$ 12,318</u>	<u>\$ (22,564)</u>	<u>\$ (58,775)</u>

Notes to Consolidated Financial Statements — (Continued)

The net actuarial gain included in the projected benefit obligation for the United States pension plans for 2022 was primarily due to higher discount rates partially offset by an increase in the compensation increase assumption. The net actuarial loss included in the projected benefit obligation for the United States pension plans for 2021 was primarily due to updated census data partially offset by gains due to changes in the discount rates.

Amounts recognized in accumulated other comprehensive (gain) loss:

	United States		International	
	2022	2021	2022	2021
Net actuarial loss (gain)	\$ 74,293	\$ 142,070	\$ (2,280)	\$ 30,544
Prior service cost (credit)	—	48	(133)	(1,808)
Accumulated other comprehensive loss (income)	\$ 74,293	\$ 142,118	\$ (2,413)	\$ 28,736

The following table summarizes the changes in accumulated other comprehensive loss (income):

	United States		International	
	2022	2021	2022	2021
Balance at beginning of year	\$ 142,118	\$ 192,577	\$ 28,736	\$ 29,960
Net (gain) loss arising during the year	(16,010)	(29,091)	(28,234)	1,220
Prior service cost arising during the year	—	—	—	15
Net gain recognized during the year	(7,504)	(14,885)	(2,278)	(3,144)
Prior service adjustment recognized during the year	(48)	64	104	303
Settlement (gain) loss	(41,548)	(4,111)	29	(32)
Curtailement (gain) loss	(2,715)	(2,436)	1,406	—
Exchange rate effect during the year	—	—	(2,176)	414
Balance at end of year	\$ 74,293	\$ 142,118	\$ (2,413)	\$ 28,736

Information regarding the funded status of the Company's plans is as follows:

	United States		International	
	2022	2021	2022	2021
For plans with accumulated benefit obligation in excess of plan assets:				
Accumulated benefit obligation	\$ 10,555	\$ 16,182	\$ 32,514	\$ 85,559
Fair value of plan assets	—	—	4,724	32,306
For plans with projected benefit obligation in excess of plan assets:				
Projected benefit obligation	11,217	18,522	34,931	95,221
Fair value of plan assets	—	—	4,778	32,360

Net periodic pension costs include the following components:

	United States			International		
	2022	2021	2020	2022	2021	2020
Service cost	\$ 16,820	\$ 22,555	\$ 20,635	\$ 1,693	\$ 2,120	\$ 2,099
Interest cost	14,486	13,652	15,824	1,105	887	1,025
Expected return on plan assets	(27,776)	(28,410)	(24,667)	(1,430)	(1,585)	(1,273)
Amortization of prior service credit	48	(64)	(84)	(104)	(303)	(290)
Amortization of net actuarial loss	7,504	14,885	14,032	2,278	3,144	2,972
Settlement loss (gain)	41,548	4,111	2,508	(29)	32	—
Curtailement gain	—	—	—	(2,112)	—	—
Total benefit cost	\$ 52,630	\$ 26,729	\$ 28,248	\$ 1,401	\$ 4,295	\$ 4,533

Notes to Consolidated Financial Statements — (Continued)

Net periodic pension cost for 2022, 2021 and 2020 also included settlement losses of \$298, \$4,143 and \$2,508, respectively, due to lump sum retirement payments. Net periodic pension cost for 2022 included a curtailment gain of \$2,112 due to the freeze of an international defined benefit plan.

The components of net periodic pension cost other than service cost are included in Pension settlement charge for U.S. Plans and Other – net in our Consolidated Statements of Income.

The weighted average assumptions used in the valuation of pension benefits were as follows:

	United States			International		
	2022	2021	2020	2022	2021	2020
Assumptions used to determine benefit obligations at October 31:						
Discount rate	5.70 %	3.02 %	2.85 %	3.78 %	1.30 %	1.01 %
Rate of compensation increase	4.30	4.00	4.00	3.44	2.90	2.69
Assumptions used to determine net benefit costs for the years ended October 31:						
Discount rate - benefit obligation	3.02	2.85	3.25	1.30	1.01	1.26
Discount rate - service cost	3.42	3.30	3.56	1.14	0.93	1.12
Discount rate - interest cost	2.35	2.10	2.78	1.37	0.80	1.05
Expected return on plan assets	5.75	5.75	5.75	3.29	3.31	3.22
Rate of compensation increase	4.00	4.00	4.00	2.90	2.69	3.12

The amortization of prior service cost is determined using a straight-line amortization of the cost over the average remaining service period of employees expected to receive benefits under the plans.

The discount rate reflects the current rate at which pension liabilities could be effectively settled at the end of the year. The discount rate used considers a yield derived from matching projected pension payments with maturities of a portfolio of available bonds that receive the highest rating given from a recognized investments ratings agency. The changes in the discount rates in 2022, 2021 and 2020 are due to changes in yields for these types of investments as a result of the economic environment.

In determining the expected return on plan assets using the calculated value of 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 other professionals in developing appropriate return assumptions. The rate of compensation increase is based on management's estimates using historical experience and expected increases in rates.

The international plans include a cash balance plan with promised interest crediting rates. The weighted average crediting rates were 0.60%, 0.50% and 0.40% for 2022, 2021 and 2020, respectively.

Net actuarial gains or losses are amortized to expense on a plan-by-plan basis when exceeding the accounting corridor, which is set at 10 percent of the greater of the plan assets or benefit obligations. Gains or losses within the corridor remain in other comprehensive income and are retested in subsequent measurements. Gains or losses outside of the corridor are subject to amortization over an average employee future service period that differs by plan. If substantially all of the plan's participants are no longer actively accruing benefits, the average life expectancy is used.

The allocation of pension plan assets as of October 31, 2022 and 2021 is as follows:

Asset Category	United States		International	
	2022	2021	2022	2021
Equity securities	3 %	13 %	— %	— %
Debt securities	42	46	—	—
Insurance contracts	—	—	47	51
Pooled investment funds	54	41	51	48
Other	1	—	2	1
Total	100 %	100 %	100 %	100 %

Our investment objective for defined benefit plan assets is to meet the plans' benefit obligations, while minimizing the potential for future required plan contributions.

Notes to Consolidated Financial Statements — (Continued)

Our United States plans comprise 90 percent of the Company's worldwide pension assets. In general, the investment strategies focus on asset class diversification, liquidity to meet benefit payments and an appropriate balance of long-term investment return and risk. Target ranges for asset allocations are determined by dynamically matching the actuarial projections of the plans' future liabilities and benefit payments with expected long-term rates of return on the assets, taking into account investment return volatility and correlations across asset classes. For 2022, the target in "return-seeking assets" is 30 percent and 70 percent in longer duration fixed income assets. Plan assets are diversified across multiple investment managers and are invested in liquid funds that are selected to track broad market indices. Investment risk is carefully controlled with plan assets rebalanced to target allocations on a periodic basis and continual monitoring of investment managers' performance relative to the guidelines established with each investment manager.

Our international plans comprise 10 percent of the Company's worldwide pension assets. Asset allocations are developed on a country-specific basis. Our investment strategy is to cover pension obligations with insurance contracts or to employ independent managers to invest the assets.

The fair values of our pension plan assets at October 31, 2022 by asset category are in the table below:

	United States				International			
	Total	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3
Cash	\$ 381	\$ 381	\$ —	\$ —	\$ 775	\$ 775	\$ —	\$ —
Money market funds	155	155	—	—	—	—	—	—
Equity securities:								
Basic materials	719	719	—	—	—	—	—	—
Consumer goods	1,802	1,802	—	—	—	—	—	—
Financial	1,489	1,489	—	—	—	—	—	—
Healthcare	1,801	1,801	—	—	—	—	—	—
Industrial goods	1,713	1,713	—	—	—	—	—	—
Technology	1,569	1,569	—	—	—	—	—	—
Fixed income securities:								
U.S. Government	29,252	328	28,924	—	—	—	—	—
Corporate	109,433	—	109,433	—	—	—	—	—
Other	2,964	—	2,964	—	—	—	—	—
Other types of investments:								
Insurance contracts	—	—	—	—	18,066	—	—	18,066
Other	1,474	1,474	—	—	—	—	—	—
Total investments in the fair value hierarchy	<u>\$152,752</u>	<u>\$11,431</u>	<u>\$141,321</u>	<u>\$ —</u>	<u>\$ 18,841</u>	<u>\$ 775</u>	<u>\$ —</u>	<u>\$18,066</u>
Investments measured at Net Asset Value:								
Real estate collective funds	51,961				—			
Pooled investment funds	129,138				19,475			
Total Investments at Fair Value	<u>\$333,851</u>				<u>\$ 38,316</u>			

Notes to Consolidated Financial Statements — (Continued)

The fair values of our pension plan assets at October 31, 2021 by asset category are in the table below:

	United States				International			
	Total	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3
Cash	\$ 1,467	\$ 1,467	\$ —	\$ —	\$ 519	\$ 519	\$ —	\$ —
Money market funds	4,495	4,495	—	—	—	—	—	—
Equity securities:								
Basic materials	2,038	2,038	—	—	—	—	—	—
Consumer goods	4,360	4,360	—	—	—	—	—	—
Financial	3,753	3,753	—	—	—	—	—	—
Healthcare	4,864	4,864	—	—	—	—	—	—
Industrial goods	3,640	3,640	—	—	—	—	—	—
Technology	5,080	5,080	—	—	—	—	—	—
Mutual funds	52,319	52,319	—	—	—	—	—	—
Fixed income securities:								
U.S. Government	89,614	4,024	85,590	—	—	—	—	—
Corporate	194,793	—	194,793	—	—	—	—	—
Other	9,619	—	9,619	—	—	—	—	—
Other types of investments:								
Insurance contracts	—	—	—	—	23,993	—	—	23,993
Other	1,494	1,494	—	—	—	—	—	—
Total investments in the fair value hierarchy	<u>\$377,536</u>	<u>\$87,534</u>	<u>\$290,002</u>	<u>\$ —</u>	<u>\$ 24,512</u>	<u>\$ 519</u>	<u>\$ —</u>	<u>\$23,993</u>
Investments measured at Net Asset Value:								
Real estate collective funds	44,056				—			
Pooled investment funds	217,997				22,762			
Total Investments at Fair Value	<u>\$639,589</u>				<u>\$ 47,274</u>			

These investment funds did not own a significant number of Nordson Corporation common shares for any year presented.

The inputs and methodology used to measure fair value of plan assets are consistent with those described in Note 12. Following are the valuation methodologies used to measure these assets:

- **Money market funds** - Money market funds are public investment vehicles that are valued with a net asset value of one dollar. This is a quoted price in an active market and is classified as Level 1.
- **Equity securities** - Common stocks and mutual funds are valued at the closing price reported on the active market on which the individual securities are traded and are classified as Level 1.
- **Fixed income securities** - U.S. Treasury bills reflect the closing price on the active market in which the securities are traded and are classified as Level 1. Securities of U.S. agencies are valued using bid evaluations and are classified as Level 2. Corporate fixed income securities are valued using evaluated prices, such as dealer quotes, bids and offers and are therefore classified as Level 2.
- **Insurance contracts** - Insurance contracts are investments with various insurance companies. The contract value represents the best estimate of fair value. These contracts do not hold any specific assets. These investments are classified as Level 3.
- **Real estate collective funds** – These funds are valued using the net asset value of the underlying properties. Net asset value is calculated using a combination of key inputs, such as revenue and expense growth rates, terminal capitalization rates and discount rates.
- **Pooled investment funds** - These are public investment vehicles valued using the net asset value. The net asset value is based on the value of the assets owned by the plan, less liabilities. These investments are not quoted on an active exchange.

