

NN INC
Form 10-K
March 18, 2019
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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

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

For the fiscal year ended December 31, 2018

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 000-23486

NN, Inc.
(Exact name of registrant as specified in its charter)

Delaware	62-1096725
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification Number)

6210 Ardrey Kell Road	28277
Charlotte, North Carolina	
(Address of principal executive offices)	(Zip Code)
(980) 264-4300	
(Registrant's telephone number, including area code)	

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

Title of each class	Name of each exchange on which registered
Common Stock, par value \$0.01	The Nasdaq Stock Market LLC

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

None
(Title of class)

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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 (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes 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 file). Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See 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 Accelerated filer

Non-accelerated filer Smaller reporting company

Emerging growth company

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 is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes No

The aggregate market value of the voting and non-voting common stock held by non-affiliates of the registrant was approximately \$247 million as of June 30, 2018, the last business day of the registrant's most recently completed second fiscal quarter, computed using the closing price of the registrant's common stock as quoted on the Nasdaq Stock Market LLC on that date of \$18.90. Solely for purposes of making this calculation, shares of the registrant's common stock held by named executive officers, directors and 5% or greater stockholders of the registrant as of such date have been excluded because such persons may be deemed to be affiliates. This determination of affiliate status is not necessarily a conclusive determination for any other purposes.

As of March 8, 2019, there were 42,104,207 shares of the registrant's common stock, par value \$0.01 per share, outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Proxy Statement with respect to the 2019 Annual Meeting of Stockholders are incorporated by reference in Part III, Items 10 to 14 of this Annual Report on Form 10-K as indicated herein. Such proxy statement will be filed with the Securities and Exchange Commission within 120 days of the registrant's fiscal year ended December 31, 2018.

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PART I

Forward-Looking Statements

This Annual Report on Form 10-K contains forward-looking statements that are made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. These statements may discuss goals, intentions and expectations as to future trends, plans, events, results of operations or financial condition, or state other information relating to NN, Inc., based on current beliefs of management as well as assumptions made by, and information currently available to, management. Forward-looking statements generally will be accompanied by words such as “anticipate,” “believe,” “could,” “estimate,” “expect,” “forecast,” “guidance,” “intend,” “may,” “possible,” “potential,” “predict,” “should,” “will,” “would,” or other similar words, phrases or expressions. Forward-looking statements involve a number of risks and uncertainties that are outside of management’s control and that may cause actual results to be materially different from such forward-looking statements. Such factors include, among others, general economic conditions and economic conditions in the industrial sector, competitive influences, risks that current customers will commence or increase captive production, risks of capacity underutilization, quality issues, availability of raw materials, currency and other risks associated with international trade, our dependence on certain major customers, the impact of acquisitions and divestitures, unanticipated difficulties integrating acquisitions and realizing anticipated cost savings and operating efficiencies, risks associated with joint ventures, new laws and governmental regulations, and other risk factors and cautionary statements listed from time to time in our periodic reports filed with the Securities and Exchange Commission. We disclaim any obligation to update any such factors or to publicly announce the result of any revisions to any of the forward-looking statements included herein or therein to reflect future events or developments. Except for per share data or as otherwise noted, all dollar amounts presented in tables that follow are in thousands of U.S. dollars.

Item 1. Business

Introduction

We are a global diversified industrial company that combines advanced engineering and production capabilities with in-depth materials science expertise to design and manufacture high-precision solutions, components and assemblies for the medical, aerospace and defense, electrical, automotive and general industrial markets. We have 51 facilities in North America, Europe, South America and China.

In January 2018, we implemented a new enterprise and management structure designed to accelerate growth and further balance our portfolio by aligning our strategic assets and businesses. Our businesses were reorganized into the Mobile Solutions, Power Solutions and Life Sciences groups and are based principally on the end markets they serve. The Autocam Precision Components Group reported in our historical financial statements was renamed as Mobile Solutions. Mobile Solutions is focused on growth in the general industrial and automotive end markets. The Precision Engineered Products Group reported in our historical financial statements was bifurcated into two new groups – Power Solutions and Life Sciences. Power Solutions is focused on growth in the electrical and aerospace and defense end markets. Life Sciences is focused on growth in the medical end market. In the first quarter of 2018, we began reporting our financial results based on these new reportable segments. Prior year amounts have been revised to conform to the current year presentation.

Our business as conducted in 2018, products, and recent acquisition activity are described further below.

Acquisition Activity

Paragon Medical Acquisition

On May 7, 2018, we acquired 100% of the stock of PMG Intermediate Holding Corporation, the parent company of Paragon Medical, Inc. (“Paragon Medical”) for a base purchase price of \$375.0 million in cash, subject to certain adjustments. After working capital and other closing adjustments, the cash purchase price was approximately \$390.9 million which included \$13.6 million in cash acquired. Paragon Medical is a medical device manufacturer which focuses on the orthopedic, case and tray, implant and instrument markets. This acquisition continues our strategic focus to expand our Life Sciences portfolio as well as create a balanced business by diversifying our products and finished device offerings. Operating results of Paragon Medical are reported prospectively from the date of acquisition in our Life Sciences group.

Other Acquisitions

On February 22, 2018, we completed the acquisition of 100% of the assets of Bridgemedica, LLC (“Bridgemedica”) for \$15.0 million in cash. For accounting purposes, Bridgemedica meets the definition of a business and has been accounted for as a

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business combination. Bridgemedica is a medical device company that provides concept to supply solutions through design, development engineering and manufacturing. Operating results of Bridgemedica are reported prospectively in our Life Sciences group after the acquisition date.

On August 9, 2018, we completed the acquisition of 100% of the capital stock of Southern California Technical Arts, Inc. (“Technical Arts”). For accounting purposes, Technical Arts meets the definition of a business and has been accounted for as a business combination. Technical Arts is an industrial machining company that manufactures tight tolerance metal components and assemblies. The acquisition of Technical Arts expands the NN presence in the aerospace and defense end market. Operating results of Technical Arts are reported prospectively in our Power Solutions group after the acquisition date.

Business Segments and Products

Mobile Solutions

Mobile Solutions is focused on growth in the general industrial and automotive end markets. We manufacture a wide range of highly engineered, difficult to manufacture, precision metal components and sub-assemblies for the automotive and general industrial end markets. We have developed an expertise in manufacturing highly complex, system critical components for fuel systems, engines and transmissions, power steering systems and electromechanical motors on a high-volume basis. This expertise has been gained through investment in technical capabilities, processes and systems, and skilled program management and product launch capabilities.

Power Solutions

Power Solutions is focused on growth in the electrical and aerospace and defense end markets. Within this group we combine materials science expertise with advanced engineering and production capabilities to design and manufacture a broad range of high-precision metal and plastic components, assemblies, and finished devices used in applications ranging from power control to flight control and for military devices.

We manufacture a variety of products including electrical contacts, connectors, contact assemblies and precision stampings for the electrical end market and high precision products for the aerospace and defense end markets utilizing our extensive process technologies for optical grade plastics, thermally conductive plastics, titanium, Inconel, magnesium, and electroplating.

Life Sciences

Life Sciences is focused on growth in the medical end market. Within this group we combine advanced engineering and production capabilities to design and manufacture a broad range of high-precision metal and plastic components, assemblies, and finished devices.

We manufacture a variety of components, assemblies, and instruments, such as surgical knives, bioresorbable implants, surgical staples, cases and trays, orthopedic implants and tools, laparoscopic devices, and drug delivery devices for the medical and life sciences end market.

Competitive Strengths

High-precision manufacturing capabilities

We believe our ability to produce high-precision parts at high production volumes is among the best in the market. Our technology platform consists of high precision machining, progressive stamping, injection molding, laser welding, material science, assembly, and design optimization. Unique specialty machine building capabilities, in-house tool design and process know-how create trade secrets that enable consistent production tolerances of less than one micron while producing millions of parts per day. Parts are manufactured to application-specific customer design and co-design standards that are developed for a specific use. The high-precision capabilities are part of our zero-defect design process which seeks to eliminate variability and manufacturing defects throughout the entire product lifecycle. We believe our production capabilities provide a competitive advantage as few other manufacturers are capable of meeting tolerance demands at any volume level requested by our customers. As the need for tight-tolerance precision parts, subassemblies, and devices continues to increase, we believe that our production capabilities will place us at the forefront of the industry. We have differentiated ourselves among our competitors by providing customers engineered solutions and a broad reach and breadth of manufacturing capabilities. We believe it is for these reasons, and because of our proven ability to produce high-quality, precision parts and components on a cost-effective basis, that customers choose us to meet their manufacturing needs.

Differentiated, system-critical products

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The tight-tolerance and high-quality nature of our precision products is specifically suited for use in the most demanding applications that require superior reliability. Our products are critical components to the operation and reliability of larger mechanical systems. Precision parts are difficult to manufacture and achieve premium pricing in the marketplace as the high cost of failure motivates our customers to focus on quality. Our products are developed for specific uses within critical systems and are typically designed in conjunction with the system designer. Our parts are often qualified for, or specified in, customer designs, reducing the ability for customers to change suppliers.

Our ability to make products with tight-tolerance and extreme precision requirements enables our customers to satisfy the critical functionality and performance requirements of their products. We are included in customer designs and deployed in critical systems that involve high cost of failure applications and significant regulatory certification processes, including those for the Food and Drug Administration (“FDA”), Underwriters Laboratories (“UL”) and the National Aerospace and Defense Contractors Accreditation Program (“NADCAP”).

Complete product lifecycle focus

Our engineering expertise and deep knowledge of precision manufacturing processes adds proprietary value throughout the complete lifecycle of our products. Our in-house engineering team works closely with our customers to provide parts that meet specific design specifications for a given application. The relationship with the customer begins early in the conceptual design process when we provide feedback on potential cost, manufacturability and estimated reliability of the parts. Part designs are then prototyped, tested and qualified in coordination with the customer design process before going to full-scale production. The close working relationship with our customers early in the product lifecycle helps to secure business, increase industry knowledge, and develop significant trade secrets. Performance verification, product troubleshooting and post-production engineering services further deepen relationships with our customers as well as provide additional industry knowledge that is applicable to future design programs and provide continuous manufacturing process improvement.

Prototype products are developed for testing, and process validation procedures are instituted. In many instances, we will file for regulatory production approval and include the customer’s proprietary processes, further discouraging supplier changes. We will assist the customer with continuous supply chain management and comprehensive customer support for the lifetime of the product and continuously seek to identify new operational efficiencies to reduce the product’s cost and improve its quality. Once our solution is designed into a platform, it is often embedded through the multi-year manufacturing lifecycle and has a competitive advantage in supporting subsequent platforms. As an added benefit, customers generally fund development, prototypes and manufacturing tooling expenses. This discourages supplier changes and drives recurring revenue for us.

Long-term blue-chip customer base

We maintain relationships with hundreds of customers around the world. Our customers are typically sophisticated, engineering-driven, mechanical systems manufacturers with long histories of product development and reputations for quality. We have no significant retail exposure, which limits volatility and provides enhanced sales visibility.

Relationships with our top ten customers, in terms of revenue, average more than ten years. We have significant exposure to emerging markets in Asia, South America and Eastern Europe through these global customers as well as key local manufacturers. The diverse nature, size and reach of our customer base provides resistance to localized market and geographic fluctuations and help stabilizes overall product demand.

Strategic global footprint

Our 51 facilities, on four continents, are strategically located to serve our customer base and provide local service and expertise. Our global footprint provides flexibility to locally supply identical products for global customers, reducing shipping time and expense, allowing us to match costs to revenue and to capitalize on industry localization trends. In total, we operate more than 2.7 million square feet of manufacturing space. North America constitutes the largest portion of our manufacturing operations with facilities in the U.S. and Mexico. The North American facilities are strategically located to serve major customers in the United States and Mexico. Our foreign facilities are located in regional manufacturing hubs in France, Poland, China, and Brazil, and primarily serve global customers in those local markets. The Asian and South American facilities, we believe, have significant growth potential as local customer bases expand and the markets for high-precision products grow in those regions.

Proven and experienced management team

Our management team has significant experience in precision manufacturing and the diversified industrial sector. Rich Holder was named Chief Executive Officer and director in 2013. Mr. Holder joined us from Eaton Corporation, where he served as President of Eaton Electrical Components Group, and brings to us a proven record of leadership, successful team building and relevant experience in both organic and acquisition growth. He has since assembled a strong management team through

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retention of key talent, recent acquisitions, and new hires. Our management team has successfully executed and integrated into our business nine acquisitions over the last five years, increasing revenue by more than 150% since 2013. We believe that our current management team has the necessary talent and experience to lead our efforts with respect to our organic and acquisition growth goals.

Research and Development and Product Engineering

Our research and development and product engineering efforts focus on enhancing our existing products and developing patented products, particularly in the medical industry, that can be presented to and sold by our customers. Our Life Sciences business has developed a portfolio of patented and branded medical products that we manufacture for customers and that are sold through their channels. Our engineering teams focus on working closely with our customers to develop engineered solutions to improve our customers' products.

Customers

Our products are supplied primarily to manufacturers for use in a broad range of industrial applications, including automotive; electrical; agricultural; construction; residential devices and equipment; medical; aerospace and defense; heating, ventilation, and air conditioning; fluid power and diesel engines. Sales to each of our top ten customers are made to multiple customer locations and divisions throughout the world. In 2018, our top ten customers accounted for approximately 49% of our net sales. In 2018, 77% of our products were sold to customers in North America, 9% to customers in Europe, 9% customers in Asia, and the remaining 5% to customers in South America. We did not have any customer that accounted for 10% or more of total net sales.

We sell our products to most of our largest customers under either sales contracts or agreed upon commercial terms. In general, we pass through material cost fluctuations when incurred to our customers in the form of changes in selling prices. We ordinarily ship our products directly to customers within 60 days, and in many cases, during the same calendar month of the date on which a sales order is placed.

Sales and Marketing

A primary emphasis of our marketing strategy is to expand key customer relationships by offering high quality, high-precision, application-specific customer solutions with the value of a single supply chain partner for a wide variety of products and components. Due to the technical nature of many of our products, our engineers and manufacturing management personnel also provide technical sales support functions, while internal sales employees handle customer orders and other general sales support activities. Our marketing strategy is to offer custom manufactured, high quality, precision products to markets with high value-added characteristics at competitive price levels. This strategy focuses on relationships with key customers that require the production of technically difficult parts and assemblies, enabling us to take advantage of our strengths in custom product development, equipment and tool design, component assembly and machining processes.

Employees

As of December 31, 2018, we employed a total of 5,479 full and part-time employees and 512 temporary workers. Of our total employment, 20% are management employees and 80% are production employees. The employees of the France, Brazil, and Brainin de Mexico plants are unionized. A small group of employees at our Bridgeport, Connecticut, plant is also unionized. We believe we have a good working relationship with our employees and the unions that represent them.

Competition

Mobile Solutions

In the market in which Mobile Solutions operates, internal production of components by our customers can impact our business as the customers weigh the risk of outsourcing strategically critical components or producing in-house. Our primary outside competitors are Anton Häring KG, A. Berger Holding GmbH & Co. KG, C&A Tool Engineering, Inc., American Turned Products, Inc., Camcraft, Inc., IMS Gear, and Brovedani. We believe that we generally win new business on the basis of technical competence and our proven track record of successful product development.

Power Solutions

Power Solutions operates in intensely competitive but very fragmented supply chains. We must compete with numerous companies in each industry market segment. Our primary competitors in the electrical market are

Deringer-Ney, Inc., Doduco GmbH and Metalor Technologies International. Our primary competitors in the aerospace and defense market are Interplex

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Industries, Inc. and Accu-Mold, LLC. We believe that competition within the electrical and aerospace and defense end markets is based principally on quality, price, design capabilities and speed of responsiveness and delivery. We believe that our competitive strengths are product development, tool design, fabrication, tight tolerance processes, and customer solutions. With these strengths, we have built our reputation in the marketplace as a quality producer of technically difficult products.

Life Sciences

Life Sciences operates in intensely competitive but very fragmented supply chains. Our primary competitors in the medical device market are Tecomet, Inc., Lake Region Medical, Inc. and Vention Medical, Inc. . We compete against other companies depending on the type of product offered or the geographic area served as well as our customers with in-house manufacturing capabilities. Customers will choose manufacturers based on reputation, quality, delivery, responsiveness, breadth of capabilities, including design and engineering support, price, and relationships. We believe that our ability to assist customers through all phases of the product life cycle differentiates us from most of our competitors.

Raw Materials

Mobile Solutions

Mobile Solutions produces products from a wide variety of metals in various forms from various sources located in the North America, Europe, South America and Asia. Basic types include hot rolled steel, cold rolled steel (both carbon and alloy), stainless, extruded aluminum, die cast aluminum, gray and ductile iron castings, hot and cold forgings and mechanical tubing. Some material is purchased directly under contracts, some is consigned by the customer, and some is purchased directly from the steel mills.

Power Solutions

Power Solutions uses a wide variety of metals in various forms, including precious metals like gold, silver, palladium and platinum, as well as plastics. Through our diverse network of suppliers, we minimize supplier concentration risk and provide a stable supply of raw materials at competitive pricing. This group also procures resins and metal stampings from several domestic and foreign suppliers.

Power Solutions bases purchase decisions on quality, service and price. Generally, we do not enter into written supply contracts with our suppliers or commit to maintain minimum monthly purchases of materials. However, we carefully manage raw material price volatility, particularly with respect to precious metals, through the use of consignment agreements. In effect, we contract the precious metals for our own stock and buy the raw materials on the same day customer shipments are priced, thereby eliminating speculation.

Life Sciences

Due to the technically challenging requirements of our customers products, we purchase our raw materials from a limited number of suppliers. Many of the raw materials that are used in our products are subject to fluctuations in market price, particularly titanium and precious metals such as platinum. Generally, raw material prices are passed through to our customers to offset market fluctuations. Because of the lengthy process required to qualify raw materials with our customers, we cannot change suppliers easily. However, we have not experienced any significant interruptions or delays in obtaining critical raw materials.

In each of our segments, we have historically been affected by upward price pressure on steel principally due to general increases in global demand. In general, we pass through material cost fluctuations to our customers in the form of changes in selling price.

Patents, Trademarks and Licenses

We have several U.S. patents, patent applications and trademarks for various trade names. Furthermore, we intend to develop patented products that can be presented to and sold by our customers. However, we cannot be certain that we would be able to protect and enforce our intellectual property rights against third parties, and if we cannot do so, we may face increased competition and diminished net sales.

Furthermore, third parties may assert infringement claims against us based on their patents or other intellectual property, and we may have to pay substantial damages and/or redesign our products if we are ultimately found to infringe. Even if such

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intellectual property claims against us are without merit, investigating and defending these types of lawsuits takes significant time, may be expensive and may divert management attention from other business concerns. Additionally, we rely on certain data and processes, including trade secrets and know-how, and the success of our business depends, to some extent, on such information remaining confidential. Each officer is subject to a non-competition and confidentiality agreement that seeks to protect this information. Additionally, all employees are subject to company code of ethics policies that prohibit the disclosure of information critical to the operations of our business.

Seasonal Nature of Business

General economic conditions impact our business and financial results, and certain businesses experience seasonal and other trends related to the industries and end markets that they serve. For example, European sales are often weaker in the summer months as customers slow production, medical device sales are often stronger in the fourth calendar quarter, and sales to original equipment manufacturers are often stronger immediately preceding and following the launch of new products. However, as a whole, we are not materially impacted by seasonality.

Environmental Compliance

Our operations and products are subject to extensive federal, state and local regulatory requirements both domestically and abroad relating to pollution control and protection of the environment. These laws and regulations govern, among other things, discharges to air or water, the generation, storage, handling, and use of automotive hazardous materials and the handling and disposal of hazardous waste generated at our facilities. Under such laws and regulations, we are required to obtain permits from governmental authorities for some of our operations. If we violate or fail to comply with these laws, regulations or permits, we could be fined or otherwise sanctioned by regulators. Under some environmental laws and regulations, we could also be held responsible for all the costs relating to any contamination at our past or present facilities and at third-party waste disposal sites. We maintain a compliance program to assist in preventing and, if necessary, correcting environmental problems.

Based on information compiled to date, management believes that our current operations are in substantial compliance with applicable environmental laws and regulations, the violation of which could have a material adverse effect on our business and financial condition. We have assessed conditional asset retirement obligations and have found them to be immaterial to our consolidated financial statements. We cannot assure that currently unknown matters, new laws and regulations, or stricter interpretations of existing laws and regulations will not materially affect our business or operations in the future. More specifically, although we believe that we dispose of waste in material compliance with applicable environmental laws and regulations, we cannot be certain that we will not incur significant liabilities in the future in connection with the clean-up of waste disposal sites.

FDA Compliance

As a manufacturer of medical devices, certain of our subsidiaries and facilities are required to register as such with the FDA. To maintain our registration, we deploy a robust quality management system across all of our manufacturing facilities.

With respect to medical and life sciences products that we are specifically developing to sell to our customers, before these devices can be marketed, we will seek to obtain a marketing clearance from the FDA under Section 510(k) of the United States Federal Food, Drug, and Cosmetic Act. The FDA typically grants a 510(k) clearance if the applicant can establish that the device is substantially equivalent to a predicate device. Clearance under Section 510(k) typically takes about four months from the date of submission.

Executive Officers of the Registrant

Our executive officers are:

Name	Age	Position
Richard D. Holder	56	President and Chief Executive Officer
Thomas C. Burwell, Jr.	50	Senior Vice President – Chief Financial Officer
Matthew S. Heiter	58	Senior Vice President and General Counsel
D. Gail Nixon	48	Senior Vice President and Chief Human Resources Officer
Warren A. Veltman	57	Executive Vice President – Mobile Solutions

J. Robert Atkinson 38 Executive Vice President – Life Sciences
Christopher J. Qualters 51 Executive Vice President – Power Solutions

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Richard D. Holder joined us as President and Chief Executive Officer in June 2013. Prior to joining us, Mr. Holder served as President of Eaton Electrical Components Group of Eaton Corporation's Electrical Sector from 2010 to 2013, Executive Vice President of the Eaton Business Systems from 2007 to 2010, Vice President and General Manager of the Power Distribution and Assemblies Division from 2004 to 2006, and Vice President Supply Chain and Operational Excellence from 2001 to 2004. Prior to joining Eaton, Mr. Holder served as Director of Aircraft & Technical Purchasing for US Airways from 1999 to 2001. Prior to this position, Mr. Holder held a variety of leadership positions at Allied Signal Corporation, an aerospace, automotive and engineering company, and Parker Hannifin Corporation, a global motion and control technology manufacturer. Mr. Holder serves on the board of directors of Actuant Corporation, a publicly held diversified industrial company.

Thomas C. Burwell, Jr. joined us as Corporate Controller in September 2005. He was promoted to Vice President Chief Accounting Officer and Corporate Controller in 2011, and to Senior Vice President and Chief Financial Officer in November 2016. Prior to joining us, Mr. Burwell held various positions at Coats, PLC from 1997 to 2005 ultimately becoming the Vice President of Finance for the U.S. Industrial Division. From 1992 to 1997, Mr. Burwell held various positions at the international accounting firm BDO Seidman, LLP. Mr. Burwell is a Certified Public Accountant.

Matthew S. Heiter joined us as Senior Vice President and General Counsel in July 2015. Prior to joining us, Mr. Heiter was a shareholder in the law firm of Baker, Donelson, Bearman, Caldwell and Berkowitz, PC from May 1996 to December 1999 and from July 2002 to July 2015, where he served as chairman of the firm's Securities and Corporate Governance Practice Group. From January 2000 to July 2002, Mr. Heiter served as the Executive Vice President, General Counsel and Secretary of Internet Pictures Corporation, a publicly traded internet technology company.

D. Gail Nixon joined us in 2007 and was appointed Senior Vice President and Chief Human Resources Officer in January 2018. She previously served as our Vice President of Human Resources as well as Corporate Human Resources Manager. Ms. Nixon is a member of the Society for Human Resource Management and World at Work and has earned her Senior Professional in Human Resources designation. From 2000-2007, she held various accounting and human resources positions with a multi-state healthcare organization, ultimately serving as its corporate human resources director.

Warren A. Veltman joined us as Senior Vice President and General Manager of our former Autocam Precision Components Group in September 2014. Mr. Veltman served as Chief Financial Officer of Autocam Corporation from 1990 and Secretary and Treasurer since 1991. In January 2018, Mr. Veltman was appointed Executive Vice President of our Mobile Solutions business. Prior to Mr. Veltman's service at Autocam, Mr. Veltman was an Audit Manager with Deloitte & Touche LLP.

J. Robert Atkinson was appointed Executive Vice President of our Life Sciences group in January 2018. Mr. Atkinson joined us as Vice President, Corporate Treasurer and Manager of Investor Relations in April 2014 and served as our Vice President, Strategy & Investor Relations from April 2017 to December 2017. Prior to joining us, Mr. Atkinson was with Regions Bank where he served as vice president and commercial relationship manager in Regions Corporate Bank Group, where he was responsible for marquee corporate relationships, developing treasury management solutions, and negotiating terms and conditions for new and renewal credit facilities. Prior to that position, he served as Vice President of business services. Mr. Atkinson also served as a project coordinator for the Electrical Group of Eaton Corporation. Mr. Atkinson is a member of the Association of Financial Professions and earned his certified treasury professional designation.

Christopher J. Qualters was appointed Executive Vice President of the Power Solutions group in January 2018, and previously served as our Vice President and Chief Commercial Officer. Mr. Qualters joined us as part of the Autocam acquisition in 2014, where he served as Vice President of sales and marketing. Prior to joining Autocam in 2008, he held several leadership positions in sales, marketing and product management at Robert Bosch. From 1990 to 2000, Mr. Qualters held the position of sales engineer at The Torrington Company, where he was responsible for anti-friction bearing solutions for the general industrial and automotive industries.

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Item 1A. Risk Factors

The following are risk factors that affect our business, prospects, financial condition, results of operations, and cash flows, some of which are beyond our control. These risk factors should be considered in connection with evaluating the forward-looking statements contained in this Annual Report on Form 10-K. If any of the events described below were to actually occur, our business, prospects, financial condition, results of operations, or cash flows could be adversely affected, and results could differ materially from expected and historical results.

Risks Related to Our Operations

We depend heavily on a relatively limited number of customers, and the loss of any major customer would have a material adverse effect on our business.

During 2018, sales to various U.S. and foreign divisions of our ten largest customers accounted for approximately 49% of our consolidated net sales. The loss of all or a substantial portion of sales to these customers would cause us to lose a substantial portion of our revenue and would lower our operating profit margin and cash flows from operations. Work stoppages or similar difficulties could significantly disrupt our operations, reduce our revenues and materially affect our earnings.

A work stoppage at one or more of our facilities could have a material adverse effect on our business, prospects, financial condition, results of operations, or cash flows. Also, if one or more of our customers were to experience a work stoppage, that customer would likely halt or limit purchases of our products, which could have a material adverse effect on our business, prospects, financial condition, results of operations, or cash flows.

We operate in and sell products to customers outside the U.S. and are subject to several risks related to doing business internationally.

We obtain a majority of our raw materials from overseas suppliers, actively participate in overseas manufacturing operations and sell to a large number of international customers. During the year ended December 31, 2018, sales to customers located outside of the U.S. accounted for approximately 29% of our consolidated net sales. As a result of doing business internationally, we face risks associated with the following:

- changes in tariff regulations, which may make our products more costly to export or import;
- changes in monetary and fiscal policies, laws and regulations, and other activities of governments, agencies and similar organizations;
- recessions or marked declines specific to a particular country or region;
- the potential imposition of trade restrictions or prohibitions;
- the potential imposition of import tariffs or other duties or taxes;
- difficulties establishing and maintaining relationships with local original equipment manufacturers, distributors and dealers;
- difficulty in staffing and managing geographically diverse operations; and
- unstable governments or legal systems in countries in which our suppliers, manufacturing operations, and customers are located.

These and other risks may also increase the relative price of our products compared to those manufactured in other countries, thereby reducing the demand for our products in the markets in which we operate, which could have a material adverse effect on our business, prospects, financial condition, results of operations, or cash flows.

In addition, we could be adversely affected by violations of the Foreign Corrupt Practices Act (the “FCPA”) and similar worldwide anti-bribery laws, as well as export controls and economic sanction laws. The FCPA and similar anti-bribery laws in other jurisdictions generally prohibit companies and their intermediaries from making improper payments to non-U.S. officials for the purpose of obtaining or retaining business. Our policies mandate compliance with these laws. We operate in many parts of the world that have experienced governmental corruption to some degree and, in certain circumstances, strict compliance with anti-bribery laws may conflict with local customs and practices. We cannot assure you that our internal controls and procedures will always protect us from the improper acts committed by our employees or agents. If we are found to be liable for FCPA, export control or sanction violations, we could suffer from criminal or civil penalties or other sanctions, including loss of export privileges or authorization needed to conduct aspects of our international business, which could have a material adverse effect on our business,

prospects, financial condition, results of operations, or cash flows.

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In addition, in June 2016, voters in the United Kingdom approved an advisory referendum to withdraw from the European Union, commonly referred to as “Brexit.” This referendum has created political and economic uncertainty, particularly in the United Kingdom and the European Union, and this uncertainty has persisted, and may continue to persist for years. The withdrawal could significantly disrupt the free movement of goods, services, and people between the United Kingdom and the European Union, and result in increased legal and regulatory complexities, as well as potential higher costs of conducting business in Europe. The uncertainty of Brexit has led to volatility in the British pound sterling, which has continuously fluctuated as new developments regarding Brexit have been made public since the initial referendum. The United Kingdom’s Parliament voted down a transition deal between the United Kingdom and the European Union on January 15, 2019. A continued inability of Parliament to approve a Brexit deal could result in a “hard Brexit” in which the United Kingdom leaves the European Union in March 29, 2019 with no deal in place. A “hard Brexit” would take immediate effect, with no transition period established (i) for the United Kingdom and the European Union to establish a trading relationship or (ii) to allow businesses and individuals to prepare for post-Brexit changes in legal and regulatory structure. The United Kingdom’s vote to exit the European Union could also result in similar referendums or votes in other European countries in which we do business. The uncertainty surrounding the terms of the United Kingdom’s withdrawal and its consequences could adversely impact consumer and investor confidence, and the level of consumer purchases of discretionary items and retail products, including our products. Any of these effects, among others, could materially adversely affect our business, results of operations, and financial condition.

In addition, the prices we pay for raw materials used in our products may be impacted by tariffs. The tariffs initiated by the U.S. government in 2018 under Section 232 of the Trade Expansion Act of 1962 resulted in increased metals prices in the United States. Any future tariffs or quotas imposed on steel and aluminum imports may increase the price of metal, which could have a material adverse effect on our business, prospects, financial condition, results of operations, or cash flows.

Failure of our products could result in a product recall.

The majority of our products are components of our customers’ products that are used in critical industrial applications. A failure of our components could lead to a product recall. If a recall were to happen as a result of our components failing, we could bear a substantial part of the cost of correction. In addition to the cost of fixing the parts affected by the component, a recall could result in the loss of a portion of or all of the customer’s business and damage our reputation. A successful product recall claim requiring that we bear a substantial part of the cost of correction or the loss of a key customer could have a material adverse effect on our business, prospects, financial condition, results of operations, or cash flows.

