UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Form 10-K

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

For the fiscal year ended December 31, 2018

☐ **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 1-10235

IDEX CORPORATION

(Exact name of registrant as specified in its charter)

Delaware	**36-3555336**
(State or other jurisdiction of incorporation or organization)	*(I.R.S. Employer Identification No.)*
1925 West Field Court, Suite 200, Lake Forest, Illinois	**60045**
(Address of principal executive offices)	*(Zip Code)*

Registrant's telephone number, including area code:
(847) 498-7070

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 $.01 per share	New York Stock Exchange

Securities Registered Pursuant to Section 12(g) of the Act:
None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☑ No ☐

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

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (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 files). 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, or a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):

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 Act). Yes ☐ No ☑

The aggregate market value, as of the last business day of the registrant's most recently completed second fiscal quarter, of the common stock (based on the June 30, 2018 closing price of $136.48) held by non-affiliates of IDEX Corporation was $10,446,083,118 .

The number of shares outstanding of IDEX Corporation's common stock, par value $.01 per share, as of February 15, 2019 was 75,792,814 .

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the proxy statement with respect to the IDEX Corporation 2019 annual meeting of stockholders (the " 2019 Proxy Statement") are incorporated by reference into Part III of this Form 10-K.

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PART I

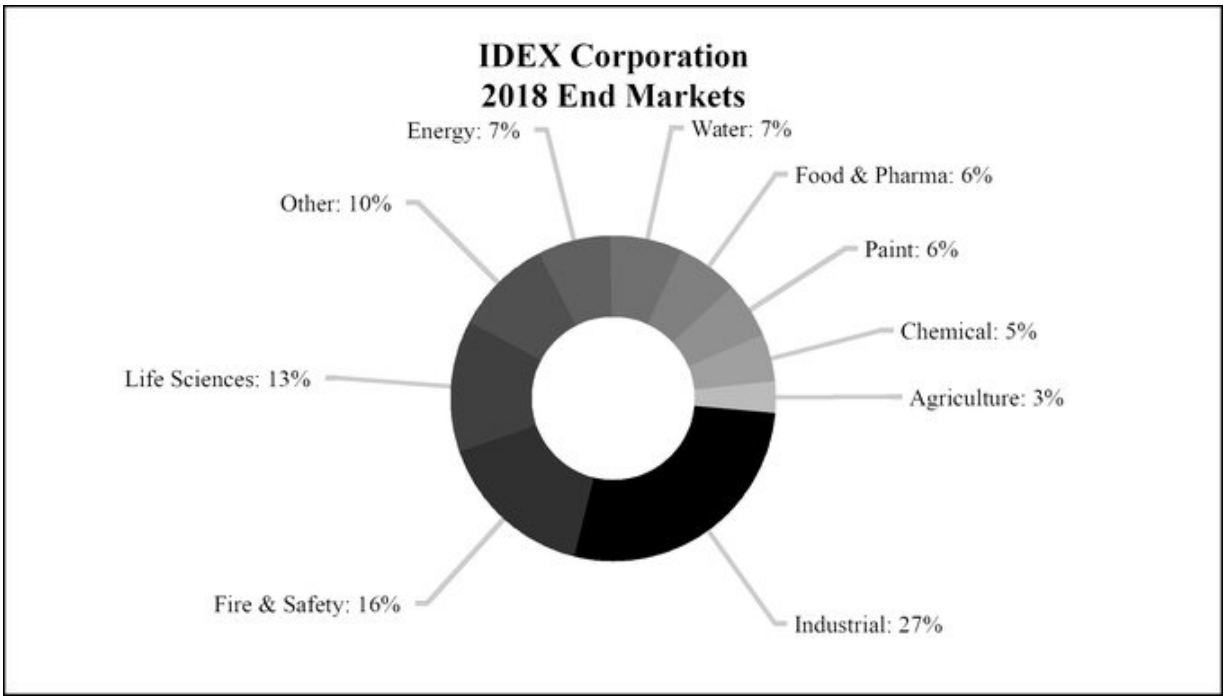
Cautionary Statement Under the Private Securities Litigation Reform Act