Notes to Consolidated Financial Statements — (Continued)

The following tables present an analysis of changes during the years ended October 31, 2022 and 2021 in Level 3 plan assets, by plan asset class, for U.S. and international pension plans using significant unobservable inputs to measure fair value:

	Fair Value Measurements Using Significant Unobservable Inputs (Level 3)	
	Insurance contracts	
Beginning balance at October 31, 2021	\$	23,993
Actual return on plan assets:		
Purchases		1,525
Sales		(1,519)
Settlements		(1,446)
Unrealized losses		(254)
Foreign currency translation		(4,233)
Ending balance at October 31, 2022	<u>\$</u>	<u>18,066</u>
	Fair Value Measurements Using Significant Unobservable Inputs (Level 3)	
	Insurance contracts	
Beginning balance at October 31, 2020	\$	24,496
Actual return on plan assets:		
Purchases		1,441
Sales		(541)
Settlements		(714)
Unrealized losses		(440)
Foreign currency translation		(249)
Ending balance at October 31, 2021	<u>\$</u>	<u>23,993</u>

Contributions to pension plans in 2022 are estimated to be approximately \$3,105.

Retiree pension benefit payments, which include expected future service, are anticipated to be paid as follows:

Year	United States	International
2023	\$ 6,925	\$ 2,425
2024	8,728	2,790
2025	10,834	3,466
2026	12,863	4,060
2027	14,835	2,783
2026-2030	103,524	17,257

Other postretirement plans - We sponsor an unfunded postretirement health care benefit plan covering certain of our United States employees. Employees hired after January 1, 2002, are not eligible to participate in this plan. For eligible retirees under the age of 65 who enroll in the plan, the plan is contributory in nature, with retiree contributions in the form of premiums that are adjusted annually. For eligible retirees age 65 and older who enroll in the plan, the plan delivers a benefit in the form of a Health Reimbursement Account (HRA), which retirees use for eligible reimbursable expenses, including premiums paid for purchase of a Medicare supplement plan or other out-of-pocket medical expenses such as deductibles or co-pays.

Notes to Consolidated Financial Statements — (Continued)

A reconciliation of the benefit obligations, accrued benefit cost and the amount recognized in financial statements for other postretirement plans is as follows:

	United States		International	
	2022	2021	2022	2021
Change in benefit obligation:				
Benefit obligation at beginning of year	\$ 85,290	\$ 87,645	\$ 416	\$ 445
Service cost	687	778	12	15
Interest cost	1,923	1,805	12	12
Participant contributions	687	722	—	—
Foreign currency exchange rate change	—	—	(37)	33
Actuarial gain	(25,513)	(2,799)	(215)	(83)
Benefits paid	(3,223)	(2,861)	(5)	(6)
Benefit obligation at end of year	<u>\$ 59,851</u>	<u>\$ 85,290</u>	<u>\$ 183</u>	<u>\$ 416</u>
Change in plan assets:				
Beginning fair value of plan assets	\$ —	\$ —	\$ —	\$ —
Company contributions	2,536	2,139	5	6
Participant contributions	687	722	—	—
Benefits paid	(3,223)	(2,861)	(5)	(6)
Ending fair value of plan assets	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>
Funded status at end of year	<u>\$ (59,851)</u>	<u>\$ (85,290)</u>	<u>\$ (183)</u>	<u>\$ (416)</u>
Amounts recognized in financial statements:				
Accrued benefit liability	\$ (3,224)	\$ (3,048)	\$ (6)	\$ (6)
Long-term postretirement obligations	(56,627)	(82,242)	(177)	(410)
Total amount recognized in financial statements	<u>\$ (59,851)</u>	<u>\$ (85,290)</u>	<u>\$ (183)</u>	<u>\$ (416)</u>

	United States		International	
	2022	2021	2022	2021
Amounts recognized in accumulated other comprehensive (gain) loss:				
Net actuarial (gain) loss	\$ (5,035)	\$ 21,456	\$ (661)	\$ (543)
Accumulated other comprehensive (gain) loss	<u>\$ (5,035)</u>	<u>\$ 21,456</u>	<u>\$ (661)</u>	<u>\$ (543)</u>

The following table summarizes the changes in accumulated other comprehensive (gain) loss:

	United States		International	
	2022	2021	2022	2021
Balance at beginning of year	\$ 21,456	\$ 25,614	\$ (543)	\$ (466)
Net gain arising during the year	(25,513)	(2,799)	(217)	(83)
Net gain (loss) recognized during the year	(978)	(1,359)	51	41
Exchange rate effect during the year	—	—	48	(35)
Balance at end of year	<u>\$ (5,035)</u>	<u>\$ 21,456</u>	<u>\$ (661)</u>	<u>\$ (543)</u>

Notes to Consolidated Financial Statements — (Continued)

Net postretirement benefit costs include the following components:

	United States			International		
	2022	2021	2020	2022	2021	2020
Service cost	\$ 687	\$ 778	\$ 666	\$ 12	\$ 15	\$ 15
Interest cost	1,923	1,805	2,345	12	12	13
Amortization of prior service credit	—	—	(17)	—	—	—
Amortization of net actuarial (gain) loss	978	1,359	1,355	(48)	(41)	(36)
Total benefit cost (credit)	<u>\$ 3,588</u>	<u>\$ 3,942</u>	<u>\$ 4,349</u>	<u>\$ (24)</u>	<u>\$ (14)</u>	<u>\$ (8)</u>

The components of net postretirement benefit cost other than service cost are included in Other – net in our Consolidated Statements of Income.

The weighted average assumptions used in the valuation of postretirement benefits were as follows:

	United States			International		
	2022	2021	2020	2022	2021	2020
Assumptions used to determine benefit obligations at October 31:						
Discount rate	5.59 %	2.98 %	2.84 %	5.41 %	3.43 %	2.94 %
Health care cost trend rate	3.50	3.34	3.40	4.65	4.43	4.22
Rate to which health care cost trend rate is assumed to incline/decline (ultimate trend rate)	3.19	3.15	3.17	4.05	4.05	4.05
Year the rate reaches the ultimate trend rate	2032	2031	2026	2040	2040	2040
Assumption used to determine net benefit costs for the years ended October 31:						
Discount rate benefit obligation	2.98 %	2.84 %	3.27 %	3.43 %	2.94 %	3.03 %
Discount rate service cost	3.55	3.44	3.61	3.48	3.00	3.05
Discount rate interest cost	2.30	2.08	2.79	3.13	2.60	2.88

The weighted average health care trend rates reflect expected increases in the Company's portion of the obligation.

Net actuarial gains or losses are amortized to expense on a plan-by-plan basis when exceeding the accounting corridor, which is set at 10 percent of the greater of the plan assets or benefit obligations. Gains or losses outside of the corridor are subject to amortization over an average employee future service period that differs by plan. If substantially all of the plan's participants are no longer actively accruing benefits, the average life expectancy is used. Contributions to postretirement plans in 2023 are estimated to be approximately \$3,230.

Retiree postretirement benefit payments are anticipated to be paid as follows:

Year	United States	International
2023	\$ 3,225	\$ 5
2024	3,386	5
2025	3,552	5
2026	3,690	5
2027	3,832	5
2028-2030	20,438	34

Notes to Consolidated Financial Statements — (Continued)

Note 8 — Income taxes

Income tax expense includes the following:

	<u>2022</u>	<u>2021</u>	<u>2020</u>
Current:			
U.S. federal	\$ 59,639	\$ 40,879	\$ 17,507
State and local	7,535	4,429	984
Foreign	79,734	70,429	47,415
Total current	<u>146,908</u>	115,737	65,906
Deferred:			
U.S. federal	(9,408)	6,371	(9,919)
State and local	(596)	1,470	(1,023)
Foreign	(728)	(3,770)	(3,014)
Total deferred	<u>(10,732)</u>	4,071	(13,956)
	<u>\$ 136,176</u>	<u>\$ 119,808</u>	<u>\$ 51,950</u>

Earnings before income taxes of domestic operations, which are calculated after intercompany profit eliminations, were \$302,549, \$279,701 and \$111,704 in 2022, 2021 and 2020, respectively.

Our income tax provision for 2022 included a tax benefit of \$3,273 due to our share-based payment transactions.

Our income tax provision for 2021 included a tax benefit of \$5,982 due to our share-based payment transactions.

Our income tax provision for 2020 included a tax benefit of \$15,661 due to our share-based payment transactions. Income before taxes in 2020 included a non-cash, assets held for sale impairment charge of \$87,371 related to our commitment to sell our screws and barrels product line within the Adhesives reporting unit under our Industrial Precision Solutions segment and the tax benefit of the impairment was \$15,254. A portion of the impairment charge did not have related tax benefits.

A reconciliation of the U.S. statutory federal rate to the worldwide consolidated effective tax rate follows:

	<u>2022</u>	<u>2021</u>	<u>2020</u>
Statutory federal income tax rate	21.00 %	21.00 %	21.00 %
Share-based and other compensation	0.26	(0.30)	(4.15)
Foreign tax rate variances	0.95	0.84	1.51
State and local taxes, net of federal income tax benefit	0.84	0.81	(0.01)
Foreign-Derived Intangible Income Deduction	(1.59)	(1.19)	(0.95)
Global Intangible Low-Taxed Income net of foreign tax credits	0.23	0.44	0.97
Other – net	(0.72)	(0.73)	(1.14)
Effective tax rate	<u>20.97 %</u>	<u>20.87 %</u>	<u>17.23 %</u>

Earnings before income taxes of international operations, which are calculated before intercompany profit elimination entries, were \$346,730, \$294,475 and \$189,785 in 2022, 2021 and 2020, respectively. Deferred income taxes are not provided on undistributed earnings of international subsidiaries that are intended to be permanently invested in their operations. These undistributed earnings represent the post-income tax earnings under U.S. GAAP not adjusted for previously taxed income which aggregated approximately \$1,485,360 and \$1,255,112 at October 31, 2022 and 2021, 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 these basis differences because of the multiple methods by which these differences could reverse and the impact of withholding, U.S. state and local taxes and currency translation considerations.

At October 31, 2022 and 2021, total unrecognized tax benefits were \$2,872 and \$3,720, respectively. The amounts that, if recognized, would impact the effective tax rate were \$2,769 and \$3,567 at October 31, 2022 and 2021, respectively. During 2022, unrecognized tax benefits related primarily to domestic positions and, as recognized, a substantial portion of the gross unrecognized tax benefits were offset against assets recorded in the Consolidated Balance Sheet.