Our markets are highly competitive, and many of our competitors have significant advantages that could adversely affect our business.

We face substantial competition in the sale of components, system subassemblies, and finished devices in the vertical end markets into which we sell our products. Our competitors are continuously exploring and implementing improvements in technology and manufacturing processes in order to improve product quality, and our ability to remain competitive will depend, among other things, on whether we are able to keep pace with such quality improvements in a cost-effective manner. Due to this competitiveness, we may not be able to increase prices for our products to cover cost increases. In many cases we face pressure from our customers to reduce prices, which could adversely affect our business, prospects, financial condition, results of operations, or cash flows. In addition, our customers may choose to purchase products from one of our competitors rather than pay the prices we seek for our products, which could adversely affect our business, prospects, financial condition, results of operations, or cash flows.

Any loss of key personnel and the inability to attract and retain qualified employees could have a material adverse impact on our operations.

We are dependent on the continued services of key executives and personnel. The departure of our key personnel without adequate replacement could severely disrupt our business operations. Additionally, we need qualified managers and skilled employees with technical and manufacturing industry experience to operate our businesses successfully. From time to time, there may be shortages of skilled labor, which may make it more difficult and

expensive for us to attract and retain qualified employees. If we are unable to attract and retain qualified individuals or our costs to do so increase significantly, our operations would be materially adversely affected.

Damage to our reputation could harm our businesses, including our competitive position and business prospects.

Our ability to attract and retain customers, supplier, investors and employees is impacted by our reputation. Harm to our reputation can arise from various sources, including employee misconduct, security breaches, unethical behavior, litigation or

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regulatory outcomes. The consequences of damage to our reputation include, among other things, increasing the number of litigation claims and the size of damages asserted or subjecting us to enforcement actions, fines, and penalties, all of which would cause us to incur significant defense related costs and expenses.

Risks Related to Legal and Regulatory Compliance

Environmental, health and safety laws and regulations impose substantial costs and limitations on our operations, environmental compliance may be more costly than we expect, and any adverse regulatory action may materially adversely affect our business.

We are subject to extensive federal, state, local and foreign environmental, health and safety laws and regulations concerning matters such as air emissions, wastewater discharges, solid and hazardous waste handling and disposal and the investigation and remediation of contamination. The risks of substantial costs, liabilities and limitations on our operations related to compliance with these laws and regulations are an inherent part of our business, and future conditions may develop, arise or be discovered that create substantial environmental compliance or remediation liabilities and costs.

Compliance with environmental, health and safety legislation and regulatory requirements may prove to be more limiting and costly than we anticipate. To date, we have committed significant expenditures in our efforts to achieve and maintain compliance with these requirements at our facilities, and we expect that we will continue to make significant expenditures related to such compliance in the future. From time to time, we may be subject to legal proceedings brought by private parties or governmental authorities with respect to environmental matters, including matters involving alleged noncompliance with or liability under environmental, health and safety laws, property damage or personal injury. New laws and regulations, including those which may relate to emissions of greenhouse gases, stricter enforcement of existing laws and regulations, the discovery of previously unknown contamination or the imposition of new clean-up requirements could require us to incur costs or become the basis for new or increased liabilities that could have a material adverse effect on our business, prospects, financial condition, results of operations, or cash flows.

Our medical devices are subject to regulation by numerous government agencies, including the FDA and comparable agencies outside the U.S. To varying degrees, each of these agencies requires us to comply with laws and regulations governing the development, testing, manufacturing, labeling, marketing and distribution of our medical devices. We cannot guarantee that we will be able to obtain marketing clearance for our new products or enhancements or modifications to existing products. If such approval is obtained, it may:

- take a significant amount of time;
- require the expenditure of substantial resources;
- involve stringent clinical and pre-clinical testing, as well as increased post-market surveillance;
- involve modifications, repairs or replacements of our products; and
- result in limitations on the proposed uses of our products.

Both before and after a product is commercially released, we have ongoing responsibilities under FDA regulations. We are also subject to periodic inspections by the FDA to determine compliance with the FDA's requirements, including primarily the quality system regulations and medical device reporting regulations. The results of these inspections can include inspectional observations on FDA's Form-483, warning letters, or other forms of enforcement. Since 2009, the FDA has significantly increased its oversight of companies subject to its regulations, including medical device companies, by hiring new investigators and stepping up inspections of manufacturing facilities. The FDA has also significantly increased the number of warning letters issued to companies. If the FDA were to conclude that we are not in compliance with applicable laws or regulations, or that any of our medical devices are ineffective or pose an unreasonable health risk, the FDA could ban such medical devices, detain or seize adulterated or misbranded medical devices, order a recall, repair, replacement or refund of such devices, refuse to grant pending pre-market approval applications or require certificates of foreign governments for exports, and/or require us to notify health professionals and others that the devices present unreasonable risks of substantial harm to the public health. The FDA may also impose operating restrictions on a company-wide basis, enjoin and/or restrain certain conduct resulting in violations of applicable law pertaining to medical devices, and assess civil or criminal penalties against our officers,

employees, or us. The FDA may also recommend prosecution to the Department of Justice. Any adverse regulatory action, depending on its magnitude, may restrict us from effectively marketing and selling our products. Foreign governmental regulations have become increasingly stringent and more common, and we may become subject to more rigorous regulation by foreign governmental authorities in the future. Penalties for a company's non-compliance with foreign governmental regulation could be severe, including revocation or suspension of a company's business license and criminal sanctions. Any domestic or foreign governmental law or regulation imposed in the future may have a material adverse effect on us.

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Changes in U.S. tax laws could have a material adverse effect on our business, cash flow, results of operations and financial condition.

Changes in U.S. tax laws, tax rulings, or interpretations of existing laws could materially affect our business, cash flow, results of operations, and financial condition. In particular, on December 22, 2017, the U.S. government enacted comprehensive Federal tax legislation commonly referred to as the Tax Cuts and Jobs Act of 2017 (the “U.S. Tax Cuts and Jobs Act of 2017”). The U.S. Tax Cuts and Jobs Act of 2017 introduces significant changes to U.S. income tax law that have had a meaningful impact on our provision for income taxes. Accounting for the income tax effects of the U.S. Tax Cuts and Jobs Act of 2017 requires significant judgments and estimates in the interpretation and calculations of the provisions of the U.S. Tax Cuts and Jobs Act of 2017.

We have identified a material weakness in our internal control over financial reporting which could, if not remediated, result in material misstatements in our financial statements.

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rule 13a-15(f) under the Exchange Act. Management disclosed in its 2017 Annual Report on Form 10-K certain material weaknesses in our internal control over financial reporting. Although we were successful in remediating three of the four material weaknesses during 2018, we were unsuccessful in remediating all of them. As a result, our management concluded that we did not maintain effective internal control over financial reporting as of December 31, 2018. With the oversight of senior management and the audit committee, we have begun taking steps to remediate the underlying cause of the remaining material weakness and improve our control environment. Until remediated, this material weakness could result in future errors to our financial statements.

If we are unable to successfully remediate this material weakness in our internal control over financial reporting, or if we identify any additional material weaknesses that may exist, the accuracy and timing of our financial reporting may be adversely affected. Our failure to file periodic and certain current reports with the SEC in a timely manner, among other things, could in the future preclude or delay us from being eligible to use a short form registration statement on Form S-3 to register certain sales of our common stock by us or our stockholders and could even result in the suspension of trading of our common stock on the Nasdaq Stock Market LLC (“Nasdaq”) and/or the revocation of our registration by the SEC. Any of these consequences may have a material adverse effect on our business and results of operations.

Risks Related to Our Capitalization

Our indebtedness could adversely affect our business, prospects, financial condition, results of operations, or cash flows.

As of December 31, 2018, we had approximately \$859.6 million of indebtedness outstanding and an additional \$76.6 million of unused borrowings under our debt agreements. Our high degree of leverage could have important consequences, including:

- increasing our vulnerability to adverse economic, industry, or competitive developments; requiring a substantial portion of our cash flows from operations to be dedicated to the payment of principal and interest on our indebtedness, therefore reducing our ability to use our cash flows to fund operations, capital expenditures, and future business opportunities;
- exposing us to the risk of increased interest rates, which could cause our debt service obligations to increase significantly;
- making it more difficult for us to satisfy our obligations with respect to our indebtedness, and any failure to comply with the obligations of any of our debt instruments, including restrictive covenants and borrowing conditions, could result in an event of default under our debt agreements;
- restricting us from making strategic acquisitions or causing us to make non-strategic divestitures;
- limiting our ability to obtain additional financing for working capital, capital expenditures, product and service development, debt service requirements, acquisitions, and general corporate or other purposes; and
- limiting our flexibility in planning for, or reacting to, changes in our business or market conditions and placing us at a competitive disadvantage compared to our competitors who are less highly leveraged and who, therefore, may be able

to take advantage of opportunities that our leverage may prevent us from exploiting. If any one of these events were to occur, our business, prospects, financial condition, results of operations, or cash flows could be materially and adversely affected. For more information regarding our indebtedness, please see “Management’s Discussion and Analysis of Financial Condition and Results of Operations — Liquidity and Capital Resources.”

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Despite our high indebtedness level, we will still be able to incur substantial additional amounts of debt, which could further exacerbate the risks associated with our substantial indebtedness.

We and our subsidiaries may be able to incur substantial additional indebtedness in the future. Although our debt agreements contain restrictions on the incurrence of additional indebtedness, these restrictions are subject to a number of significant qualifications and exceptions, and under certain circumstances, the amount of indebtedness that could be incurred in compliance with these restrictions could be substantial. If new debt is added to our and our subsidiaries' debt levels, the related risks that we now face could increase.

Our debt agreements contain restrictions that will limit our flexibility in operating our business.

Our debt agreements contain various incurrence covenants that limit our ability to engage in specified types of transactions. These incurrence covenants will limit our ability to, among other things:

- incur additional indebtedness or issue certain preferred equity;
- pay dividends on, repurchase, or make distributions in respect of our capital stock, prepay, redeem, or repurchase certain debt or make other restricted payments;
- make certain investments and acquisitions;
- create certain liens;
 - enter into agreements restricting our subsidiaries' ability to pay dividends to us;
- consolidate, merge, sell or otherwise dispose of all or substantially all of our assets;
- alter our existing businesses; and
- enter into certain transactions with our affiliates.

In addition, the incurrence covenants in our debt agreements require us to meet specified financial ratios and satisfy other financial condition tests. Our ability to meet those financial ratios and tests will depend on our ongoing financial and operating performance, which, in turn, will be subject to economic conditions and to financial, market, and competitive factors, many of which are beyond our control. A breach of any of these covenants could result in a default under one or more of our debt agreements and permit our lenders to cease making loans to us under our credit facility (as defined below). Furthermore, if we were unable to repay the amounts due and payable under our secured debt agreements, our secured lenders could proceed against the collateral granted to them to secure our borrowings. Such actions by the lenders could also cause cross defaults under our other debt agreements.

We may not be able to generate sufficient cash to service all of our indebtedness, and we may not be able to refinance our debt obligations as they mature.

Our ability to make scheduled payments on or to refinance our debt obligations depends on our financial condition and operating performance, which is subject to prevailing economic and competitive conditions and to certain financial, business and other factors beyond our control. We may not be able to maintain a level of cash flows from operating activities sufficient to permit us to pay the principal, premium, if any, and interest on our indebtedness. We regularly review our capital structure, various financing alternatives and conditions in the debt and equity markets in order to opportunistically enhance our capital structure. In connection therewith, we may seek to refinance or retire existing indebtedness, incur new or additional indebtedness or issue equity or equity-linked securities, in each case, depending on market and other conditions. As our debt obligations mature or if our cash flows and capital resources are insufficient to fund our debt service obligations, we may be forced to reduce or delay investments and capital expenditures, or to sell assets, seek additional capital, or restructure or refinance our indebtedness. Our ability to restructure or refinance our debt will depend on the condition of the capital markets and our financial condition at such time. Any refinancing of our debt could be at higher interest rates and may require us to comply with more onerous covenants, which could further restrict our business operations. The terms of our existing or future debt instruments may restrict us from adopting some of these alternatives. In addition, any failure to make payments of interest and principal on our outstanding indebtedness on a timely basis would likely result in a reduction of our credit rating, which could harm our ability to incur additional indebtedness. These alternative measures may not be successful and may not permit us to meet our scheduled debt service obligations.

We have international operations that are subject to foreign economic uncertainties and foreign currency fluctuation.

Approximately 29% of our revenues are denominated in foreign currencies, which may result in additional risk of fluctuating currency values and exchange rates and controls on currency exchange. Changes in the value of foreign currencies could increase our U.S. dollar costs for, or reduce our U.S. dollar revenues from, our foreign operations. Any increased costs or

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reduced revenues as a result of foreign currency fluctuations could affect our profits. In 2018, the U.S. dollar strengthened compared to the Brazilian real, which unfavorably affected our revenue by \$4.0 million. In contrast, a weakening of the U.S. dollar may beneficially affect our business, prospects, financial condition, results of operations, or cash flows.

The price of our common stock may be volatile.

The market price of our common stock could be subject to significant fluctuations and may decline. Among the factors that could affect our stock price are:

- macro or micro-economic factors;
- our operating and financial performance and prospects;
- quarterly variations in the rate of growth of our financial indicators, such as earnings per share, net income and revenues;
- changes in revenue or earnings estimates or publication of research reports by analysts;
- loss of any member of our senior management team;
- speculation in the press or investment community;
- strategic actions by us or our competitors, such as acquisitions or restructuring;
- sales of our common stock by stockholders;
- general market conditions;
- domestic and international economic, legal and regulatory factors unrelated to our performance;
- loss of a major customer; and
- the declaration and payment of a dividend.

The stock markets in general have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. These broad market fluctuations may adversely affect the trading price of our common stock. In addition, due to the market capitalization of our stock, our stock tends to be more volatile than large capitalization stocks that comprise the Dow Jones Industrial Average or Standard and Poor's 500 Index.

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Provisions in our charter documents and Delaware law may inhibit a takeover, which could adversely affect the value of our common stock.

Our certificate of incorporation and bylaws, as well as Delaware corporate law, contain provisions that could delay or prevent a change of control or changes in our management that a stockholder might consider favorable and may prevent shareholders from receiving a takeover premium for their shares. These provisions include, for example, a classified board of directors and the authorization of our board of directors to issue up to five million preferred shares without a stockholder vote. In addition, our certificate of incorporation provides that stockholders may not call a special meeting.

We are a Delaware corporation subject to the provisions of Section 203 of the Delaware General Corporation Law, an anti-takeover law. Generally, this statute prohibits a publicly-held Delaware corporation from engaging in a business combination with an interested stockholder for a period of three years after the date of the transaction in which such person became an interested stockholder, unless the business combination is approved in a prescribed manner. A business combination includes a merger, asset sale or other transaction resulting in a financial benefit to the stockholder. We anticipate that the provisions of Section 203 may encourage parties interested in acquiring us to negotiate in advance with our board of directors, because the stockholder approval requirement would be avoided if a majority of the directors then in office approve either the business combination or the transaction that results in the stockholder becoming an interested stockholder.

These provisions apply even if the offer may be considered beneficial by some of our stockholders. If a change of control or change in management is delayed or prevented, the market price of our common stock could decline.

Risks Related to Acquisitions and Divestitures

Acquisitions may constitute an important part of our future growth strategy.

Acquiring businesses that complement or expand our operations has been and may continue to be a key element of our business strategy. We regularly evaluate acquisition transactions, sign non-disclosure agreements, and participate in processes with respect to acquisitions, some of which may be material to us. We cannot assure you that we will be successful in identifying attractive acquisition candidates or completing acquisitions on favorable terms in the future. In addition, we may borrow funds or issue equity to acquire other businesses, increasing our interest expense and debt levels or diluting our existing stockholders' ownership interest in us. Our inability to acquire businesses, or to operate them profitably once acquired, could have a material adverse effect on our business, financial condition, results of operations, and cash flows. Our borrowing agreements limit our ability to complete acquisitions without prior approval of our lenders. We have had difficulty with purchase accounting and other aspects related to the accounting for our acquisitions which resulted in material weaknesses in our internal control over financial reporting. Although we have remediated these material weaknesses, there can be no assurances we will not face similar issues with respect to any future acquisitions.

We may not realize all of the anticipated benefits from completed acquisitions or any future strategic portfolio acquisition, or those benefits may take longer to realize than expected.

We either may not realize all of the anticipated benefits from completed acquisitions or any future strategic portfolio acquisition, or it may take longer to realize such benefits. Achieving those benefits depends on the timely, efficient and successful execution of a number of post-acquisition events, including integrating the acquired businesses into our existing businesses. The integration process may disrupt the businesses and, if implemented ineffectively, would preclude the realization of the full anticipated benefits. The difficulties of combining the operations of acquired companies include, among others:

- the diversion of management's attention to integration matters;
- difficulties in the integration of operations and systems, including, without limitation, the complexities associated with managing the expanded operations of a significantly larger and more complex company, addressing possible differences in corporate cultures and management philosophies and the challenge of integrating complex systems, technology, networks and other assets of each of the acquired companies;
- difficulties in achieving anticipated cost savings, synergies, business opportunities and growth prospects from combining the acquired businesses with our own;

the inability to implement effective internal controls, procedures and policies for acquired businesses as required by the Sarbanes-Oxley Act of 2002 within the time periods prescribed thereby;

- the exposure to potential unknown liabilities and unforeseen increased expenses or delays associated with acquired businesses;
- challenges in keeping existing customers and obtaining new customers;
- challenges in attracting and retaining key personnel; and

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the disruption of, or the loss of momentum in, ongoing operations or inconsistencies in standards, controls, procedures and policies.

Many of these factors will be outside of our control and any one of them could result in increased costs, decreases in the amount of expected revenues and diversion of management's time and energy, which could materially impact our business, prospects, financial condition, results of operations, or cash flows.

Additionally, we incurred a significant amount of debt in connection with our acquisitions in the past few years.

Finally, in relation to such acquisitions, we have significantly higher amounts of intangible assets, including goodwill. These intangible assets will be subject to impairment testing, and we could incur a significant impact to our financial statements in the form of an impairment if assumptions and expectations related to our acquisitions are not realized.

During the year ended December 31, 2018, we recognized a goodwill impairment charge of \$182.5 million.

We have and will continue to incur expenses related to our acquisitions and the integration of our acquired companies.

We have and will continue to incur expenses related to our acquisitions and the integration of our acquired companies.

While we have assumed that a certain level of expenses will be incurred, there are many factors beyond our control that could affect the total amount or the timing of the integration expenses. Moreover, many of the expenses that will be incurred are, by their nature, difficult to estimate accurately. These integration expenses may result in us taking charges against earnings, and the amount of any future charges are uncertain at present.

We may be unable to realize the anticipated cost or capital expenditure savings or may incur additional and/or unexpected costs in order to realize them.

There can be no assurance that we will be able to realize the anticipated cost or capital expenditure savings from our acquisitions in the anticipated amounts or within the anticipated timeframes or at all. With respect to each acquisition, we anticipate implementing a series of cost savings initiatives that we expect to result in recurring, annual run-rate cost savings. These or any other cost or capital expenditure savings that we realize may differ materially from our estimates. We cannot provide assurances that these anticipated savings will be achieved or that our programs and improvements will be completed as anticipated or at all. In addition, any cost savings that we realize may be offset, in whole or in part, by reductions in revenues or through increases in other expenses.

Our projections and assumptions related to cost savings are based on our current estimates, but they involve risks, uncertainties, projections and other factors that may cause actual results, performance or achievements to be materially different from any future results, performance or achievements, express or implied. Neither our independent registered public accounting firm nor any other independent auditors, have examined, compiled or performed any procedures with respect to these projections, nor have they expressed any opinion, or any other form of assurance on such information or their achievability. Assumptions relating to our projections involve subjective decisions and judgments with respect to, among other things, the estimated impact of certain operational adjustments, including Six Sigma/OpEx optimization programs, product grouping and rationalization, facility rationalization and shared services cost savings and other cost and savings adjustments, as well as future economic, competitive, industry and market conditions and future business decisions, all of which are inherently uncertain and may be beyond the control of our management.

Failure to realize the expected costs savings and operating synergies related to our acquisitions could result in increased costs and have an adverse effect on our business, prospects, financial condition, results of operations, or cash flows.

Our future results could suffer if we cannot effectively manage our expanded operations, which are significantly larger and more complex following our acquisitions.

As a result of our acquisitions over the past few years, the size and scope of our operations were significantly increased. Our future success depends, in part, upon our ability to manage the expanded operations, which will pose challenges for management, including challenges related to the management and monitoring of new operations and associated increased costs and complexity. We may not have the expertise, experience and resources to pursue or successfully operate all of our businesses at once. The administration of our businesses requires implementation and oversight of appropriate operations, management, compliance and financial reporting systems and controls. We may experience difficulties in effectively implementing and overseeing these and other systems. Such implementation and initial oversight will require the focused attention of our management team, including a significant commitment of its

time and resources. The need for management to focus on these matters could have a material and adverse impact on our revenues and operating results. There can be no assurance that we will be successful or that we will realize any operating efficiencies, cost savings, revenue enhancements or other benefits currently anticipated from our acquisitions.

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The indemnification provisions of acquisition agreements by which we have acquired companies may not fully protect us and may result in unexpected liabilities.

Certain of the acquisition agreements from past acquisitions require the former owners to indemnify us against certain liabilities related to the operation of each of their companies before we acquired it. In most of these agreements, however, the liability of the former owners is limited in amount and duration and certain former owners may not be able to meet their indemnification responsibilities. These indemnification provisions may not fully protect us, and as a result we may face unexpected liabilities that adversely affect our profitability and financial position.

Our participation in joint ventures could expose us to additional risks from time to time.

We currently have a 49% investment in a Chinese joint venture and may participate in additional joint ventures from time to time. Our participation in joint ventures is subject to risks that may not be present with other methods of ownership, including:

- our joint venture partners could have investment and financing goals that are not consistent with our objectives, including the timing, terms and strategies for any investments, and what levels of debt to incur or carry;
- we could experience an impasse on certain decisions because we do not have sole decision-making authority, which could require us to expend additional resources on resolving such impasses or potential disputes, including litigation or arbitration;

- our ability to transfer our interest in a joint venture to a third party may be restricted and the market for our interest may be limited;

- our joint venture partners might become bankrupt, fail to fund their share of required capital contributions or fail to fulfill their obligations as a joint venture partner, which may require us to infuse our own capital into the venture on behalf of the partner despite other competing uses for such capital; and

- our joint venture partners may have competing interests in our markets that could create conflict of interest issues. Any divestitures and discontinued operations could negatively impact our business and retained liabilities from businesses that we may sell could adversely affect our financial results.

As part of our portfolio management process, we review our operations for businesses which may no longer be aligned with our strategic initiatives and long-term objectives. Divestitures pose risks and challenges that could negatively impact our business, including required separation or carve-out activities and costs, disputes with buyers or potential impairment charges. We may also dispose of a business at a price or on terms that are less than we had previously anticipated. After reaching an agreement with a buyer for the disposition of a business, we are also subject to satisfaction of pre-closing conditions, as well as necessary regulatory and governmental approvals on acceptable terms, which may prevent us from completing a transaction. Dispositions may also involve continued financial involvement, as we may be required to retain responsibility for, or agree to indemnify buyers against contingent liabilities related to businesses sold, such as lawsuits, tax liabilities, lease payments, product liability claims or environmental matters. Under these types of arrangements, performance by the divested businesses or other conditions outside of our control could affect future financial results.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

As of December 31, 2018, we owned or leased 51 facilities in a total of seven countries, which includes a 49% equity interest in a manufacturing joint venture in China. Utilization of these sites may vary with product mix and economic, seasonal, and other business conditions. Our plants generally have sufficient capacity for existing needs and expected near-term growth. These plants are generally well maintained, in good operating condition, and suitable and adequate for their use. The following table lists the locations of our facilities by segment.

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Mobile Solutions Group

Location	General Character	Country	Owned or Leased
Boituva	Plant	Brazil	Leased
Campinas	Office	Brazil	Leased
Dowagiac, Michigan	Plant	U.S.A.	Owned
Juarez	Plant	Mexico	Leased
Kamienna Gora	Plant	Poland	Owned
Kentwood, Michigan	Plant 1	U.S.A.	Leased
Kentwood, Michigan	Plant 2	U.S.A.	Leased
Kentwood, Michigan	Plant 3, Warehouse	U.S.A.	Leased
Kentwood, Michigan	Office	U.S.A.	Owned
Marnaz	Plant	France	Owned
Marshall, Michigan	Plant 1	U.S.A.	Leased
Marshall, Michigan	Plant 2	U.S.A.	Leased
Sao Joao da Boa Vista	Plant 1	Brazil	Leased
Sao Joao da Boa Vista	Plant 2	Brazil	Leased
Wellington, Ohio	Plant 1	U.S.A.	Leased
Wellington, Ohio	Plant 2	U.S.A.	Leased
Wuxi	Plant	China	Leased

Power Solutions Group

Location	General Character	Country	Owned or Leased
Algonquin, Illinois	Plant	U.S.A.	Owned
Attleboro, Massachusetts	Plant 1	U.S.A.	Owned
Attleboro, Massachusetts	Plant 2	U.S.A.	Leased
Attleboro, Massachusetts	Plant 3	U.S.A.	Owned
Attleboro, Massachusetts	Office	U.S.A.	Leased
Fairfield, Ohio	Plant	U.S.A.	Owned
Foshan City	Plant	China	Leased
Franklin, Massachusetts	Plant	U.S.A.	Leased
Hingham, Massachusetts	Plant	U.S.A.	Leased
Irvine, California	Plant	U.S.A.	Leased
Lubbock, Texas	Plant	U.S.A.	Owned
Mexico City	Plant	Mexico	Owned
North Attleboro, Massachusetts	Plant	U.S.A.	Owned
Palmer, Massachusetts	Plant	U.S.A.	Leased
Placentia, California	Plant	U.S.A.	Leased

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Life Sciences Group

Location	General Character	Country	Owned or Leased
Aurora, Illinois	Plant	U.S.A.	Leased
Bridgeport, Connecticut	Plant 1	U.S.A.	Owned
Bridgeport, Connecticut	Plant 2	U.S.A.	Owned
Changzhou	Plant	China	Leased
East Providence, Rhode Island	Plant	U.S.A.	Leased
Hatfield, Pennsylvania	Plant	U.S.A.	Leased
Indianapolis, Indiana	Plant	U.S.A.	Leased
Lausanne	Office	Switzerland	Leased
Mansfield, Massachusetts	Plant	U.S.A.	Leased
Mansfield, Massachusetts	Warehouse	U.S.A.	Leased
Pierceton, Indiana	Plant	U.S.A.	Leased
Siechnice	Plant	Poland	Owned
Smithfield, Utah	Plant	U.S.A.	Leased
Vandalia, Ohio	Plant	U.S.A.	Leased
Wallingford, Connecticut	Plant	U.S.A.	Leased
Warsaw, Indiana	Plant	U.S.A.	Leased

Joint Venture

Location	General Character	Country	Owned or Leased
Wuxi	Plant	China	Leased

In addition to these manufacturing plants, we lease an office building in Johnson City, Tennessee, which serves as our global shared services center, and an office building in Charlotte, North Carolina, which serves as our corporate headquarters.

Item 3. Legal Proceedings

Prior to the Autocam acquisition, Autocam's Brazilian subsidiary received notification from the Brazilian tax authorities regarding ICMS (State Value Added Tax or VAT) tax credits claimed on intermediary materials (tooling and perishable items) used in the manufacturing process. The Brazilian tax authority notification disallowed state ICMS credits claimed on intermediary materials based on the argument that these items are not intrinsically related to the manufacturing processes. Autocam Brazil filed an administrative defense with the Brazilian tax authority arguing, among other matters, that it should qualify for ICMS tax credit, contending that the intermediary materials are directly related to the manufacturing process. The matter encompasses several lawsuits filed with Brazilian courts requesting declaratory actions that no tax is due or seeking a stay of execution on the collection of the tax. In 2018, we obtained a favorable decision in one of the declaratory actions for which the period for appeal has expired. We have filed actions in each court requesting dismissal of the matter based on the earlier court action. Although we anticipate a favorable resolution to all matters, we can provide no assurances that we will be successful in achieving dismissal of all pending cases.

We believe that we have substantial legal and factual defenses, and we plan to defend our interests in this matter vigorously. While we believe a loss is not probable, we estimate the range of possible losses related to this assessment is from \$0 to \$6.0 million. No amount was accrued at December 31, 2018, for this matter. There was no material change in the status of this matter during 2018.

We are entitled to indemnification from the former shareholders of Autocam, subject to the limitations and procedures set forth in the agreement and plan of merger relating to the Autocam acquisition. Management believes the indemnification would include amounts owed for the tax, interest and penalties related to this matter.

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All other legal proceedings are of an ordinary and routine nature and are incidental to our operations. Management believes that such proceedings should not, individually or in the aggregate, have a material adverse effect on our business, financial condition, results of operations, or cash flows. In making that determination, we analyze the facts and circumstances of each case at least quarterly in consultation with our attorneys and determine a range of reasonably possible outcomes. The procedures performed include reviewing attorney and plaintiff correspondence, reviewing any filings made and discussing the facts of the case with local management and legal counsel. We have not recognized any material loss contingencies at December 31, 2018, or at December 31, 2017.

Item 4. Mine Safety Disclosures

Not applicable.

Part II

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

Our common stock is traded on Nasdaq under the trading symbol "NNBR." As of March 8, 2019, there were approximately 8,100 beneficial owners of record of our common stock, and the closing per share stock price as reported by Nasdaq was \$9.51.

The following graph and table compare the cumulative total shareholder return on our common stock with the cumulative total shareholder return of: (i) the S&P SmallCap 600 Index and (ii) a customized peer group, for the period from December 31, 2013, to December 31, 2018. The customized peer group consists of the following companies, which we believe are in similar lines of business: Actuant Corporation, Altra Industrial Motion Corp., Ametek Inc., CIRCOR International, Inc., Colfax Corporation, Crane, Kaman Corporation, Park-Ohio Holdings Corp. and Worthington Industries, Inc. (collectively, the "Peer Group"). The following graph and table assume that a \$100 investment was made at the close of trading on December 31, 2013, in our common stock and in the S&P SmallCap Index and the Peer Group. We cannot assure you that the performance of our common stock will continue in the future with the same or similar trend depicted on the graph.

Comparison of Five-Year Cumulative Total Return
NN, Inc., Peer Group, and S&P SmallCap 600 Index
(Performance results through 12/31/2018)

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	2013	2014	2015	2016	2017	2018
NN, Inc.	\$100.00	\$103.10	\$80.91	\$98.44	\$144.20	\$35.74
Peer Group	\$100.00	\$89.60	\$76.12	\$89.29	\$112.75	\$92.40
S&P SmallCap 600	\$100.00	\$105.76	\$103.68	\$131.21	\$148.57	\$135.97

Source: Value Line Publishing LLC

The declaration and payment of dividends are subject to the sole discretion of our Board of Directors and depend upon our profitability, financial condition, capital needs, credit agreement restrictions, future prospects and other factors deemed relevant by the Board of Directors.