This report contains "forward-looking" statements within the meaning of the Private Securities Litigation Reform Act of 1995, as amended. These statements may relate to, among other things, capital expenditures, acquisitions, cost reductions, cash flow, revenues, earnings, market conditions, global economies and operating improvements, and are indicated by words or phrases such as "anticipates," "estimates," "plans," "expects," "projects," "forecasts," "should," "could," "will," "management believes," "the Company believes," "the Company intends," and similar words or phrases. These statements are subject to inherent uncertainties and risks that could cause actual results to differ materially from those anticipated at the date of this report. The risks and uncertainties include, but are not limited to, the following: economic and political consequences resulting from terrorist attacks and wars; levels of industrial activity and economic conditions in the U.S. and other countries around the world; pricing pressures and other competitive factors and levels of capital spending in certain industries, all of which could have a material impact on order rates and the Company's results, particularly in light of the low levels of order backlogs it typically maintains; the Company's ability to make acquisitions and to integrate and operate acquired businesses on a profitable basis; the relationship of the U.S. dollar to other currencies and its impact on pricing and cost competitiveness; political and economic conditions in foreign countries in which the Company operates; developments with respect to trade policy and tariffs; interest rates; capacity utilization and the effect this has on costs; labor markets; market conditions and material costs; and developments with respect to contingencies, such as litigation and environmental matters. The forward-looking statements included here are only made as of the date of this report, and management undertakes no obligation to publicly update them to reflect subsequent events or circumstances, except as may be required by law. Investors are cautioned not to rely unduly on forward-looking statements when evaluating the information presented here.

Item 1. *Business.*

IDEX Corporation ("IDEX," the "Company," "us," "our," or "we") is a Delaware corporation incorporated on September 24, 1987. The Company is an applied solutions business that sells an extensive array of pumps, valves, flow meters and other fluidics systems and components and engineered products to customers in a variety of markets around the world. All of the Company's business activities are carried out through wholly-owned subsidiaries.

The Company has three reportable business segments: Fluid & Metering Technologies ("FMT"), Health & Science Technologies ("HST") and Fire & Safety/Diversified Products ("FSDP"). Within our three reportable segments, the Company maintains 13 platforms, where we focus on organic growth and strategic acquisitions. Each of our 13 platforms is also a reporting unit that we annually test for goodwill impairment.