Notes to Consolidated Financial Statements — (Continued)

A reconciliation of the beginning and ending amount of unrecognized tax benefits for 2022, 2021 and 2020 is as follows:

	2022	2021	2020
Balance at beginning of year	\$ 3,720	\$ 6,717	\$ 2,909
Additions based on tax positions related to the current year	310	370	370
Additions for tax positions of prior years	—	—	4,068
Reductions for tax positions of prior years	(70)	(350)	—
Settlements	—	—	(137)
Lapse of statute of limitations	(1,088)	(3,017)	(493)
Balance at end of year	<u>\$ 2,872</u>	<u>\$ 3,720</u>	<u>\$ 6,717</u>

At October 31, 2022 and 2021, we had accrued interest and penalty expense related to unrecognized tax benefits of \$541 and \$859, respectively. We include interest accrued related to unrecognized tax benefits in interest expense. Penalties, if incurred, would be recognized as other income (expense).

We are subject to United States Federal income tax as well as income taxes in numerous state and foreign jurisdictions. We are subject to examination in the U.S. by the Internal Revenue Service (IRS) for the 2019 through 2022 tax years; tax years prior to the 2019 year are closed to further examination by the IRS. Generally, major state and foreign jurisdiction tax years remain open to examination for tax years after 2016. Within the next twelve months, it is reasonably possible that certain statute of limitations periods would expire, which could result in a minimal decrease in our unrecognized tax benefits.

Significant components of deferred tax assets and liabilities are as follows:

	2022	2021
Deferred tax assets:		
Lease Liabilities	\$ 28,413	\$ 32,572
Employee benefits	22,079	39,798
Tax credit and loss carryforwards	15,616	19,269
Other accruals not currently deductible for taxes	11,336	16,542
Inventory adjustments	6,423	6,924
Total deferred tax assets	<u>83,867</u>	<u>115,105</u>
Valuation allowance	<u>(10,130)</u>	<u>(14,141)</u>
Total deferred tax assets	<u>73,737</u>	<u>100,964</u>
Deferred tax liabilities:		
Depreciation and amortization	145,285	145,494
Lease right-of-use assets	27,548	31,615
Other - net	1,238	941
Total deferred tax liabilities	<u>174,071</u>	<u>178,050</u>
Net deferred tax liabilities	<u>\$ (100,334)</u>	<u>\$ (77,086)</u>

At October 31, 2022, we had \$12,648 of tax credit carryforwards, \$5,053 of which expires in 2028-2032 and \$7,595 of which has an indefinite carryforward period. We also had \$34,352 of state operating loss carryforwards, \$16,965 of foreign operating loss carryforwards, and a \$3,570 capital loss carryforward, of which \$41,269 will expire in 2023 through 2038, and \$13,618 of which has an indefinite carryforward period. The net change in the valuation allowance was a decrease of \$4,011 in 2022 and a decrease of \$8,092 in 2021. The valuation allowance of \$10,130 at October 31, 2022, related primarily to tax credits and loss carryforwards that may expire before being realized. We continue to assess the need for valuation allowances against deferred tax assets based on determinations of whether it is more likely than not that deferred tax benefits will be realized.

Note 9 — Bank lines of credit

Bank lines of credit are summarized as follows:

	2022	2021
Maximum borrowings available under bank lines of credit (all foreign banks)	\$ 61,213	\$ 60,627
Unused bank lines of credit	\$ 61,213	\$ 57,082

Notes to Consolidated Financial Statements — (Continued)

Note 10 — Long-term debt

A summary of long-term debt is as follows:

	2022	2021
Notes Payable	\$ —	\$ 3,545
Senior notes, due 2023-2025	55,500	79,000
Senior notes, due 2023-2027	71,429	78,572
Senior notes, due 2023-2030	350,000	350,000
Euro loan, due 2023	261,893	306,358
	<u>738,822</u>	<u>817,475</u>
Less current maturities	392,537	34,188
Less unamortized debt issuance costs	965	1,578
Long-term maturities	<u>\$ 345,320</u>	<u>\$ 781,709</u>

Revolving credit agreement — In April 2019, we entered into a \$850,000 unsecured multi-currency credit facility with a group of banks, which amended, restated and extended our then existing syndicated revolving credit agreement. This facility has a five-year term and includes a \$75,000 subfacility for swing-line loans. It expires in April 2024. At October 31, 2022 and October 31, 2021, we had no balances outstanding under this facility.

Senior notes, due 2023-2025 — These unsecured fixed-rate notes entered into in 2012 with a group of insurance companies have a remaining weighted-average life of 1.47 years. The weighted-average interest rate at October 31, 2022 was 3.10 percent.

Senior notes, due 2023-2027 — These unsecured fixed-rate notes entered into in 2015 with a group of insurance companies have a remaining weighted-average life of 2.44 years. The weighted-average interest rate at October 31, 2022 was 3.10 percent.

Senior notes, due 2023-2030 — These unsecured fixed-rate notes entered in 2018 with a group of insurance companies have a remaining weighted-average life of 3.04 years. The weighted-average interest rate at October 31, 2022 was 3.90 percent.

Euro loan, due 2023 — In March 2020 we amended, restated and extended the term of our existing term loan facility with Bank of America Merrill Lynch International Limited. The interest rate is variable based on the EURIBOR rate. The term loan facility provides for the following term loans due in two tranches: €115,000 is due in March 2023 and an additional €150,000 that was drawn down in March 2020 is due in March 2023. The weighted average interest rate at October 31, 2022 was 0.71 percent.

We were in compliance with all covenants at October 31, 2022 and the amount we could borrow would not have been limited by any debt covenants.

Annual maturities — The annual maturities of long-term debt for the five years subsequent to October 31, 2022, are as follows: \$392,537 in 2023; \$110,643 in 2024; \$85,642 in 2025; \$50,000 in 2026 and \$10,000 in 2027.

Note 11 — Leases

We review new contracts to determine if the contracts include a lease. To the extent a lease agreement includes an extension option that is reasonably certain to be exercised, we have recognized those amounts as part of the right-of-use assets and lease liabilities. We combine lease and non-lease components, such as common area maintenance, in the calculation of the lease assets and related liabilities. As most lease agreements do not provide an implicit rate, we use an incremental borrowing rate (IBR) based on information available at the lease commencement date in determining the present value of lease payments and to help classify the lease as operating or financing. We calculate the IBR based on a bond yield curve which considers secured borrowing rates based on our credit rating and current economic environment, as well as other publicly available data.

We lease certain manufacturing facilities, warehouse space, machinery and equipment, and vehicles. We often have options to renew lease terms for buildings and other assets. We evaluate renewal and termination options at the lease commencement date to determine if we are reasonably certain to exercise the option on the basis of economic factors. Leases with an initial term of 12 months or less (short-term leases) are not recorded on the Consolidated Balance Sheet. Lease expense for operating leases is recognized on a straight-line basis over the lease term, with variable lease payments recognized in the period those payments occur. Variable payments for leases primarily relate to future rates or amounts, miles, or other quantifiable usage factors which are not determinable at the time the lease agreement commences. Finance lease assets are recorded in Property, plant and equipment – net on the Consolidated Balance Sheet with related amortization recorded in depreciation expense on the Consolidated Statement of Cash Flows. As of October 31, 2022, we had no material leases that had yet to commence.

Notes to Consolidated Financial Statements — (Continued)

Additional lease information is summarized below for the twelve months ended October 31:

	October 31, 2022		October 31, 2021	
	Finance Leases	Operating Leases	Finance Leases	Operating Leases
Amortization of right of use assets	\$ 6,388		\$ 6,929	
Interest	374		373	
Lease cost ⁽¹⁾	6,762	\$ 20,354	7,302	\$ 20,176
Short-term and variable lease cost ⁽¹⁾	1,876	1,611	1,445	2,938
Total lease cost	\$ 8,638	\$ 21,965	\$ 8,747	\$ 23,114

⁽¹⁾ Lease costs are recorded in both Cost of sales and Selling and administrative expenses on the Consolidated Statements of Income.

Supplemental cash flow information is summarized below for the twelve months ended October 31, 2022:

	Finance Leases	Operating Leases
Cash outflows for leases	\$ 5,439	\$ 20,125
Weighted average remaining lease term (years)	8.03	9.52
Weighted average discount rate	2.20%	1.80%

The following table reconciles the undiscounted cash flows for five years and thereafter to the operating and finance lease liabilities recognized on the Consolidated Balance Sheet as of October 31, 2022. The reconciliation excludes short-term leases that are not recognized on the Consolidated Balance Sheet.

Year:	Finance Leases	Operating Leases
2023	\$ 4,907	\$ 15,738
2024	3,306	14,171
2025	2,133	12,299
2026	929	11,552
2027	438	9,775
Later years	6,113	53,876
Total minimum lease payments	17,826	117,411
Amounts representing interest	1,735	10,905
Present value of minimum lease payments	\$ 16,091	\$ 106,506

Rental expense for operating leases during the fiscal years ended October 31, 2022, 2021 and 2020 was \$20,479, \$20,618 and \$22,061, respectively.

Capitalized net finance leases included in property, plant and equipment during the fiscal years ended October 31, 2022 and October 31, 2021 was \$15,176 and \$19,745, respectively.

Note 12 — Fair value measurements

The inputs to the valuation techniques used to measure fair value are classified into the following categories:

Level 1: Quoted market prices in active markets for identical assets or liabilities.

Level 2: Observable market-based inputs or unobservable inputs that are corroborated by market data.

Level 3: Unobservable inputs that are not corroborated by market data.

Notes to Consolidated Financial Statements — (Continued)

The following tables present the classification of our assets and liabilities measured at fair value on a recurring basis:

October 31, 2022	Total	Level 1	Level 2	Level 3
Assets:				
Foreign currency forward contracts ^(a)	\$ 5,035	\$ —	\$ 5,035	\$ —
Total assets at fair value	<u>\$ 5,035</u>	<u>\$ —</u>	<u>\$ 5,035</u>	<u>\$ —</u>
Liabilities:				
Deferred compensation plans ^(b)	\$ 9,076	\$ —	\$ 9,076	\$ —
Foreign currency forward contracts ^(a)	11,724	—	11,724	—
Total liabilities at fair value	<u>\$ 20,800</u>	<u>\$ —</u>	<u>\$ 20,800</u>	<u>\$ —</u>
October 31, 2021	Total	Level 1	Level 2	Level 3
Assets:				
Foreign currency forward contracts ^(a)	\$ 2,755	\$ —	\$ 2,755	\$ —
Total assets at fair value	<u>\$ 2,755</u>	<u>\$ —</u>	<u>\$ 2,755</u>	<u>\$ —</u>
Liabilities:				
Deferred compensation plans ^(b)	\$ 9,115	\$ —	\$ 9,115	\$ —
Foreign currency forward contracts ^(a)	4,507	—	4,507	—
Total liabilities at fair value	<u>\$ 13,622</u>	<u>\$ —</u>	<u>\$ 13,622</u>	<u>\$ —</u>

- (a) We enter into foreign currency forward contracts to reduce the risk of foreign currency exposures resulting from receivables, payables, intercompany receivables, intercompany payables and loans denominated in foreign currencies. Foreign exchange contracts are valued using market exchange rates. These foreign exchange contracts are not designated as hedges.
- (b) Executive officers and other highly compensated employees may defer up to 100 percent of their salary and annual cash incentive compensation and for executive officers, up to 90 percent of their long-term incentive compensation, into various non-qualified deferred compensation plans. Deferrals can be allocated to various market performance measurement funds. Changes in the value of compensation deferred under these plans are recognized each period based on the fair value of the underlying measurement funds.