See Part III, Item 12 – “Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters” of this Annual Report on Form 10-K for information required by Item 201 (d) of Regulation S-K.

Item 6. Selected Financial Data

The following selected financial data has been derived from our audited financial statements. The selected financial data should be read in conjunction with “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in Item 7 and the audited Consolidated Financial Statements, including the Notes thereto, in Item 8.

	Year Ended December 31,				
	2018	2017	2016	2015	2014
Statement of Operations Data:					
Net sales	\$770,657	\$619,793	\$584,954	\$405,443	\$210,575
Cost of sales (exclusive of depreciation and amortization)	588,205	459,080	428,843	320,632	169,263
Goodwill impairment	182,542	—	—	—	—
Income (loss) from operations	(178,888)	33,114	34,779	58	(3,776)
Income (loss) from continuing operations	(264,467)	25,364	(9,490)	(24,375)	(12,788)
Income from discontinued operations, net of tax	—	137,688	16,153	17,889	21,005
Income (loss) from continuing operations per share, basic	\$(8.35)	\$0.92	\$(0.35)	\$(1.15)	\$(0.71)
Income (loss) from continuing operations per share, diluted	\$(8.35)	\$0.91	\$(0.35)	\$(1.15)	\$(0.71)
Cash dividends declared per common share	\$0.28	\$0.28	\$0.28	\$0.28	\$0.28
	As of December 31,				
	2018	2017	2016 ⁽¹⁾	2015 ⁽¹⁾	2014 ⁽¹⁾
Balance Sheet Data:					
Current assets	\$296,871	\$477,280	\$282,328	\$283,910	\$245,131
Current liabilities	145,030	108,421	140,241	132,491	138,485
Total assets	1,501,570	1,475,003	1,358,274	1,388,337	703,892
Long-term obligations	817,549	792,499	788,953	802,011	327,759
Stockholders’ equity	418,295	486,104	309,391	312,431	172,989

Current assets of discontinued operations were \$106.7 million, \$98.9 million, and \$106.3 million as of December 31, 2016, 2015, and 2014, respectively. Current liabilities of discontinued operations were \$45.2 million, \$44.6 (1) million, and \$54.9 million as of December 31, 2016, 2015, and 2014, respectively. Total assets of discontinued operations were \$210.7 million, \$204.4 million, \$214.3 million as of December 31, 2016, 2015, and 2014, respectively.

During 2018, we recognized goodwill impairment charges of \$182.5 million as described in Note 8 to the consolidated financial statements and issued shares of common stock in a public offering as described in Note 15 to the consolidated financial statements. Additionally, acquisitions made in 2018 and 2017 contributed net sales and income from operations of \$153.0 million and \$10.4 million, respectively, for the year ended December 31, 2018, as described in Note 3 to the consolidated financial statements, .

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During 2017, we completed the sale of our global precision bearing components business (the “PBC Business”) and recorded an after-tax gain on sale of \$127.7 million as described Note 2 to the consolidated financial statements. Also during 2017, we acquired DRT Medical, subsequently renamed NN Life Sciences - Vandalia, LLC (“NN Vandalia”), which contributed \$30.7 million to net sales and \$1.5 million to income from operations during the year ended December 31, 2018 and \$6.7 million to net sales and \$0.5 million to loss from operations during the year ended December 31, 2017 as described in Note 3 to the consolidated financial statements.

During 2016, we recognized an increase in net sales of \$174.2 million and increase in income from operations of \$38.5 million primarily due to the acquisition of our former Precision Engineered Products Group.

During 2015, we acquired two businesses, including our former Precision Engineered Products group, which contributed \$40.7 million to net sales and \$5.1 million to loss from operations during the year ended December 31, 2015. Also during 2015, we issued shares of common shares in a public offering with net proceeds used for repayment of principal and interest on existing debt.

During 2014, we acquired several businesses including Autocam Corporation, which is now the Mobile Solutions group. For the year ended December 31, 2014, the acquisitions contributed \$100.7 million to net sales and \$5.8 million to income from operations.

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

The following discussion should be read in conjunction with, and is qualified in its entirety by, the Consolidated Financial Statements and the Notes thereto and Selected Financial Data included elsewhere in this Annual Report on Form 10-K. Historical operating results and percentage relationships among any amounts included in the Consolidated Financial Statements are not necessarily indicative of trends in operating results for any future period. Unless otherwise noted herein, all amounts are in thousands, except per share numbers.

Overview and Management Focus

Our strategy and management focus are based upon the following long-term objectives

- Organic and acquisitive growth within all our segments;
 - Sales growth in adjacent markets
 - Sales growth through acquisitions; and
 - Global expansion of our manufacturing base to better address the global requirements of our customers.
- Management generally focuses on these trends and relevant market indicators

- Global industrial growth and economics;
- Residential and non-residential construction rates;
- Global automotive production rates;
- Surgery rates and U.S. healthcare spending;
- Costs subject to the global inflationary environment, including, but not limited to:
 - Raw materials;
 - Wages and benefits, including health care costs;
 - Regulatory compliance; and
 - Energy;
- Trends related to the geographic migration of competitive manufacturing;
- Regulatory environment for United States public companies and manufacturing companies;
 - Currency and exchange rate movements and trends;
- Interest rate levels and expectations; and
- Changes in tariff regulations.

Management generally focuses on the following key indicators of operating performance

- Sales growth;

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Cost of sales;
 Selling, general and administrative expense;
 Earnings before interest, taxes, depreciation and amortization;
 Return on invested capital;
 Income from operations and adjusted income from operations;
 Net income and adjusted net income;
 Cash flow from operations and capital spending;
 Customer service reliability;
 External and internal quality indicators; and
 Employee development.

Critical Accounting Policies

Our significant accounting policies, including the assumptions and judgment underlying them, are disclosed in Note 1 of the Notes to Consolidated Financial Statements. These policies have been consistently applied in all material respects and address such matters as revenue recognition, inventory valuation, and asset impairment recognition. Due to the estimation processes involved, management considers the following summarized accounting policies and their application to be critical to understanding our business operations, financial condition and results of operations. We cannot assure you that actual results will not significantly differ from the estimates used in these critical accounting policies.

Business Combinations

We allocate the total purchase price of tangible and intangible assets acquired and liabilities assumed based on their estimated fair values as of the business combination date, with the excess purchase price recorded as goodwill. The purchase price allocation process requires us to use significant estimates and assumptions, including fair value estimates, as of the business combination date. Although we believe the assumptions and estimates we have made are reasonable and appropriate, they are based in part on historical experience and information obtained from management of the acquired company. Our assumptions and estimates are also partially based on valuation models that incorporate projections of expected future cash flows and operating plans and are inherently uncertain. Valuations are performed by management or third-party valuation specialists under management's supervision. In determining the fair value of assets acquired and liabilities assumed in business combinations, as appropriate, we may use one of the following recognized valuation methods: the income approach (including discounted cash flows, relief from royalty and excess earnings model), the market approach, or the replacement cost approach.

Examples of significant estimates used to value certain intangible assets acquired include but are not limited to:

- sales volume, pricing and future cash flows of the business overall;
- future expected cash flows from customer relationships, and other identifiable intangible assets, including future price levels, rates of increase in revenue and appropriate attrition rate;
- the acquired company's brand and competitive position, royalty rate quantum, as well as assumptions about the period of time the acquired brand will continue to benefit the combined company's product portfolio; and
- cost of capital, risk-adjusted discount rates, and income tax rates.

Different assumptions regarding projected performance and other factors associated with the acquired assets may affect the amount recorded under each type of asset and liability. The valuations of property, plant and equipment, intangible assets, goodwill and deferred income tax liabilities depend heavily on assumptions. Subsequent assessment could result in future impairment charges. We refine these estimates over a measurement period not to exceed one year to reflect new information obtained surrounding facts and circumstances existing at the acquisition date.

Goodwill and Other Indefinite Lived Intangible Assets

Goodwill is tested for impairment on an annual basis in the fourth quarter and between annual tests if a triggering event occurs. The impairment analysis is performed at the reporting unit level. For the impairment test as of October 1, 2018, we elected to early adopt the new goodwill accounting standard which requires us to calculate an impairment charge based on a reporting unit's carrying amount in excess of its fair value (i.e., step 1 of the two-step impairment test). If the carrying value of the reporting unit including goodwill is less than fair value of the reporting unit, the

goodwill is not considered impaired. Under the new guidance, we no longer perform step 2 of the two-step goodwill impairment test or calculate an impairment charge using

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an implied fair value. Based on the results of performing the first step of the impairment test, the carrying value of certain reporting units exceeded the fair value at December 31, 2018. For the year ended December 31, 2018, we recorded an impairment charge of \$182.5 million to the Consolidated Statements of Operations and Comprehensive Income (Loss).

Power Solutions goodwill as of December 31, 2018 was \$94.5 million. In conjunction with the annual goodwill impairment test during the fourth quarter of 2018, Power Solutions goodwill was impaired by \$109.1 million, resulting in the carrying value of the reporting unit being equal to its fair value. If our assessment of the relevant facts and circumstances change, or if the actual performance falls short of expected results, an additional impairment charge will be required. An impairment of goodwill may also lead us to record an impairment of other intangible assets. The carrying value of finite-lived intangible assets for the Power Solutions group as of December 31, 2018 was \$96.0 million.

Life Sciences has largely grown through acquisitions, with two acquisitions in 2018 plus another acquisition in late-2017. The Company is forecasting continued growth for the Life Sciences group; however, the fair value of the reporting unit exceeds the carrying value by approximately 3.7% in the most recent valuation. If our assessment of the relevant facts and circumstances change, or the actual performance falls short of expected results, the result may lead to impairment charges. Total goodwill for the Life Sciences group as of December 31, 2018 was \$344.9 million. An impairment of goodwill may also lead us to record an impairment of other intangible assets. The carrying amount of finite-lived intangible assets for the Life Sciences group as of December 31, 2018 was \$244.4 million. See Note 8 for further discussion on goodwill.

For the year ended, December 31, 2017, we performed the two-step goodwill impairment test under accounting standards in effect at that time. Based on the results of performing the first step of the impairment test, the fair value of the reporting units exceeded the carrying value of the reporting units at December 31, 2017.

Income Taxes

Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and operating loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. Valuation allowances are recorded to reduce deferred tax assets when it is more likely than not that a tax benefit will not be realized. Provision has been made for income taxes on unremitted earnings of certain foreign subsidiaries as these earnings are not deemed to be permanently reinvested. We recognize income tax positions that meet the more likely than not threshold and accrue interest and potential penalties related to unrecognized income tax positions which are recorded as a component of the provision (benefit) for income taxes.

The calculation of tax assets, liabilities, and expenses under U.S. GAAP is largely dependent on management judgment of the current and future deductibility and utilization of taxable expenses and benefits using a more likely than not threshold. Specifically, the realization of deferred tax assets and the certainty of tax positions taken are largely dependent upon management weighting the current positive and negative evidence for recording tax benefits and expenses. Additionally, many of our positions are based on future estimates of taxable income and deductibility of tax positions. Particularly, our assertion of permanent reinvestment of foreign undistributed earnings is largely based on management's future estimates of domestic and foreign cash flows and current strategic foreign investment plans. In the event that the actual outcome from future tax consequences differs from management estimates and assumptions or management plans and positions are amended, the resulting change to the provision for income taxes could have a material impact on the consolidated results of operations and financial position. (See Note 1 and Note 11 of the Notes to Consolidated Financial Statements).

As of December 31, 2018, the Company is not asserting indefinite reinvestment on unremitted earnings of certain foreign subsidiaries in China and Mexico. We have recorded a U.S. deferred tax liability as applicable for these subsidiaries. All other foreign earnings continue to be considered indefinitely reinvested.

Impairment of Long-Lived Assets

Long-lived tangible and intangible assets subject to depreciation or amortization are tested for recoverability when changes in circumstances indicate the carrying value of these assets may not be recoverable. A test for recoverability is also performed when management has committed to a plan to dispose of a reporting unit or asset group. Assets to be held and used are tested for recoverability when indications of impairment are evident. Recoverability of a long-lived tangible or intangible asset is evaluated by comparing its carrying value to the future estimated undiscounted cash flows expected to be generated by the asset or asset group. If the asset is not recoverable, then the asset is considered impaired and adjusted to fair value which is then depreciated or amortized over its remaining useful life. Assets to be disposed of are recorded at the lesser of carrying value or fair value less costs of disposal. In assessing potential impairment for long-lived assets, we consider forecasted financial performance based, in large part, on management business plans and projected financial information which are subject to a high

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degree of management judgment and complexity. Future adverse changes in market conditions or adverse operating results of the underlying assets could result in having to record additional impairment charges not previously recognized.

Critical Accounting Standards Not Yet Adopted

Leases. In February 2016, the FASB issued ASU 2016-2, Leases. ASU 2016-2 creates Topic 842, Leases, (“ASC 842”) in the ASC and supersedes ASC 840, Leases. Entities that hold numerous equipment and real estate leases, in particular those with numerous operating leases, will be most affected by the new guidance. The lease accounting standard is effective for NN beginning January 1, 2019, with modified retrospective adoption required and early adoption permitted. We intend to utilize the practical expedient to recognize the cumulative-effect adoption adjustment to retained earnings as of January 1, 2019, and not adjust comparative periods. The adoption of ASC 842 is expected to impact our balance sheet by adding lease-related assets and liabilities. The loan covenants in our credit facility provide for the continuation of covenant computations in accordance with U.S. GAAP prior to changes in accounting principles. Therefore, we do not expect the adoption of ASC 842 to affect our compliance. We have performed inquiries within each of our business groups and compiled information on operating and capital leases. We are using the results of these inquiries and compiled information to evaluate the impacts of the lease accounting standard on our financial position, results of operations, and related disclosures. Upon adoption, we expect that leases with terms greater than twelve months that are currently classified as operating leases and not recorded on our balance sheet will be recognized as a right-of-use asset and lease liability. We are implementing an enterprise-wide lease accounting system and are in the process of verifying data in the system that will enable us to determine the amounts of those assets and liabilities. We have reviewed all leases and are in the process of documenting our conclusions, establishing internal controls, and determining discount rates to generate the initial accounting entries upon adoption of the standard. We expect the right-of-use asset and lease liability to be between \$65.0 million and \$95.0 million each.

Results of Operations

Factors That May Influence Results of Operations

The following paragraphs describe factors that have influenced results of operations for the year ended December 31, 2018, that management believes are important to provide an understanding of the business and results of operations, or that may influence operations in the future.

Management Structure

In January 2018, we implemented a new enterprise and management structure designed to accelerate growth and further balance our portfolio by aligning our strategic assets and businesses. Our businesses were reorganized into the Mobile Solutions, Power Solutions, and Life Sciences groups and are based principally on the end markets they serve. The Autocam Precision Components Group reported in our historical financial statements was renamed as Mobile Solutions. The Mobile Solutions group is focused on growth in the general industrial and automotive end markets. The Precision Engineered Products Group reported in our historical financial statements was bifurcated into two new groups – Power Solutions and Life Sciences. The Power Solutions group is focused on growth in the electrical and aerospace and defense end markets. The Life Sciences group is focused on growth in the medical end market. In the first quarter of 2018, we began reporting our financial results based on these new reportable segments. Prior year amounts have been revised to confirm to the current year presentation.

Acquisitions

On May 7, 2018, we acquired 100% of the stock of PMG Intermediate Holding Corporation, the parent company of Paragon Medical for a base purchase price of \$375.0 million in cash, subject to certain adjustments. After working capital and other closing adjustments, the cash purchase price was approximately \$390.9 million which included \$13.6 million in cash acquired. During the year ended December 31, 2018, we received \$1.4 million additional cash from the seller to settle working capital adjustments. For accounting purposes, Paragon Medical meets the definition of a business and has been accounted for as a business combination. Paragon Medical is a medical device manufacturer

which focuses on the orthopedic, case and tray, implant, and instrument markets. This acquisition continues our strategic focus to expand our Life Sciences portfolio as well as create a balanced business by diversifying our products and finished device offerings. Operating results of Paragon Medical are reported prospectively from the date of acquisition in our Life Sciences group. We have performed an assessment of the opening balance sheet which is subject to completion of our integration procedures for accounting policies. Opening balance sheet deferred taxes have been recorded based on estimates made as of the acquisition date as well as information currently available to management. As estimates are refined and additional information is received throughout the measurement period,

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adjustments to opening deferred taxes may be recorded with an offsetting adjustment to goodwill. We incurred new debt in connection with the Paragon Medical acquisition and subsequently repaid the new debt in full with the proceeds from the sale of shares of our common stock. In connection with the closing of the Paragon Medical acquisition, we entered into the Second Lien Credit Agreement for the Second Lien Facility. We utilized the net proceeds from the Second Lien Facility, together with cash on hand, to pay the Paragon Medical purchase price and fees and expenses related to the acquisition. We also entered into an amendment to our existing credit facility to permit the Paragon Medical acquisition, to permit the Second Lien Credit Agreement, and to amend certain covenants (refer to Note 12 to the consolidated financial statements for additional disclosure).

On September 18, 2018, we issued 14.4 million shares of our common stock in a registered public offering. Net proceeds of approximately \$217.3 million were used to repay the Second Lien Facility and a portion of the Senior Secured Revolver.

On February 22, 2018, we completed the acquisition of 100% of the assets of Bridgemedica. For accounting purposes, Bridgemedica meets the definition of a business and has been accounted for as a business combination. Bridgemedica is a medical device company that provides concept to supply solutions through design, development engineering and manufacturing. Operating results of Bridgemedica are reported prospectively in our Life Sciences group after the acquisition date. We have finalized our valuation related to the assets acquired and liabilities assumed.

On August 9, 2018, we completed the acquisition of 100% of the capital stock of Technical Arts. For accounting purposes, Technical Arts meets the definition of a business and has been accounted for as a business combination. Technical Arts is an industrial machining company that manufactures tight tolerance metal components and assemblies. The acquisition of Technical Arts expands the NN presence in the aerospace and defense end market. Operating results of Technical Arts are reported prospectively in our Power Solutions group after the acquisition date. We have completed a preliminary purchase price allocation and are in the process of finalizing the fair value of assets acquired and liabilities assumed.

As discussed in our 2017 Annual Report, on October 2, 2017, we completed the acquisition of NN Vandalia, a supplier of precision manufactured medical instruments and orthopedic implants with locations in Ohio and Pennsylvania.

Discontinued Operations

On August 17, 2017, we completed the sale of our PBC Business. The PBC Business included all our facilities that were engaged in the production of precision steel balls, steel rollers, and metal retainers and automotive specialty products used primarily in the bearing industry. The sale of the PBC Business furthers management's long-term strategy to build a diversified industrial business with a comprehensive geographic footprint in attractive high-growth market segments. The PBC Business represented all of the Precision Bearing Components Group reportable segment disclosed in our historical financial statements.

In accordance with ASC 205-20, Presentation of Financial Statements – Discontinued Operations, the operating results of the PBC Business for 2017 are classified as discontinued operations. The presentation of discontinued operations includes revenues and expenses of the discontinued operations, net of tax, as one line item on the Consolidated Statements of Operations and Comprehensive Income (Loss). All historical Consolidated Statements of Operations and Comprehensive Income (Loss) presented have been revised to reflect this presentation. Accordingly, results of the PBC Business have been excluded from continuing operations and group results for all periods presented in the consolidated financial statements and the accompanying notes unless otherwise stated. Refer to Note 2 in the Notes to Consolidated Financial Statements for more information.

Tax Reform

On December 22, 2017, the U.S. government enacted comprehensive tax legislation. The U.S. Tax Cuts and Jobs Act of 2017 (the "Tax Act") reduced the U.S. federal corporate income tax rate from 35% to 21%, required companies to

pay a one-time transition tax on earnings of certain foreign subsidiaries that were previously tax deferred, and creates new taxes on certain foreign sourced earnings.

We have completed our accounting for the enactment of the Tax Act incorporating assumptions made based upon our current

interpretation of the Tax Act and relevant proposed regulations in accordance with Staff Accounting Bulletin No. 118.

We

have also accounted for impacts of the Tax Act which became effective in 2018. The amounts recorded as it relates to the Tax

Act could change in the future as a result of further guidance and regulations being issued and evaluated.

Financial Data as a Percentage of Net Sales

The following table sets forth for the periods indicated selected financial data and the percentage of our net sales represented by each income statement line item presented.

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	Year Ended December 31,			
	2018	2017	2016	
Net sales	100.0	100.0	100.0	%
Cost of sales (exclusive of depreciation and amortization shown separately below)	76.3	74.1	73.3	%
Selling, general and administrative expense	12.1	12.0	11.0	%
Acquisition related costs excluded from selling, general and administrative expense	0.8	0.1	—	%
Depreciation and amortization	9.2	8.5	8.7	%
Other operating (income) expense, net	0.8	0.1	0.1	%
Goodwill impairment	23.7	—	—	%
Restructuring and integration expense, net	0.3	0.1	1.0	%
Income (loss) from operations	(23.2)	5.1	5.9	%
Interest expense	7.9	8.4	10.7	%
Loss on extinguishment of debt and write-off of debt issuance costs	2.5	6.8	0.4	%
Derivative payments on interest rate swap	—	—	0.1	%
Derivative loss (gain) on change in interest rate swap fair value	—	—	0.4	%
Other (income) expense, net	0.2	(0.3)	(0.5)	%
Loss from continuing operations before benefit for income taxes and share of net income from joint venture	(33.8)	(9.8)	(5.2)	%
Benefit for income taxes	1.4	12.8	2.6	%
Share of net income (loss) from joint venture	(1.9)	0.8	1.0	%
Income (loss) from continuing operations	(34.3)	3.8	(1.6)	%
Income from discontinued operations, net of tax (Note 2)	—	22.2	2.8	%
Net income (loss)	(34.3)	26.0	1.2	%

Sales Concentration

During 2018, sales to various U.S. and foreign divisions of our ten largest customers accounted for approximately 49% of our consolidated net sales. However, no customers individually accounted for more than 10% of our consolidated net sales for 2018. The loss of all or a substantial portion of sales to these customers would cause us to lose a substantial portion of our revenue and have a corresponding negative impact on our income from operations due to the operational leverage these customers provide. This could lead to sales volumes not being high enough to cover our current cost structure or to provide adequate operating cash flows or cause us to incur additional restructuring and/or impairment costs.

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Year Ended December 31, 2018, compared to the Year Ended December 31, 2017

	Year Ended December 31,		
	2018	2017	\$ Change
Net sales	\$770,657	\$619,793	\$150,864
Acquisitions			\$152,952
Volume			7,320
Foreign exchange effects			(2,083)
Price/mix/inflation/other			(7,325)
Cost of sales (exclusive of depreciation and amortization shown separately below)	588,205	459,080	129,125
Acquisitions			\$112,774
Volume			5,785
Foreign exchange effects			(1,438)
Cost reduction projects			(7,501)
Inflation			9,599
Mix/other			9,906
Selling, general and administrative expense	93,583	74,112	19,471
Acquisition related costs excluded from selling, general and administrative expense	5,871	344	5,527
Depreciation and amortization	71,128	52,406	18,722
Other operating (income) expense, net	6,089	351	5,738
Goodwill impairment	182,542	—	182,542
Restructuring and integration expense, net	2,127	386	1,741
Income (loss) from operations	(178,888)	33,114	(212,002)
Interest expense	61,243	52,085	9,158
Loss on extinguishment of debt and write-off of debt issuance costs	19,562	42,087	(22,525)
Derivative loss (gain) on change in interest rate swap fair value	—	(101)	101
Other (income) expense, net	1,341	(2,084)	3,425
Loss from continuing operations before benefit for income taxes and share of net income from joint venture	(261,034)	(58,873)	(202,161)
Benefit for income taxes	10,957	79,026	(68,069)
Share of net income (loss) from joint venture	(14,390)	5,211	(19,601)
Income (loss) from continuing operations	(264,467)	25,364	(289,831)
Income from discontinued operations, net of tax (Note 2)	—	137,688	(137,688)
Net income (loss)	\$(264,467)	\$163,052	\$(427,519)

Net Sales. Net sales increased by \$150.9 million, or 24%, in 2018 compared to 2017, primarily due to \$153.0 million of net sales attributable to the 2018 acquisitions of Paragon Medical and Bridgemedica, and the fourth quarter 2017 acquisition of NN Vandalia, in our Life Sciences group and the Technical Arts business acquired in our Power Solutions group. Higher volumes contributed another \$7.3 million to the increase primarily as a result of demand improvements within the automotive, life sciences, and electrical end markets. These increases were partially offset by unfavorable foreign exchange effects of \$2.1 million.

Cost of Sales. The increase in cost of sales was primarily due to \$112.8 million in cost of sales attributable to the Paragon Medical, Bridgemedica, NN Vandalia, and Technical Arts acquisitions. Higher volumes also contributed \$5.8 million to the increase, consistent with the increase in sales demand. These volume increases were partially offset by favorable foreign exchange effects and \$7.5 million in cost savings from production process improvement projects. Inflation and wage increases contributed \$9.6 million to the increase in cost of sales.

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Selling, General and Administrative Expense. The majority of the increase in selling, general and administrative expense during the year ended December 31, 2018, compared to the year ended December 31, 2017, was due to the Paragon Medical, Bridgemedica, NN Vandalia, and Technical Arts businesses which collectively contributed \$12.5 million to selling, general and administrative expense during the year ended December 31, 2018. Infrastructure and staffing costs incurred related to our strategic initiatives, including integration of recent acquisitions and a global implementation of an enterprise resource planning (“ERP”) systems, also contributed to the increase. These increases were partially offset by lower incentive compensation expense in 2018 as compared to 2017.

Acquisition Related Costs Excluded from Selling, General and Administrative. Acquisition related costs are primarily third party legal, accounting, valuation consulting and investment banking advisory fees incurred in connection with the Life Sciences acquisitions.

Depreciation and Amortization. The increase in depreciation and amortization during the year ended December 31, 2018, compared to the year ended December 31, 2017, was consistent with additions to intangible assets and property, plant and equipment, including \$16.1 million from the Paragon Medical, Bridgemedica, NN Vandalia, and Technical Arts businesses. This additional depreciation and amortization expense includes the effects of related fair value adjustments to certain property, plant and equipment and the addition of intangible assets, principally for customer relationships and trade names.

Other Operating (Income) Expense, Net. Other net operating expense in the year ended December 31, 2018, primarily resulted from impairment charges on property, plant and equipment of \$5.2 million and a loss on the sale of property, plant and equipment of \$0.6 million partially offset by a \$0.7 million change in fair value of a contingent earnout liability associated with the Bridgemedica acquisition.

Goodwill Impairment. The increase in goodwill impairment in the year ended December 31, 2018 was the result of goodwill impairment charges at Mobile Solutions and Power Solutions. See Note 8 in the Notes to Consolidated Financial Statements for more information on the impairment charges.

Restructuring and Integration Expense. The increase in restructuring and integration expense was primarily due to employee severance costs incurred in connection with implementing our new enterprise and management structure. Note 13 in the Notes to Consolidated Financial Statements provides more information regarding the effects of restructuring and integration on our operating results.

Interest Expense. Interest expense increased by \$9.2 million during the year ended December 31, 2018, compared to the year ended December 31, 2017, primarily due to interest on the Second Lien Facility, which was not in place during the year ended December 31, 2017, and bore interest at a higher rate than our existing credit facility. This increase was partially offset by the redemption of our 10.25% Senior Notes due 2020 (the “Senior Notes”) on April 3, 2017, with the proceeds of our incremental term loan of an aggregate principal amount of \$300.0 million (the “Incremental Term Loan”), which bears an interest rate based on the London Interbank Offered Rate (“LIBOR”) plus an applicable margin of 3.25%, which is lower than the 10.25% fixed interest rate on the Senior Notes. Additionally, LIBOR was higher in the year ended December 31, 2018, compared to the year ended December 31, 2017.

	Year Ended December 31,	
	2018	2017
Interest on debt	\$ 56,977	\$ 47,681
Amortization of debt issuance costs	4,845	4,296
Interest on capital leases and other	624	1,189
Capitalized interest	(1,203)	(1,081)
Total interest expense	\$ 61,243	\$ 52,085

Loss on Extinguishment of Debt and Write-off of Unamortized Debt Issuance Costs. The decrease in the loss on extinguishment of debt and write-off of unamortized debt issuance costs is primarily due to the \$42.1 million write off in 2017 as the result of the extinguishment of the Senior Notes and modification of our credit facility offset by the \$12.9 million write off in 2018 related to the Second Lien Facility. Additionally, we paid a two percent, or \$4.0 million, prepayment penalty and wrote off \$2.6 million of unamortized original issue discount when we paid the Second Lien Facility in full in September 2018.

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Benefit for Income Taxes. Our effective tax rate from continuing operations was 4.2% for the year ended December 31, 2018, compared to 134.2% for the year ended December 31, 2017. Note 11 in the Notes to Condensed Consolidated Financial Statements describes the components of income taxes for each period presented.

Share of Net Income from Joint Venture. The impact on our earnings from a Chinese joint venture in our Mobile Solutions group decreased primarily due to a partial impairment of the investment in the joint venture of \$16.6 million as well as a decrease in the Company's share of net income from the joint venture of \$3.0 million. The joint venture's net income decreased primarily due to price and volume decreases resulting from reduced demand in the Chinese automotive market and increased raw material costs. See Note 10 in the Notes to Consolidated Financial Statements for more information on the impairment charge.

Results by Segment

MOBILE SOLUTIONS

	Year Ended December 31,		
	2018	2017	\$ Change
Net sales	\$335,037	\$336,852	\$(1,815)
Volume			\$4,300
Foreign exchange effects			(1,327)
Price/mix/inflation/other			(4,788)
Goodwill impairment	(73,442)	—	(73,442)
Income from operations	\$(54,103)	\$34,405	\$(88,508)

Net sales decreased in 2018 from 2017 due to price reductions granted to our customers and the negative impact of shifts in foreign currency exchange rates during 2018. These effects were substantially offset by the benefit derived from our steering systems customers increasing their market share as the industry shifts from hydraulics to electric-assist steering systems technologies. Also, as the Brazilian economy improves, demand for automotive products improved during 2018.

Income from operations decreased by \$88.5 million compared to prior year primarily due to an impairment loss on goodwill of \$73.4 million, which was recognized in the Consolidated Statements of Operations and Comprehensive Income (Loss) during the fourth quarter of 2018. In addition, the decrease was due to higher start-up costs related to new product launches, lower customer pricing as noted above, and higher depreciation expense due to capital investments to support new product launches. These factors were partially offset by implementation of cost savings initiatives and the beneficial impact of higher production volumes.

POWER SOLUTIONS

	Year Ended December 31,		
	2018	2017	\$ Change
Net sales	\$189,778	\$186,602	\$3,176
Acquisitions			\$2,521
Volume			2,893
Foreign exchange effects			(756)
Price/mix/inflation/other			(1,482)
Goodwill impairment	(109,100)	—	(109,100)
Income from operations	\$(95,115)	\$23,440	\$(118,555)

Net sales increased in 2018 from 2017 primarily due to growth in sales to customers in the electrical products end market. Sales from the Technical Arts business contributed \$2.5 million to the current year.