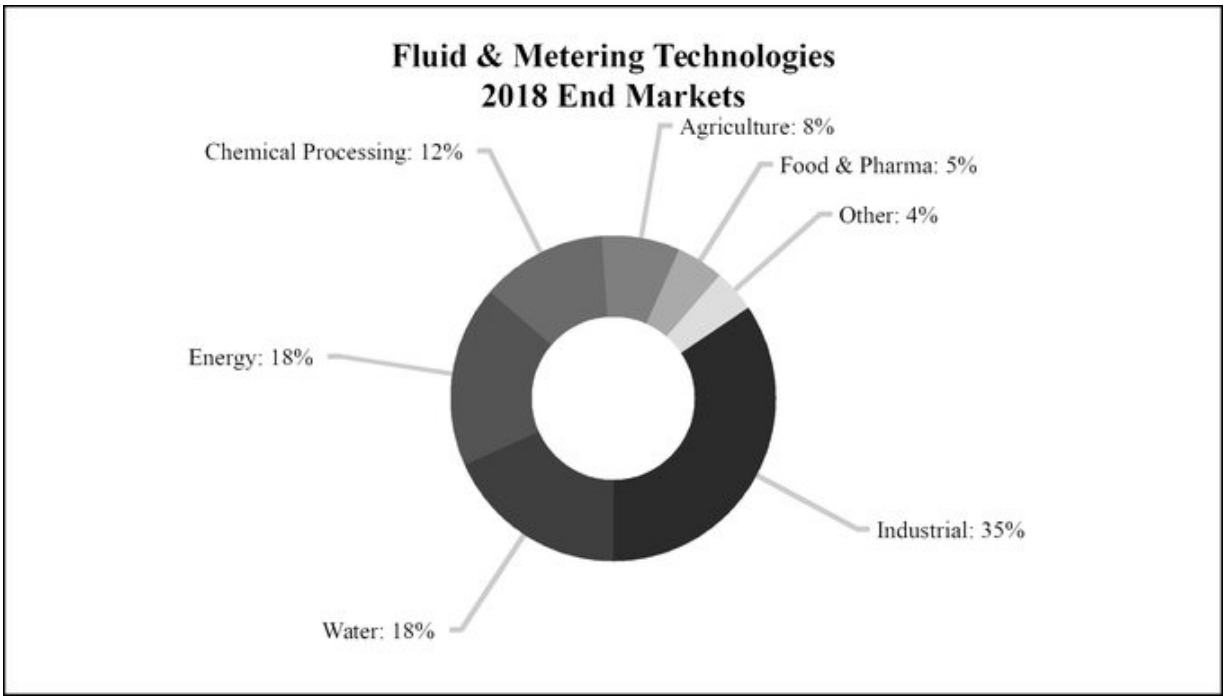


The Fluid & Metering Technologies segment contains the Energy platform (comprised of Corken, Liquid Controls, SAMPI and Toptech), the Valves platform (comprised of Alfa Valvole, Richter and Aegis), the Water platform (comprised of Pulsafeeder, OBL, Knight, ADS, Trebor and iPEK), the Pumps platform (comprised of Viking and Warren Rupp) and the Agriculture platform (comprised of Banjo). The Health & Science Technologies segment contains the Scientific Fluidics & Optics platform (comprised of Eastern Plastics, Rheodyne, Sapphire Engineering, Upchurch Scientific, ERC, CiDRA Precision Services, thinXXS Microtechnology ("thinXXS"), CVI Melles Griot, Semrock, AT Films and Finger Lakes Instrumentation ("FLI")), the Sealing Solutions platform (comprised of Precision Polymer Engineering, FTL Seals Technology, Novotema and SFC Koenig), the Gast platform, the Micropump platform and the Material Processing Technologies platform (comprised of Quadro, Fitzpatrick, Microfluidics and Matcon). The Fire & Safety/Diversified Products segment is comprised of the Fire & Safety platform (comprised of Class 1, Hale, Godiva, Akron Brass, Weldon, AWG Fittings, Dinglee, Hurst Jaws of Life, Lukas and Vetter), the Band-It platform and the Dispensing platform.

IDEX believes that each of its reporting units is a leader in its product and service areas. The Company also believes that its strong financial performance has been attributable to its ability to design and engineer specialized quality products, coupled with its ability to identify and successfully consummate and integrate strategic acquisitions.

FLUID & METERING TECHNOLOGIES SEGMENT

The Fluid & Metering Technologies segment designs, produces and distributes positive displacement pumps, flow meters, injectors and other fluid-handling pump modules and systems and provides flow monitoring and other services for the food, chemical, general industrial, water and wastewater, agriculture and energy industries. Fluid & Metering Technologies application-specific pump and metering solutions serve a diverse range of end markets, including industrial infrastructure (fossil fuels, refined and alternative fuels and water and wastewater), chemical processing, agriculture, food and beverage, pulp and paper, transportation, plastics and resins, electronics and electrical, construction and mining, pharmaceutical and bio-pharmaceutical, machinery and numerous other specialty niche markets.



Fluid & Metering Technologies accounted for 38% , 38% and 40% of IDEX's sales in 2018 , 2017 and 2016 , respectively, with approximately 43% of its 2018 sales to customers outside the U.S. The segment accounted for 42% , 42% and 44% of total segment operating income in 2018 , 2017 and 2016 , respectively.