Fair value disclosures related to goodwill and indefinite-lived intangible assets are disclosed in Note 6.

The carrying amounts and fair values of financial instruments, other than cash and cash equivalents, receivables and accounts payable, are shown in the table below. The carrying values of cash and cash equivalents, receivables and accounts payable approximate fair value due to the short-term nature of these instruments.

	2022		2021	
	Carrying Amount	Fair Value	Carrying Amount	Fair Value
Long-term debt (including current portion)	\$ 737,857	\$ 714,286	\$ 812,352	\$ 855,376

Long-term debt is valued by discounting future cash flows at currently available rates for borrowing arrangements with similar terms and conditions, which are considered to be Level 2 inputs under the fair value hierarchy. The carrying amount of long-term debt is shown net of unamortized debt issuance costs as described in Note 10.

Note 13 — Derivative financial instruments

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 currency transactions occur and the dates they are settled. We regularly use foreign currency forward contracts to reduce our risks related to most of these transactions. These contracts usually have maturities of 90 days or less and generally require us to exchange foreign currencies for U.S. dollars at maturity, at rates stated in the contracts. These contracts are not designated as hedging instruments under U.S. GAAP. Accordingly, the changes in the fair value of the foreign currency forward contracts are recognized in each accounting period in “Other – net” on the Consolidated Statement of Income together with the transaction gain or loss from the related balance sheet position.

In 2022, we recognized net losses of \$4,937 on foreign currency forward contracts and net gains of \$11,207 from the change in fair value of balance sheet positions. In 2021, we recognized net gains of \$1,485 on foreign currency forward contracts and net

Notes to Consolidated Financial Statements — (Continued)

losses of \$7,411 from the change in fair value of balance sheet positions. In 2020, we recognized net losses of \$5,899 on foreign currency forward contracts and net gains of \$4,367 from the change in fair value of balance sheet positions. The fair values of our foreign currency forward contract assets and liabilities are included in Receivables-net and Accrued liabilities, respectively in the Consolidated Balance Sheets.

The following table summarizes, by currency, the contracts outstanding at October 31, 2022 and 2021:

	Notional Amounts	
	Sell	Buy
October 31, 2022 contract amounts:		
Euro	\$ 85,879	\$ 337,530
Pound sterling	31,361	101,960
Japanese yen	12,849	33,210
Mexican peso	9,802	26,509
Hong Kong dollar	5,174	73,953
Singapore dollar	411	18,817
Australian dollar	327	9,163
Taiwan dollar	—	24,047
Other	4,327	60,104
Total	<u>\$ 150,130</u>	<u>\$ 685,293</u>
October 31, 2021 contract amounts:		
Euro	\$ 100,922	\$ 325,581
Pound sterling	50,333	79,934
Japanese yen	14,338	45,436
Mexican peso	5,906	23,424
Hong Kong dollar	6,948	44,831
Australian dollar	709	10,088
Singapore dollar	200	18,029
Other	10,461	63,068
Total	<u>\$ 189,817</u>	<u>\$ 610,391</u>

We are exposed to credit-related losses in the event of nonperformance by counterparties to financial instruments. These financial instruments include cash deposits and foreign currency forward contracts. We periodically monitor the credit ratings of these counterparties in order to minimize our exposure. Our customers represent a wide variety of industries and geographic regions. As of October 31, 2022 and 2021, there were no significant concentrations of credit risk.

Note 14 — Capital shares

Preferred — We have authorized 10,000 Series A convertible preferred shares without par value. No preferred shares were outstanding in 2022, 2021 or 2020.

Common — We have 160,000 authorized common shares without par value. At October 31, 2022 and 2021, there were 98,023 common shares issued. At October 31, 2022 and 2021, the number of outstanding common shares, net of treasury shares, was 57,111 and 58,154, respectively.

Common shares repurchased as part of publicly announced programs during 2022, 2021 and 2020 were as follows:

Year	Number of Shares	Total Amount	Average per Share
2022	1,190	\$ 260,288	\$ 218.69
2021	262	55,033	\$ 209.97
2020	303	38,138	\$ 125.70

These amounts exclude share repurchases associated with employee equity award exercises and vesting.

Note 15 — Stock-based compensation

During the 2021 Annual Meeting of Shareholders, our shareholders approved the Nordson Corporation 2021 Stock Incentive and Award Plan (the “2021 Plan”) as the successor to the Amended and Restated 2012 Stock Incentive and Award Plan (the “2012 Plan”). The 2021 plan provides for the granting of stock options, stock appreciation rights, restricted shares, restricted share units, performance shares, cash awards and other stock or performance-based incentives. A maximum of 900 common shares were authorized for grant under the 2021 Plan plus the number of shares that were available to be granted under the 2012 Plan. As of October 31, 2022, a total of 2,122 common shares were available to be granted under the 2021 Plan.

Stock options — Nonqualified or incentive stock options may be granted to our employees and directors. Generally, options granted to employees may be exercised beginning one year from the date of grant at a rate not exceeding 25 percent per year and expire 10 years from the date of grant. Vesting accelerates upon a qualified termination in connection with a change in control. In the event of termination of employment due to early retirement or normal retirement at age 65, options granted within 12 months prior to termination are forfeited, and vesting continues post retirement for all other unvested options granted. In the event of disability or death, all unvested stock options granted within 12 months prior to termination fully vest. Termination for any other reason results in forfeiture of unvested options and vested options in certain circumstances. The amortized cost of options is accelerated if the retirement eligibility date occurs before the normal vesting date. Option exercises are satisfied through the issuance of treasury shares on a first-in, first-out basis. We recognized compensation expense related to stock options of \$7,265, \$6,946 and \$10,087 for 2022, 2021 and 2020, respectively.

The following table summarizes activity related to stock options during 2022:

	Number of Options	Weighted-Average Exercise Price Per Share	Aggregate Intrinsic Value	Weighted-Average Remaining Term
Outstanding at October 31, 2021	1,235	\$ 130.93		
Granted	85	\$ 266.69		
Exercised	(115)	\$ 108.33		
Forfeited or expired	(18)	\$ 197.31		
Outstanding at October 31, 2022	<u>1,187</u>	\$ 141.82	\$ 101,946	5.4 years
Expected to vest	372	\$ 185.15	\$ 18,004	7.0 years
Exercisable at October 31, 2022	813	\$ 121.76	\$ 83,887	4.6 years

Summarized information on currently outstanding options follows:

	Range of Exercise Price		
	\$61 - \$125	\$126 - \$190	\$191 - \$268
Number outstanding	518	506	163
Weighted-average remaining contractual life, in years	4.5	6.3	8.6
Weighted-average exercise price	\$ 104.76	\$ 150.57	\$ 232.62
Number exercisable	447	345	21
Weighted-average exercise price	\$ 101.55	\$ 143.04	\$ 201.42

As of October 31, 2022, there was \$6,663 of total unrecognized compensation cost related to unvested stock options. That cost is expected to be amortized over a weighted average period of approximately 1.0 year.

The fair value of each option grant was estimated at the date of the grant using the Black-Scholes option-pricing model with the following assumptions:

	2022	2021	2020
Expected volatility	30.6%-30.8%	30.8%-32.6%	24.5%- 30.5%
Expected dividend yield	0.76%-0.89%	0.83%-0.85%	0.87%- 1.16%
Risk-free interest rate	1.36%-2.65%	0.43%-0.77%	0.44%- 1.69%
Expected life of the option (in years)	5.3-6.2	5.3-6.2	5.3- 6.3

The weighted-average expected volatility used to value options granted in 2022, 2021 and 2020 was 30.6 percent, 31.0 percent and 25.4 percent, respectively.

Notes to Consolidated Financial Statements — (Continued)

Historical information was the primary basis for the selection of the expected volatility, expected dividend yield and the expected lives of the options. The risk-free interest rate was selected based upon yields of United States Treasury issues with terms equal to the expected life of the option being valued.

The weighted average grant date fair value of stock options granted during 2022, 2021 and 2020 was \$78.88, \$56.02 and \$38.57, respectively.

The total intrinsic value of options exercised during 2022, 2021 and 2020 was \$15,376, \$32,791 and \$65,783, respectively.

Cash received from the exercise of stock options for 2022, 2021 and 2020 was \$12,124, \$31,780 and \$50,853, respectively.

Restricted shares and restricted share units — We may grant restricted shares and/or restricted share units to our employees and directors. These shares or units may not be transferred for a designated period of time (generally one to three years) defined at the date of grant. We may also grant continuation awards in the form of restricted share units with cliff vesting and a performance measure that must be achieved for the restricted share units to vest.

For employee recipients, in the event of termination of employment due to early retirement, with consent of the Company, restricted shares and units granted within 12 months prior to termination are forfeited, and other restricted shares and units vest on a pro-rata basis, subject to the consent of the Compensation Committee. In the event of termination of employment due to normal retirement at age 65, restricted shares and units granted within 12 months prior to termination are forfeited, and, for other restricted shares and units, the restriction period applicable to restricted shares will lapse and the shares will vest and be transferable and all unvested units will become vested in full, subject to the consent of the Compensation Committee. In the event of a recipient's disability or death, all restricted shares and units granted within 12 months prior to termination fully vest. Termination for any other reason prior to the lapse of any restrictions or vesting of units results in forfeiture of the shares or units.

For non-employee directors, all restrictions lapse in the event of disability or death of the non-employee director. Termination of service as a director for any other reason within one year of date of grant results in a pro-rata vesting of shares or units.

As shares or units are issued, stock-based compensation equivalent to the fair market value on the date of grant is expensed over the vesting period.

The following table summarizes activity related to restricted shares during 2022:

	Number of Shares	Weighted-Average Grant Date Fair Value Per Share
Restricted at October 31, 2021	19	\$ 157.36
Vested	(13)	\$ 153.28
Restricted at October 31, 2022	<u>6</u>	<u>\$ 167.99</u>

As of October 31, 2022, there was \$331 of unrecognized compensation cost related to restricted shares. The cost is expected to be amortized over a weighted average period of 0.3 years. The amount charged to expense related to restricted shares was \$1,096, \$2,054 and \$3,956 in 2022, 2021 and 2020, respectively. These amounts included common share dividends of \$19, \$43 and \$87 in 2022, 2021 and 2020, respectively.

The following table summarizes activity related to restricted share units in 2022:

	Number of Units	Weighted-Average Grant Date Fair Value
Restricted share units at October 31, 2021	67	\$ 202.81
Granted	43	\$ 253.04
Forfeited	(10)	\$ 224.84
Vested	(19)	\$ 215.57
Restricted share units at October 31, 2022	<u>81</u>	<u>\$ 223.77</u>

As of October 31, 2022, there was \$8,790 of remaining expense to be recognized related to outstanding restricted share units, which is expected to be recognized over a weighted average period of 0.9 years. The amounts charged to expense related to restricted share units in 2022, 2021 and 2020 were \$8,403, \$6,264 and \$1,181, respectively. Restricted share unit expense increased in 2021 compared to prior years as the granting of restricted share units has generally replaced the granting of stock options for key employees.