Income from operations decreased by \$118.6 million primarily due to an impairment loss on goodwill of \$109.1 million recognized in the Consolidated Statements of Operations and Comprehensive Income (Loss) during the fourth quarter of 2018 as well as a shift in product mix toward higher cost raw materials, such as precious metals used in

power control products, and investments in the development of new products and manufacturing facilities to support growth in the aerospace end market.

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LIFE SCIENCES

	Year Ended December 31,		
	2018	2017	\$ Change
Net sales	\$248,173	\$98,329	\$149,844
Acquisitions			\$150,431
Volume			127
Foreign exchange effects			—
Price/mix/inflation/other			(714)
Goodwill impairment	—	—	—
Income from operations	\$19,136	\$13,271	\$5,865

Net sales increased during the year ended December 31, 2018, from the year ended December 31, 2017, primarily due to \$150.4 million of net sales attributable to the 2018 acquisitions of Paragon Medical and Bridgemedica, and a full year of activity from the 2017 acquisition of NN Vandalia, as well as a \$0.1 million increase in core volume.

Income from operations increased by \$5.9 million primarily due to \$10.7 million contributed by the Paragon Medical, Bridgemedica, and NN Vandalia acquisitions. This increase was partially offset by \$2.6 million of increased operating expenses and \$1.3 million of acquisition related restructuring and integration costs and other costs associated with establishing the Life Sciences Group.

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Year Ended December 31, 2017, compared to the Year Ended December 31, 2016

	Year Ended December 31,			
	2017	2016	\$ Change	
Net sales	\$619,793	\$584,954	\$34,839	
Acquisitions				\$6,682
Volume				25,944
Foreign exchange effects				1,956
Price/mix/inflation/other				257
Cost of sales (exclusive of depreciation and amortization shown separately below)	459,080	428,843	30,237	
Acquisitions				\$6,204
Volume				17,704
Foreign exchange effects				1,796
Cost reduction projects				(3,150)
Inflation				2,506
Mix/other				5,177
Selling, general and administrative expense	74,112	64,144	9,968	
Acquisition related costs excluded from selling, general and administrative expense	344	—	344	
Depreciation and amortization	52,406	50,721	1,685	
Loss (gain) on disposal of assets	351	809	(458)	
Restructuring and integration expense	386	5,658	(5,272)	
Income from operations	33,114	34,779	(1,665)	
Interest expense	52,085	62,870	(10,785)	
Loss on extinguishment of debt and write-off of unamortized debt issuance costs	42,087	2,589	39,498	
Derivative payments on interest rate swap	—	609	(609)	
Derivative loss (gain) on change in interest rate swap fair value	(101)	2,448	(2,549)	
Other (income) expense, net	(2,084)	(2,871)	787	
Loss from continuing operations before benefit for income taxes and share of net income from joint venture	(58,873)	(30,866)	(28,007)	
Benefit for income taxes	79,026	15,438	63,588	
Share of net income from joint venture	5,211	5,938	(727)	
Income (loss) from continuing operations	25,364	(9,490)	34,854	
Income from discontinued operations, net of tax	137,688	16,153	121,535	
Net income	\$163,052	\$6,663	\$156,389	

Net Sales. Net sales increased by \$34.8 million, or 6.0%, in 2017 compared to 2016 primarily due to increased volumes. The higher volumes were primarily due to demand improvements within the life sciences end market, the automotive end market, and the general industrial end market. Additionally, sales from the NN Vandalia business that we acquired on October 2, 2017, contributed \$6.7 million to 2017 sales. Appreciation of the Chinese renminbi and the euro in relation to the U.S. dollar in 2017 also increased net sales year over year.

Cost of Sales. The increase in cost of sales was primarily due to the increase in demand and production volumes as well as changes in product mix and start-up costs for certain new products. Cost of sales for NN Vandalia contributed \$6.2 million to the 2017 increase, which includes a one-time \$0.9 million impact to cost of sales related to inventory valuation as part of purchase accounting. Increases were partially offset by cost savings from production process improvement projects.

Selling, General and Administrative Expense. The increase in selling, general and administrative expense during 2017 compared to 2016 was primarily due to infrastructure and staffing costs incurred related to our strategic initiatives,

including a global implementation of an enterprise resource planning (“ERP”) system.

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Acquisition Related Costs Excluded from Selling, General and Administrative. Acquisition related costs are primarily third party legal, accounting, valuation consulting, and investment banking advisory fees incurred directly related to the NN Vandalia acquisition in 2017.

Depreciation and Amortization. The increase in depreciation and amortization in 2017 was primarily due to additions to property, plant and equipment. The increase was partially offset by a decrease of \$2.5 million related to amortization in 2016 of backlog and unfavorable leasehold intangible assets acquired with the PEP Acquisition. These intangible assets became fully amortized in the first quarter of 2016. The NN Vandalia acquisition contributed \$0.6 million of depreciation and amortization expense to 2017. The NN Vandalia depreciation and amortization includes the related step-ups of certain property, plant and equipment to fair value and the addition of intangible assets principally for customer relationships and trade names.

Restructuring and Integration Expense. The decrease in restructuring and integration expense was primarily due to limited spending on site closure costs in 2017 compared to \$4.3 million of cost incurred in 2016 to close a plant in Wheeling, Illinois, in our Autocam Precision Components Group.

Interest Expense. Interest expense decreased by \$10.8 million in 2017 due to the redemption of the Senior Notes on April 3, 2017, with the proceeds of the Incremental Term Loan, which bears a lower interest rate based on LIBOR. Further interest savings resulted from the refinancing of the Senior Secured Term Loan and Senior Secured Revolver in the third quarter of 2016 and further refinancing of the Senior Secured Term Loan and the Incremental Term Loan on November 24, 2017.

	Year Ended December 31,	
	2017	2016
Interest on debt	\$ 47,681	\$ 57,519
Interest rate swaps settlements	—	1,393
Amortization of debt issuance costs	4,296	4,168
Interest on capital leases and other	1,189	1,379
Capitalized interest	(1,081)	(1,589)
Total interest expense	\$ 52,085	\$ 62,870

Loss on Extinguishment of Debt and Write-off of Unamortized Debt Issuance Costs. The increase in loss on extinguishment of debt and write-off of unamortized debt issuance costs is primarily due to the \$42.1 million write off in 2017 as a result of the extinguishment of the Senior Notes and modification and subsequent refinancing of our credit facility offset by the \$2.6 million write off in 2016 related to debt restructurings that occurred during 2016.

Derivative Loss (Gain) on Change in Interest Rate Swap Fair Value. During the third quarter of 2016, we chose to discontinue hedge accounting. As a result, all amounts of accumulated other comprehensive income were reclassified to earnings.

Benefit for Income Taxes. Our effective tax rate from continuing operations was 134.2% in 2017 compared to 50.0% for 2016. Note 11 in the Notes to Consolidated Financial Statements describes the components of income taxes for each period presented.

Income from Continuing Operations. Benefit for income taxes increased by \$63.6 million primarily as a result of the U.S. Tax Cuts and Jobs Act of 2017. Income from operations of \$33.1 million for 2017 was more than offset by the loss on extinguishment of debt and write-off of unamortized debt issuance cost and interest expense. Also, acquisition related costs accounted for a \$0.3 million reduction in income from operations as compared to 2016. The \$10.8 million reduction in interest expense also contributed to income from continuing operations. Significant components of the changes in income from operations and interest expense were presented in the preceding paragraphs.

Income from Discontinued Operations, Net of Tax. The largest component of income from discontinued operations in 2017 was the \$127.7 million gain on sale of our PBC Business, net of tax. Note 2 in the Notes to Consolidated Financial Statements provides details of the results of discontinued operations.

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Results by Segment

MOBILE SOLUTIONS

	Year Ended December 31,		
	2017	2016	\$ Change
Net sales	\$336,852	\$326,138	\$10,714
Volume			\$9,963
Foreign exchange effects			2,213
Price/mix/inflation/other			(1,462)
Income from operations	34,405	29,490	4,915

Net sales increased in 2017 from 2016 due to industrial market demand improvements in the US and China and new automotive program launches in the US, China and Brazil. We are realizing the indirect benefits of our customers taking an increasing portion of market share. Also, as the Brazilian economy rebounds, demand for automotive products is increasing.

The increase in net sales contributed to the increase in income from operations. Cost reduction projects resulted in savings in cost of sales of approximately \$1.6 million in 2017 compared to 2016. Restructuring costs decreased by \$4.0 million, primarily related to the closure of a plant in Wheeling, Illinois. These factors that increased income from operations were slightly offset by start-up costs for new products and a \$2.3 million increase in depreciation and amortization consistent with recent capital expenditure activity.

POWER SOLUTIONS

	Year Ended December 31,		
	2017	2016	\$ Change
Net sales	\$186,602	\$180,330	\$6,272
Acquisitions			\$ —
Volume			5,759
Foreign exchange effects			(257)
Price/mix/inflation/other			770
Income from operations	23,440	24,060	(620)

Net sales increased in 2017 from 2016 primarily due to the overall improvement in demand across the power solutions end market and sales to new customers within the aerospace and defense market. We have also benefited from the introduction of new products for the aerospace and defense end market.

Income from operations decreased by \$0.6 million primarily due to a shift in product mix toward higher cost raw materials and new program setup costs for certain products sold into the aerospace and defense end market.

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LIFE SCIENCES

	Year Ended December 31,		
	2017	2016	\$ Change
Net sales	\$98,329	\$80,057	\$18,272
Acquisitions			\$6,682
Volume			10,222
Foreign exchange effects			—
Price/mix/inflation/other			1,368
Income from operations	13,271	9,840	3,431

Net sales increased in 2017 from 2016 primarily due to the overall improvement in demand across the life sciences end market and increases in market share for certain medical devices. Sales from the NN Vandalia business acquired on October 2, 2017, contributed \$6.7 million to 2017 sales.

Income from operations increased by \$3.4 million primarily due to the increase in sales associated with the acquisition of NN Vandalia on October 2, 2017 offset by increase in operating expenses.

Changes in Financial Condition from December 31, 2017, to December 31, 2018

From December 31, 2017, to December 31, 2018, total assets increased by \$26.6 million primarily due to assets acquired with the Paragon Medical, Bridgemedica, and Technical Arts businesses which had \$475.6 million of total assets as of December 31, 2018. Paragon Medical, Bridgemedica, and Technical Arts contributed \$172.7 million to goodwill and \$171.1 million to intangible assets. Overall, accounts receivable increased consistently with sales growth. Inventories increased as our plants satisfy customer demand. Days inventory outstanding increased by approximately 4 days as our businesses ramp up manufacturing activity to meet expected customer demand on a timely basis and due to managing procurement based on market price projections. Partially offsetting these increases was a \$206.5 million decrease in cash to fund the Paragon Medical and Bridgemedica acquisitions as well as impairment of goodwill at Mobile Solutions and Power Solutions of \$73.4 million and \$109.1 million, respectively.

From December 31, 2017, to December 31, 2018, total liabilities increased by \$94.4 million, primarily related to debt used to fund operations and capital expenditures and deferred tax liabilities associated with Paragon Medical. Paragon Medical, Bridgemedica, and Technical Arts contributed \$58.9 million to the increase in total liabilities.

Working capital, which consists principally of cash, accounts receivable, inventories, and other current assets offset by accounts payable, accrued payroll costs, income taxes payable, current maturities of long-term debt, and other current liabilities, was \$151.8 million as of December 31, 2018, compared to \$368.9 million as of December 31, 2017. The decrease in working capital was due primarily to the decrease in cash used to fund acquisitions and capital expenditures.

Cash provided by operations was \$40.9 million for the year ended December 31, 2018, compared with cash used by operations of \$28.2 million for the year ended December 31, 2017. The difference was primarily due to the impact of acquisition activities as well as the overpayment of income taxes associated with the sale of the PBC business in 2017, which was refunded to us in 2018, and higher interest payments. Additionally, cash provided by operating activities from discontinued operations included \$14.4 million for the year ended December 31, 2017, and \$17.3 million for the year ended December 31, 2016. The increase was partially offset by an increase in inventory levels.

Cash used by investing activities was \$461.3 million for the year ended December 31, 2018, compared with cash provided by investing activities of \$282.5 million for the year ended December 31, 2017. The difference was primarily due to \$399.0 million of cash paid for the Paragon Medical, Bridgemedica, and Technical Arts acquisitions in 2018 compared to \$371.4 million of cash received for the sale of the PBC Business in 2017. Cash used by investing activities for discontinued operations was \$7.1 million for the year ended December 31, 2017, and \$11.8 million for the year ended December 31, 2016.

Cash provided by financing activities was \$215.1 million for the year ended December 31, 2018, compared with cash used by financing activities of \$45.8 million for the year ended December 31, 2017. The difference was primarily due to net proceeds from the sale of 14.4 million shares of our common stock on September 18, 2018.

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Liquidity and Capital Resources

Aggregate principal amounts outstanding under our Senior Secured Term Loan, Incremental Term Loan, and Senior Secured Revolver as of December 31, 2018, were \$849.8 million (without regard to unamortized debt issuance costs). As of December 31, 2018, we had unused borrowing capacity of \$76.6 million under the Senior Secured Revolver, subject to certain limitations. This amount of availability is net of \$9.7 million of outstanding letters of credit at December 31, 2018, which are considered as usage of the Senior Secured Revolver.

Collectively, our Senior Secured Term Loan, Incremental Term Loan, and Senior Secured Revolver comprise our credit facility. Principal available under the Senior Secured Revolver was \$125.0 million as of December 31, 2018. Available principal may be restored to \$143.0 million upon the achievement of certain requirements. Our credit facility is subject to certain financial covenants based on a consolidated net leverage ratio, as defined in the credit facility agreement. The financial covenants are effective when we have outstanding amounts drawn on our Senior Secured Revolver on the last day of any fiscal quarter and become more restrictive over time. We had a \$38.7 million outstanding balance on the Senior Secured Revolver as of December 31, 2018, and we were in compliance with all covenants under our credit facility. The Senior Secured Revolver matures on October 19, 2020.

The Senior Secured Term Loan requires quarterly principal payments of \$1.4 million through October 19, 2022, with the remaining principal amount due on the maturity date. If one-month LIBOR is less than 0.75%, then we pay 4.50% per annum in interest. If one-month LIBOR exceeds 0.75%, then we pay the variable one-month LIBOR plus an applicable margin of 3.75%. Based on the outstanding balance and interest rate in effect at December 31, 2018, annual interest payments would have been \$33.3 million.

The Incremental Term Loan requires quarterly principal payments of \$3.0 million through April 3, 2021, with the remaining principal amount due on the maturity date. The Incremental Term Loan bears interest at the variable one-month LIBOR plus an applicable margin of 3.25%. Based on the outstanding balance and interest rate in effect at December 31, 2018, annual interest payments would have been \$16.1 million.

The Senior Secured Revolver bears interest at a rate of one-month LIBOR plus an applicable margin of 3.50%. Based on the outstanding balance and interest rate in effect at December 31, 2018, annual interest payments would have been \$2.3 million. We pay a quarterly commitment fee at an annual rate of 0.50% on the Senior Secured Revolver for unused capacity.

In connection with the closing of Paragon Medical on May 7, 2018, we amended our existing credit facility to permit the acquisition of Paragon Medical, to permit the addition of the Second Lien Facility, and to amend certain covenants. We entered into the \$200.0 million Second Lien Facility on May 7, 2018, to partially fund the acquisition of Paragon Medical. The Second Lien Facility bore interest at a rate of one-month LIBOR plus an applicable margin of 8.00%. We voluntarily prepaid in full the \$200.0 million outstanding principal balance with proceeds from the sale of shares of our common stock on September 18, 2018. We paid a prepayment penalty of two percent of the outstanding balance, or \$4.0 million, and wrote off \$2.6 million of unamortized debt issuance costs. We paid interest of \$7.5 million for the period from May 7, 2018 through September 18, 2018.

On September 18, 2018, we issued 14.4 million shares of our common stock in a registered public offering. Net proceeds of approximately \$217.3 million were used to repay the Second Lien Facility and a portion of the Senior Secured Revolver.

On February 8, 2019, the Company entered into a fixed-rate interest swap agreement. Refer to Item 7A – “Quantitative and Qualitative Disclosures About Market Risk” for additional discussion.

As of December 31, 2018, we had \$18.0 million of cash and \$76.6 million of unused borrowing capacity under our Senior Secured Revolver. We believe that these sources of cash and funds generated from our consolidated continuing operations will provide sufficient cash flow to service the required debt and interest payments under our existing credit facility and to fund our operating activities, capital expenditure requirements, and dividend payments. The absence of cash flows from discontinued operations is not expected to significantly affect our ability to service our debt.

Our arrangements with customers typically provide that payments are due within 30 to 60 days following the date of shipment. We invoice and receive payment from many of our customers in euros as well as other currencies.

Additionally, we are party to various third party and intercompany loans, payables, and receivables denominated in currencies other than the U.S. dollar. As a result of these sales, loans, payables, and receivables, our foreign exchange transaction and translation risk is elevated. Various strategies to manage this risk are available to management, including producing and selling in local currencies and

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hedging programs. As of December 31, 2018, no currency derivatives were in place. In addition, a strengthening of the U.S. dollar and/or euro against foreign currencies could impair our ability to compete with international competitors for foreign as well as domestic sales.

For the next twelve months, we expect capital expenditures to remain relatively consistent with 2018 spending levels, the majority of which relate to new or expanded business or continuous improvement programs. We believe that funds generated from continuing operations and borrowings from the Senior Secured Revolver will be sufficient to finance capital expenditures and working capital needs through this period. We base these assertions on current availability for borrowing under our Senior Secured Revolver of up to \$76.6 million and forecasted positive cash flow from continuing operations for the next twelve months.

The table below sets forth our contractual obligations and commercial commitments as of December 31, 2018:

Certain Contractual Obligations	Payments Due by Period				
	Total	Less than 1 year	1-3 years	3-5 years	After 5 years
Long-term debt including current portion	\$859,593	\$ 31,280	\$311,191	\$515,501	\$ 1,621
Expected interest payments ⁽¹⁾	156,661	49,270	82,391	24,761	239
Operating leases	108,399	13,337	22,072	19,045	53,945
Transition tax on deferred foreign income	4,283	408	816	1,784	1,275
Capital leases ⁽²⁾	8,085	2,485	3,389	2,211	—
Total contractual cash obligations	\$1,137,021	\$ 96,780	\$419,859	\$563,302	\$ 57,080

(1) Expected interest payments are based on the interest rate in effect as of December 31, 2018, which is a variable rate based on one-month LIBOR.

(2) During the year ended December 31, 2018, we entered into a build-to-suit lease that will commence upon completion of construction of the leased facility. Base rent payments of approximately \$1.5 million per year are not included in the table above and are expected to commence during the third quarter of 2019 and continue over the 15-year lease term.

We have approximately \$4.6 million in unrecognized tax benefits and related penalties and interest accrued within the liabilities section of our balance sheet. We are unsure when or if at all these amounts might be paid to U.S. and/or foreign taxing authorities. Accordingly, these amounts have been excluded from the table above. (See Note 11 of the Notes to Consolidated Financial Statements).

Functional Currencies

We currently have operations in Brazil, China, France, Mexico, and Poland. The following table presents the functional currency of each of our foreign facilities.

Location	Functional Currency
Brazil	Real
China	Renminbi
France	Euro
Mexico	Peso
Poland	Zloty

Seasonality and Fluctuation in Quarterly Results

General economic conditions impact our business and financial results, and certain businesses experience seasonal and other trends related to the industries and end markets that they serve. For example, European sales are often weaker in the summer months as customers slow production, medical device sales are often stronger in the fourth calendar quarter, and sales to original equipment manufacturers are often stronger immediately preceding and following the launch of new products. However, as a whole, we are not materially impacted by seasonality.

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Off-Balance Sheet Arrangements

We are not a party to any off-balance sheet arrangements that have, or are reasonably likely to have, a material current or future effect on our financial condition, revenues or expenses, results of operations, liquidity, capital expenditures, or capital resources.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

We are exposed to changes in financial market conditions in the normal course of business due to use of certain financial instruments as well as transacting business in various foreign currencies. To mitigate the exposure to these market risks, we have established policies, procedures, and internal processes governing the management of financial market risks. We are exposed to changes in interest rates primarily as a result of borrowing activities.

Interest Rate Risk

Variable Rate Debt

At December 31, 2018, we had \$532.1 million of principal outstanding under the variable rate Senior Secured Term Loan, without regard to debt issuance costs. At December 31, 2018, a one-percent increase in the interest rate charged on outstanding variable rate borrowings under the Senior Secured Term Loan would result in interest expense increasing annually by approximately \$5.3 million.

At December 31, 2018, we had \$279.0 million of principal outstanding under the Incremental Term Loan, without regard to debt issuance costs. At December 31, 2018, a one-percent increase in the interest rate charged on outstanding variable rate borrowings under the Incremental Term Loan would result in interest expense increasing annually by approximately \$2.8 million.

At December 31, 2018, we had \$38.7 million of principal outstanding under the Senior Secured Revolver, without regard to debt issuance costs. At December 31, 2018, a one-percent increase in the interest rate charged on outstanding variable rate borrowings under the Senior Secured Revolver would result in interest expense increasing annually by approximately \$0.4 million.

Interest Rate Swaps and Hedging Activities

Our policy is to manage interest expense using a mix of fixed and variable rate debt. To manage this mix effectively, we may enter into interest rate swaps to exchange the difference between fixed and variable interest amounts. The nature and amount of borrowings may vary as a result of future business requirements, market conditions, and other factors. As of December 31, 2018, we had no interest rate swaps.

On February 8, 2019, the Company entered into a fixed-rate interest swap agreement with a notional amount of \$700.0 million to manage the Company's exposure to interest rate risk associated with our variable rate long-term debt.

Foreign Currency Risk

Translation of our operating cash flows denominated in foreign currencies is impacted by changes in foreign exchange rates. We participate in various third party and intercompany loans, payables, and receivables denominated in currencies other than the U.S. dollar. To help reduce exposure to foreign currency fluctuation, we have incurred debt in euros in the past. From time to time, we may use foreign currency derivatives to hedge currency exposures when these exposures meet certain discretionary levels. We did not hold a position in any foreign currency derivatives as of December 31, 2018.

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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of NN, Inc.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of NN, Inc. and its subsidiaries (the “Company”) as of December 31, 2018 and 2017, and the related consolidated statements of operations and comprehensive income (loss), of changes in stockholders’ equity and of cash flows for each of the three years in the period ended December 31, 2018, including the related notes (collectively referred to as the “consolidated financial statements”). We also have audited the Company’s internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control-Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, based on our audits and the report of other auditors with respect to the consolidated financial statements for the year ended December 31, 2016, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company did not maintain, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control-Integrated Framework (2013) issued by the COSO because a material weakness in internal control over financial reporting existed as of that date as the Company did not maintain an effective control environment due to a lack of a sufficient complement of personnel with an appropriate level of knowledge, experience and training commensurate with the Company’s financial reporting requirements. A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the annual or interim financial statements will not be prevented or detected on a timely basis. The material weakness referred to above is described in Management’s Report on Internal Control Over Financial Reporting appearing under Item 9A. We considered this material weakness in determining the nature, timing, and extent of audit tests applied in our audit of the 2018 consolidated financial statements and our opinion regarding the effectiveness of the Company’s internal control over financial reporting does not affect our opinion on those consolidated financial statements.

We did not audit the financial statements of Wuxi Weifu Autocam Precision Machinery Co., Ltd., a 49% equity investment of the Company, as of and for the year ended December 31, 2016, which is reflected in the consolidated financial statements of the Company as the share of net income from joint venture of \$6,427,000 for the year ended December 31, 2016. Those statements were audited by other auditors whose report thereon has been furnished to us, and our opinion expressed herein, insofar as it relates to the amounts included for Wuxi Weifu Autocam Precision Machinery Co., Ltd. for the year ended December 31, 2016, is based solely on the report of the other auditors.

Basis for Opinions

The Company’s management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting included in management’s report referred to above. Our responsibility is to express opinions on the Company’s consolidated financial statements and on the Company’s internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (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 audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated 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 consolidated 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 consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based

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on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits and the report of other auditors provide a reasonable basis for our opinions. As described in Management's Report on Internal Control Over Financial Reporting, management has excluded Paragon Medical, Inc., Bridgemedica, LLC, and Southern California Technical Arts, Inc. from its assessment of internal control over financial reporting as of December 31, 2018 because they were acquired by the Company in purchase business combinations during 2018. We have also excluded Paragon Medical, Inc., Bridgemedica, LLC, and Southern California Technical Arts, Inc. from our audit of internal control over financial reporting. Paragon Medical, Inc., Bridgemedica, LLC, and Southern California Technical Arts, Inc. are wholly-owned subsidiaries whose total assets and total revenues excluded from management's assessment and our audit of internal control over financial reporting represent 9.6 percent and 16.7 percent, respectively, of the related consolidated financial statement amounts as of and for the year ended December 31, 2018. The most significant of these entities, representing 8.9 percent of consolidated total assets and 15.2 percent of consolidated total revenues is Paragon Medical, Inc.

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

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

/s/ PricewaterhouseCoopers LLP
Atlanta, Georgia
March 18, 2019

We have served as the Company's auditor since 2003.

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NN, Inc.

Consolidated Statements of Operations and Comprehensive Income (Loss)

Years Ended December 31, 2018, 2017 and 2016

Amounts in thousands, except per share data

	2018	2017	2016
Net sales	\$770,657	\$619,793	\$584,954
Cost of sales (exclusive of depreciation and amortization shown separately below)	588,205	459,080	428,843
Selling, general and administrative expense	93,583	74,112	64,144
Acquisition related costs excluded from selling, general and administrative expense	5,871	344	—
Depreciation and amortization	71,128	52,406	50,721
Other operating (income) expense, net	6,089	351	809
Goodwill impairment	182,542	—	—
Restructuring and integration expense, net	2,127	386	5,658
Income (loss) from operations	(178,888)	33,114	34,779
Interest expense	61,243	52,085	62,870
Loss on extinguishment of debt and write-off of debt issuance costs	19,562	42,087	2,589
Derivative payments on interest rate swap	—	—	609
Derivative loss (gain) on change in interest rate swap fair value	—	(101)	2,448
Other (income) expense, net	1,341	(2,084)	(2,871)
Loss from continuing operations before benefit for income taxes and share of net income from joint venture	(261,034)	(58,873)	(30,866)
Benefit for income taxes	10,957	79,026	15,438
Share of net income (loss) from joint venture	(14,390)	5,211	5,938
Income (loss) from continuing operations	(264,467)	25,364	(9,490)
Income from discontinued operations, net of tax (Note 2)	—	137,688	16,153
Net income (loss)	\$(264,467)	\$163,052	\$6,663
Other comprehensive income (loss):			
Change in fair value of interest rate swap	\$—	\$—	\$1,910
Reclassification adjustment for discontinued operations	—	(9,243)	—
Foreign currency translation gain (loss)	(13,880)	22,094	(10,623)
Other comprehensive income (loss)	\$(13,880)	\$12,851	\$(8,713)
Comprehensive income (loss)	\$(278,347)	\$175,903	\$(2,050)
Basic net income (loss) per share:			
Income (loss) from continuing operations per share	\$(8.35)	\$0.92	\$(0.35)
Income from discontinued operations per share	—	5.02	0.60
Net income (loss) per share	\$(8.35)	\$5.94	\$0.25
Weighted average shares outstanding	31,678	27,433	27,016
Diluted net income (loss) per share:			
Income (loss) from continuing operations per share	\$(8.35)	\$0.91	\$(0.35)
Income from discontinued operations per share	—	4.96	0.60
Net income (loss) per share	\$(8.35)	\$5.87	\$0.25
Weighted average shares outstanding	31,678	27,755	27,016

See accompanying Notes to Consolidated Financial Statements.

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NN, Inc.

Consolidated Balance Sheets

December 31, 2018 and 2017

Amounts in thousands, except per share data

	December 31,	
	2018	2017
Assets		
Current assets:		
Cash and cash equivalents	\$ 17,988	\$ 224,446
Accounts receivable, net	133,421	108,446
Inventories	122,615	82,617
Income tax receivable	946	43,253
Other current assets	21,901	18,518
Total current assets	296,871	477,280
Property, plant and equipment, net	361,028	259,280
Goodwill	439,452	454,612
Intangible assets, net	376,248	237,702
Investment in joint venture	20,364	39,822
Other non-current assets	7,607	6,307
Total assets	\$ 1,501,570	\$ 1,475,003
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	\$ 65,694	\$ 52,990
Accrued salaries, wages and benefits	24,636	21,145
Current maturities of long-term debt	31,280	17,283
Other current liabilities	23,420	17,003
Total current liabilities	145,030	108,421
Deferred tax liabilities	93,482	71,564
Non-current income tax payable	3,875	5,593
Long-term debt, net of current portion	811,471	790,805
Other non-current liabilities	29,417	12,516
Total liabilities	1,083,275	988,899
Commitments and contingencies (Note 14)		
Stockholders' equity:		
Common stock - \$0.01 par value, authorized 45,000 shares, issued and outstanding 42,104 in 2018 and 27,572 in 2017	421	275
Additional paid-in capital	511,545	292,494
Retained (deficit) earnings	(62,046)	211,080
Accumulated other comprehensive income (loss)	(31,625)	(17,745)
Total stockholders' equity	418,295	486,104
Total liabilities and stockholders' equity	\$ 1,501,570	\$ 1,475,003

See accompanying Notes to Consolidated Financial Statements.

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NN, Inc.

Consolidated Statements of Changes in Stockholders' Equity

Years Ended December 31, 2018, 2017 and 2016

Amounts in thousands

	Common Stock		Additional paid in capital	Retained earnings (deficit)	Accumulated		Total
	Number of shares	Par value			other comprehensive income (loss)	Non-controlling interest	
Balance, December 31, 2015	26,849	\$269	\$277,917	\$56,096	\$ (21,883)	\$ 32	\$312,431
Net income	—	—	—	6,663	—	—	6,663
Cash dividends declared	—	—	—	(7,584)	—	—	(7,584)
Share-based compensation expense	142	—	3,935	—	—	—	3,935
Shares issued for option exercises	270	3	2,829	—	—	—	2,832
Restricted shares and performance shares forgiven for taxes and forfeited	(12)	—	(173)	—	—	—	(173)
Foreign currency translation loss	—	—	—	—	(10,623)	—	(10,623)
Change in fair value of interest rate swap	—	—	—	—	1,910	—	1,910
Balance, December 31, 2016	27,249	\$272	\$284,508	\$55,175	\$ (30,596)	\$ 32	\$309,391
Net income	—	—	—	163,052	—	—	163,052
Cash dividends declared	—	—	—	(7,887)	—	—	(7,887)
Share-based compensation expense	85	1	5,495	—	—	—	5,496
Shares issued for option exercises	263	2	3,108	—	—	—	3,110
Sale of discontinued operations	—	—	—	—	(9,243)	(32)	(9,275)
Restricted shares and performance shares forgiven for taxes and forfeited	(25)	—	(617)	—	—	—	(617)
Foreign currency translation gain	—	—	—	—	22,094	—	22,094
Adoption of new accounting standard (Note 1)	—	—	—	740	—	—	740
Balance, December 31, 2017	27,572	\$275	\$292,494	\$211,080	\$ (17,745)	\$ —	\$486,104
Net loss	—	—	—	(264,467)	—	—	(264,467)
Cash dividends declared	—	—	—	(8,803)	—	—	(8,803)
Shares issued	14,375	144	217,168	—	—	—	217,312
Share-based compensation expense	165	2	4,382	—	—	—	4,384
Shares issued for option exercises	27	—	274	—	—	—	274
Restricted shares and performance shares forgiven for taxes and forfeited	(35)	—	(805)	—	—	—	(805)
Change in estimate of performance share vesting	—	—	(1,968)	128	—	—	(1,840)
Foreign currency translation loss	—	—	—	—	(13,880)	—	(13,880)
Adoption of new accounting standard (Note 1)	—	—	—	16	—	—	16
Balance, December 31, 2018	42,104	\$421	\$511,545	\$(62,046)	\$ (31,625)	\$ —	\$418,295

See accompanying Notes to Consolidated Financial Statements.