Energy. Energy consists of the Company's Corken, Liquid Controls, SAMPI and Toptech businesses. Energy is a leading supplier of flow meters, electronic registration and control products, rotary vane and turbine pumps, reciprocating piston compressors and terminal automation control systems. Applications for Liquid Controls and SAMPI consist of positive displacement flow meters and electronic registration and control products, including mobile and stationary metering installations for wholesale and retail distribution of petroleum and liquefied petroleum gas, aviation refueling and industrial metering and dispensing of liquids and gases. Corken products consist of positive-displacement rotary vane pumps, single and multistage regenerative turbine pumps and small horsepower reciprocating piston compressors. Toptech supplies terminal automation hardware and software to control and manage inventories as well as transactional data and invoicing to customers in the oil, gas and refined-fuels markets. Energy maintains facilities in Lake Bluff, Illinois (Liquid Controls products); Longwood, Florida and Zwijndrecht, Belgium (Toptech products); Oklahoma City, Oklahoma (Corken products); and Altopascio, Italy (SAMPI products). Approximately 42% of Energy's 2018 sales were to customers outside the U.S.

Valves. Valves consists of the Company's Alfa Valvole, Richter and Aegis businesses. Valves is a leader in the design, manufacture and sale of specialty valve products for use in the chemical, petro-chemical, energy and sanitary markets as well as a leading producer of fluoroplastic lined corrosion-resistant magnetic drive and mechanical seal pumps, shut-off, control and safety valves for corrosive, hazardous, contaminated, pure and high-purity fluids. Alfa Valvole's products are used in various industrial fields for fluid control, in both gas and liquid form, in all sectors of plant engineering, cosmetics, detergents, food industry, electric energy, pharmaceutical, chemical plants, petrochemical plants, oil, heating/air conditioning and also on ships, ferries and marine oil platforms. Richter's products offer superior solutions for demanding and complex pump and valve applications in the process industry. Aegis produces specialty chemical processing valves for use in the chemical, petro-chemical, chlor-alkali and pulp and paper industries. Valves maintains operations in Casorezzo, Italy (Alfa Valvole products); Cedar Falls, Iowa, Kempen, Germany and Suzhou, China (Richter products); and Geismar, Louisiana (Aegis products). Approximately 82% of Valves' 2018 sales were to customers outside the U.S.

Water. Water consists of the Company's ADS, iPEK, Knight, Trebor, Pulsafeeder and OBL businesses. Water is a leading provider of metering technology, flow monitoring products and underground surveillance services for wastewater markets, alloy and non-metallic gear pumps, peristaltic pumps, transfer pumps as well as dispensing equipment for industrial laundries, commercial dishwashing and chemical metering. ADS' products and services provide comprehensive integrated solutions that enable industry, municipalities and government agencies to analyze and measure the capacity, quality and integrity of wastewater collection systems,