Notes to Consolidated Financial Statements — (Continued)

Performance share incentive awards — Executive officers and selected other key employees are eligible to receive common share-based incentive awards. Payouts, in the form of unrestricted common shares, vary based on the degree to which corporate financial performance exceeds predetermined threshold, target and maximum performance goals over three-year performance periods. No payout will occur unless threshold performance is achieved.

The amount of compensation expense is based upon current performance projections and the percentage of the requisite service that has been rendered. The calculations are based upon the grant date fair value which is principally driven by the stock price on the date of grant or a Monte Carlo valuation for awards with market conditions. The per share values were \$260.60, \$273.50 and \$221.94 for 2022; \$202.05 for 2021; and \$201.50 modified per share value compared to original per share values of \$160.02, \$133.01 and \$184.04 for 2020. The amount charged to expense for executive officers and selected other key employees in 2022 was \$13,626 and \$7,178 in 2021 while the amount credited to expense in 2020 was \$2,732. The cumulative amount recorded in shareholders' equity at October 31, 2022 and 2021 was \$20,641 and \$7,015, respectively. As of October 31, 2022, there was \$8,029 of unrecognized compensation cost related to performance share incentive awards.

Deferred compensation — Our executive officers and other highly compensated employees may elect to defer up to 100 percent of their base pay and cash incentive compensation and, for executive officers, up to 90 percent of their share-based performance incentive award payout each year. Additional share units are credited for quarterly dividends paid on our common shares. Expense related to dividends paid under this plan was \$72, \$96 and \$276 for 2022, 2021 and 2020, respectively.

Deferred directors' compensation — Non-employee directors may defer all or part of their cash and equity-based compensation until retirement. Cash compensation may be deferred as cash or as share equivalent units. Deferred cash amounts are recorded as liabilities, and share equivalent units are recorded as equity. Additional share equivalent units are earned when common share dividends are declared.

The following table summarizes activity related to director deferred compensation share equivalent units during 2022:

	Number of Shares	Weighted-Average Grant Date Fair Value Per Share
Outstanding at October 31, 2021	106	\$ 68.11
Restricted stock units vested	4	\$ 255.04
Dividend equivalents	1	\$ 227.65
Distributions	(21)	\$ 68.12
Outstanding at October 31, 2022	<u>90</u>	<u>\$ 77.70</u>

The amount charged to expense related to director deferred compensation was \$305, \$262 and \$175 in 2022, 2021 and 2020, respectively.

Shares reserved for future issuance — At October 31, 2022, there were 1,640 of common shares reserved for future issuance through the exercise of outstanding options or rights.

Note 16 — Operating segments and geographic area data

We conduct business in three primary operating segments: Industrial Precision Solutions, Medical and Fluid Solutions, and Advanced Technology Solutions. The composition of segments and measure of segment profitability is consistent with that used by our chief operating decision maker. The primary measure used by the chief operating decision maker for purposes of making decisions about allocating resources to the segments and assessing performance is operating profit, which equals sales less cost of sales and certain operating expenses. Items below the operating profit line of the Consolidated Statement of Income (interest and investment income, interest expense and other income/expense) are excluded from the measure of segment profitability reviewed by our chief operating decision maker and are not presented by operating segment. The accounting policies of the segments are the same as those described in Note 1, Significant Accounting Policies.

Effective in the fourth quarter of 2022, we realigned our former two operating segments into three: Industrial Precision Solutions, Medical and Fluid Solutions, and Advanced Technology Solutions. Existing product lines were unchanged as part of this new structure. We made changes to realign our management team and our operating segments. This realignment gives us better visibility into our medical and electronics platforms, which have grown significantly through both organic and acquisitive opportunities. The revised operating segments better reflect how we now manage the Company, allocate resources and assess performance of the businesses. Certain reclassifications have been made to our segment disclosures, principally related to this segment change. We also revised our geographic regions, such that the United States and Japan are now included in the Americas and Asia Pacific, respectively. As such, our geographical regions as used throughout this report include the Americas (United States, Canada, Mexico and Central and South America), Asia Pacific (including Japan) and Europe.

Notes to Consolidated Financial Statements — (Continued)

Industrial Precision Solutions: This segment is focused on delivering proprietary dispensing and processing technology, both standard and highly customized equipment, to diverse end markets. Product lines commonly reduce material consumption, increase line efficiency through precision dispense and measurement and control, and enhance product brand and appearance. Components are used for dispensing adhesives, coatings, paint, finishes, sealants and other materials. This segment primarily serves the industrial, consumer durables and non-durables markets.

Medical and Fluid Solutions: This segment includes the Company's fluid management solutions for medical, high-tech industrial and other diverse end markets. Related plastic tubing, balloons, catheters, syringes, cartridges, tips and fluid connection components are used to dispense or control fluids within customers' medical devices or products, as well as production processes.

Advanced Technology Solutions: This segment is focused on products serving electronics end markets. Advanced Technology Solutions products integrate our proprietary product technologies found in progressive stages of an electronics customer's production processes, such as surface treatment, precisely controlled dispensing of material and test and inspection to ensure quality and reliability. Applications include, but are not limited to, semiconductors, printed circuit boards, electronic components and automotive electronics.

No single customer accounted for 10 percent or more of sales in 2022, 2021 or 2020.

The following table presents information about our reportable segments:

	Industrial Precision Solutions	Medical and Fluid Solutions	Advanced Technology Solutions	Corporate	Total
Year ended October 31, 2022					
Net external sales	\$ 1,337,242	\$ 690,177	\$ 562,859	\$ —	\$ 2,590,278
Depreciation and amortization	27,891	54,674	8,780	8,578	99,923
Operating profit (loss)	434,476	217,199	133,253	(82,568)	702,360
Identifiable assets ^(b)	1,112,825	1,558,861	397,250	812,964 ^(a)	3,881,900
Property, plant and equipment expenditures	9,490	31,009	2,383	8,546	51,428
Year ended October 31, 2021					
Net external sales	\$ 1,246,947	\$ 641,654	\$ 473,608	\$ —	\$ 2,362,209
Depreciation and amortization	25,673	56,600	11,826	9,784	103,883
Operating profit (loss)	414,192	198,194	73,466	(70,725)	615,127
Identifiable assets ^(b)	964,840	1,519,144	394,572	967,796 ^(a)	3,846,352
Property, plant and equipment expenditures	9,009	21,115	1,949	6,230	38,303
Year ended October 31, 2020					
Net external sales	\$ 1,143,423	\$ 564,899	\$ 412,778	\$ —	\$ 2,121,100
Depreciation and amortization	38,939	53,588	10,955	9,820	113,302
Operating profit (loss)	208,028	150,296	41,306	(50,085)	349,545
Identifiable assets ^(b)	915,148	1,482,585	396,617	928,358 ^(a)	3,722,708
Property, plant and equipment expenditures	18,545	27,892	3,628	470	50,535

- (a) Corporate assets are principally cash and cash equivalents, deferred income taxes, leases, headquarter facilities, the major portion of our enterprise management system and intangible assets. Includes assets held for sale in 2020, see Note 4.
- (b) Operating segment identifiable assets include notes and accounts receivable net of allowance for doubtful accounts, inventories net of reserves, property, plant and equipment net of accumulated depreciation and goodwill.

Notes to Consolidated Financial Statements — (Continued)

We have significant sales and long-lived assets in the following geographic areas:

	<u>2022</u>	<u>2021</u>	<u>2020</u>
Net external sales			
Americas	\$ 1,096,596	\$ 969,110	\$ 897,115
Europe	645,603	617,492	536,636
Asia Pacific	848,079	775,607	687,349
Total net external sales	<u>\$ 2,590,278</u>	<u>\$ 2,362,209</u>	<u>\$ 2,121,100</u>
Long-lived assets			
Americas	\$ 332,709	\$ 322,878	\$ 331,697
Europe	62,039	67,776	69,854
Asia Pacific	60,973	75,762	79,192
Total long-lived assets	<u>\$ 455,721</u>	<u>\$ 466,416</u>	<u>\$ 480,743</u>

Long-lived assets includes property, plant and equipment - net and operating right of use lease assets, which were recorded as a result of the new lease standard as codified in ASC 842 and excludes amounts held for sale in 2020, see Note 4.

A reconciliation of total assets for reportable segments to total consolidated assets is as follows:

	<u>2022</u>	<u>2021</u>	<u>2020</u>
Total identifiable assets for reportable segments	\$ 3,881,900	\$ 3,846,352	\$ 3,722,708
Eliminations	(61,525)	(55,391)	(48,052)
Total consolidated assets	<u>\$ 3,820,375</u>	<u>\$ 3,790,961</u>	<u>\$ 3,674,656</u>

Note 17 — Supplemental information for the statement of cash flows

	<u>2022</u>	<u>2021</u>	<u>2020</u>
Cash operating activities:			
Interest paid	\$ 22,975	\$ 27,122	\$ 31,095
Income taxes paid	141,212	106,942	80,849

Note 18 — Contingencies

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 do not believe 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.

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 the construction of a potable water delivery system serving the impacted area down gradient of the Site. At October 31, 2022 and October 31, 2021, our accrual for the ongoing operation, maintenance and monitoring obligation at the Site was \$266 and \$319, 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 greater 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.

Note 19 — Subsequent Events

On November 3, 2022, the Company completed the acquisition of CyberOptics Corporation (“CyberOptics”) pursuant to the terms of the Agreement and Plan of Merger, dated as of August 7, 2022, by and among the Company, Meta Merger Company and CyberOptics. CyberOptics is a leading global developer and manufacturer of high-precision 3D optical sensing technology solutions. The CyberOptics acquisition expanded our test and inspection platform, providing differentiated technology that expands our product offering in the semiconductor and electronics industries and will be reported in our Advanced Technology Solutions segment. The all-cash transaction of approximately \$380,000, net of cash acquired, was funded using our revolving credit facility and is not expected to have a material impact on our Consolidated Financial Statements.

Management's Report on Internal Control Over Financial Reporting

The management of Nordson Corporation is responsible for establishing and maintaining adequate internal control over financial reporting.

Using criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control-Integrated Framework (2013 framework), Nordson's management assessed the effectiveness of our internal control over financial reporting as of October 31, 2022.

Based on our assessment, management concluded that our internal control over financial reporting was effective as of October 31, 2022.

The independent registered public accounting firm, Ernst & Young LLP, has also audited the effectiveness of our internal control over financial reporting as of October 31, 2022. Their report is included herein.