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NN, Inc.

Consolidated Statements of Cash Flows

Years Ended December 31, 2018, 2017 and 2016

Amounts in thousands

	2018	2017	2016
Cash flows from operating activities:			
Net income (loss)	\$(264,467)	\$163,052	\$6,663
Adjustments to reconcile net income to net cash provided by (used by) operating activities:			
Depreciation and amortization of continuing operations	71,128	52,406	50,721
Depreciation and amortization of discontinued operations	—	7,722	11,852
Amortization of debt issuance costs	4,845	4,296	4,168
Goodwill impairment	182,542	—	—
Other impairments	21,825	—	—
Loss on extinguishment of debt and write-off of debt issuance costs	19,562	42,087	2,589
Total derivative mark-to-market loss (gain), net of cash settlements	—	(1,483)	2,563
Share of net income from joint venture, net of cash dividends received	642	(1,284)	(2,232)
Gain on disposal of discontinued operations, net of tax and cost to sell	—	(133,665)	—
Compensation expense from issuance of share-based awards	2,416	4,730	3,935
Deferred income taxes	(20,758)	(23,195)	(15,526)
Other	1,290	100	308
Changes in operating assets and liabilities, net of acquisitions:			
Accounts receivable	(3,543)	(11,374)	(18,505)
Inventories	(16,872)	(10,278)	4,377
Accounts payable	2,693	4,118	7,633
Income taxes receivable and payable, net	40,946	(124,389)	(217)
Other	(1,310)	(1,076)	11,023
Net cash provided by (used by) operating activities	40,939	(28,233)	69,352
Cash flows from investing activities:			
Acquisition of property, plant and equipment, net of acquisitions	(64,036)	(43,722)	(43,820)
Short term investment	—	(8,000)	—
Proceeds from sale of business, net of cash sold	838	371,436	—
Cash paid to acquire businesses, net of cash received	(399,009)	(38,434)	—
Other	917	1,191	2,596
Net cash provided by (used by) investing activities	(461,290)	282,471	(41,224)
Cash flows from financing activities:			
Cash paid for debt issuance or prepayment costs	(20,726)	(40,235)	(3,952)
Dividends paid	(8,826)	(7,695)	(7,584)
Proceeds from issuance of shares of common stock	217,312	—	—
Proceeds from long-term debt	311,841	322,000	44,000
Repayment of long-term debt	(290,687)	(314,313)	(55,000)
Proceeds from (repayments of) short-term debt, net	10,305	(4,211)	(456)
Other	(4,126)	(1,382)	(1,489)
Net cash provided by (used by) financing activities	215,093	(45,836)	(24,481)
Effect of exchange rate changes on cash flows	(1,200)	1,639	(4,329)
Net change in cash and cash equivalents	(206,458)	210,041	(682)
Cash and cash equivalents at beginning of period (1)	224,446	14,405	15,087
Cash and cash equivalents at end of period (1)	\$17,988	\$224,446	\$14,405
Supplemental schedule of non-cash operating, investing and financing activities:			

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Dividends accrued (reversed) for performance share units, net	\$(83)	\$192	\$—
Non-cash additions to property, plant and equipment	\$26,605	\$1,436	\$—
Restructuring charges in other current and non-current liabilities	\$2,071	\$222	\$3,238
Supplemental disclosures:			
Cash paid for interest	\$56,223	\$52,083	\$59,158
Cash paid (received) for income taxes	\$(32,582)	\$72,294	\$889

(1) Cash and cash equivalents as of December 31, 2016, and December 31, 2015, includes \$8.1 million and \$3.7 million, respectively, of cash and cash equivalents that was included in current assets of discontinued operations. See accompanying Notes to Consolidated Financial Statements.

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NN, Inc.

Notes to Consolidated Financial Statements

December 31, 2018, 2017 and 2016

Amounts in thousands of dollars and shares, except per share data

Note 1. Significant Accounting Policies

Nature of Business

NN, Inc. is a global diversified industrial company that combines advanced engineering and production capabilities with in-depth materials science expertise to design and manufacture high-precision components and assemblies for the medical, aerospace and defense, electrical, automotive, and general industrial markets. As used in this Annual Report on Form 10-K, the terms “NN,” the “Company,” “we,” “our,” or “us” refer to NN, Inc., and its subsidiaries. We have 51 facilities in North America, Europe, South America, and China.

In January 2018, we implemented a new enterprise and management structure designed to accelerate growth and further balance our portfolio by aligning our strategic assets and businesses. Our businesses were reorganized into the Mobile Solutions, Power Solutions, and Life Sciences groups and are based principally on the end markets they serve. The Autocam Precision Components Group reported in our historical financial statements was renamed as Mobile Solutions. The Mobile Solutions group is focused on growth in the general industrial and automotive end markets. The Precision Engineered Products Group reported in our historical financial statements was bifurcated into two new groups – Power Solutions and Life Sciences. The Power Solutions group is focused on growth in the electrical and aerospace and defense end markets. The Life Sciences group is focused on growth in the medical end market.

Basis of Presentation

The accompanying consolidated financial statements are prepared in conformity with accounting principles generally accepted in the United States (“U.S. GAAP”). Certain prior period amounts have been reclassified to conform to the current year’s presentation due to the 2018 adoption of the new Statement of Cash Flows guidance. Except for per share data or as otherwise indicated, all dollar amounts presented in the tables in these Notes to Consolidated Financial Statements are in thousands of U.S. dollars.

Principles of Consolidation

Our consolidated financial statements include the accounts of NN, Inc., and its wholly owned subsidiaries. We own a 49% interest in a joint venture which we account for using the equity method (see Note 10). All intercompany transactions and balances have been eliminated in consolidation.

Use of Estimates in the Preparation of Financial Statements

The preparation of financial statements in conformity with U.S. GAAP requires management to use estimates and assumptions that affect the reported amounts of certain assets and liabilities, disclosure of contingent assets and liabilities, and the reported amounts of revenues and expenses. Actual results may differ from those estimates.

Accounting Standards Recently Adopted

Revenue Recognition. On January 1, 2018, we adopted ASC Topic 606, Revenue from Contracts with Customers, (“ASC 606”). We adopted ASC 606 utilizing the modified retrospective transition method. Under this transition method, we recognized the cumulative effect of initially applying the new standard as an adjustment to the opening balance of retained earnings as of January 1, 2018, and applied the new standard beginning with the most current period presented to contracts that were not completed at the date of initial application. The adoption adjustment, which was less than \$0.1 million, represents the net profit of certain contracts that were accounted for on a consignment basis under ASC Topic 605, Revenue Recognition (“ASC 605”). Under ASC 605, a sale was not recognized under these consignment contracts until the inventory was used by our customers. Under the new standard, revenue is recognized earlier because the transfer of control to our customers occurs upon shipment from our facilities as our customers have obtained the ability to direct the use of, and obtain substantially all the remaining benefits from, the asset.

Comparative information has not been restated and continues to be reported under the accounting standards in effect for those periods. See Note 16 for the required disclosures related to the impact of adopting ASC 606 and a discussion of our updated policies related to revenue recognition and accounting for costs to obtain and fulfill a customer contract.

Definition of a Business. In January 2017, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) 2017-1, Business Combinations (Topic 805): Clarifying the Definition of a Business, which changes the

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definition of a business. The new guidance requires an entity to first evaluate whether substantially all of the fair value of the gross assets acquired is concentrated in a single identifiable asset or a group of similar identifiable assets. If that threshold is met, the set of assets and activities is not a business. If the threshold is not met, the entity evaluates whether the set meets the definition of a business. The new definition requires a business to include at least one substantive process and narrows the definition of outputs by more closely aligning it with how outputs are described in the new revenue recognition guidance. The new guidance was effective for us beginning on January 1, 2018. We have applied the new definition of a business prospectively to all business combination transactions that occurred in 2018. The new guidance has no effect on our historical financial statements.

Statement of Cash Flows. In August 2016, the FASB issued ASU 2016-15, *Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments* (a consensus of the Emerging Issues Task Force). This guidance provides clarification on how certain cash receipts and cash payments are presented and classified on the statement of cash flows, with focus on eight specific areas in which cash flows have, in practice, been presented inconsistently. The guidance was effective for us beginning January 1, 2018 and is required to be adopted using a retrospective approach if practicable.

The new cash flow guidance requires that cash payments for debt prepayment costs be classified as cash outflows for financing activities. We paid \$31.6 million for debt prepayment costs in April 2017. These debt prepayment costs were previously classified as cash used by operating activities in 2017. Under the new guidance, these costs are reclassified to cash used by financing activities.

The new guidance also requires entities to make an accounting policy election regarding classification of distributions received from equity method investees. Existing guidance does not currently address how an entity should determine which distributions represent returns on, as opposed to returns of investment. The lack of specific guidance has resulted in diversity in practice. The two allowable approaches are the “cumulative earnings” approach and the “nature of the distribution” approach, as defined by ASU 2016-15. Upon adoption of the new guidance on January 1, 2018, we utilized the cumulative earnings approach for classifying distributions received from our joint venture investment (see Note 10). This policy election is consistent with our historical accounting.

Goodwill. In January 2017, the FASB issued ASU 2017-4, *Intangibles – Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment (“ASU 2017-4”)*, that eliminates the requirement to calculate the implied fair value of goodwill (i.e., Step 2 of the current goodwill impairment test) to measure a goodwill impairment charge. Instead, entities will record an impairment charge based on the excess of a reporting unit’s carrying amount over its fair value (i.e., measure the charge based on the current Step 1 test). The standard is effective for us beginning with impairment tests performed on or after January 1, 2020, with early adoption permitted. We elected to early adopt the standard for our annual goodwill impairment analysis as of October 1, 2018, because the new guidance allowed us to simplify the process of calculating the impairment charge recognized as a result of our annual testing process in the current year. As a result of early adopting, we did not perform a step two analysis for the impairment testing, which may have resulted in a materially different result.

Accounting Standards Not Yet Adopted

Leases. In February 2016, the FASB issued ASU 2016-2, *Leases*. ASU 2016-2 creates Topic 842, *Leases*, (“ASC 842”) in the ASC and supersedes ASC 840, *Leases*. Entities that hold numerous equipment and real estate leases, in particular those with numerous operating leases, will be most affected by the new guidance. The lease accounting standard is effective for NN beginning January 1, 2019, with modified retrospective adoption required and early adoption permitted. We intend to utilize the practical expedient to recognize the cumulative-effect adoption adjustment to retained earnings as of January 1, 2019, and not adjust comparative periods. The adoption of ASC 842 is expected to impact our balance sheet by adding lease-related assets and liabilities. The loan covenants in our credit facility provide for the continuation of covenant computations in accordance with U.S. GAAP prior to changes in accounting principles. Therefore, we do not expect the adoption of ASC 842 to affect our compliance. We have performed inquiries within each of our business groups and compiled information on operating and capital leases. We are using the results of these inquiries and compiled information to evaluate the impacts of the lease accounting standard on our financial position, results of operations, and related disclosures. Upon adoption, we expect that leases with terms greater than twelve months that are currently classified as operating leases and not recorded on our balance

sheet will be recognized as a right-of-use asset and lease liability. We are implementing an enterprise-wide lease accounting system and are in the process of verifying data in the system that will enable us to determine the amounts of those assets and liabilities. We have reviewed all leases and are in the process of documenting our conclusions, establishing internal controls, and determining discount rates to generate the initial accounting entries upon adoption of the standard. We expect the right-of-use asset and lease liability to be between \$65.0 million and \$95.0 million each.

Effects of Tax Reform in Other Comprehensive Income. In February 2018, the FASB issued guidance related to the impacts of the U.S. Tax Cuts and Jobs Act of 2017 (“Tax Act”). Under existing U.S. GAAP, the effects of changes in tax rates and laws on

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deferred tax balances are recorded as a component of income tax expense in the period in which the law was enacted. When deferred tax balances related to items originally recorded in accumulated other comprehensive income (“AOCI”) are adjusted, certain tax effects become stranded in AOCI. The FASB issued ASU 2018-2, Income Statement – Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income, that permits reclassification of certain income tax effects of the Tax Act from AOCI to retained earnings. The guidance also requires certain disclosures about stranded tax effects. ASU 2018-2 is effective for us on January 1, 2019, with early adoption in any period permitted. Entities may adopt the guidance using either at the beginning of the period of adoption or retrospectively to each period in which the effect of the change in the U.S. federal corporate income tax rate in the Tax Act is recognized. We are in the process of evaluating adoption method and the effects of this new guidance on our financial statements.

Internal-Use Software. In August 2018, the FASB issued ASU 2018-15, Intangibles - Goodwill and Other - Internal-Use Software: Customer’s Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract (a consensus of the FASB Emerging Issues Task Force), that provides guidance on a customer’s accounting for implementation, set-up, and other upfront costs incurred in a cloud computing arrangement that is hosted by the vendor. Under the new guidance, customers will apply the same criteria for capitalizing implementation costs as they would for an arrangement that has a software license. ASU 2018-15 is effective for us on January 1, 2020, using either a prospective or retrospective approach and with early adoption permitted. We are in the process of evaluating the effects of this guidance on our financial statements and on cloud computing arrangements that we may enter before the required effective date.

Derivatives and Hedging. In August 2017, the FASB issued ASU 2017-12, Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities, which provides new rules that expand the hedging strategies that qualify for hedge accounting. The new rules also allow additional time to complete hedge effectiveness testing and allow qualitative assessments subsequent to initial quantitative tests if there is supportable expectation that the hedge will remain highly effective. ASU 2017-12 is effective for us on January 1, 2019, with early adoption permitted. We do not expect the adoption of this guidance to have a material impact on our financial condition, results of operations, or cash flows.

Cash and Cash Equivalents

Cash and cash equivalents include cash and highly liquid investments with original maturities of three months or less.

Fair Value Measurements

Fair value principles prioritize valuation inputs across three broad levels. Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities. Level 2 inputs are quoted prices for similar assets and liabilities in active markets or inputs that are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the financial instrument. Level 3 inputs are unobservable inputs based on the assumptions used to measure assets and liabilities at fair value. An asset or liability’s classification within the various levels is determined based on the lowest level input that is significant to the fair value measurement.

Accounts Receivable and Allowance for Doubtful Accounts

Trade accounts receivable are recorded at their net realizable value. We maintain allowances for doubtful accounts for estimated losses resulting from the inability of our customers to make required payments. The allowances are based on the number of days an individual receivable is past the invoice due date and on regular credit evaluations of our customers. In evaluating the credit worthiness of our customers, we consider numerous inputs including but not limited to the customers’ financial position, past payment history, relevant industry trends, cash flows, management capability, historical loss experience, and economic conditions and prospects. Allowances are established when customer accounts are at risk of being uncollectible. Accounts receivable are written off at the time a customer receivable is deemed uncollectible.

Inventories

Inventories are stated at the lower of cost or net realizable value. Cost is determined using standard costs, which approximates the average cost method. Our policy is to expense abnormal amounts of idle facility expense, freight, handling cost, and waste included in cost of products sold. In addition, we allocate fixed production overheads based on the normal production capacity of our facilities. Inventory valuations were developed using normalized production

capacities for each of our manufacturing locations. The costs from excess capacity or under-utilization of fixed production overheads were expensed in the period incurred and are not included as a component of inventory. Inventories also include tools, molds, and dies in progress that we are producing and will ultimately sell to our customers. These inventories are also carried at the lower of cost or net realizable value.

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Property, Plant and Equipment

Property, plant and equipment are stated at cost less accumulated depreciation. Assets to be disposed of are stated at the lower of depreciated cost or fair market value less estimated selling costs. Expenditures for maintenance and repairs are charged to expense as incurred. Major renewals and betterments are capitalized. When a property item is retired, its cost and related accumulated depreciation are removed from the property accounts and any gain or loss is recorded in the Consolidated Statements of Operations and Comprehensive Income (Loss). We review the carrying values of long-lived assets for impairment whenever events or changes in circumstances indicate the carrying amount of an asset may not be recoverable. Property, plant and equipment also includes tools, molds, and dies used in manufacturing.

Depreciation is calculated based on historical cost using the straight-line method over the estimated useful lives of the depreciable assets. Estimated useful lives for buildings generally range from 15 to 40 years. Estimated useful lives for machinery and equipment generally range from 3 to 12 years. We depreciate leasehold improvements and buildings under capital lease over the shorter of the leased asset's useful life or the lease term.

Goodwill and Other Indefinite Lived Intangible Assets

Goodwill is tested for impairment on an annual basis in the fourth quarter and between annual tests if a triggering event occurs. The impairment analysis is performed at the reporting unit level. For the impairment test as of October 1, 2018, we elected to early adopt the new goodwill accounting standard which requires us to calculate an impairment charge based on a reporting unit's carrying amount in excess of its fair value (i.e., step 1 of the two-step impairment test). If the carrying value of the reporting unit including goodwill is less than fair value of the reporting unit, the goodwill is not considered impaired. Under the new guidance, we no longer perform step 2 of the two-step goodwill impairment test or calculate an impairment charge using an implied fair value. Based on the results of performing the first step of the impairment test, the carrying value of certain reporting units exceeded the fair value at December 31, 2018. For the year ended December 31, 2018, we recorded an impairment charge of \$182.5 million to the Consolidated Statements of Operations and Comprehensive Income (Loss). See Note 8 for further discussion on goodwill.

For the year ended, December 31, 2017, we performed the two-step goodwill impairment test under accounting standards in effect at that time. Based on the results of performing the first step of the impairment test, the fair value of the reporting units exceeded the carrying value of the reporting units at December 31, 2017.

Impairment of Long-Lived Assets

Long-lived tangible and intangible assets subject to depreciation or amortization are tested for recoverability when changes in circumstances indicate the carrying value of these assets may not be recoverable. A test for recoverability is also performed when management has committed to a plan to dispose of a reporting unit or asset group. Assets to be held and used are tested for recoverability when indications of impairment are evident. Recoverability of a long-lived tangible or intangible asset is evaluated by comparing its carrying value to the future estimated undiscounted cash flows expected to be generated by the asset or asset group. If the asset is not recoverable, then the asset is considered impaired and adjusted to fair value which is then depreciated or amortized over its remaining useful life. Assets to be disposed of are recorded at the lesser of carrying value or fair value less costs of disposal.

Equity Method Investments

Each of the Company's equity method investments is subject to a review for impairment if, and when, circumstances indicate that a decline in value below its carrying amount may have occurred. Examples of such circumstances include, but are not limited to, a significant deterioration in the earnings performance or business prospects of the investee; a significant adverse change in the regulatory, economic or technological environment of the investee; a significant adverse change in the general market condition of either the geographic area or the industry in which the investee operates; and recurring negative cash flows from operations. If management considers the decline to be other than temporary, the Company would write down the investment to its estimated fair market value.

Income Taxes

Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and operating loss and tax credit carryforwards. Deferred

tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. Valuation allowances are recorded to reduce deferred tax assets when it is more likely than not that a tax benefit will not be realized. Provision has been made for income taxes on unremitted earnings

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of certain foreign subsidiaries as these earnings are not deemed to be permanently reinvested. We recognize income tax positions that meet the more likely than not threshold and accrue interest and potential penalties related to unrecognized income tax positions which are recorded as a component of the provision (benefit) for income taxes.

Revenue Recognition

We recognize revenues when control of the good or service is transferred to the customer either at a point in time or, in limited circumstances, as our services are rendered over time. Revenue is measured as the amount of consideration we expect to receive in exchange for transferring goods or services.

Share Based Compensation

The cost of stock options, restricted stock, and performance share units are recognized as compensation expense over the vesting periods based on the grant date fair value, net of expected forfeitures. We determine grant date fair value using the Black Scholes financial pricing model for stock options and a Monte Carlo simulation for performance share units that include a market condition for vesting because these awards are not traded in open markets. We determine grant date fair value using the closing price of our common stock on the date of grant for restricted stock and performance share units that include performance conditions for vesting. We recognize excess tax benefits in income tax expense prospectively beginning in 2017. Excess tax benefits are presented in cash flows from operating activities in the statement of cash flows prospectively beginning in 2017. Tax payments in respect of shares withheld for taxes are classified in cash flows from financing activities in the statement of cash flows retrospectively for all periods presented.

Foreign Currency Translation

Assets and liabilities of our foreign subsidiaries are translated at current exchange rates. Revenue, costs, and expenses are translated at average rates prevailing during each reporting period. Translation adjustments arising from the translation of foreign subsidiary financial statements are reported as a component of other comprehensive income and accumulated other comprehensive income within stockholders' equity. Transactions denominated in foreign currencies, including intercompany transactions, are initially recorded at the current exchange rate at the date of the transaction. The balances are adjusted to the current exchange rate as of each balance sheet date and as of the date when the transaction is consummated. Transaction gains or losses, excluding intercompany loan transactions, are expensed as incurred in either cost of sales or selling, general and administrative expense in the Consolidated Statements of Operations and Comprehensive Income (Loss) and were immaterial to the years ended December 31, 2018, 2017 and 2016. Transaction gains or losses on intercompany loan transactions are recognized as incurred in the "Other (income) expense, net" line in the Consolidated Statements of Operations and Comprehensive Income (Loss).

Net Income Per Common Share

Basic net income per share reflects reported earnings divided by the weighted average shares outstanding. Diluted net income per share includes the effect of dilutive stock options and the respective tax benefits, unless inclusion would not be dilutive.

Business Combinations

We allocate the total purchase price of tangible and intangible assets acquired and liabilities assumed based on their estimated fair values as of the business combination date, with the excess purchase price recorded as goodwill. The purchase price allocation process requires us to use significant estimates and assumptions, including fair value estimates, as of the business combination date. Although we believe the assumptions and estimates we have made are reasonable and appropriate, they are based in part on historical experience and information obtained from management of the acquired company. Our assumptions and estimates are also partially based on valuation models that incorporate projections of expected future cash flows and operating plans and are inherently uncertain. Valuations are performed by management or third-party valuation specialists under management's supervision. In determining the fair value of assets acquired and liabilities assumed in business combinations, as appropriate, we may use one of the following recognized valuation methods: the income approach (including discounted cash flows, relief from royalty and excess earnings model), the market approach, or the replacement cost approach.

Examples of significant estimates used to value certain intangible assets acquired include but are not limited to:

- sales volume, pricing and future cash flows of the business overall;

future expected cash flows from customer relationships, and other identifiable intangible assets, including future price levels, rates of increase in revenue and appropriate attrition rate;
the acquired company's brand and competitive position, royalty rate quantum, as well as assumptions about the period of time the acquired brand will continue to benefit the combined company's product portfolio; and

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cost of capital, risk-adjusted discount rates, and income tax rates.

Different assumptions regarding projected performance and other factors associated with the acquired assets may affect the amount recorded under each type of asset and liability. The valuations of property, plant and equipment, intangible assets, goodwill and deferred income tax liabilities depend heavily on assumptions. Subsequent assessment could result in future impairment charges. We refine these estimates over a measurement period not to exceed one year to reflect new information obtained surrounding facts and circumstances existing at the acquisition date.

Note 2. Discontinued Operations

On August 17, 2017, we completed the sale of our global precision bearing components business (the “PBC Business”) and received cash proceeds at closing of \$387.6 million and recorded a \$0.8 million receivable, which was received in 2018. The PBC Business included all our facilities that were engaged in the production of precision steel balls, steel rollers, and metal retainers and automotive specialty products used primarily in the bearing industry. The sale of the PBC Business furthers management’s long-term strategy to build a diversified industrial business with a comprehensive geographic footprint in attractive high-growth market segments. The PBC Business represented all of the Precision Bearing Components Group reportable segment disclosed in our historical financial statements. We recorded an after-tax gain on sale of \$127.7 million, which is included in the “Income from discontinued operations, net of tax” line on the Consolidated Statements of Operations and Comprehensive Income (Loss) for the year ended December 31, 2017. The gain includes the effects of reclassifying \$9.3 million in cumulative foreign currency translation gain from accumulated comprehensive income and eliminating the non-controlling interest attributable to the PBC Business as of August 17, 2017.

In accordance with ASC 205-20, Presentation of Financial Statements – Discontinued Operations, the operating results of the PBC Business are classified as discontinued operations. The presentation of discontinued operations includes revenues and expenses of the discontinued operations and gain on the disposition of the business, net of tax, as one line item on the Consolidated Statements of Operations and Comprehensive Income (Loss). Accordingly, results of the PBC Business have been excluded from continuing operations and group results for all historical periods presented in the consolidated financial statements and the accompanying notes unless otherwise stated. The Consolidated Statements of Cash Flows for the years ended December 31, 2017 and 2016, include cash flows of the PBC Business in each line item unless otherwise stated. We had no discontinued operations in the year ended December 31, 2018. The following table summarizes the major line items included in the results of operations of the discontinued operations.

	Year Ended December 31,	
	2017 ⁽¹⁾	2016
Net sales	\$168,287	\$248,534
Cost of products sold (exclusive of depreciation and amortization shown separately below)	130,555	192,994
Selling, general and administrative expense	11,818	16,992
Depreciation and amortization	7,722	11,852
Loss on disposal of assets	—	27
Restructuring and integration expense	429	4,366
Income from operations	17,763	22,303
Interest expense	(181)	(284)
Other income (expense), net	(84)	503
Income from discontinued operations before gain on disposal and provision for income taxes	17,498	22,522
Provision for income taxes on discontinued operations	(7,461)	(6,369)
Income from discontinued operations before gain on disposal	10,037	16,153
Gain on disposal of discontinued operations	213,503	—
Provision for income taxes on gain on disposal	(85,852)	—

Income from discontinued operations, net of tax

\$137,688 \$16,153

(1) Includes the results of operations of the PBC Business from January 1, 2017 to the sale completion date of August 17, 2017.

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The following table presents the significant noncash items and cash paid for capital expenditures of discontinued operations for each period presented.

	Year Ended	
	December 31,	
	2017	2016
Depreciation and amortization	\$7,722	\$11,852
Acquisition of property, plant and equipment	\$7,316	\$11,926

Note 3. Acquisitions

Paragon Medical, Inc.

On May 7, 2018, we acquired 100% of the stock of PMG Intermediate Holding Corporation, the parent company of Paragon Medical, Inc. ("Paragon Medical") for a base purchase price of \$375.0 million in cash, subject to certain adjustments. After working capital and other closing adjustments, the cash purchase price was approximately \$390.9 million which included \$13.6 million in cash acquired. During the year ended December 31, 2018, we received \$1.4 million additional cash from the seller to settle working capital adjustments. For accounting purposes, Paragon Medical meets the definition of a business and has been accounted for as a business combination. Paragon Medical is a medical device manufacturer which focuses on the orthopedic, case and tray, implant, and instrument markets. This acquisition continues our strategic focus to expand our Life Sciences portfolio as well as create a balanced business by diversifying our products and finished device offerings. Operating results of Paragon Medical are reported prospectively from the date of acquisition in our Life Sciences group. We have performed an assessment of the opening balance sheet which is subject to completion of our integration procedures for accounting policies. Opening balance sheet deferred taxes have been recorded based on estimates made as of the acquisition date as well as information currently available to management. As estimates are refined and additional information is received throughout the measurement period, adjustments to opening deferred taxes may be recorded with an offsetting adjustment to goodwill. We incurred new debt in connection with the Paragon Medical acquisition and subsequently repaid the new debt in full with the proceeds from the sale of shares of our common stock as described in Note 12 and Note 15.

The following table summarizes the preliminary purchase price allocation for the Paragon Medical acquisition.

Fair value of assets acquired and liabilities assumed as of May 7, 2018	As		As
	Reported	Subsequent	Reported
	on	Adjustments	on
	June 30,	to Fair Value	December
	2018		31, 2018
Cash and cash equivalents	\$13,418	\$ 134	\$ 13,552
Accounts receivable	22,853	(721)	22,132
Inventories	23,606	(400)	23,206
Other current assets	937	734	1,671
Property, plant and equipment	69,322	(5,625)	63,697
Intangible assets subject to amortization	164,200	(700)	163,500
Other non-current assets	3,304	(129)	3,175
Goodwill	157,421	4,399	161,820
Total assets acquired	\$455,061	\$ (2,308)	\$ 452,753
Current liabilities	\$16,767	\$ 234	\$ 17,001
Deferred tax liability	46,713	(2,442)	44,271
Other non-current liabilities	620	—	620
Total liabilities assumed	\$64,100	\$ (2,208)	\$ 61,892
Net assets acquired	\$390,961	\$ (100)	\$ 390,861

We recognized measurement period adjustments during the period in which we determined the amount of the adjustment. These adjustments primarily related to estimates of the fair value of assets acquired and liabilities assumed. Measurement period adjustments were based on facts and circumstances that existed at the date of the acquisition and, if known, would have affected the measurement of the amounts recognized at the acquisition date. As a result, we adjusted the preliminary allocation of the purchase price initially recorded.

A combination of income, market, and cost approaches was used for the valuation where appropriate, depending on the asset or liability being valued. Valuation inputs in these models and analyses considered market participant assumptions. Acquired

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intangible assets are primarily customer relationships. As of December 31, 2018, intangible assets in connection with Paragon Medical were \$155.3 million after post-acquisition amortization.

In connection with the Paragon Medical acquisition, we recorded goodwill, which represents the excess of the purchase price over the estimated fair value of tangible and intangible assets acquired, net of liabilities assumed. As of December 31, 2018, goodwill in connection with Paragon Medical was approximately \$158.7 million after post-acquisition currency impacts. The goodwill is attributed primarily to Paragon Medical as a going concern, the assembled workforce, the fair value of expected cost synergies, and revenue growth expected from the ability to go to market as a combined life sciences business. The going concern element represents the ability to earn a higher return on the combined assembled collection of assets and businesses of Paragon Medical than if those assets and businesses were to be acquired and managed separately. Approximately \$2.8 million of the goodwill relates to prior asset acquisitions by Paragon Medical and is expected to be deducted for tax purposes.

Property, plant and equipment acquired primarily included machinery and equipment for use in manufacturing operations. Additionally, manufacturing sites and related facilities, including leasehold improvements, were acquired. We have performed an assessment of the fair value of property, plant and equipment using both the cost approach and the market approach. The fair value assessment was supported where available by observable market data which includes consideration of obsolescence. We have performed an assessment of the fair value of intangible assets using the income approach, supported by market data, by using the relief from royalty and multi-period excess earnings methods.