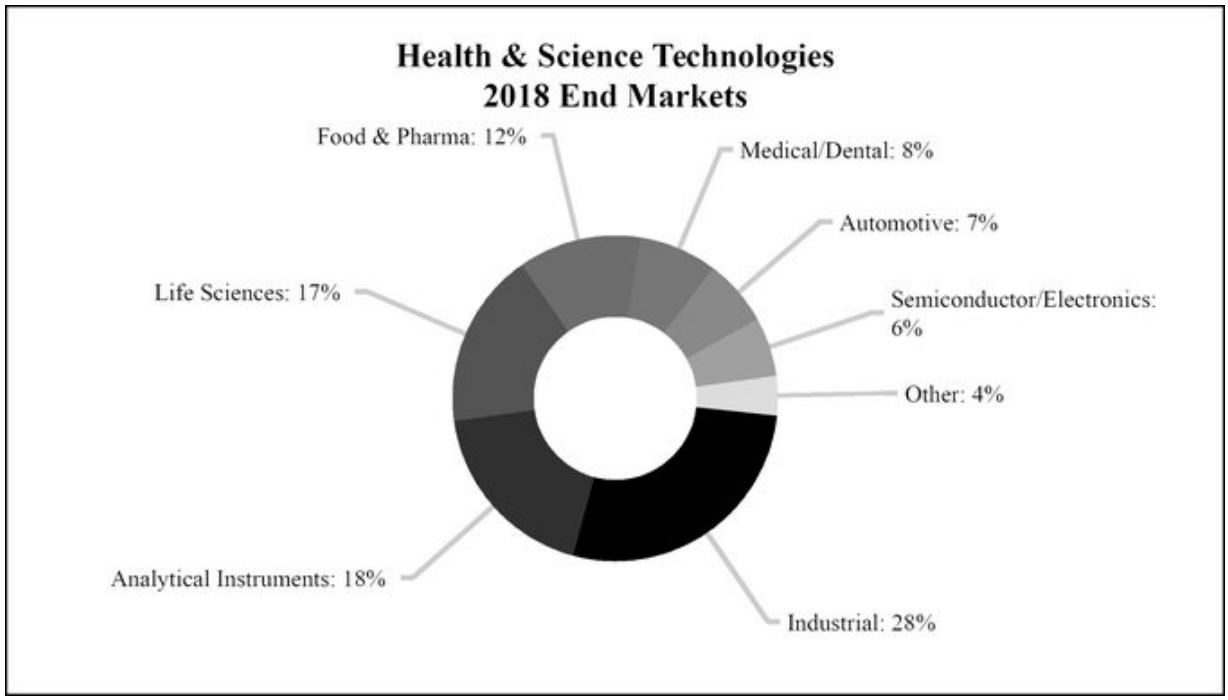
including the maintenance and construction of such systems. iPEK supplies remote controlled systems used for infrastructure inspection. Knight is a leading manufacturer of pumps and dispensing equipment for industrial laundries, commercial dishwashing and chemical metering. Trebor is a leader in high-purity fluid handling products, including air-operated diaphragm pumps and deionized water-heating systems. Trebor products are used in the manufacturing of semiconductors, disk drives and flat panel displays. Pulsafeeder products (which also include OBL products) are used to introduce precise amounts of fluids into processes to manage water quality and chemical composition as well as peristaltic pumps. Its markets include water and wastewater treatment, oil and gas, power generation, pulp and paper, chemical and hydrocarbon processing and swimming pools. Water maintains operations in Huntsville, Alabama and various other locations in the United States, Canada and Australia (ADS products and services); Hirschegg, Austria and Sulzberg, Germany (iPEK products); Rochester, New York, Punta Gorda, Florida, and Milan, Italy (Pulsafeeder products); West Jordan, Utah (Trebor products); Irvine, California, Mississauga, Ontario, Canada, and Lewes, England (Knight products); and a maquiladora in Ciudad Juarez, Chihuahua, Mexico (Knight products). Approximately 42% of Water's 2018 sales were to customers outside the U.S.

Pumps. Pumps consists of the Company's Viking and Warren Rupp businesses. Pumps is a leading manufacturer of rotary internal gear, external gear, vane and rotary lobe pumps, custom-engineered OEM pumps, strainers, gear reducers and engineered pump systems. Viking's products consist of external gear pumps, strainers and reducers and related controls used for transferring and metering thin and viscous liquids sold under the Viking and Wright Flow brands. Viking products primarily serve the chemical, petroleum, pulp and paper, plastics, paints, inks, tanker trucks, compressor, construction, food and beverage, personal care, pharmaceutical and biotech markets. Warren Rupp products (which include Versa-Matic products) are used for abrasive and semisolid materials as well as for applications where product degradation is a concern or where electricity is not available or should not be used. Warren Rupp products, which include air-operated double diaphragm pumps, primarily serve the chemical, paint, food processing, electronics, construction, utilities, oil and gas, mining and industrial maintenance markets. Pumps maintains operations in Cedar Falls, Iowa (Viking and Wright Flow products); Eastbourne, England (Wright Flow products); Shannon, Ireland (Viking and Blagdon products); and Mansfield, Ohio (Warren Rupp products). Pumps primarily uses independent distributors to market and sell its products. Approximately 38% of Pumps' 2018 sales were to customers outside the U.S.