/s/ Sundaram Nagarajan

President and Chief Executive Officer

December 19, 2022

/s/ Joseph P. Kelley

Executive Vice President, Chief Financial Officer

December 19, 2022

Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of Nordson Corporation

Opinion on Internal Control over Financial Reporting

We have audited Nordson Corporation's internal control over financial reporting as of October 31, 2022, based on criteria established in Internal Control — Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, Nordson Corporation (the Company) maintained, in all material respects, effective internal control over financial reporting as of October 31, 2022, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of October 31, 2022 and 2021, the related consolidated statements of income, comprehensive income, shareholders' equity and cash flows for each of the three years in the period ended October 31, 2022, and the related notes and financial statement schedule listed in the Index at Item 15(a) and our report dated December 19, 2022 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

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

/s/ Ernst & Young LLP

Cleveland, Ohio
December 19, 2022

Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of Nordson Corporation

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Nordson Corporation (the Company) as of October 31, 2022 and 2021, the related consolidated statements of income, comprehensive income, shareholders' equity and cash flows for each of the three years in the period ended October 31, 2022, and the related notes and financial statement schedule listed in the Index at Item 15(a) (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at October 31, 2022 and 2021, and the results of its operations and its cash flows for each of the three years in the period ended October 31, 2022, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of October 31, 2022, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated December 19, 2022 expressed an unqualified opinion thereon.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective or complex judgments. The communication of the critical audit matter does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the account or disclosure to which it relates.

Valuation of Goodwill

Description of the Matter

At October 31, 2022, the Company had \$1,804,693 thousand of goodwill. As discussed in Note 6 to the consolidated financial statements, the Company evaluates the carrying amount of goodwill for impairment annually as of August 1, and between annual evaluations if an event occurs or circumstances change that would indicate the fair value of a reporting unit is less than the carrying amount of those assets. The Company performed a quantitative impairment test for all reporting units in fiscal 2022. As part of the quantitative impairment test, the Company estimated the fair value of each reporting unit using a combination of valuation techniques including the discounted cash flow method, a form of the income approach, and the guideline public company method, a form of the market approach.

Auditing management's annual goodwill impairment assessment relating to goodwill was complex due to the use of valuation methodologies in the determination of the estimated fair values of the reporting units. These fair value estimates are impacted by assumptions such as the selection of comparable guideline companies and the related valuation multiples, as well as discount rates, revenue growth rates, and operating margins which are affected by expectations about future market or economic conditions.

How We Addressed the Matter in Our Audit

We obtained an understanding, evaluated the design and tested the operating effectiveness of controls over the Company's goodwill impairment process whereby the Company develops assumptions that are used as inputs to the annual goodwill impairment test. This included controls over management's review of the valuation models and the assumptions, described above.

To test the implied fair value of the Company's reporting units, we performed audit procedures that included, among others, assessing the valuation methodologies, testing the assumptions, and testing the completeness and accuracy of the underlying data. We involved our internal valuation specialists in assessing the fair value methodologies applied and evaluating the reasonableness of certain assumptions selected by management. We assessed the historical accuracy of management's estimates and performed sensitivity analyses of assumptions to evaluate the changes in the fair value of the reporting units that would result from changes in the assumptions. We tested management's reconciliation of the fair value of the reporting units to the market capitalization of the Company. We also assessed the appropriateness of the disclosures in the consolidated financial statements.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 1956.

Cleveland, Ohio
December 19, 2022

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

- (a) Evaluation of disclosure controls and procedures. Our management, with the participation of the principal executive officer (president and chief executive officer) and the principal financial officer (executive vice president and chief financial officer), has reviewed and evaluated our disclosure controls and procedures (as defined in the Securities Exchange Act Rule 13a-15e) as of October 31, 2022. Based on that evaluation, our management, including the principal executive and financial officers, has concluded that our disclosure controls and procedures were effective as of October 31, 2022 in ensuring that information required to be disclosed in the reports that we file or submit under the Securities Exchange Act of 1934 is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms and is accumulated and communicated to our management, including the principal executive officer and the principal financial officer, as appropriate to allow timely decisions regarding required disclosure.
- (b) Management's report on internal control over financial reporting. The Report of Management on Internal Control over Financial Reporting and the Report of Independent Registered Public Accounting Firm (Ernst & Young LLP, PCAOB ID: 42) thereon are set forth in Part II, Item 8 of this annual report and are incorporated by reference.
- (c) Changes in internal control over reporting. There were no changes in our internal controls over financial reporting that occurred during the fourth quarter of 2022 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None.

Item 9C. Disclosures Regarding Foreign Jurisdictions that Prevent Inspections

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this Item is incorporated by reference to the captions “Proposal 1: Election of Directors” and “Security Ownership of Nordson Common Shares by Directors, Director Nominees, Executive Officers, and Large Beneficial Owners—Delinquent Section 16(a) Reports” of our definitive Proxy Statement for the 2023 Annual Meeting of Shareholders. Information regarding the Audit Committee and Audit Committee financial experts is incorporated by reference to the caption “Committees of the Board of Directors” of our definitive Proxy Statement for the 2023 Annual Meeting of Shareholders.

Our executive officers serve for a term of one year from date of election to the next organizational meeting of the board of directors and until their respective successors are elected and qualified, except in the case of death, resignation or removal. Information concerning executive officers is contained in Part I of this annual report under the caption “Information about Our Executive Officers.”

We have adopted a code of ethics and business conduct for all employees and directors, including the principal executive officer, other executive officers, principal financial officer and other finance personnel. A copy of the code of ethics is available free of charge on our website at <http://www.nordson.com/en/our-company/corporate-governance>. We intend to satisfy our disclosure requirement under Item 5.05 of Form 8-K regarding any amendment to or waiver of a provision of our code of ethics and business conduct that applies to our principal executive officer, principal financial officer, principal accounting officer or controller or persons performing similar functions and that relates to any element of the code of ethics definition enumerated in Item 406(b) of Regulation S-K by posting such information on our website.

Item 11. Executive Compensation

The information required by this Item is incorporated by reference to the “Executive Compensation Discussion and Analysis” section of the definitive Proxy Statement for the 2023 Annual Meeting of Shareholders, along with the sections captioned “Directors Compensation,” “Summary Compensation for Fiscal Year 2022,” “Grants of Plan-Based Awards,” “Outstanding Equity Awards at October 31, 2022,” “Stock Option Exercises and Stock Vested Tables,” “Pension Benefits,” “Nonqualified Deferred Compensation,” “Potential Benefits Upon Termination or Change of Control,” “CEO Pay Ratio,” “Risks Related to Executive Compensation Policies and Practices” and “Compensation Committee Report” in our definitive Proxy Statement for the 2023 Annual Meeting of Shareholders.

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

The information required by this Item is incorporated by reference to the caption “Security Ownership of Nordson Common Shares by Directors, Director Nominees, Executive Officers and Large Beneficial Owners” in our definitive Proxy Statement for the 2023 Annual Meeting of Shareholders.

Equity Compensation Plan Information

The following table sets forth (in whole shares) information regarding equity compensation plans in effect as of October 31, 2022:

Plan category	Number of securities to be issued upon exercise of outstanding options, warrants and rights (1)	Weighted-average exercise price of outstanding options, warrants and rights (2)	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in first reporting column) (3)
Equity compensation plans approved by security holders	1,612,786	\$ 141.82	2,122,034
Equity compensation plans not approved by security holders	—	—	—
Total	1,612,786	\$ 141.82	2,122,034

- (1) The number of shares reported may overstate dilution due to the inclusion of performance-based awards at their maximum payout level.
- (2) Full value equity awards such as performance share incentive awards are not taken into account in the weighted-average price, as such awards have no exercise price.
- (3) As of October 31, 2022, includes shares available for future issuance under the 2021 Plan, including for awards other than options, warrants and rights.

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

The information required by this Item is incorporated by reference to the captions “Corporate Governance—Director Independence” and “Corporate Governance—Review of Transactions with Related Persons” in our definitive Proxy Statement for the 2023 Annual Meeting of Shareholders.

Item 14. Principal Accountant Fees and Services

The information required by this Item is incorporated by reference to the caption “Proposal 2: Ratify the Appointment of Independent Registered Public Accounting Firm—Fees Paid to Ernst & Young LLP” and the caption “Proposal 2: Ratify the Appointment of Independent Registered Public Accounting Firm—Pre-Approval of Audit and Non-Audit Services” in our definitive Proxy Statement for the 2023 Annual Meeting of Shareholders.

PART IV

Item 15. Exhibits and Financial Statement Schedules

The following are filed as part of this annual report:

(a) 1. Financial Statements

The following financial statements are included in Part II, Item 8:

Consolidated Statements of Income for each of the three years in the period ended October 31, 2022

Consolidated Statements of Comprehensive Income for each of the three years in the period ended October 31, 2022

Consolidated Balance Sheets as of October 31, 2022 and October 31, 2021

Consolidated Statements of Shareholders' Equity for each of the three years in the period ended October 31, 2022

Consolidated Statements of Cash Flows for each of the three years in the period ended October 31, 2022

Notes to Consolidated Financial Statements

Reports of Independent Registered Public Accounting Firm (Ernst & Young LLP, PCAOB ID: 42)

(a) 2. Financial Statement Schedule

Schedule II Valuation and Qualifying Accounts and Reserves for each of the three years in the period ended October 31, 2022.

No other consolidated financial statement schedules are presented because the schedules are not required, because the required information is not present or not present in amounts sufficient to require submission of the schedule, or because the information required is included in the financial statements, including the notes thereto.

(a) 3. Exhibits

The exhibits listed on the accompanying index to exhibits are filed as part of this annual report.