We incurred approximately \$5.4 million in acquisition related costs with respect to the Paragon Medical acquisition during the year ended December 31, 2018. Transaction costs were expensed as incurred and are included in the “Acquisition related costs excluded from selling, general and administrative expense” line item in the Consolidated Statements of Operations and Comprehensive Income (Loss). We expensed \$12.9 million of financing costs related to the Paragon Medical acquisition during the year ended December 31, 2018, which are included in the “Loss on extinguishment of debt and write-off of debt issuance costs” line item in the Consolidated Statements of Operations and Comprehensive Income (Loss). As required by the acquisition method of accounting, acquired inventories were recorded at their estimated fair value. Beginning May 7, 2018, our consolidated results of operations include the results of Paragon Medical. Since the date of the acquisition, net sales of \$117.0 million and income from operations of \$8.1 million have been included in our consolidated financial statements.

The unaudited pro forma financial results shown in the table below for the years ended December 31, 2018 and 2017, combine the consolidated results of NN and Paragon Medical giving effect to the Paragon Medical acquisition as if it had been completed on January 1, 2017, the beginning of the comparable prior annual reporting period presented. The unaudited pro forma financial results do not give effect to any of our other acquisitions that occurred after January 1, 2017, and do not include any anticipated synergies or other assumed benefits of the Paragon Medical acquisition. This unaudited pro forma financial information is presented for informational purposes only and is not indicative of future operations or results had the Paragon Medical acquisition been completed as of January 1, 2017.

The unaudited pro forma financial results include certain adjustments for debt service costs and additional depreciation and amortization expense based upon the fair value step-up and estimated useful lives of Paragon Medical depreciable fixed assets and definite-life amortizable assets acquired. Adjustments for the year ended December 31, 2018, include a reduction of the prepayment penalty incurred upon the extinguishment of debt (see Note 12) as if the debt had been outstanding since January 1, 2017. The provision for income taxes has also been adjusted for all periods, based upon the foregoing adjustments to historical results. The impact of adopting ASC 606 has been included based on an adoption date of January 1, 2018.

	Year Ended December 31,	
	2018	2017
Pro forma net sales	\$825,891	\$760,772
Pro forma income (loss) from continuing operations	\$(252,268)	\$3,227
Pro forma net income (loss)	\$(252,268)	\$140,915
Basic income (loss) from continuing operations per share	\$(7.96)	\$0.12

Diluted income (loss) from continuing operations per share \$(7.96) \$0.12

Unaudited pro forma results for the year ended December 31, 2017, include \$15.0 million of inventory fair value adjustments, financing, integration, and transaction costs, net of tax, directly attributable to the acquisition which will not have an ongoing impact.

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Other Acquisitions

We made other acquisitions during the years ended December 31, 2018 and 2017, with an aggregate cash purchase price of \$22.0 million and \$38.7 million, respectively. Amounts recorded for goodwill and intangible assets are disclosed in Note 8 and Note 9, respectively. Some of these amounts are subject to completion of our integration procedures. We incurred approximately \$0.5 million and \$0.3 million in acquisition related costs with respect to other acquisitions during the years ended December 31, 2018 and 2017, respectively. Transaction costs were expensed as incurred and are included in the “Acquisition related costs excluded from selling, general and administrative expense” line item in the Consolidated Statements of Operations and Comprehensive Income (Loss).

DRT Medical, LLC. On October 2, 2017, we acquired 100% of the membership interests of DRT Medical, LLC, which was subsequently named NN Life Sciences - Vandalia, LLC (“NN Vandalia”). For accounting purposes, NN Vandalia meets the definition of a business and has been accounted for as a business combination. NN Vandalia is a medical device company that supplies precision manufactured medical instruments and orthopedic implants.

Operating results of NN Vandalia were reported prospectively in our Life Sciences group after the acquisition date. We finalized our valuation related to the assets acquired and liabilities assumed during 2018.

Bridgemedica, LLC. On February 22, 2018, we completed the acquisition of 100% of the assets of Bridgemedica, LLC (“Bridgemedica”). For accounting purposes, Bridgemedica meets the definition of a business and has been accounted for as a business combination. Bridgemedica is a medical device company that provides concept to supply solutions through design, development engineering and manufacturing. Operating results of Bridgemedica are reported prospectively in our Life Sciences group after the acquisition date. We have finalized our valuation related to the assets acquired and liabilities assumed.

Southern California Technical Arts, Inc. On August 9, 2018, we completed the acquisition of 100% of the capital stock of Southern California Technical Arts, Inc. (“Technical Arts”). For accounting purposes, Technical Arts meets the definition of a business and has been accounted for as a business combination. Technical Arts is an industrial machining company that manufactures tight tolerance metal components and assemblies. The acquisition of Technical Arts expands the NN presence in the aerospace and defense end market. Operating results of Technical Arts are reported prospectively in our Power Solutions group after the acquisition date. We have completed a preliminary purchase price allocation and are in the process of finalizing the fair value of assets acquired and liabilities assumed.

Note 4. Segment Information

We determined our reportable segments under the provisions of U.S. GAAP related to disclosures about segments of an enterprise. Management has concluded that Mobile Solutions, Power Solutions, and Life Sciences each constitutes an operating segment as each engages in business activities for which it earns revenues and incurs expenses for which separate financial information is available, and this is the level at which the Chief Operating Decision Maker (“CODM”) reviews discrete financial information for purposes of allocating resources and assessing performance. As described in Note 1, in January 2018, we implemented a new enterprise and management structure and reorganized our businesses into the Mobile Solutions, Power Solutions, and Life Sciences groups based principally on the end markets each group serves. In the first quarter of 2018, we began reporting our financial results based on these new reportable segments. Prior year amounts have been restated to conform to the current year presentation.

Mobile Solutions

Mobile Solutions is focused on growth in the general industrial and automotive end markets. We have developed an expertise in manufacturing highly complex, system critical components for fuel systems, engines and transmissions, power steering systems, and electromechanical motors on a high-volume basis. This expertise has been gained through investment in technical capabilities, processes and systems, and skilled program management and product launch capabilities.

Power Solutions

Power Solutions is focused on growth in the electrical and aerospace and defense end markets. Within this group we combine materials science expertise with advanced engineering and production capabilities to design and manufacture a broad range of high-precision metal and plastic components, assemblies, and finished devices used in applications

ranging from power control to flight control and for military devices.

We manufacture a variety of products including electrical contacts, connectors, contact assemblies, and precision stampings for the electrical end market and high precision products for the aerospace and defense end markets utilizing our extensive process technologies for optical grade plastics, thermally conductive plastics, titanium, Inconel, magnesium, and electroplating.

Life Sciences

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Life Sciences is focused on growth in the medical end market. Within this group we combine advanced engineering and production capabilities to design and manufacture a broad range of high-precision metal and plastic components, assemblies, and finished devices.

We manufacture a variety of components, assemblies, and instruments, such as surgical knives, bioresorbable implants, surgical staples, cases and trays, orthopedic implants and tools, laparoscopic devices, and drug delivery devices for the medical and life sciences end market.

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Segment Results

The following table presents results of continuing operations for each reportable segment.

	Mobile Solutions	Power Solutions	Life Sciences	Corporate and Consolidations	Total
Year Ended December 31, 2018					
Net sales	\$335,037	\$189,778	\$248,173	\$ (2,331)	(a) \$770,657
Depreciation and amortization	\$26,217	\$14,753	\$28,091	\$ 2,067	\$71,128
Goodwill impairment	\$73,442	\$109,100	\$—	\$—	\$182,542
Income from operations	\$(54,103)	\$(95,115)	\$19,136	\$ (48,806)	\$(178,888)
Interest expense					\$(61,243)
Other					\$(20,903)
Loss from continuing operations before benefit for income taxes and share of net income from joint venture					\$(261,034)
Share of net income from joint venture	\$(14,390)	—	—	—	\$(14,390)
Expenditures for long-lived assets	\$36,660	\$6,459	\$14,645	\$ 6,272	\$64,036
Total assets	\$356,387	\$297,947	\$802,770	\$ 44,466	(b) \$1,501,570
Year Ended December 31, 2017					
Net sales	\$336,852	\$186,602	\$98,329	\$ (1,990)	(a) \$619,793
Depreciation and amortization	\$24,491	\$14,657	\$12,088	\$ 1,170	\$52,406
Income from operations	\$34,405	\$23,440	\$13,271	\$ (38,002)	\$33,114
Interest expense					\$(52,085)
Other					\$(39,902)
Loss from continuing operations before benefit for income taxes and share of net income from joint venture					\$(58,873)
Share of net income from joint venture	\$5,211	—	—	—	\$5,211
Expenditures for long-lived assets	\$24,056	\$5,443	\$—	\$ 6,907	\$36,406
Total assets	\$428,321	\$385,558	\$353,208	\$ 307,916	(b) \$1,475,003
Year Ended December 31, 2016					
Net sales	\$326,138	\$180,330	\$80,057	\$ (1,571)	(a) \$584,954
Depreciation and amortization	\$22,189	\$15,604	\$12,501	\$ 427	\$50,721
Income from operations	\$29,490	\$24,060	\$9,840	\$ (28,611)	\$34,779
Interest expense					\$(62,870)
Other					\$(2,775)
Loss from continuing operations before benefit for income taxes and share of net income from joint venture					\$(30,866)
Share of net income from joint venture	\$5,938	—	—	—	\$5,938
Expenditures for long-lived assets	\$23,077	\$3,125	\$2,227	\$ 3,465	\$31,894

(a) Includes eliminations of intersegment transactions which occur during the ordinary course of business.

(b) Total assets in Mobile Solutions includes \$20.4 million and \$39.8 million as of December 31, 2018 and 2017, respectively, related to the investment in our 49% owned joint venture (Note 10).

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The following table summarizes the net sales and income (loss) from operations from the Paragon Medical and NN Vandalia acquisitions in the Life Sciences group and other acquisitions in the Life Sciences and Power Solutions groups for the years ended December 31, 2018 and 2017.

	Year Ended	
	December 31,	
	2018	2017
Net sales		
Paragon Medical	\$ 116,998	\$ —
NN Vandalia	30,668	6,682
Other	11,968	—

Income (loss) from operations		
Paragon Medical	\$ 8,086	\$ —
NN Vandalia	1,532	(458)
Other	284	—

The following table summarizes long-lived tangible assets by geographical region.

	Property, Plant, and Equipment, Net	
	As of December 31,	
	2018	2017
United States	\$ 235,975	\$ 173,269
Europe	50,143	25,288
Asia	42,657	26,078
Mexico	7,647	7,544
S. America	24,606	27,101
All foreign countries	\$ 125,053	\$ 86,011
Total	\$ 361,028	\$ 259,280

Note 5. Accounts Receivable and Sales Concentrations

Accounts receivable, net are comprised of the following amounts:

	As of December 31,	
	2018	2017
Trade	\$ 135,260	\$ 110,165
Less—allowance for doubtful accounts	1,839	1,719
Accounts receivable, net	\$ 133,421	\$ 108,446

The following table presents activity in the allowance for doubtful accounts.

	Year Ended December 31,		
	2018	2017	2016
Balance at beginning of year	\$ 1,719	\$ 1,069	\$ 1,055
Additions	754	648	153
Write-offs	(584)	(101)	(59)
Currency impact	(50)	103	(80)
Balance at end of year	\$ 1,839	\$ 1,719	\$ 1,069

No customers accounted for more than 10% of our net sales for the years ended December 31, 2018 and 2017. For the year ended December 31, 2016, sales to Robert Bosch Automotive Systems (“Bosch”) amounted to \$59.2 million or 10% of consolidated net sales. All revenues related to Bosch are reported in Mobile Solutions. No customers represented more than 10% of accounts receivable as of December 31, 2018 or 2017.

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Note 6. Inventories

Inventories are comprised of the following amounts:

	As of	
	December 31,	
	2018	2017
Raw materials	\$52,930	\$37,337
Work in process	42,578	27,669
Finished goods	27,107	17,611
Inventories	\$122,615	\$82,617

Note 7. Property, Plant and Equipment

Property, plant and equipment are comprised of the following amounts:

	As of December 31,	
	2018	2017
Land and buildings	\$69,455	\$54,833
Machinery and equipment	401,729	302,470
Construction in progress	35,122	14,346
Total	506,306	371,649
Less—accumulated depreciation	145,278	112,369
Property, plant and equipment, net	\$361,028	\$259,280

During the year ended December 31, 2018, we acquired \$66.0 million in property, plant and equipment with the Paragon Medical, Bridgemedica, and Technical Arts acquisitions. During the year ended December 31, 2017, we acquired \$14.0 million in property, plant and equipment with the NN Vandalia acquisition.

We monitor property, plant and equipment for any indicators of potential impairment. During 2018, we recognized an impairment charge of \$5.2 million related to the early retirement of identified fixed assets. The impairment charge was recorded to the Other operating (income) expense, net line item on the Consolidated Statements of Operations and Comprehensive Income (Loss). The impairment charge was determined by writing the assets down to the estimated salvage value, less disposal costs. We recorded no impairment charges for the years ended December 31, 2017 and 2016.

For the years ended December 31, 2018, 2017, and 2016, we recorded depreciation expense of \$38.6 million, \$28.9 million, and \$24.7 million, respectively.

Note 8. Goodwill

The following table shows changes in the carrying amount of goodwill for the years ended December 31, 2018, and 2017.

	Mobile Solutions	Power Solutions	Life Sciences	Total
Balance as of December 31, 2016	\$73,263	\$201,934	\$168,332	\$443,529
Currency impact	884	747	—	1,631
Goodwill acquired in acquisitions	—	—	9,452	9,452
Balance as of December 31, 2017	74,147	202,681	177,784	454,612
Currency impact and other	(705)	(1,882)	(3,118)	(5,705)
Goodwill acquired in acquisitions	—	2,657	165,288	167,945
Impairments	(73,442)	(109,100)	—	(182,542)
Measurement period adjustments	—	149	4,993	5,142
Balance as of December 31, 2018	\$—	\$94,505	\$344,947	\$439,452

The following table shows the gross carrying amount of goodwill and accumulated impairment charges as of December 31, 2018 and 2017.

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	December 31, 2018			December 31, 2017		
	Gross Carrying Amount	Accumulated Impairment Charges	Net Book Value	Gross Carrying Amount	Accumulated Impairment Charges	Net Book Value
Mobile Solutions	\$74,147	\$(74,147)	\$—	\$74,147	\$—	\$74,147
Power Solutions	205,405	(110,900)	94,505	204,481	(1,800)	202,681
Life Sciences	344,947	—	344,947	177,784	—	177,784
Total goodwill	\$624,499	\$(185,047)	\$439,452	\$456,412	\$(1,800)	\$454,612

Goodwill acquired in 2018 is related to the acquisitions as described in Note 3 and is derived from the value of the businesses acquired. During 2018, we recorded \$161.8 million of goodwill related to the Paragon Medical acquisition, \$8.0 million related to the Bridgemedica acquisition, and \$2.8 million related to the Technical Arts acquisition. We have performed an assessment of the Paragon Medical opening balance sheet which is subject to completion of our integration procedures for accounting policies. For the Bridgemedica acquisition, we have finalized our valuation related to the assets acquired and liabilities assumed. For the Technical Arts acquisition, we have completed a preliminary purchase price allocation and are in the process of finalizing the fair value of assets acquired and liabilities assumed. The preliminary fair value of the businesses acquired was based on management business plans and future performance estimates which are subject to a high degree of management judgment and complexity. Actual results may differ from these projections and the differences may be material.

During 2018, as a result of the changes in our organizational and management structure, goodwill was reassigned to operating segments with goodwill assigned to Power Solutions and Life Sciences using a relative fair value allocation. For the purpose of goodwill impairment testing, the operating segments (Mobile Solutions, Power Solutions, and Life Sciences) are considered reporting units and tested on a stand-alone basis. For further information on the organizational changes, see Note 1.

During the fourth quarter 2018, our market capitalization declined to a level that was less than the net book value of our stockholders' equity. We performed our annual goodwill impairment analysis as of October 1, 2018, and elected to early adopt ASU 2017-4. The goodwill impairment analysis required significant judgments to calculate the fair value for each of Mobile Solutions, Power Solutions, and Life Sciences, including estimation of future cash flows, which is dependent on internal forecasts, estimation of the long-term growth rate for each operating segment, and determination of weighted average cost of capital. A number of significant assumptions and estimates are involved in the application of the discounted cash flow model to forecast operating cash flows, including market growth and market share, sales volumes and prices, costs to produce, discount rate, and estimated capital needs. Management considers historical experience and all available information at the time the fair values of its reporting units are estimated. Assumptions in estimating future cash flows are subject to a high degree of judgment and complexity. Changes in assumptions and estimates may affect the fair value of goodwill and could result in impairment charges in future periods. As a result of our analysis, the Company recorded an impairment loss on goodwill of \$73.4 million and \$109.1 million for Mobile Solutions and Power Solutions, respectively, to the "Goodwill impairment" line on the Consolidated Statements of Operations and Comprehensive Income (Loss). In addition, goodwill in Power Solutions was reduced by \$1.6 million related to adjusting deferred tax liabilities for tax deductible goodwill, which is reflected in "Currency impact and other" in the above table. No goodwill impairment loss was recorded at Life Sciences. Power Solutions goodwill as of December 31, 2018 was \$94.5 million. In conjunction with the annual goodwill impairment test during the fourth quarter of 2018, Power Solutions goodwill was impaired by \$109.1 million, resulting in the carrying value of the reporting unit being equal to its fair value. If our assessment of the relevant facts and circumstances change, or if the actual performance falls short of expected results, an additional impairment charge will be required. An impairment of goodwill may also lead us to record an impairment of other intangible assets. The carrying value of finite-lived intangible assets for the Power Solutions group as of December 31, 2018, was \$96.0 million.

Life Sciences has largely grown through acquisitions, with two acquisitions in 2018 plus another acquisition in late-2017. The Company is forecasting continued growth for the Life Sciences group; however, the fair value of the reporting unit exceeds the carrying value by approximately 3.7% in the most recent valuation. If our assessment of the

relevant facts and circumstances change, or the actual performance falls short of expected results, impairment charges may be required. Total goodwill for the Life Sciences group as of December 31, 2018 was \$344.9 million. An impairment of goodwill may also lead us to record an impairment of other intangible assets. The carrying amount of finite-lived intangible assets for the Life Sciences group as of December 31, 2018 was \$244.4 million. We completed our annual goodwill impairment review during the fourth quarters of 2017 and 2016 and concluded that there were no indicators of impairment at the reporting units with goodwill during those periods.

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Note 9. Intangible Assets, Net

We have identified intangible assets with finite lives primarily representing customer relationships, trademarks, and trade names. In 2018, Life Sciences added \$163.5 million and \$5.7 million of intangible assets related to the Paragon Medical and Bridgemedica acquisitions, respectively. In addition, in 2018, Power Solutions added \$1.9 million of intangible assets related to the Technical Arts acquisition. The intangible assets acquired in 2018 primarily represent customer relationships and trademarks and trade names with a weighted average estimated useful life of the acquired intangible assets of 19 years. Refer to Note 3 for further discussion on the 2018 acquisitions.

The following table shows the nature and preliminary weighted average estimated useful lives of intangible assets acquired during the year ended December 31, 2018. Actual results may differ from these projections, and the differences may be material.

	Gross Carrying Value as of Acquisition Date	Weighted Average Estimated Useful Life in Years
Customer relationships	\$ 146,800	20
Trademark and trade name	14,700	29
Other	9,613	1
Total intangible assets acquired in current year	\$ 171,113	19

As of January 1, 2018, as a result of the changes in our organizational and management structure, intangible assets were reassigned to operating segments with intangible assets assigned to Power Solutions and Life Sciences using a relative fair value allocation. For further information on the organizational changes, see Note 1.

The following table shows changes in the carrying amount of intangible assets, net.

	Mobile Solutions	Power Solutions	Life Sciences	Total
Balance as of December 31, 2016	\$42,928	\$115,928	\$95,407	\$254,263
Amortization	(3,481)	(10,898)	(9,081)	(23,460)
Currency impacts	(1)	—	—	(1)
Intangible assets acquired in acquisition	—	—	6,900	6,900
Balance as of December 31, 2017	\$39,446	\$105,030	\$93,226	\$237,702
Amortization	(3,540)	(10,939)	(18,074)	(32,553)
Currency impacts	(14)	—	—	(14)
Intangible assets acquired in acquisitions	—	1,900	169,213	171,113
Measurement period adjustments	—	—	—	—
Balance as of December 31, 2018	\$35,892	\$95,991	\$244,365	\$376,248

The following table shows the cost and accumulated amortization of our intangible assets as of December 31, 2018 and 2017.

	Estimated Useful Life in Years	December 31, 2018			December 31, 2017		
		Gross Carrying Value as of Acquisition Date	Accumulated Amortization	Net Carrying Value	Gross Carrying Value as of Acquisition Date	Accumulated Amortization	Net Carrying Value
Customer relationships	12 - 20	\$428,830	\$(75,581)	\$353,249	\$282,030	\$(52,408)	\$229,622
Trademark and trade name	8 - 30	25,100	(4,085)	21,015	10,460	(2,703)	7,757
Other	1 - 5	10,641	(8,657)	1,984	8,740	(8,417)	323
Total identified intangible assets		\$464,571	\$(88,323)	\$376,248	\$301,230	\$(63,528)	\$237,702

Intangible assets that become fully amortized are removed from the accounts and are no longer represented in the gross carrying value or accumulated amortization.

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The following table summarizes estimated future amortization expense for the next five years and thereafter.

Year Ending	
December 31,	
2019	\$47,009
2020	45,357
2021	41,415
2022	38,464
2023	36,625
Thereafter	167,378
Total	\$376,248

Intangible assets are tested for impairment when changes in circumstances indicate the carrying value of those assets may not be recoverable. As of December 31, 2018 and 2017, there were no indications of impairment.

Note 10. Investment in Joint Venture

We own a 49% investment in Wuxi Weifu Autocam Precision Machinery Company, Ltd. (the “JV”), a joint venture located in Wuxi, China. The JV is jointly controlled and managed, and we account for it under the equity method.

The following table summarizes activity related to our investment in the JV.

Balance as of December 31, 2017	\$39,822
Share of earnings	2,543
Dividends declared and paid by joint venture	(2,842)
Accretion of basis difference from purchase accounting	(343)
Foreign currency translation loss	(2,227)
Impairment	(16,589)
Balance as of December 31, 2018	\$20,364

During the year ended December 31, 2018, the fair value of the JV was assessed as a result of changing market conditions. Based on the results of the assessment, we determined the carrying amount of the investment exceed its estimated fair market value, and we believe this condition is other than temporary, as defined by the accounting standards. As a result, we recorded an impairment charge of \$16.6 million against our investment in the JV. This charge is included in the line item “Share of net income from joint venture” line on the Consolidated Statements of Operations and Comprehensive Income (Loss). The fair value assessment was most significantly affected by growth rates. It is reasonably possible that material deviation of future performance from the estimates used in the valuation could result in further impairment to our investment in the JV.

The following tables show selected financial data of the JV.

	Year Ended December 31,		
	2018	2017	2016
Net sales	\$69,901	\$74,805	\$65,756
Cost of sales	57,596	57,514	44,530
Income from operations	6,853	13,659	16,268
Net income	4,646	11,442	13,702

We recognized sales to the JV of \$0.3 million, \$0.2 million, and \$0.1 million for the years ended December 31, 2018, 2017, and 2016, respectively. Amounts due to us from the JV were \$0.1 million, \$0.1 million, and \$0.1 million as of December 31, 2018, 2017, and 2016, respectively.

Note 11. Income Taxes

On December 22, 2017, the U.S. government enacted comprehensive tax legislation. The Tax Act reduced the U.S. federal corporate income tax rate from 35% to 21%, required companies to pay a one-time transition tax on earnings of certain foreign subsidiaries that were previously tax deferred, and created new taxes on certain foreign sourced earnings. As a result of the Tax

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Act, we recognized a \$51.8 million net tax benefit in 2017, which included the estimate of transition tax and the remeasurement of our domestic deferred taxes from 35% to 21%.

As of December 31, 2018, the Company considers the accounting under Staff Accounting Bulletin No. 118 for the impacts of the Tax Act to be complete. In preparing the amounts as of December 31, 2018, the Company considered notices, revenue procedures, and proposed regulations issued by the Internal Revenue Service and authoritative accounting guidance to date. In 2018, the Company recognized an adjustment to the 2017 net tax benefit which decreased earnings by \$0.8 million. This adjustment was primarily related to the one-time transition tax on deferred foreign income, change in valuation of deferred tax assets associated with tax law changes, and remeasurement of deferred taxes.

On February 5, 2019, the Department of the Treasury and Internal Revenue Service published final regulations pertaining to the transition tax enacted as part of the Tax Act. The Company is still in the process of analyzing the impact of these regulations, which were issued subsequent to the balance sheet date of December 31, 2018. Based upon a preliminary analysis of the final regulations, we anticipate an increase to tax expense of approximately \$6.0 million for the year ended December 31, 2019. The Company's analysis is on-going and the adjustment will be recorded in 2019 during the period of enactment of the regulations.

Loss from continuing operations before benefit for income taxes was as follows:

	Year Ended December 31,		
	2018	2017	2016
Loss from continuing operations before benefit for income taxes and share of net income from joint venture			
United States	\$(263,499)	\$(71,603)	\$(39,160)
Foreign	2,465	12,730	8,294
Total	\$(261,034)	\$(58,873)	\$(30,866)

Total income tax benefit was as follows:

	Year Ended December 31,		
	2018	2017	2016
Current taxes:			
U.S. Federal	\$8,150	\$(47,916)	\$(2,595)
State	584	(12,226)	679
Foreign	3,086	4,310	2,004
Total current tax expense (benefit)	11,820	(55,832)	88
Deferred taxes:			
U.S. Federal	\$(16,129)	\$(25,017)	\$(9,679)
State	(780)	3,009	(6,406)
Deferred tax valuation allowance	(3,565)	710	1,882
Foreign	(2,303)	(1,896)	(1,323)
Total deferred tax benefit	(22,777)	(23,194)	(15,526)
Total income tax benefit	\$(10,957)	\$(79,026)	\$(15,438)

A reconciliation of income taxes based on the U.S. federal statutory income tax rate is summarized as follows:

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	Year Ended December 31,		
	2018	2017	2016
U.S federal statutory income tax rate	21.0 %	35.0 %	34.0 %
Change in valuation allowance	(0.9)%	(1.2)%	(6.1)%
Foreign tax credits, exclusive of tax reform	— %	(13.8)%	8.2 %
State taxes, net of federal taxes, exclusive of tax reform	0.4 %	9.1 %	5.7 %
Non-U.S. earnings taxed at different rates	1.2 %	1.7 %	4.8 %
Non-deductible mergers and acquisitions costs	(0.2)%	— %	— %
GILTI	(0.3)%	— %	— %
Goodwill impairment	(15.5)%	— %	— %
R&D Tax credit	0.3 %	0.3 %	0.9 %
Change in uncertain tax positions	0.3 %	(0.4)%	3.2 %
Impact of Tax Reform			
Toll Charge, net of foreign tax credit	0.6 %	(11.5)%	— %
Remeasurement of deferred taxes pursuant to tax reform	(0.9)%	65.6 %	— %
Tax Reform impact on divestiture of business segment	— %	33.9 %	— %
Section 199/Domestic Production Deduction	— %	0.8 %	— %
Divestiture of Business Segment, exclusive of tax reform	(0.9)%	13.6 %	— %
Return to provision	(0.8)%	— %	— %
Prior period revisions	— %	0.5 %	4.2 %
Foreign JV net income	— %	— %	(4.1)%
Other adjustments, net	(0.1)%	0.6 %	(0.8)%
Effective tax rate	4.2 %	134.2 %	50.0 %

The 2018 effective tax rate of 4.2% differs from the U.S. federal statutory income tax rate of 21% due to permanent differences including the impact of the goodwill impairment, most of which is treated as a permanent difference for income tax purposes.

The 2017 effective tax rate of 134.2% was heavily influenced by the remeasurement of our ending domestic deferred balances, an estimate of the one-time transition tax (net of foreign tax credits) on earnings of our foreign subsidiaries in accordance with the Tax Act, and the impact of the Tax Act on the divestiture of the PBC Business.

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The principal components of the deferred tax assets and liabilities are as follows:

	As of December	
	31,	
	2018	2017
Deferred income tax liabilities:		
Tax in excess of book depreciation	\$37,425	\$34,143
Goodwill	—	58
Intangible assets	80,623	50,688
Other deferred tax liabilities	794	389
Total deferred income tax liabilities	118,842	85,278
Deferred income tax assets:		
Interest expense limitation	9,968	—
Goodwill	1,441	2,067
Inventories	2,745	2,248
Pension/Personnel accruals	1,317	1,596
Net operating loss carry forwards	9,321	6,950
Foreign tax credits	5,345	—
Credit carry forwards	4,130	3,427
Accruals and reserves	1,531	2,015
Other deferred tax assets	4,022	3,019
Deferred income tax assets before Valuation Allowance	39,820	21,322
Valuation allowance on deferred tax assets	(14,460)	(7,608)
Total deferred income tax assets	25,360	13,714
Net deferred income tax liabilities ⁽¹⁾	\$93,482	\$71,564

⁽¹⁾ In accordance with the Tax Act, our ending domestic deferred balances have been remeasured to 21% for the year ended December 31, 2017.

During the year ended December 31, 2018, we finalized our accounting policy decision with respect to the new GILTI tax rules and have concluded that GILTI will be treated as a periodic charge in the year in which it arises. Therefore, we will not record deferred taxes for the basis associated with GILTI earnings.

As realization of certain deferred tax assets is not assured, management believes it is more likely than not that those net deferred tax assets will be realized. However, the amount of the deferred tax assets considered realizable could be reduced based on changing conditions.

The following table summarizes our total valuation allowances:

	Year Ended December		
	31,		
	2018	2017	2016
Balance at beginning of year	\$7,608	\$4,090	\$2,376
Additions	6,852	3,518	1,882
Recoveries	—	—	(168)
Balance at end of year	\$14,460	\$7,608	\$4,090

During 2018, the valuation allowance increased by approximately \$6.9 million, as a result of an increase in foreign and state NOL's and U.S. foreign tax credits.

During 2017, the valuation allowance increased by approximately \$3.5 million, consisting of a \$2.3 million increase due to the uncertainty of realizing certain state NOL carryforwards, and a \$1.2 million increase for foreign NOL's.

During 2016, the valuation allowance increased by approximately \$1.7 million, consisting of a \$1.9 million increase due to the uncertainty of realizing certain state NOL carryforwards offset by a decrease of \$0.2 million related to the Company's expectation that it is more likely than not that it will generate future taxable income to utilize this amount of net deferred tax assets.

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A reconciliation of the beginning and ending amounts of unrecognized tax benefits, excluding interest and penalties, is as follows:

	Year Ended December 31,		
	2018	2017	2016
Balance at beginning of year	\$5,655	\$4,741	\$5,724
Additions for tax positions of prior years	304	1,404	179
Reductions for tax positions of prior years	(1,350)	(490)	(1,162)
Balance at end of year	\$4,609	\$5,655	\$4,741

As of December 31, 2018, the \$4.6 million of unrecognized tax benefits would, if recognized, impact our effective tax rate by \$4.0 million. The 2018 reduction is related to expiring statutes of limitations in certain US state and foreign jurisdictions.