Agriculture. Agriculture consists of the Company's Banjo business. Banjo is a provider of special purpose, severe-duty pumps, valves, fittings and systems used in liquid handling. Banjo is based in Crawfordsville, Indiana with distribution facilities in Didam, The Netherlands and Valinhos, Brazil. Its products are used in agriculture (approximately 72% of revenue) and industrial (approximately 28% of revenue) applications. Approximately 19% of Banjo's 2018 sales were to customers outside the U.S.

HEALTH & SCIENCE TECHNOLOGIES SEGMENT

The Health & Science Technologies segment designs, produces and distributes a wide range of precision fluidics, rotary lobe pumps, centrifugal and positive displacement pumps, roll compaction and drying systems used in beverage, food processing, pharmaceutical and cosmetics, pneumatic components and sealing solutions, including very high precision, low-flow rate pumping solutions required in analytical instrumentation, clinical diagnostics and drug discovery, high performance molded and extruded sealing components, biocompatible medical devices and implantables, air compressors used in medical, dental and industrial applications, optical components and coatings for applications in the fields of scientific research, defense, biotechnology, aerospace, telecommunications and electronics manufacturing, laboratory and commercial equipment used in the production of micro and nano scale materials, precision photonic solutions used in life sciences, research and defense markets and precision gear and peristaltic pump technologies that meet exacting original equipment manufacturer specifications.



Health & Science Technologies accounted for 36% , 36% and 35% of IDEX's sales in 2018 , 2017 and 2016 , respectively, with approximately 56% of its 2018 sales to customers outside the U.S. The segment accounted for 32% , 32% and 31% of total segment operating income in 2018 , 2017 and 2016 , respectively.

Scientific Fluidics & Optics. Scientific Fluidics & Optics consists of the Company's Eastern Plastics, Rheodyne, Sapphire Engineering, Upchurch Scientific, ERC, CiDRA Precision Services, thinXXS, CVI Melles Griot, Semrock, AT Films (including Precision Photonics products) and FLI businesses. Eastern Plastics products, which consist of high-precision integrated fluidics and associated engineered manifolds, are used in a broad set of end markets including medical diagnostics, analytical instrumentation and laboratory automation. Rheodyne products consist of injectors, valves, fittings and accessories for the analytical instrumentation market. These products are used by manufacturers of high pressure liquid chromatography ("HPLC") equipment servicing the pharmaceutical, biotech, life science, food and beverage, and chemical markets. Sapphire Engineering and Upchurch Scientific products consist of fluidic components and systems for the analytical, biotech and diagnostic instrumentation markets, such as fittings, precision-dispensing pumps and valves, tubing and integrated tubing assemblies, filter sensors and other micro-fluidic and nano-fluidic components as well as advanced column hardware and accessories for the high performance liquid chromatography market. The products produced by Sapphire Engineering and Upchurch Scientific primarily serve the pharmaceutical, drug discovery, chemical, biochemical processing, genomics/proteomics research, environmental labs, food/agriculture, medical lab, personal care and plastics/polymer/rubber production markets. ERC manufactures gas liquid separations and detection solutions for the life science, analytical instrumentation and clinical chemistry markets. ERC's products consist of in-line membrane vacuum degassing solutions, refractive index detectors and ozone generation systems. CiDRA Precision Services' products consist of microfluidic components serving the life science, health and industrial markets and thinXXS is a leader in the design, manufacture and sale of microfluidic components serving the point of care, veterinary and life science markets. CVI Melles Griot is a global leader in the design and manufacture of precision photonic solutions used in the life science, research, semiconductor, security and defense markets. CVI Melles Griot's innovative products are focused on the generation, control and productive use of light for a variety of key science and industrial applications. Products consist of specialty lasers and light sources, electro-optical components, specialty shutters, opto-mechanical assemblies and components. In addition, CVI Melles Griot produces critical components for life science research, electronics manufacturing, military and other industrial applications including lenses, mirrors, filters and polarizers. These components are utilized in a number of important applications such as spectroscopy, cytometry (cell counting), guidance systems for target designation, remote sensing, menology and optical lithography. Semrock is a provider of optical filters for biotech and analytical instrumentation in the life science market. Semrock's optical filters are produced using state-of-the-art manufacturing processes which enable it to offer its customers significant improvements in instrument performance and reliability. AT Films specializes in optical components and coatings for applications in the fields of scientific research, defense, aerospace, telecommunications and electronics manufacturing. AT Films' core competence is the design and manufacture of filters, splitters, reflectors and mirrors with the precise physical properties required to support their