NORDSON CORPORATION
Index to Exhibits

Exhibit Number	Description
(2)	Plan of Acquisition, Reorganization or Arrangement
2-a	Agreement and Plan of Merger, dated as of August 7, 2022, by and among Nordson Corporation, Meta Merger Company and CyberOptics Corporation (incorporated herein by reference to Exhibit 2.1 to Registrant's Form 8-K dated August 10, 2022)**
(3)	Articles of Incorporation and By-Laws
3-a	1989 Amended Articles of Incorporation (incorporated herein by reference to Exhibit 3-a to Registrant's Annual Report on Form 10-K for the year ended October 31, 2017)
3-a-1	Certificate of Amendment to 1989 Amended Articles of Incorporation (incorporated herein by reference to Exhibit 3-a-1 to Registrant's Annual Report on Form 10-K for the year ended October 31, 2017)
3-b	1998 Amended Regulations (incorporated herein by reference to Exhibit 3-b to Registrant's Annual Report on Form 10-K for the year ended October 31, 2016)
(4)	Instruments Defining the Rights of Security Holders, including indentures
4-a	Description of Nordson Corporation's Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934 (incorporated herein by reference to Exhibit 4-a to Registrant's Annual Report on Form 10-K for the year ended October 31, 2019)
4-e	Master Note Purchase Agreement dated July 26, 2012 between Nordson Corporation and the purchasers listed therein (incorporated herein by reference to Exhibit 4-e to Registrant's Annual Report on Form 10-K for the year ended October 31, 2018)
4-h	Third Amended and Restated Credit Agreement dated April 30, 2019, among Nordson Corporation, various financial institutions named therein, and KeyBank, National Association, as administrative agent (incorporated herein by reference to Exhibit 4.1 to Registrant's Form 8-K dated May 6, 2019)**
4-j	Master Note Purchase Agreement dated July 28, 2015 between Nordson Corporation and the purchasers listed therein (incorporated herein by reference to Exhibit 4.1 to Registrant's Quarterly Report on Form 10-Q for the quarter ended July 31, 2015)
4-k	Amended and Restated Term Loan Agreement, dated April 30, 2019, among Nordson Corporation, various financial institutions named therein, and PNC Bank, National Association, as administrative agent (incorporated herein by reference to Exhibit 4.2 to Registrant's Form 8-K dated May 6, 2019)**
4-l	Master Note Purchase Agreement, dated as of June 22, 2018, by and among Nordson Corporation and the purchasers named therein (incorporated herein by reference to Exhibit 4.1 to Registrant's Form 8-K dated June 28, 2018)
4-m	Amended and Restated Note Purchase Agreement and Private Shelf Agreement for \$200 million, dated October 29, 2020 between Nordson Corporation and New York Life Investment Management LLC
(10)	Material Contracts
10-b-2	Nordson Corporation 2005 Deferred Compensation Plan (as Amended and Restated Effective January 1, 2009) (incorporated herein by reference to Exhibit 10-b-2 to Registrant's Annual Report on Form 10-K for the year ended October 31, 2014)*
10-b-3	First Amendment to the Nordson Corporation 2005 Deferred Compensation Plan (as Amended and Restated Effective January 1, 2009) (incorporated herein by reference to Exhibit 10.1 to Registrant's Quarterly Report on Form 10-Q for the quarter ended April 30, 2016)*
10-c-1	Form of Indemnity Agreement between the Registrant and Directors, effective November 1, 2016 (incorporated herein by reference to Exhibit 10-c-1 to Registrant's Annual Report on Form 10-K for the year ended October 31, 2016)
10-c-2	Form of Indemnity Agreement between the Registrant and Executive Officers, effective November 1, 2016 (incorporated herein by reference to Exhibit 10-c-2 to Registrant's Annual Report on Form 10-K for the year ended October 31, 2016)
10-d	Restated Nordson Corporation Excess Defined Contribution Retirement Plan (incorporated herein by reference to Exhibit 10-d to Registrant's Annual Report on Form 10-K for the year ended October 31, 2009)*
10-d-1	First Amendment to Restated Nordson Corporation Excess Defined Contribution Retirement Plan (incorporated herein by reference to Exhibit 10-d-1 to Registrant's Annual Report on Form 10-K for the year ended October 31, 2018)*
10-d-3	Nordson Corporation 2005 Excess Defined Contribution Retirement Plan (as Amended and Restated Effective January 1, 2009) (incorporated herein by reference to Exhibit 10-d-3 to Registrant's Annual Report on Form 10-K for the year ended October 31, 2014)*
10-e	Nordson Corporation Excess Defined Benefit Pension Plan (incorporated herein by reference to Exhibit 10-e to Registrant's Annual Report on Form 10-K for the year ended October 31, 2009)*
10-e-1	First Amendment to Nordson Corporation Excess Defined Benefit Pension Plan (incorporated herein by reference to Exhibit 10-f-1 to Registrant's Annual Report on Form 10-K for the year ended October 29, 2000)*

NORDSON CORPORATION

Index to Exhibits

Exhibit Number	Description
10-e-2	Second Amendment to Nordson Corporation Excess Defined Benefit Pension Plan (incorporated herein by reference to Exhibit 10-e-1 to Registrant's Annual Report on Form 10-K for the year ended October 31, 2018)*
10-e-3	Nordson Corporation 2005 Excess Defined Benefit Pension Plan (as Amended and Restated Effective January 1, 2009) (incorporated herein by reference to Exhibit 10-e-3 to Registrant's Annual Report on Form 10-K for the year ended October 31, 2014)*
10-e-4	Nordson Corporation 2005 Excess Defined Benefit Pension Plan (First Amendment Effective July 9, 2009) (incorporated by reference to Exhibit 10-e-4 to Registrant's Annual Report on Form 10-K for the year ended October 31, 2021)*
10-e-5	Nordson Corporation 2005 Excess Defined Benefit Pension Plan (Second Amendment Effective July 1, 2021) (incorporated by reference to Exhibit 10-e-5 to Registrant's Annual Report on Form 10-K for the year ended October 31, 2021)*
10-g-1	Amended and Restated Nordson Corporation 2004 Long-Term Performance Plan (incorporated herein by reference to Exhibit 10-g-1 to Registrant's Annual Report on Form 10-K for the year ended October 31, 2013)*
10-g-2	Nordson Corporation Amended and Restated 2012 Stock Incentive and Award Plan (incorporated herein by reference to Exhibit 10.1 to Registrant's Form 8-K dated March 2, 2018)*
10-g-3	Nordson Corporation 2012 Stock Incentive and Award Plan, Form of Notice of Award - Key Employees (as amended November 24, 2014) (incorporated herein by reference to Exhibit 10-g-3 to Registrant's Annual Report on Form 10-K for the year ended October 31, 2014)*
10-g-4	Nordson Corporation 2012 Stock Incentive and Award Plan, Form of Notice of Award - Executive Officers (as amended November 24, 2014) (incorporated herein by reference to Exhibit 10-g-4 to Registrant's Annual Report on Form 10-K for the year ended October 31, 2014)*
10-g-5	Nordson Corporation 2012 Stock Incentive and Award Plan, Directors' Deferred Compensation Sub-Plan (incorporated herein by reference to Exhibit 10-g-5 to Registrant's Annual Report on Form 10-K for the year ended October 31, 2013)*
10-g-6	Nordson Corporation 2012 Stock Incentive and Award Plan, Directors' Deferred Compensation Sub-Plan, Form of Notice of Award (incorporated herein by reference to Exhibit 10-g-6 to Registrant's Annual Report on Form 10-K for the year ended October 31, 2013)*
10-g-7	Amended and Restated Nordson Corporation Directors' Deferred Compensation Sub-Plan (incorporated herein by reference to Exhibit 10-g-7 to Registrant's Annual Report on Form 10-K for the year ended October 31, 2017)*
10-g-8	Nordson Corporation 2021 Stock Incentive and Award Plan (incorporated herein by reference to Exhibit 10.1 to Registrant's Form 8-K dated March 2, 2021)*
10-g-9	Nordson Corporation 2021 Stock Incentive and Award Plan, Form of Notice of Award - Key Employees (incorporated herein by reference to Exhibit 10.1 to Registrant's Form 8-K dated April 19, 2021)*
10-g-10	Nordson Corporation 2021 Stock Incentive and Award Plan, Form of Notice of Award - Executive Officers (incorporated herein by reference to Exhibit 10.2 to Registrant's Form 8-K dated April 19, 2021)*
10-h	Assurance Trust Agreement between Nordson Corporation and Key Trust Company of Ohio, N.A. amended and restated as of January 22, 2014 (incorporated herein by reference to Exhibit 10.1 to Registrant's Quarterly Report on Form 10-Q for the quarter ended January 31, 2014)*
10-i	Form of Change in Control Retention Agreement between the Registrant and Executive Officers (incorporated herein by reference to Exhibit 10-h-1 to Registrant's Annual Report on Form 10-K for the year ended October 31, 2014)*
10-j	Compensation Committee Rules of the Nordson Corporation Amended and Restated Nordson Corporation 2004 Long Term Performance Plan governing directors' deferred compensation (incorporated herein by reference to Exhibit 10-j to Registrant's Annual Report on Form 10-K for the year ended October 31, 2016)*
10-k	Employment Agreement, effective as of August 1, 2019, between Nordson Corporation and Sundaram Nagarajan (incorporated herein by reference to Exhibit 10.2 to Registrant's Form 8-K dated June 14, 2019)*
10-l	Change-in-Control Retention Agreement between Nordson Corporation and Sundaram Nagarajan (incorporated herein by reference to Exhibit 10.3 to Registrant's Form 8-K dated June 14, 2019)*
10-m	Separation agreement between Gregory P. Merk and Nordson Corporation, effective January 27, 2022 (incorporated herein by reference to Exhibit 10.1 to Registrant's Form 10-Q dated February 25, 2022)
(21)	Subsidiaries of the Registrant
(23)	Consent of Independent Registered Public Accounting Firm
(24)	Power of Attorney (included on the signature page to this Annual Report on Form 10-K)
31.1	Certification pursuant to Rule 13a-14(a)/15d-14(a) of the Securities Exchange Act of 1934 by the Chief Executive Officer, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2	Certification pursuant to Rule 13a-14(a)/15d-14(a) of the Securities Exchange Act of 1934 by the Chief Financial Officer, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

NORDSON CORPORATION
Index to Exhibits

Exhibit Number	Description
32.1	Certification of CEO pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (furnished herewith)
32.2	Certification of CFO pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (furnished herewith)
99-a	Form S-8 Undertakings (incorporated herein by reference to Exhibit 99-a to Registrant's Annual Report on Form 10-K for the year ended October 31, 2016)
101	The following financial information from Nordson Corporation's Annual Report on Form 10-K for the year ended October 31, 2022, formatted in inline Extensible Business Reporting Language (iXBRL): (i) the Consolidated Statements of Income for the years ended October 31, 2022, 2021 and 2020, (ii) the Consolidated Statements of Comprehensive Income for the years ended October 31, 2022, 2021 and 2020, (iii) the Consolidated Balance Sheets at October 31, 2022 and 2021, (iv) the Consolidated Statements of Changes in Shareholders' Equity for the years ended October 31, 2022, 2021 and 2020, (v) the Consolidated Statements of Cash Flows for the years ended October 31, 2022, 2021 and 2020, and (vi) the Notes to Consolidated Financial Statements.
104	The cover page from Nordson Corporation's Annual Report on Form 10-K for the year ended October 31, 2022, formatted in inline Extensible Business Reporting Language (iXBRL) (included in Exhibit 101).

* Indicates management contract or compensatory plan, contract or arrangement in which one or more directors and/or executive officers of Nordson Corporation may be participants.

** Schedules and attachments to this exhibit have been omitted pursuant to Regulation S-K, Item 601(a)(5). The Registrant will provide a copy of any omitted schedule to the SEC or its staff upon request.

Item 16. Form 10-K Summary

None.

Signatures

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

NORDSON CORPORATION

Date: December 19, 2022

By: /s/ Joseph P. Kelley
Joseph P. Kelley
Executive Vice President, Chief Financial Officer

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that each person whose signature appears below hereby constitutes and appoints Joseph P. Kelley as his or her true and lawful attorney-in-fact and agent with full power to act alone, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments to this Annual Report on Form 10-K, and to file the same, with all exhibits thereto, and all other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney-in-fact and agent full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant and in the capacities and on the dates indicated.