Interest and penalties related to federal, state, and foreign income tax matters are recorded as a component of the provision for income taxes in our Consolidated Statements of Operations and Comprehensive Income (Loss). During 2018, we released less than \$0.1 million of previously accrued foreign interest and released \$0.2 million of previously accrued U.S. interest. During 2017, we released \$0.2 million of previously accrued U.S. interest. During 2016, we released less than \$0.1 million of previously accrued foreign interest and accrued \$0.2 million in U.S. interest. Management believes that it is reasonably possible that the amount of unrecognized income benefits and interest may decrease during the next twelve months by approximately \$1.8 million, related to the expiration of the statutes of limitations.

As of December 31, 2018, the Company has \$101.6 million of state NOL carryovers. The state NOL's begin to expire in 2030. We also have \$10.7 million of foreign NOL carryovers at December 31, 2018. The foreign NOL's have an indefinite life. The Company has \$4.1 million of tax credits in foreign jurisdictions at December 31, 2018. The tax credits in foreign jurisdictions begin to expire in 2026. The Company has foreign tax credit carryforwards for federal income tax purposes of \$5.3 million at December 31, 2018. The foreign tax credit carryforwards begin to expire in 2024. The state NOL's, tax credits in foreign jurisdictions, and foreign tax credits for federal income tax purposes have a full valuation allowance. These amounts are included in the valuation allowance table on the previous page.

We or our subsidiaries file income tax returns in the U.S. federal jurisdiction, and in various states and foreign jurisdictions. During the third quarter of 2017, the Internal Revenue Service commenced an examination of the federal tax return for the pre-acquisition period of January 1, 2015, through October 19, 2015, for Precision Engineered Products, LLC, our wholly-owned subsidiary. The examination was completed during the 4th quarter of 2018. The Company is no longer subject to federal examinations by tax authorities for years before 2012. The Company is also subject to examination by various state and international tax authorities. The tax years subject to examination vary by jurisdiction. The Company regularly assesses the outcomes of both ongoing and future examinations for the current or prior years to ensure the Company's provision for income taxes is sufficient. The Company recognizes liabilities based on estimates of whether additional taxes will be due and believes its reserves are adequate in relation to any potential assessments. The outcome of any one examination, some of which may conclude during the next twelve months, is not expected to have a material impact on the Company's financial position or results of operations. We operate under tax holidays in other countries, which are effective through December 31, 2026, and may be extended if certain additional requirements are satisfied. The tax holidays are conditional upon our meeting certain employment and investment thresholds. The impact of these tax holidays decreased foreign taxes by \$0.8 million and \$0.7 million for 2017 and 2016, respectively. The benefit of the tax holidays on net income per share (diluted) was \$0.03 and \$0.03 for 2017, and 2016, respectively. The tax holidays had no impact on our 2018 foreign taxes.

Note 12. Debt

Collectively, our credit facility is comprised of a term loan with a face amount of \$545.0 million, maturing on October 19, 2022 (the "Senior Secured Term Loan"); a term loan with a face amount of \$300.0 million, maturing on April 3, 2021 (the "Incremental Term Loan"); and a revolving line of credit with a face amount of \$143.0 million, maturing on October 19, 2020 (the "Senior Secured Revolver"). The credit facility is collateralized by all of our assets. The following table presents outstanding debt balances as of December 31, 2018 and 2017.

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	As of December 31,	
	2018	2017
Senior Secured Term Loan	\$532,063	\$534,250
Incremental Term Loan	279,000	291,000
Senior Secured Revolver	38,720	—
International lines of credit and other loans	9,810	3,315
Total principal	859,593	828,565
Less—current maturities of long-term debt	31,280	17,283
Principal, net of current portion	828,313	811,282
Less—unamortized debt issuance costs	16,842	20,477
Long-term debt, net of current portion	\$811,471	\$790,805

We capitalized interest costs amounting to \$1.2 million, \$1.1 million, and \$1.6 million in the years ended December 31, 2018, 2017, and 2016, related to construction in progress.

Senior Secured Term Loan

On November 24, 2017, we amended our existing credit facility to reduce the applicable margin on outstanding borrowings under the Senior Secured Term Loan by 50 basis points from 4.25% to 3.75%. Outstanding borrowings under the Senior Secured Term Loan bear interest at the greater of 0.75% or one-month London Interbank Offered Rate (“LIBOR”) plus an applicable margin of 3.75%. At December 31, 2018, the Senior Secured Term Loan bore interest of 6.25%.

Incremental Term Loan

On November 24, 2017, we amended our existing credit facility to reduce the applicable margin on outstanding borrowings under the Incremental Term Loan by 50 basis points from 3.75% to 3.25%. Outstanding borrowings under the Incremental Term Loan bear interest at one-month LIBOR plus an applicable margin of 3.25%. At December 31, 2018, the Incremental Term Loan bore interest of 5.75%, one-month LIBOR plus 3.25%.

Second Lien Credit Agreement

On May 7, 2018, we amended our existing credit facility (the “May 2018 amendment”) to permit the Paragon Medical acquisition, to permit the Second Lien Credit Agreement, and to amend certain covenants. In connection with the May 2018 amendment, we, certain of our subsidiaries named therein, SunTrust Bank, as Administrative Agent, SunTrust Robinson Humphrey, Inc., as Lead Arranger and Bookrunner, and the lenders named therein, entered into a Second Lien Credit Agreement (the “Second Lien Credit Agreement”) pursuant to which SunTrust Bank and the other lenders extended to us a \$200.0 million secured second lien term loan facility (the “Second Lien Facility”). We utilized the net proceeds from the Second Lien Facility, together with cash on hand, to pay the Paragon Medical purchase price and fees and expenses related to the acquisition. The Second Lien Facility was collateralized by all of our assets and had a maturity date of April 19, 2023. Outstanding borrowings under the Second Lien Facility bore interest at either (i) a base rate plus an applicable margin of 7.00%, or (ii) the greater of LIBOR or 1.00% plus an applicable margin of 8.00%. We paid \$16.7 million of debt issuance costs related to the May 2018 amendment of which \$12.9 million is included in the “Loss on extinguishment of debt and write-off of debt issuance costs” line on the Consolidated Statements of Operations and Comprehensive Income (Loss) and \$3.8 million is capitalized as a reduction of long-term debt.

On September 18, 2018, a significant portion of net proceeds from a registered public offering of shares of our common stock was used to voluntarily prepay in the full the \$200.0 million outstanding principal balance. We paid a prepayment penalty of two percent of the outstanding principal balance, or \$4.0 million, and wrote off \$2.6 million of unamortized debt issuance costs to the “Loss on extinguishment of debt and write-off of debt issuance costs” line on the Consolidated Statements of Operations and Comprehensive Income (Loss). Refer to Note 15 for additional information regarding the registered public offering.

Senior Secured Revolver

Outstanding borrowings under the Senior Secured Revolver bear interest at one-month LIBOR plus 3.50%. At December 31, 2018, the Senior Secured Revolver bore interest of 6.00%. We pay an annual commitment fee of 0.50% for unused capacity under the Senior Secured Revolver on a quarterly basis.

On December 26, 2018, we amended our existing credit facility (the “December 2018 amendment”) to increase the total available capacity under the Senior Secured Revolver and to reduce the consolidated net leverage ratio, the basis for certain

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financial covenants, for periods ended on or after December 31, 2018. The December 2018 amendment increased the total available capacity under the Senior Secured Revolver from \$100.0 million to \$125.0 million. We paid \$0.1 million of debt issuance costs related to the December 2018 amendment which is capitalized as a reduction of long-term debt.

Total available capacity under the Senior Secured Revolver was \$125.0 million as of December 31, 2018. Available capacity may be restored to \$143.0 million upon the achievement of certain requirements. Our credit facility is subject to certain financial covenants based on a consolidated net leverage ratio, as defined in the credit facility agreement. The financial covenants are effective when we have outstanding borrowings under our Senior Secured Revolver on the last day of any fiscal quarter and become more restrictive over time. We had \$38.7 million outstanding under the Senior Secured Revolver at December 31, 2018, and we were in compliance with all covenants under our credit facility.

International Lines of Credit and Other Loans

International lines of credit and other loans is comprised of loans with financial institutions in France, Brazil, and China (“international credit facilities”). The international credit facilities are used to fund working capital and equipment purchases for our manufacturing plants in those countries. As of December 31, 2018, the international credit facilities had \$9.8 million outstanding of which \$6.8 million is classified as “Current maturities of long-term debt” on the Consolidated Balance Sheets.

Future Maturities

The following table lists aggregate maturities of long-term debt for the next five years and thereafter.

Year Ending December 31,	Aggregate Maturities Principal Amounts
2019	\$ 31,280
2020	50,097
2021	261,094
2022	515,157
2023	344
Thereafter	1,621

Total outstanding principal \$ 859,593

Note 13. Restructuring and Integration

The following table summarizes restructuring and integration charges for the years ended December 31, 2018, 2017, and 2016.

	Mobile Solutions	Power Solutions	Life Sciences	Corporate and Consolidations	Total
Year Ended December 31, 2018					
Severance and other employee costs	\$ —	\$ —	\$ 1,336	\$ 728	\$ 2,064
Site closure and other associated costs	63	—	—	—	63
Total	\$ 63	\$ —	\$ 1,336	\$ 728	\$ 2,127
Year Ended December 31, 2017					
Severance and other employee costs	\$ 17	\$ —	\$ —	\$ —	\$ 17
Site closure and other associated costs	369	—	—	—	369
Total	\$ 386	\$ —	\$ —	\$ —	\$ 386
Year Ended December 31, 2016					
Severance and other employee costs	\$ 851	\$ 455	\$ 381	\$ —	\$ 1,687
Site closure and other associated costs	3,488	263	220	—	3,971
Total	\$ 4,339	\$ 718	\$ 601	\$ —	\$ 5,658

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The following tables summarize restructuring and integration reserve activity for the years ended December 31, 2018, 2017, and 2016.

	Reserve Balance as of December 31, 2017	Charges	Non-cash Adjustments	Cash Reductions	Reserve Balance as of December 31, 2018
Severance and other employee costs	\$ —	\$ 2,064	\$ —	\$ (942)	\$ 1,122
Site closure and other associated costs	1,099	63	(56)	(1,082)	24
Total	\$ 1,099	\$ 2,127	\$ (56)	\$ (2,024)	\$ 1,146

	Reserve Balance as of December 31, 2016	Charges	Non-cash Adjustments	Cash Reductions	Reserve Balance as of December 31, 2017
Severance and other employee costs	\$ 1,000	\$ 17	\$ (164)	\$ (853)	\$ —
Site closure and other associated costs	1,625	369	—	(895)	1,099
Total	\$ 2,625	\$ 386	\$ (164)	\$ (1,748)	\$ 1,099

	Reserve Balance as of December 31, 2015	Charges	Non-cash Adjustments	Cash Reductions	Reserve Balance as of December 31, 2016
Severance and other employee costs	\$ 887	\$ 1,687	\$ (278)	\$ (1,296)	\$ 1,000
Site closure and other associated costs	1,845	3,971	(2,142)	(2,049)	1,625
Total	\$ 2,732	\$ 5,658	\$ (2,420)	\$ (3,345)	\$ 2,625

In 2018, we recognized severance and other employee costs of \$0.7 million at corporate headquarters related to the restructuring of our former Precision Engineered Products Group to form the Power Solutions and Life Sciences groups, effective January 2, 2018. We also recognized severance and other employee costs of \$1.3 million in our Life Sciences group related to the post-acquisition integration of Paragon Medical into our existing business.

In 2017, we recognized restructuring and integration expense of \$0.4 million in our Mobile Solutions group due primarily to the closure of a plant in Wheeling, Illinois (the “Wheeling Plant”), which was a part of our integration plan after the acquisition of Autocam Corporation (“Autocam”) in 2014.

In 2016, we recognized restructuring and integration expense of \$4.3 million in our Mobile Solutions segment due primarily to the closure of the Wheeling Plant. These charges consisted of \$0.8 million of severance and other employee costs and site closure and other associated costs of \$3.5 million. We also recognized restructuring and integration expense of \$0.7 million and \$0.6 million due to initiatives within our Power Solutions and Life Sciences groups, respectively, related to integration costs, rebranding, site moving costs for two plants, and other employee costs.

The amount accrued as of December 31, 2018, for restructuring and integration costs represents our expected obligation over the next 2.2 years primarily related to severance and other employee costs. We expect to pay \$0.7 million within the next twelve months.

Note 14. Commitments and Contingencies

Lease Payments

We have operating lease commitments for machinery, office equipment, vehicles, and manufacturing and office space which expire on varying dates. We recognized rent expense of \$12.4 million, \$7.6 million, and \$7.2 million for the years ended December 31, 2018, 2017 and 2016, respectively.

The following table summarizes future minimum lease payments as of December 31, 2018, under operating leases that have initial or remaining non-cancelable lease terms in excess of one year.

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Year Ending December 31,	Minimum Rental Commitments
2019	\$ 13,337
2020	11,515
2021	10,557
2022	10,293
2023	8,752
Thereafter	53,945

Total minimum payments \$ 108,399

Brazil ICMS Tax Matter

Prior to the acquisition of Autocam in 2014, Autocam’s Brazilian subsidiary (“Autocam Brazil”) received notification from the Brazilian tax authority regarding ICMS (state value added tax or “VAT”) tax credits claimed on intermediary materials (e.g. tooling and perishable items) used in the manufacturing process. The Brazilian tax authority notification disallowed state ICMS tax credits claimed on intermediary materials based on the argument that these items are not intrinsically related to the manufacturing process. Autocam Brazil filed an administrative defense with the Brazilian tax authority arguing, among other matters, that it should qualify for an ICMS tax credit, contending that the intermediary materials are directly related to the manufacturing process.

We believe that we have substantial legal and factual defenses, and we plan to defend our interests in this matter vigorously. The matter encompasses several lawsuits filed with Brazilian courts requesting declaratory actions that no tax is due or seeking a stay of execution on the collection of the tax. In 2018, we obtained a favorable decision in one of the declaratory actions for which the period for appeal has expired. We have filed actions in each court requesting dismissal of the matter based on the earlier court action. Although we anticipate a favorable resolution to all matters, we can provide no assurances that we will be successful in achieving dismissal of all pending cases. While we believe a loss is not probable, we estimate the range of possible losses related to this assessment is from \$0 to \$6.0 million. No amount was accrued at December 31, 2018, for this matter.

We are entitled to indemnification from the former shareholders of Autocam, subject to the limitations and procedures set forth in the agreement and plan of merger relating to the Autocam acquisition. Management believes the indemnification would include amounts owed for the tax, interest, and penalties related to this matter.

All Other Legal Matters

All other legal proceedings are of an ordinary and routine nature and are incidental to our operations. Management believes that such proceedings should not, individually or in the aggregate, have a material adverse effect on our business, financial condition, results of operations, or cash flows. In making that determination, we analyze the facts and circumstances of each case at least quarterly in consultation with our attorneys and determine a range of reasonably possible outcomes.

Note 15. Equity Offering

On September 18, 2018, we issued 14.4 million shares of our common stock in a public offering under our shelf registration statement at a price of \$16.00 per share. Net proceeds of \$217.3 million were used to repay the Second Lien Facility and a portion of the Senior Secured Revolver.

Note 16. Revenue from Contracts with Customers

We adopted ASC 606 on January 1, 2018, using the modified retrospective transition method for all contracts not completed as of the date of adoption. The reported results for 2018 reflect the application of ASC 606 while the reported results for 2017 and 2016 were prepared under the guidance of ASC 605. The adoption of ASC 606 represents a change in accounting principle that will more closely align revenue recognition with the delivery of our goods and will provide financial statement readers with enhanced disclosures. In accordance with ASC 606, revenue is recognized when a customer obtains control of promised goods in an amount that reflects the consideration we expect to be entitled to receive in exchange for those goods. To the extent that transaction price includes variable

consideration, we estimate the amount of variable consideration that should be included in the transaction price utilizing the expected value method or the most likely amount method depending on the nature of the

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variable consideration. Variable consideration is included in the transaction price if, in management's judgment, it is probable that a significant future reversal of cumulative revenue under the contract will occur.

Revenue is recognized when control of the good or service is transferred to the customer either at a point in time or, in limited circumstances, as our services are rendered over time. Revenue is measured as the amount of consideration we expect to receive in exchange for transferring goods or services.

The following tables summarize sales to external customers by operating segment for the years ended December 31, 2018, 2017, and 2016.

Year Ended December 31, 2018

	Mobile Solutions	Power Solutions	Life Sciences	Intersegment Sales Eliminations	Total
United States	\$187,178	\$157,357	\$206,776	\$ (2,331)	\$548,980
China	43,610	5,537	6,130	—	55,277
Mexico	27,053	12,254	191	—	39,498
Brazil	35,314	215	29	—	35,558
Germany	5,652	26	19,870	—	25,548
Switzerland	5,006	54	6,446	—	11,506
Poland	7,010	13	8	—	7,031
Italy	5,558	221	317	—	6,096
Czech Republic	6,131	47	—	—	6,178
Netherlands	—	3,290	—	—	3,290
Other	12,525	10,764	8,406	—	31,695
Total net sales	\$335,037	\$189,778	\$248,173	\$ (2,331)	\$770,657

Year Ended December 31, 2017

	Mobile Solutions	Power Solutions	Life Sciences	Intersegment Sales Eliminations	Total
United States	\$190,828	\$152,938	\$96,062	\$ (1,990)	\$437,838
China	45,503	6,481	267	—	52,251
Mexico	26,639	14,220	78	—	40,937
Brazil	35,425	185	—	—	35,610
Germany	5,502	11	35	—	5,548
Switzerland	5,450	—	—	—	5,450
Poland	5,183	—	—	—	5,183
Italy	5,347	334	—	—	5,681
Czech Republic	—	—	—	—	—
Netherlands	—	2,817	—	—	2,817
Other	16,975	9,616	1,887	—	28,478
Total net sales	\$336,852	\$186,602	\$98,329	\$ (1,990)	\$619,793

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Year Ended December 31, 2016

	Mobile Solutions	Power Solutions	Life Sciences	Intersegment Sales Eliminations	Total
United States	\$ 196,217	\$ 134,564	\$ 78,707	\$ (1,571)	\$ 407,917
China	44,579	8,131	403	—	53,113
Mexico	24,919	20,944	—	—	45,863
Brazil	23,801	458	—	—	24,259
Germany	4,497	8	35	—	4,540
Switzerland	—	—	—	—	—
Poland	—	—	—	—	—
Italy	5,027	322	—	—	5,349
Czech Republic	—	—	—	—	—
Netherlands	—	1,882	—	—	1,882
Other	27,098	14,021	912	—	42,031
Total net sales	\$ 326,138	\$ 180,330	\$ 80,057	\$ (1,571)	\$ 584,954

Product Sales

We generally transfer control and recognize a sale when we ship the product from our manufacturing facility to our customer, at a point in time, as this is when our customer obtains the ability to direct use of, and obtain substantially all of the remaining benefits from, the goods. We have elected to recognize the cost for freight and shipping when control over products has transferred to the customer as a component of cost of sales.

We use an observable price to determine the stand-alone selling price for separate performance obligations or a cost-plus-margin approach when an observable price is not available. The expected duration of our contracts is one year or less, and we have elected to apply the practical expedient that allows entities to disregard the effects of financing when the contract length is less than one year. The amount of consideration we receive and the revenue we recognize varies with volume rebates and incentives we offer to our customers. We estimate the amount of variable consideration that should be included in the transaction price utilizing the expected value method or the most likely amount method depending on the nature of the variable consideration. Variable consideration is included in the transaction price if, in our judgment, it is probable that a significant future reversal of cumulative revenue under the contract will not occur.

We have utilized certain practical expedients allowed by the new standard. We utilize the portfolio approach practical expedient to evaluate sales-related discounts on a portfolio basis to contracts with similar characteristics. The effect on our financial statements of applying the portfolio approach would not differ materially from applying the new standard to individual contracts.

We give our customers the right to return only defective products in exchange for functioning products or rework of the product. These transactions are evaluated and accounted for under ASC Topic 460, Guarantees, and we estimate the impact to the transaction price based on an analysis of historical experience.

Other Sources of Revenue

We provide pre-production activities related to engineering efforts to develop molds, dies, and machines that are owned by our customers. We may receive advance payments from customers which are deferred until satisfying our performance obligations by compliance with customer-specified milestones, recognizing revenue at a point in time. These contracts generally have an original expected duration of less than one year.

The following table provides information about contract liabilities from contracts with customers.

	Deferred Revenue
Balance at January 1, 2018	\$ 2,124
Balance at December 31, 2018	\$ 2,974

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The timing of revenue recognition, billings, and cash collections results in billed accounts receivable and customer advances and deposits (e.g. contract liability) on the Consolidated Balance Sheets. These contract liabilities are reported on the Consolidated Balance Sheets on a contract-by-contract basis at the end of each reporting period as deferred revenue. Deferred revenue relates to payments received in advance of performance under the contract and recognized as revenue as (or when) we perform under the contract. Changes in the contract liability balances during the year ended December 31, 2018, were not materially impacted by any other factors. Revenue recognized for the year ended December 31, 2018, from amounts included in deferred revenue at the beginning of the period for performance obligations satisfied or partially satisfied during the year ended December 31, 2018, was approximately \$1.9 million.

Transaction Price Allocated to Future Performance Obligations

ASC 606 requires that we disclose the aggregate amount of transaction price that is allocated to performance obligations that have not yet been satisfied as of December 31, 2018. The guidance provides certain practical expedients that limit this requirement. Our contracts meet the following practical expedient provided by ASC 606:

☐ The performance obligation is part of a contract that has an original expected duration of one year or less.

Costs to Obtain and Fulfill a Contract

Prior to the adoption of ASC 606, we expensed commissions paid to internal sales representative for obtaining contracts. Under ASC 606, we adopted the practical expedient to recognize commissions paid to internal sales personnel that are incremental to obtaining customer contracts as an expense when incurred since the amortization period is less than one year. The judgments made in determining the amount of costs incurred included whether the commissions are in fact incremental and would not have occurred absent the customer contract. Costs to obtain a contract are expressed as selling, general and administrative expense.

Sales, VAT, and other taxes we collect concurrent with revenue-producing activities are excluded from revenue.

Incidental items that are immaterial in the context of the contract are recognized as expense.

Financial Statement Impact of Adopting ASC 606

The following table presents the impact of adoption of ASC 606 on our Consolidated Statements of Operations and Comprehensive Income (Loss) and our Consolidated Balance Sheets. Differences are due to the acceleration in the recognition of revenue to the point of shipment or delivery for contracts where an unconditional obligation to purchase is present for inventory that was considered in consignment under ASC 605.

	Year Ended December 31, 2018		
	As Reported	Balances Without Adoption of ASC 606	Effect of Change
Net sales	\$770,657	\$770,654	\$ 3
Cost of sales	588,205	588,202	3
Income (loss) from operations	(178,888)	(178,888)	—
	As of December 31, 2018		
	As Reported	Balances Without Adoption of ASC 606	Effect of Change
Accounts receivable, net	\$133,421	\$132,810	\$ 611
Inventories	122,615	122,988	(373)

Note 17. Share-Based Compensation

We recognize compensation expense of all employee and non-employee director share-based compensation awards in the financial statements based upon the grant date fair value of the awards over the requisite service or vesting period,

less any expense incurred for estimated forfeitures. As of December 31, 2018, we have approximately 1.9 million maximum shares that can be issued as options, stock appreciation rights, and other share-based awards. Shares of our common stock delivered upon exercise or vesting may consist of newly issued shares of our common stock or shares acquired in the open market.

Share-based compensation expense is recognized in the "Selling, general and administrative expense" line in the Consolidated Statements of Operations and Comprehensive Income (Loss) except for \$1.0 million and \$0.5 million attributable to discontinued operations for the years ended December 31, 2017 and 2016, respectively.

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The following table lists the components of share-based compensation expense by type of award.

	Year Ended		
	December 31,		
	2018	2017	2016
Stock options	\$678	\$1,078	\$687
Restricted stock	1,630	1,968	2,061
Performance share units	2,076	2,450	1,187
Change in estimate of performance share vesting ⁽¹⁾	(1,968)	—	—
Share-based compensation expense	\$2,416	\$5,496	\$3,935

(1) Amount reflects the decrease in share-based compensation expense of \$2.0 million based on the change in estimate of the probability of vesting of performance share units as described in the “Performance Share Units” section of this Note.

The total tax benefit for share-based compensation cost was \$0.7 million, \$1.6 million, and \$0.6 million for the years ended December 31, 2018, 2017, and 2016, respectively. Unrecognized compensation cost related to unvested awards was \$4.0 million as of December 31, 2018. We expect that cost to be recognized over a weighted-average period of 1.8 years.

Stock Options

Option awards are typically granted to key employees on an annual basis. A single option grant is typically awarded to eligible employees each year by the Compensation Committee of the Board of Directors. The Compensation Committee occasionally awards additional individual grants to eligible employees. All employees are awarded options at an exercise price equal to the closing price of our stock on the date of grant. The term life of options is ten years with a vesting period of generally three years.

During the years ended 2018, 2017, and 2016, we granted options to purchase 57,800, 125,700, and 167,000 shares, respectively, to certain key employees. The weighted average grant date fair value of the options granted during 2018, 2017, and 2016 was \$10.60, \$11.84, and \$5.02 per share, respectively. The fair value of our options cannot be determined by market value because they are not traded in an open market. Accordingly, we utilized the Black Scholes financial pricing model to estimate the fair value.

The following table shows the weighted average assumptions relevant to determining the fair value of stock options granted in each year.

	2018	2017	2016
Expected term	6 years	6 years	6 years
Average risk-free interest rate	2.66 %	2.03 %	1.43 %
Expected dividend yield	1.15 %	1.16 %	2.48 %
Expected volatility	47.69 %	56.56 %	59.23 %
Expected forfeiture rate	4.00 %	3.00 %	3.00 %

The expected term is derived from using the simplified method of determining stock option terms as described under the SAB Topic 14, Share-based payment. The simplified method was used because sufficient historical stock option exercise experience was not available.

The average risk-free interest rate is derived from United States Department of Treasury published interest rates of daily yield curves for the same time period as the expected term.

The expected dividend yield is derived by a mathematical formula which uses the expected annual dividends over the expected term divided by the fair market value of our common stock at the grant date.

The expected volatility is derived from our actual common stock historical volatility over the same time period as the expected term. The expected volatility rate is derived by mathematical formula utilizing daily closing price data.

The expected forfeiture rate is determined from examining the historical pre-vesting forfeiture patterns of past option issuances to key employees. While the expected forfeiture rate is not an input of the Black Scholes financial pricing model for determining the fair value of the options, it is an important determinant of stock option compensation

expense to be recorded.

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The following table summarizes stock option activity for the year ended December 31, 2018.

	Number of Options (in thousands)	Weighted- Average Exercise Price (per share)	Weighted- Average Remaining Contractual Term (years)	Aggregate Intrinsic Value	
Outstanding at January 1, 2018	746	\$ 14.33			
Granted	58	24.47			
Exercised	(27)	10.15		\$ 477	
Forfeited or expired	(6)	22.39			
Outstanding at December 31, 2018	771	\$ 15.17	5.6	\$ —	(1)
Exercisable at December 31, 2018	625	\$ 13.63	4.9	\$ —	(1)

The aggregate intrinsic value is the sum of intrinsic values for each exercisable individual option grant. The (1)intrinsic value is the amount by which the closing market price of our stock at December 31, 2018, was greater than the exercise price of any individual option grant.

Cash proceeds from the exercise of options in the years ended December 31, 2018, 2017, and 2016 totaled approximately \$0.3 million, \$3.1 million, and \$2.8 million, respectively. The tax benefit recognized from stock option exercises was less than \$0.1 million, \$0.2 million, and less than \$0.1 million in the years ended December 31, 2018, 2017, and 2016, respectively. For the years ended December 31, 2018, 2017, and 2016, proceeds from stock options are presented exclusive of tax benefits in cash flows from financing activities in the Consolidated Statements of Cash Flows. The total intrinsic value of options exercised during the years ended December 31, 2018, 2017, and 2016 was \$0.5 million, \$3.8 million, and \$2.9 million, respectively.

Restricted Stock

During the years ended December 31, 2018, 2017, and 2016, we granted 86,516, 85,393, and 152,510 restricted stock awards to non-executive directors, officers, and certain other key employees. The restricted stock granted during the years ended 2018, 2017, and 2016, vest pro-rata over three years for officers and certain other key employees and over one year for non-executive directors. We determined the fair value of the shares awarded by using the closing price of our common stock as of the date of grant. The weighted average grant date fair value of restricted stock granted in the years ended December 31, 2018, 2017, and 2016, was \$24.55, \$24.29, and \$11.39 per share, respectively. The total grant date fair value of restricted stock that vested in the years ended December 31, 2018, 2017, and 2016, was \$1.8 million, \$2.1 million, and \$2.6 million, respectively.

The following table summarizes unvested restricted stock award activity for the year ended December 31, 2018.

	Number of Unvested Restricted Shares (in thousands)	Weighted Average Grant Date Fair Value
Unvested at January 1, 2018	152	\$ 19.21
Granted	87	24.55
Vested	(93)	19.69
Forfeited	—	—
Unvested at December 31, 2018	146	\$ 22.07

Performance Share Units

Performance Share Units (“PSUs”) are a form of long-term incentive compensation awarded to executive officers and certain other key employees designed to directly align the interests of employees to the interests of our stockholders, and to create long-term stockholder value. PSUs granted in 2018 and 2017 were made pursuant to the NN, Inc. 2016 Omnibus Incentive Plan and a Performance Share Unit Agreement (the “2016 Omnibus Agreement”). PSUs granted in 2016 were made pursuant to the NN, Inc. 2011 Stock Incentive Plan and a Performance Share Unit Agreement (the

“2011 Stock Agreement”). Some PSUs are based on total shareholder return (“TSR Awards”), and other PSUs are based on return on invested capital (“ROIC Awards”).

The TSR Awards vest, if at all, upon our achieving a specified relative total shareholder return, which will be measured against the total shareholder return of the S&P SmallCap 600 Index during specified performance periods as defined in the 2016 Omnibus Agreement and the 2011 Stock Agreement. The ROIC Awards will vest, if at all, upon our achieving a specified

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average return on invested capital during the performance periods. Each performance period generally begins on January 1 of the year of grant and ends 36 months later on December 31.

We recognize compensation expense over the performance period in which the performance and market conditions are measured. If the PSUs do not vest at the end of the performance periods, then the PSUs will expire automatically. Upon vesting, the PSUs will be settled by the issuance of shares of our common stock, subject to the executive officer's continued employment. The actual number of shares of common stock to be issued to each award recipient at the end of the performance periods will be interpolated between a threshold and maximum payout amount based on actual performance results. No dividends will be paid on outstanding PSUs during the performance period; however, dividend equivalents will be paid based on the number of shares of common stock that are ultimately earned at the end of the performance periods.