customers' most challenging and cutting-edge optical applications. The Precision Photonics portion of its business specializes in optical components and coatings for applications in the fields of scientific research, aerospace, telecommunications and electronics manufacturing. FLI specializes in the design, development and production of low-noise cooled charge-coupled device ("CCD") and high speed, high-sensitivity Scientific complementary metal-oxide semiconductor ("CMOS") cameras for the astronomy and life sciences markets. Scientific Fluidics & Optics has facilities in Bristol, Connecticut (Eastern Plastics products); Rohnert Park, California (Rheodyne products); Middleboro, Massachusetts (Sapphire Engineering products); Oak Harbor, Washington (Upchurch Scientific products); Kawaguchi, Japan (ERC products); Wallingford, Connecticut (CiDRA Precision Services products); Zweibrücken, Germany (thinXXS products); Albuquerque, New Mexico, Rochester, New York, Leicester, England and Didam, The Netherlands (CVI Melles Griot products); Rochester, New York (Semrock products); Boulder, Colorado (AT Films products); and Lima, New York (FLI products). Approximately 51% of Scientific Fluidics & Optics' 2018 sales were to customers outside the U.S.

Sealing Solutions. Sealing Solutions consists of the Company's Precision Polymer Engineering, FTL Seals Technology, Novotema and SFC Koenig businesses. Precision Polymer Engineering is a provider of proprietary high performance seals and advanced sealing solutions for a diverse range of global industries and applications, including hazardous duty, analytical instrumentation, semiconductor, process technologies, oil and gas, pharmaceutical, electronics and food applications. Precision Polymer Engineering is headquartered in Blackburn, England with an additional manufacturing facility in Brenham, Texas. FTL Seals Technology, located in Leeds, England, specializes in the design and application of high integrity rotary seals, specialty bearings and other custom products for the mining, power generation and marine markets. Novotema, located in Villongo, Italy, is a leader in the design, manufacture and sale of specialty sealing solutions for use in the building products, gas control, transportation, industrial and water markets. SFC Koenig is a producer of highly engineered expanders and check valves for critical applications across the transportation, hydraulic, aviation and medical markets. SFC Koenig is based in Dietikon, Switzerland, with additional facilities in North Haven, Connecticut, Illerrieden, Germany, and Suzhou, China. Approximately 77% of Sealing Solutions' 2018 sales were to customers outside the U.S.