<u>Signatures</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Sundaram Nagarajan</u> Sundaram Nagarajan	Director, President and Chief Executive Officer (Principal Executive Officer)	December 19, 2022
<u>/s/ Joseph P. Kelley</u> Joseph P. Kelley	Executive Vice President, Chief Financial Officer (Principal Financial Officer) (Principal Accounting Officer)	December 19, 2022
<u>/s/ Michael J. Merriman, Jr.</u> Michael J. Merriman, Jr.	Chair of the Board	December 19, 2022
<u>/s/ Dr. John A. DeFord</u> Dr. John A. DeFord	Director	December 19, 2022
<u>/s/ Frank M. Jaehnert</u> Frank M. Jaehnert	Director	December 19, 2022
<u>/s/ Ginger M. Jones</u> Ginger M. Jones	Director	December 19, 2022
<u>/s/ Milton M. Morris</u> Milton M. Morris	Director	December 19, 2022
<u>/s/ Jennifer A. Parmentier</u> Jennifer A. Parmentier	Director	December 19, 2022
<u>/s/ Mary G. Puma</u> Mary G. Puma	Director	December 19, 2022
<u>/s/ Victor L. Richey, Jr.</u> Victor L. Richey, Jr.	Director	December 19, 2022

Schedule II – Valuation and Qualifying Accounts and Reserves

	Balance at Beginning of Year	Charged to Expense	Deductions	Currency Effects	Balance at End of Year
Allowance for Doubtful Accounts					
2020	\$ 9,801	2,165	3,074	153	\$ 9,045
2021	\$ 9,045	32	1,572	47	\$ 7,552
2022	\$ 7,552	1,259	1,336	743	\$ 8,218
Inventory Obsolescence and Other Reserves					
2020	\$ 39,377	24,767	23,255	426	\$ 41,315
2021	\$ 41,315	11,718	7,436	266	\$ 45,863
2022	\$ 45,863	18,694	18,372	(450)	\$ 45,735

Exhibit 21
NORDSON CORPORATION
Subsidiaries of the Registrant

The following table sets forth the subsidiaries of the Registrant (each of which is included in the Registrant's consolidated financial statements), and the jurisdiction under the laws of which each subsidiary was organized:

<u>Name</u>	<u>Jurisdiction of Incorporation</u>
UNITED STATES:	
Nordson Test and Inspection Americas, Inc.	California
Value Plastics, Inc. dba Nordson MEDICAL	Colorado
EDI Holdings, Inc.	Delaware
Nordson BKG LLC (fka Nordson Xaloy Incorporated)	Delaware
Nordson BKG Superior Holdings, Inc. (fka Xaloy Superior Holdings, Inc.)	Delaware
Nordson Extrusion Dies Industries, LLC	Delaware
Nordson MEDICAL (CA), LLC	Delaware
Nordson MEDICAL Design and Development, Inc.	Delaware
Nordson MEDICAL, Inc.	Delaware
NDC Technologies, Inc.	Delaware
Sonoscan, Inc.	Delaware
Vention Medical Acquisition Co.	Delaware
J and M Laboratories, Inc.	Georgia
CyberOptics Corporation *	Minnesota
Micromedics, Inc. dba Nordson MEDICAL	Minnesota
Nordson Medical (NH), Inc.	New Hampshire
Fluortek, LLC	New Jersey
Nordson Advanced Technology LLC	Ohio
Nordson Atlantic LLC	Ohio
Nordson England L.L.C.	Ohio
Nordson Medical Corporation	Ohio
Nordson Pacific, Inc.	Ohio
Nordson U.S. Trading Company	Ohio
Realty Land Conservancy III LLC	Ohio
EFD International, Inc.	Rhode Island
Nordson EFD LLC	Rhode Island
INTERNATIONAL:	
Nordson Australia Pty. Limited	Australia
Nordson Osterreich GmbH	Austria
Nordson Benelux S.A./N.V.	Belgium

<u>Name</u>	<u>Jurisdiction of Incorporation</u>
INTERNATIONAL:	
NDC Technologies S.A.	Belgium
Nordson do Brasil Industria e Comercio Ltda.	Brazil
Nordson Canada Limited	Canada
CyberOptics (China) Co., Ltd. *	China
Dage Test Systems (Suzhou) Co. Ltd.	China
Hanshitong (Shanghai) Enterprise Management Consulting Co. Ltd.	China
Nordson (China) Co., Ltd.	China
Nordson (Shanghai) Business Consulting Co., Ltd.	China
Nordson China Business Trust	China
Nordson PPS (Shanghai) Co. Ltd.	China
PDMC Branch Company of Nordson (China) Ltd.	China
Sonoscan Acoustic Imaging Instruments (Shanghai) Limited	China
Suzhou Nordson Electronics Equipment., Co., Ltd.	China
Nordson Andina Limitada	Colombia
Nordson CS, spol.s.r.o.	Czech Republic
Nordson Danmark A/S	Denmark
Nordson Finland Oy	Finland
Dosage 2000 S.A.R.L	France
NDC Technologies S.A.R.L.	France
Nordson France S.A.S.	France
Dage Deutschland GmbH	Germany
Matrix Technologies GmbH	Germany
NDC Technologies GmbH	Germany
Nordson BKG GmbH	Germany
Nordson Deutschland GmbH	Germany
Nordson Engineering GmbH	Germany
Nordson Germania Ltd. & Co. KG	Germany
Nordson Holdings S.à r.l. & Co. KG	Germany
Ligonia Limited	Hong Kong
Macaria Limited	Hong Kong
Nordson Advanced Technology (Hong Kong) Ltd.	Hong Kong
Nordson Asia Pacific, Limited	Hong Kong
Nordson Hungary Kft	Hungary
Nordson India Private Limited	India
Nordson S.E. Asia (Pte.) Limited, Indonesia Representative Office	Indonesia
Chartview Investments Limited	Ireland
Nordson MEDICAL Ireland Limited	Ireland
CardioNiti Ltd.	Israel
Great Aspirations Ltd.	Israel
MedKardia Ltd.	Israel
Nordson MEDICAL Israel AC Ltd.	Israel
Nordson MEDICAL Israel Ltd.	Israel
SafePass Vascular Ltd.	Israel
Score It Ltd.	Israel
NDC Technologies SRL	Italy
Nordson Italia S.p.A.	Italy
Nordson Advanced Technology (Japan) K.K.	Japan

<u>Name</u>	<u>Jurisdiction of Incorporation</u>
INTERNATIONAL:	
Nordson K.K.	Japan
Nordson European Holdings Luxembourg S.à r.l.	Luxembourg
Nordson Luxembourg S.à r.l.	Luxembourg
Nordson S.à r.l.	Luxembourg
Cybe Malaysia Sdn. Bhd. *	Malaysia
Nordson (Malaysia) Sdn. Bhd. *	Malaysia
Nordson de Mexico, S.A. de C.V.	Mexico
Nordson de Mexico Trading, S.A. de C.V.	Mexico
Nordson MEDICAL S.A. de C.V. (Mexico)	Mexico
Nordson Benelux B.V.	The Netherlands
Nordson B.V.	The Netherlands
Nordson Dima B.V.	The Netherlands
Nordson New Zealand	New Zealand
Nordson Norge A/S	Norway
Nordson Polska Sp.z.o.o.	Poland
Nordson Portugal Equipamento Industrial, Lda.	Portugal
Nordson RUS LLC (fka Nordson Russia Limited Liability Company)	Russia
CyberOptics (Singapore) Pte. Ltd. *	Singapore
Nordson Advanced Technology (Singapore) Pte. Ltd.	Singapore
Nordson Advanced Technology International Pte. Ltd.	Singapore
Nordson S.E. Asia (Pte.) Ltd.	Singapore
Primount Singapore Pte. Ltd.	Singapore
Nordson SA (Pty) Limited	South Africa
Nordson Korea Ltd.	South Korea
Nordson Iberica, S.A.	Spain
Nordson AB	Sweden
Nordson (Schweiz) A.G.	Switzerland
CyberOptics Taiwan Branch *	Taiwan
Nordson Advanced Technology LLC (Taiwan Branch)	Taiwan
Nordson (Thailand) Ltd.	Thailand
CyberOptics Holdings Limited *	United Kingdom
CyberOptics Limited *	United Kingdom
Dage Holdings Limited	United Kingdom
Dage Pension Trustees Limited	United Kingdom
Dage Precision Industries Limited	United Kingdom
Majority Kingdom Investment Limited	United Kingdom
Minority Kingdom Investment Limited	United Kingdom
NDC Technologies Limited	United Kingdom
Nordson (U.K.) Limited	United Kingdom
Nordson London Limited	United Kingdom
Primount LLP	United Kingdom
Nordson Internacional de Venezuela, CA	Venezuela
Representative Office of Nordson S.E. Asia (Pte.) Limited in Hanoi City	Vietnam
Representative Office of Nordson S.E. Asia (Pte.) Limited in Ho Chi Minh City	Vietnam

* These entities were acquired by Nordson Corporation effective November 3, 2022.

Exhibit 23

NORDSON CORPORATION
Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the following Registration Statements:

1. Registration Statement (Form S-8 No. 333-167406) pertaining to the Nordson Employees' Savings Trust Plan and Nordson Hourly-Rated Employees' Savings Trust Plan,
2. Registration Statement (Form S-8 No. 33-18309) pertaining to the Nordson Employees' Savings Trust Plan,
3. Registration Statement (Form S-8 No. 33-33481) pertaining to the Nordson Hourly-Rated Employees' Savings Trust Plan,
4. Registration Statement (Form S-8 No. 333-119399) pertaining to the Nordson Corporation 2004 Long-Term Performance Plan,
5. Registration Statement (Form S-8 No. 333-188980) pertaining to the Nordson Corporation 2012 Stock Incentive and Award Plan,
6. Registration Statement (Form S-8 No. 333-225378) pertaining to the Amended and Restated Nordson Corporation 2012 Stock Incentive and Award Plan; and
7. Registration Statement (Form S-8 No. 333-254753) pertaining to the Nordson Corporation 2021 Stock Incentive and Award Plan
8. Registration Statement (Form S-8 No. 333-268305) pertaining to the CyberOptics Corporation 1998 Stock Incentive Plan, as amended

of our reports dated December 19, 2022, with respect to the consolidated financial statements and schedule of Nordson Corporation and the effectiveness of internal control over financial reporting of Nordson Corporation, included in this Annual Report (Form 10-K) of Nordson Corporation for the year ended October 31, 2022.

/s/ Ernst & Young LLP
Ernst & Young LLP

Cleveland, Ohio
December 19, 2022

Exhibit 31.1

**CERTIFICATION PURSUANT TO RULE 13a-14(a)/15d-14(a) OF THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Sundaram Nagarajan, certify that:

1. I have reviewed this Annual Report on Form 10-K of Nordson Corporation;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: December 19, 2022

/s/ Sundaram Nagarajan

Sundaram Nagarajan

President and Chief Executive Officer

Exhibit 31.2

**CERTIFICATION PURSUANT TO RULE 13a-14(a)/15d-14(a) OF THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Joseph P. Kelley, certify that:

1. I have reviewed this Annual Report on Form 10-K of Nordson Corporation;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: December 19, 2022

/s/ Joseph P. Kelley

Joseph P. Kelley

Executive Vice President, Chief Financial Officer

Exhibit 32.1

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of Nordson Corporation (the "Company") on Form 10-K for the year ended October 31, 2022, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Sundaram Nagarajan, president and chief executive officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: December 19, 2022

/s/ Sundaram Nagarajan

Sundaram Nagarajan

President and Chief Executive Officer

Exhibit 32.2

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of Nordson Corporation (the "Company") on Form 10-K for the year ended October 31, 2022, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Joseph P. Kelley, executive vice president, chief financial officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: December 19, 2022

/s/ Joseph P. Kelley

Joseph P. Kelley

Executive Vice President, Chief Financial Officer

2022

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