With respect to the TSR Awards, a participant will earn 50% of the target number of PSUs for "Threshold Performance," 100% of the target number of PSUs for "Target Performance," and 150% of the target number of PSUs for "Maximum Performance." With respect to the ROIC Awards, a participant will earn 35% of the target number of PSUs for "Threshold Performance," 100% of the target number of PSUs for "Target Performance," and 150% of the target number of PSUs for "Maximum Performance." For performance levels falling between the values shown below, the percentages will be determined by interpolation.

The following table presents the goals with respect to TSR Awards and ROIC Awards granted in 2018, 2017, and 2016.

TSR Awards:	Threshold Performance (50% of Shares)	Target Performance (100% of Shares)	Maximum Performance (150% of Shares)
2018 grants	35	50	75
2017 grants	35	50	75
2016 grants	35	50	75

ROIC Awards:	Threshold Performance (35% of Shares)	Target Performance (100% of Shares)	Maximum Performance (150% of Shares)
2018 grants	15.5 %	18.0 %	19.5 %
2017 grants	15.0 %	17.5 %	20.0 %
2016 grants	15.5 %	18.0 %	20.5 %

We estimate the grant date fair value of TSR Awards using the Monte Carlo simulation model, as the total shareholder return metric is considered a market condition under ASC Topic 718, Compensation – stock compensation. The grant date fair value of ROIC Awards is based on the closing price of a share of our common stock on the date of grant.

The following table presents the number of awards granted and the grant date fair value of each award in the periods presented.

Award Year	TSR Awards		ROIC Awards	
	Number of Shares (in thousands)	Grant Date Fair Value (per share)	Number of Shares (in thousands)	Grant Date Fair Value (per share)
2018	55	\$ 24.65	55	\$ 24.55
2017	46	\$ 29.84	53	\$ 24.20
2016	101	\$ 9.38	101	\$ 11.31

We recognize expense for ROIC Awards based on the probable outcome of the associated performance condition. We generally recognize an expense for ROIC Awards based on the Target Performance threshold of 100% because, at the date of grant, the Target Performance is the probable level of performance achievement. During the year ended 2018, none of the ROIC Awards that were granted in 2016 vested as the performance achieved was below the "Threshold Performance" level of 15.5%, as defined by the grant agreement. For the year ended December 31, 2018, we recognized a decrease in share-based compensation expense of \$0.8 million in the "Selling, general and administrative expense" line in the Consolidated Statements of Operations and Comprehensive Income (Loss) to reflect the change in vesting. Additionally, for the year ended December 31, 2018, we determined that the probability of performance

achievement for ROIC Awards that were granted in 2017 and 2018 diminished to below the “Threshold Performance” level of 15.0% and 15.5%, respectively, as defined by the grant agreement. For the year ended December 31, 2018, we recognized a decrease in share-based compensation expense of \$0.8 million and \$0.4 million to reflect the change in estimate of the probability of vesting for the 2017 and 2018 ROIC Awards, respectively, in the “Selling, general and administrative expense” line in the Consolidated Statements of Operations and Comprehensive Income (Loss). Related accrued dividend equivalents of \$0.1 million were also reversed in 2018 for the 2016, 2017, and 2018 awards .

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The following table summarizes changes in unvested PSUs during the year ended December 31, 2018, and changes during the year then ended.

	Nonvested TSR Awards		Nonvested ROIC Awards	
	Weighted Number of Shares (in thousands)	Average Grant Date Fair Value	Weighted Number of Shares (in thousands)	Average Grant Date Fair Value
Nonvested at January 1, 2018	130	\$ 16.60	136	\$ 16.27
Granted	55	24.65	55	24.55
Vested	—	—	—	—
Expired	(78)	9.38	(77)	11.31
Forfeited	(13)	14.50	(14)	14.86
Nonvested at December 31, 2018	94	\$ 26.84	100	\$ 24.39

No TSR Awards or ROIC Awards vested in 2018. The total grant date fair value of TSR Awards and ROIC Awards that vested in 2017 was \$0.9 million and \$1.2 million, respectively.

Note 18. Accumulated Other Comprehensive Income

The majority of our Accumulated Other Comprehensive Income (“AOCI”) relates to foreign currency translation of our foreign subsidiary balances. During the year ended December 31, 2018, we had other comprehensive loss of \$13.9 million due to foreign currency translations. During the year ended December 31, 2017, we had other comprehensive income of \$22.1 million due to foreign currency translations. In connection with the sale of discontinued operations, we reclassified \$9.2 million out of AOCI to discontinued operations on the Consolidated Statements of Operations and Comprehensive Income (Loss) in 2017. During the year ended December 31, 2016, we had other comprehensive loss of \$10.6 million due to foreign currency translations and a net gain of \$1.9 million due to change in fair value of the interest rate swap and discontinuation of hedge accounting. Amounts related to the interest rate swap were reclassified out of AOCI during 2016 upon discontinuation of hedge accounting.

Note 19. Net Income (Loss) Per Share

The following table summarizes the computation of basic and diluted net income (loss) per share.

	Year Ended December 31,		
	2018	2017	2016
Income (loss) from continuing operations	\$(264,467)	\$25,364	\$(9,490)
Income from discontinued operations, net of tax	—	137,688	16,153
Net income (loss)	\$(264,467)	\$163,052	\$6,663
Weighted average shares outstanding	31,678	27,433	27,016
Effect of dilutive stock options	—	322	—
Diluted shares outstanding	31,678	27,755	27,016
Basic income (loss) from continuing operations per share	\$(8.35)	\$0.92	\$(0.35)
Basic income from discontinued operations per share	—	5.02	0.60
Basic net income (loss) per share	\$(8.35)	\$5.94	\$0.25
Diluted income (loss) from continuing operations per share	\$(8.35)	\$0.91	\$(0.35)
Diluted income from discontinued operations per share	—	4.96	0.60
Diluted net income (loss) per share	\$(8.35)	\$5.87	\$0.25

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Cash dividends declared per common share	\$0.28	\$0.28	\$0.28
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The calculations of diluted income (loss) from continuing operations per share for the years ended December 31, 2018, 2017, and 2016, exclude 0.4 million, 0.4 million, and 0.8 million potentially dilutive stock options and restricted stock units which had the effect of being anti-dilutive. Given the loss from continuing operations in 2018 and 2016, all options are considered anti-dilutive and were excluded from the calculation of diluted loss from continuing operations per share and diluted net

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income (loss) per share. Stock options excluded from the calculations of diluted income (loss) from continuing operations per share for the years ended December 31, 2018, 2017, and 2016, had a per share exercise price ranging from \$4.42 to \$25.16 in each respective year.

Note 20. Fair Value Measurements

Fair value is an exit price representing the expected amount that an entity would receive to sell an asset or pay to transfer a liability in an orderly transaction with market participants at the measurement date. We followed consistent methods and assumptions to estimate fair values as more fully described in Note 1.

Our financial instruments that are subject to fair value disclosure consist of cash and cash equivalents, accounts receivable, accounts payable, short-term investments, and long-term debt. As of December 31, 2018, the carrying values of these financial instruments approximated fair value. The fair value of floating-rate debt approximates the carrying amount because the interest rates paid are based on short-term maturities. As of December 31, 2018, we had no fixed-rate debt outstanding.

Fair value principles prioritize valuation inputs across three broad levels. Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities. Level 2 inputs are quoted prices for similar assets and liabilities in active markets or inputs that are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the financial instrument. Level 3 inputs are unobservable inputs based on the assumptions used to measure assets and liabilities at fair value. An asset or liability's classification within the various levels is determined based on the lowest level input that is significant to the fair value measurement.

We may manage our exposure to fluctuations in interest rates using a mix of fixed and variable rate debt. Historically, we have managed the exposure by entering into interest rate swap agreements which mitigate exposures to the risks and variability of our operating results. In 2016, we discontinued hedge accounting for an interest rate swap that was in effect at that time. Upon discontinuation of hedge accounting, all amounts in AOCI related to the interest rate swap were reclassified to earnings, and we began accounting for the interest rate swap on a mark-to-market basis. In 2017, we terminated the interest rate swap. As of December 31, 2018, we had no interest rate swaps outstanding. On February 8, 2019, the Company entered into a fixed-rate interest swap agreement as discussed in Note 22 to the consolidated financial statements.

Note 21. Quarterly Results of Operations (Unaudited)

The following tables summarize the quarterly results of operations for the years ended December 31, 2018 and 2017.

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	First	Second	Third	Fourth
	Quarter	Quarter	Quarter	Quarter
2018				
Net sales	\$169,148	\$196,349	\$205,683	\$199,477
Cost of sales (exclusive of depreciation and amortization)	126,444	148,640	156,408	156,713
Income (loss) from continuing operations	(5,983)	(24,511)	(13,784)	(220,189)
Net income (loss)	(5,983)	(24,511)	(13,784)	(220,189)
Comprehensive income (loss)	(518)	(40,292)	(17,977)	(219,560)
Basic income (loss) from continuing operations per share	\$(0.22)	\$(0.89)	\$(0.48)	\$(5.25)
Basic net income (loss) per share	\$(0.22)	\$(0.89)	\$(0.48)	\$(5.25)
Diluted income (loss) from continuing operations per share	\$(0.22)	\$(0.89)	\$(0.48)	\$(5.25)
Diluted net income (loss) per share	\$(0.22)	\$(0.89)	\$(0.48)	\$(5.25)
2017				
Net sales	\$157,555	\$157,947	\$148,156	\$156,135
Cost of sales (exclusive of depreciation and amortization)	114,480	114,514	111,272	118,814
Income (loss) from continuing operations	1,893	(26,374)	(3,480)	53,325
Income (loss) from discontinued operations, net of tax	5,518	5,236	129,441	(2,507)
Net income (loss)	7,411	(21,138)	125,961	50,818
Comprehensive income (loss)	12,516	(11,627)	123,129	51,885
Basic income (loss) from continuing operations per share	\$0.07	\$(0.96)	\$(0.13)	\$1.93
Basic net income (loss) per share	\$0.27	\$(0.77)	\$4.57	\$1.84
Diluted income (loss) from continuing operations per share	\$0.07	\$(0.96)	\$(0.13)	\$1.91
Diluted net income (loss) per share	\$0.27	\$(0.77)	\$4.57	\$1.82

Note 22. Subsequent Event

On February 8, 2019, the Company entered into a fixed-rate interest swap agreement with a notional amount of \$700 million to manage the Company's exposure to interest rate risk associated with our variable rate long-term debt.

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

None.

Item 9A. Controls and Procedures

Disclosure Controls and Procedures

Under the supervision and with the participation of management, including our Chief Executive Officer and Chief Financial Officer, we evaluated the effectiveness of disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”). Based upon that evaluation, as a result of the material weakness in internal control over financial reporting described below, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were not effective as of December 31, 2018, to ensure that information required to be disclosed in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC’s rules and forms, and that such information is accumulated and communicated to management, including the Chief Executive Officer and Chief Financial Officer, as appropriate, to allow for timely decisions regarding required disclosure.

Management’s Report on Internal Control Over Financial Reporting

The management of NN, Inc. is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rule 13a-15(f). 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.

Management, under the supervision and with the participation of the Chief Executive Officer and Chief Financial Officer, conducted an evaluation of the effectiveness of our internal control over financial reporting as of December 31, 2018, based on the criteria described in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”). Based on the evaluation, management has concluded that the Company did not maintain effective internal control over financial reporting as of December 31, 2018, due to the material weakness identified below.

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of our annual or interim financial statements would not be prevented or detected on a timely basis.

We did not maintain an effective control environment due to a lack of a sufficient complement of personnel with an appropriate level of knowledge, experience and training commensurate with our financial reporting requirements. This material weakness resulted in immaterial errors to other current assets; property, plant and equipment, net; goodwill; investment in joint venture; other non-current assets; accounts payable; accrued salaries, wages and benefits; other current liabilities; deferred tax liabilities; accumulated other comprehensive income; selling, general and administrative expense; depreciation and amortization; other operating expense/income; write-off of unamortized debt issuance costs; provision/benefit for income taxes; comprehensive income/loss; and cash flows in our consolidated financial statements for the years ended December 31, 2017, 2016 and 2015. These immaterial errors also resulted in a revision to previously issued financial statements for the periods December 31, 2017 and December 31, 2016.

Additionally, this material weakness could result in a misstatement of substantially all account balances or disclosures that would result in a material misstatement to the annual or interim consolidated financial statements that would not be prevented or detected.

Management has excluded from its assessment of the Company’s internal control over financial reporting as of December 31, 2018, Paragon Medical, Inc., Bridgemedica, LLC, and Southern California Technical Arts, Inc., as each was acquired in a purchase business combination during the year ended December 31, 2018. Paragon Medical, Inc. and Bridgemedica, LLC, components of our Life Sciences group, and Southern California Technical Arts, Inc., a component of our Power Solutions group, are wholly-owned subsidiaries and accounted for combined total assets and total revenues of 9.6% and 16.7%, respectively, of the consolidated financial statement amounts as of and for the year

ended December 31, 2018. Paragon Medical, Inc. represents 8.9% and 15.2% of the related consolidated financial statement amounts, respectively.

The effectiveness of our internal control over financial reporting as of December 31, 2018, has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report which appears under Item 8.

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Remediation of Previously Identified Material Weaknesses

Management previously disclosed in our 2017 Annual Report the following control deficiencies that constituted material weaknesses in our internal control over financial reporting:

We did not maintain effective controls over information and communication as it relates to the accounting for income taxes. Specifically, we did not implement and reinforce an adequate process for communication and information sharing necessary to support the functioning of internal control between our tax group and our corporate accounting group.

This material weakness, along with the ineffective control environment material weakness discussed above, contributed to the material weaknesses described below:

We did not design and maintain effective internal controls over the accounting for business combinations, which specifically included not designing and maintaining effective controls over the (a) accuracy, valuation, and presentation and disclosure for allocating goodwill to our international businesses and (b) completeness, accuracy, and valuation of deferred income taxes recorded in connection with business combinations.

We did not design and maintain effective internal controls over the accounting for income taxes, which specifically included not designing and maintaining controls over the completeness, accuracy, valuation, and presentation and disclosure of deferred income tax accounts, income tax provision and related disclosures.

During the second quarter of 2018, Management developed a comprehensive workplan for remediation of the material weaknesses. This workplan included the following:

Enhance and supplement the finance team by increasing the number of roles, reassigning responsibilities, and adding additional resources with an appropriate level of knowledge and experience in internal control over financial reporting commensurate with our financial reporting requirements.

Enhance the information and level of communication as it relates to the accounting for income taxes and the information sharing necessary to support the functioning of internal control between the tax group and corporate accounting.

Develop and implement enhancements to the design of our business combination key controls.

Conduct training programs on policies and procedures and effective communication related to internal controls over financial reporting.

As of December 31, 2018, the remediation measures described above have been implemented and we have had sufficient time to test the operating effectiveness and remediate the three material weaknesses noted above and, as such, the material weaknesses identified in the Company's internal control over financial reporting related to information and communication; accounting for income taxes and accounting for business combinations have been remediated.

Status of Remediation Efforts for the Unremediated Material Weakness

To ensure we have a sufficient complement of resources within our finance department, in 2018 we hired qualified personnel for critical finance roles. After we integrate these professionals into our control environment, we expect that the remediation of this material weakness will be completed.

Changes in Internal Control Over Financial Reporting

There were no changes in our internal control over financial reporting (as defined in the Exchange Act Rules 13a-15(f) and 15d-15(f)) that occurred during the quarter ended December 31, 2018, that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None.

Part III

Item 10. Directors, Executive Officers and Corporate Governance

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The information required by this Item 10 of Form 10-K concerning our directors is contained in the sections entitled “Information about the Directors” and “Beneficial Ownership of Common Stock” of our definitive proxy statement to be filed with the Securities and Exchange Commission within 120 days after December 31, 2018, in accordance with General Instruction G to Form 10-K, is hereby incorporated herein by reference.

Our Code of Conduct/Ethics Statement, as amended (the “Code”), was most recently approved by our Board on August 11, 2016. The Code is applicable to all officers, directors and employees. The Code is posted on our website at www.nninc.com. Information contained on our website is not part of this Annual Report on Form 10-K. We will satisfy any disclosure requirements under Item 5.05 of Form 8-K regarding an amendment to, or waiver from, any provision of the Code with respect to our principal executive officer, principal financial officer, principal accounting officer and persons performing similar functions by disclosing the nature of such amendment or waiver on our website or in a Current Report on Form 8-K.

Item 11. Executive Compensation

The information required by Item 11 of Form 10-K is contained in the sections entitled “Information about the Directors — Compensation of Directors” and “Executive Compensation” of our definitive proxy statement and, in accordance with General Instruction G to Form 10-K, is hereby incorporated herein by reference.

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

The information required by Item 12 of Form 10-K is contained in the section entitled “Beneficial Ownership of Common Stock” of our definitive proxy statement and, in accordance with General Instruction G to Form 10-K, is hereby incorporated herein by reference.

Information required by Item 201(d) of Regulation S-K concerning our equity compensation plans is set forth in the table below.

Plan Category	Table of Equity Compensation Plan Information (in thousands, except per share data)		
	Number of securities to be issued upon exercise of outstanding options, warrants and rights (a)	Weighted-average exercise price of outstanding options, warrants and rights (b)	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a)) (c)
Equity compensation plans approved by security holders	771	\$ 15.17	1,893
Equity compensation plans not approved by security holders	—	—	—
Total	771	\$ 15.17	1,893

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

Information regarding review, approval or ratification of transactions with related persons is contained in a section entitled “Certain Relationships and Related Transactions” of our definitive proxy statement and, in accordance with General Instruction G to Form 10-K, is hereby incorporated herein by reference.

Information regarding director independence is contained in a section entitled “Information about the Directors” of our definitive proxy statement and, in accordance with General Instruction G to Form 10-K, is hereby incorporated herein by reference.

Item 14. Principal Accountant Fees and Services

Information required by this item of Form 10-K concerning our accounting fees and services is contained in the section entitled “Fees Paid to Independent Registered Public Accounting Firm” of our definitive proxy statement and, in accordance with General Instruction G to Form 10-K, is hereby incorporated herein by reference.

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Part IV

Item 15. Exhibits, Financial Statement Schedules

(a) Documents Filed as Part of this Report

1. Financial Statements

The financial statements of NN, Inc. filed as part of this Annual Report on Form 10-K begin on the following pages hereof:

	Page
Report of Independent Registered Public Accounting Firm	<u>42</u>
Consolidated Statements of Operations and Comprehensive Income (Loss)	<u>44</u>
Consolidated Balance Sheets	<u>45</u>
Consolidated Statements of Changes in Stockholders' Equity	<u>46</u>
Consolidated Statements of Cash Flows	<u>47</u>
Notes to Consolidated Financial Statements	<u>48</u>

2. Financial Statement Schedules

The required information is reflected in the Notes to Consolidated Financial Statements within Item 8.

3. See Index to Exhibits (attached hereto)

(b) Exhibits: See Index to Exhibits (attached hereto).

NN, Inc. will provide without charge to any person, upon the written request of such person, a copy of any of the Exhibits to this Form 10-K.

(c) Not Applicable

Item 16. Form 10-K Summary

None.

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INDEX TO EXHIBITS

Exhibit Number	Exhibit Description	Incorporation by Reference			Filing Date
		Form	SEC File No.	Exhibit	
1.1	<u>Underwriting Agreement, dated as of September 13, 2018, by and between NN, Inc. and J.P. Morgan Securities LLC, as representative of several underwriters named in Schedule I thereto</u>	8-K	000-23486	1.1	September 14, 2018
2.1	<u>Agreement and Plan of Merger, dated as of July 18, 2014, by and among NN, Inc., PMC Global Acquisition Corporation, Autocam Corporation, Newport Global Advisors, L.P., and John C. Kennedy</u>	8-K	000-23486	2.1	July 22, 2014
2.2	<u>Stock Purchase Agreement, dated as of August 17, 2015, by and among NN, Inc., Precision Engineered Products Holdings, Inc. and PEP Industries, LLC</u>	8-K	000-23486	2.1	August 18, 2015
2.3	<u>Purchase Agreement, dated as of July 10, 2017, by and between NN, Inc. and TSUBAKI NAKASHIMA Co., Ltd.</u>	8-K	000-23486	2.1	July 10, 2017
2.4	<u>Stock Purchase Agreement, dated as of April 2, 2018, by and among NN, Inc. Precision Engineered Products LLC, Paragon Equity LLC, and PMG Intermediate Holding Corporation</u>	8-K	000-23486	2.1	April 3, 2018
3.1	<u>Restated Certificate of Incorporation of NN, Inc.</u>	S-3	333-89950	3.1	June 6, 2002
3.2	<u>Certificate of Designation of Series A Junior Participating Preferred Stock of NN, Inc., as filed with the Secretary of the State of Delaware</u>	8-K	000-23486	3.1	December 18, 2008
3.3	<u>Amended and Restated By-Laws of NN, Inc.</u>	8-K	000-23486	3.1	November 20, 2015
4.1	<u>The specimen stock certificate representing NN, Inc.'s Common Stock, par value \$0.01 per share</u>	S-3	333-89950	4.1	June 6, 2002
4.2	<u>Stockholders' Agreement, effective as of August 29, 2014, by and between NN, Inc. and John C. Kennedy</u>	8-K	000-23486	4.1	September 2, 2014
4.3	<u>Indenture, dated as of October 19, 2015, by and among NN, Inc., the subsidiary guarantors party thereto, and U.S. Bank National Association, as trustee</u>	8-K	000-23486	4.1	October 20, 2015
4.4	<u>Form of the NN, Inc. 10.25% Senior Notes due 2020</u>	8-K	000-23486	10.2	October 20, 2015
4.5	<u>Supplemental Indenture, dated as of October 19, 2015, by and among NN, Inc., certain direct and indirect subsidiaries of NN, Inc., as additional subsidiary guarantors, and U.S. Bank National Association, as trustee</u>	8-K	000-23486	4.3	October 20, 2015
10.1*	<u>NN, Inc. 2005 Stock Incentive Plan</u>	S-8	333-130395	4.1	December 16, 2005
10.2*	<u>NN, Inc. 2011 Amended and Restated Stock Incentive Plan</u>	DEF14A	000-23486	Appendix A	April 1, 2016
10.3*	<u>Form of Indemnification Agreement</u>	S-3/A	333-89950	10.6	July 15, 2002
10.4*		10-K	000-23486	10.16	

Elective Deferred Compensation Plan, dated
February 26, 1999

March 31,
1999

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10.6*	<u>Amended and Restated Executive Employment Agreement, dated September 13, 2012, by and between NN, Inc. and Thomas C. Burwell</u>	8-K	000-23486	10.3	September 18, 2012
10.7*	<u>Amended and Restated Executive Employment Agreement, dated September 13, 2012, by and between the Whirlaway and James R. Widders</u>	8-K	000-23486	10.6	September 18, 2012
10.8*	<u>Executive Employment Agreement, dated May 8, 2013, between NN, Inc. and Richard D. Holder</u>	8-K	000-23486	10.1	May 10, 2013
10.9	<u>Escrow Agreement, effective as of August 29, 2014, by and among NN, Inc., Newport Global Advisors, L.P., John C. Kennedy and Computershare Trust Company, N.A.</u>	8-K	000-23486	10.3	September 2, 2014
10.10	<u>Indemnity Agreement, effective as of August 29, 2014, by and among NN, Inc. and each of the shareholders of Autocam Corporation identified therein</u>	8-K	000-23486	10.4	September 2, 2014
10.11*	<u>Executive Employment Agreement, dated September 9, 2014, between NN, Inc. and Warren A. Veltman</u>	10-K	000-23486	10.27	March 16, 2015
10.14	<u>Amended and Restated Registration Rights Agreement, dated as of June 10, 2016, by and among NN, Inc., the guarantors party thereto, SunTrust Robinson Humphrey, Inc., on behalf of itself and as representative of the initial purchasers, Spring Capital II Subsidiary, L.P., Summit Partners Credit Fund II, L.P., Summit Partners Credit Fund B-2, L.P., Summit Partners Credit Fund A-2, L.P., Summit Investors Credit II, LLC, Summit Investors Credit II (UK), L.P. and Summit Partners Credit Offshore Intermediate Fund II, L.P.</u>	8-K	000-23486	10.1	June 10, 2016
10.15	<u>Amendment and Restatement Agreement, dated as of September 30, 2016, by and among NN, Inc., certain NN, Inc. subsidiaries named therein, SunTrust Bank, KeyBank National Association and Regions Bank</u>	8-K	000-23486	10.1	October 3, 2016
10.16	<u>Incremental Amendment to Amended and Restated Credit Agreement, dated as of October 31, 2016, among NN, Inc., the Guarantors, HomeTrust Bank, as 2016 Revolving Credit Increase Lender, KeyBank National Association, as an L/C Issuer, Regions Bank, as Swing Line Lender and an L/C Issuer, and SunTrust Bank, as Administrative Agent and an L/C Issuer</u>	8-K	000-23486	10.1	November 4, 2016
10.17	<u>NN, Inc. 2016 Omnibus Incentive Plan</u>	DEF14A	000-23486	Appendix A	November 10, 2016
10.18	<u>Form of Incentive Stock Option Agreement under the 2016 Omnibus Incentive Plan</u>	10-K	000-23486	10.18	March 16, 2017
10.19	<u>Form of Nonqualified Stock Option Agreement under the 2016 Omnibus Incentive Plan</u>	10-K	000-23486	10.19	March 16, 2017
10.20	<u>Form of Restricted Share Award Agreement under the 2016 Omnibus Incentive Plan</u>	10-K	000-23486	10.20	March 16, 2017

10.21 Form of Performance Share Unit Award Agreement under the 2016
Omnibus Incentive Plan 10-K 000-23486 10.21 March 16,
2017

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10.23*	<u>Separation Agreement, dated as of April 1, 2017, by and between NN, Inc. and Matthew S. Heiter.</u>	10-Q	000-23486	10.2	May 4, 2017
10.24	<u>Amendment No. 1 to Amended and Restated Credit Agreement, dated as of April 3, 2017, by and among NN, Inc., certain NN, Inc. subsidiaries named therein, SunTrust Bank, JPMorgan Chase Bank, N.A., KeyBank National Association and Regions Bank</u>	8-K	000-23486	10.1	April 4, 2017
10.25	<u>Amendment No. 2 to Amended and Restated Credit Agreement, dated as of August 15, 2017, by and among NN, Inc., certain NN, Inc. subsidiaries named therein, and SunTrust Bank, Regions Bank, JPMorgan Chase Bank, N.A., HomeTrust Bank and Key Bank National Association, collectively, the Revolving Credit Lenders, and SunTrust Bank, as the Administrative Agent.</u>	8-K	000-23486	10.1	August 18, 2017
10.26	<u>Amendment No. 3 to Amended and Restated Credit Agreement, dated as of November 24, 2017, by and among NN, Inc., certain NN, Inc. subsidiaries named therein, SunTrust Bank, as administrative agent, and certain lenders named therein.</u>	8-K	000-23486	10.1	November 24, 2017
10.27*	<u>Separation Agreement and Release, dated as of January 2, 2018, by and between John A. Manzi and NN, Inc.</u>	8-K	000-23486	10.1	January 5, 2018
10.28	<u>Satisfaction and Discharge of Indenture, dated April 3, 2017, between NN, Inc. and U.S. Bank National Association, as trustee</u>	8-K	000-23486	10.2	April 4, 2017
10.29	<u>Commitment Letter, dated as of April 2, 2018, by and among NN, Inc., SunTrust Bank and SunTrust Robinson Humphrey, Inc.</u>	8-K	000-23486	10.1	April 3, 2018
10.30	<u>Amendment No. 4 to Amended and Restated Credit Agreement, dated May 7, 2018, by and among NN, Inc., the affiliated Guarantors party thereto, SunTrust Bank, SunTrust Robinson Humphrey, Inc. and the Lenders party thereto</u>	8-K	000-23486	10.1	May 7, 2018
10.31	<u>Amendment No. 5 to Amended and Restated Credit Agreement, dated December 26, 2018, by and among NN, Inc., certain NN, Inc. subsidiaries named therein, SunTrust Bank, as administrative agent and certain lenders named therein</u>	8-K	000-23486	10.1	December 26, 2018
10.32	<u>Cooperation Agreement dated February 25, 2019, by and among NN, Inc., Legion Partners Asset Management, LLC, and certain persons listed therein</u>	8-K	000-23486	10.1	February 26, 2019
10.33	<u>Amendment No. 6 to Amended and Restated Credit Agreement, dated March 15, 2019, by and among NN, Inc., certain NN, Inc. subsidiaries named therein, SunTrust Bank, as administrative agent and certain lenders named therein</u>	8-K	000-23486	10.1	March 18, 2019
21.1#	<u>List of Subsidiaries of NN, Inc.</u>				
23.1#	<u>Consent of PricewaterhouseCoopers LLP, Independent Registered Public Accounting Firm</u>				

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23.2# Consent of Deloitte Touche Tohmatsu Certified Public Accountants LLP, Independent Registered Public Accounting Firm

31.1# Certification of Chief Executive Officer pursuant to Section 302 of Sarbanes-Oxley Act

31.2# Certification of Chief Financial Officer pursuant to Section 302 of Sarbanes-Oxley Act

32.1## Certification of Chief Executive Officer pursuant to Section 906 of Sarbanes-Oxley Act

32.2## Certification of Chief Financial Officer pursuant to Section 906 of Sarbanes-Oxley Act

99.1# Financial Statements of Wuxi Weifu Autocam Precision Machinery Co., Ltd.

101.INS# XBRL Instance Document

101.SCH# XBRL Taxonomy Extension Service

101.CAL# Taxonomy Calculation Linkbase

101LAB# XBRL Taxonomy Label Linkbase

101.PRE# XBRL Presentation Linkbase Document

101.DEF# XBRL Definition Linkbase Document

* Management contract or compensatory plan or arrangement.

Filed herewith

##Furnished herewith

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SIGNATURES

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

NN, Inc.

By: /s/ RICHARD D. HOLDER
Richard D. Holder
Chief Executive Officer, President and Director

Dated: March 18, 2019

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.

Name and Signature	Title	Date
/s/ RICHARD D. HOLDER Richard D. Holder	Chief Executive Officer, President and Director (Principal Executive Officer)	March 18, 2019
/s/ THOMAS C. BURWELL, JR. Thomas C. Burwell, Jr.	Senior Vice President- Chief Financial Officer (Principal Financial Officer)	March 18, 2019
/s/ MICHAEL C. FELCHER Michael C. Felcher	Vice President- Chief Accounting Officer (Principal Accounting Officer)	March 18, 2019
/s/ ROBERT E. BRUNNER Robert E. Brunner	Non-Executive Chairman, Director	March 18, 2019
/s/ WILLIAM DRIES William Dries	Director	March 18, 2019
/s/ DAVID K. FLOYD David K. Floyd	Director	March 18, 2019
/s/ DAVID L. PUGH David L. Pugh	Director	March 18, 2019
/s/ CAREY A. SMITH Carey A. Smith	Director	March 18, 2019
/s/ STEVEN T. WARSHAW Steven T. Warshaw	Director	March 18, 2019