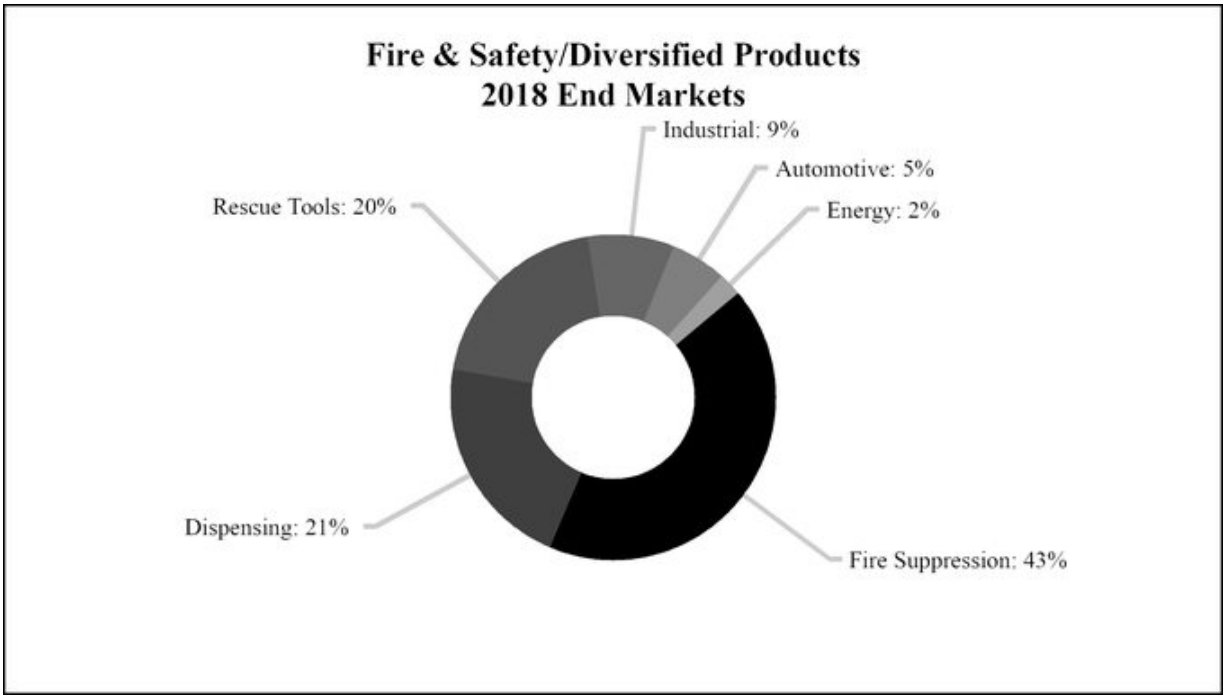
Gast. The Gast business is a leading manufacturer of air-moving products, including air motors, low-range and medium-range vacuum pumps, vacuum generators, regenerative blowers and fractional horsepower compressors. Gast products are used in a variety of long-life applications requiring a quiet, clean source of moderate vacuum or pressure. Gast products primarily serve the medical equipment, environmental equipment, computers and electronics, printing machinery, paint mixing machinery, packaging machinery, graphic arts and industrial manufacturing markets. Based in Benton Harbor, Michigan, Gast also has a logistics and commercial center in Redditch, England. Approximately 27% of Gast's 2018 sales were to customers outside the U.S.

Micropump. Micropump, headquartered in Vancouver, Washington, is a leader in small, precision-engineered, magnetically and electromagnetically driven rotary gear, piston and centrifugal pumps. Micropump products are used in low-flow abrasive and corrosive applications. Micropump products primarily serve the continuous ink-jet printing, medical equipment, chemical processing, pharmaceutical, refining, laboratory, electronics, textiles, peristaltic metering pumps, analytical process controllers and sample preparation systems markets. Approximately 71% of Micropump's 2018 sales were to customers outside the U.S.

Material Processing Technologies. Material Processing Technologies consists of the Company's Quadro, Fitzpatrick, Microfluidics and Matcon businesses. Quadro is a leading provider of particle control solutions for the pharmaceutical and bio-pharmaceutical markets. Based in Waterloo, Canada, Quadro's core capabilities include fine milling, emulsification and special handling of liquid and solid particulates for laboratory, pilot phase and production scale processing. Fitzpatrick is a global leader in the design and manufacture of process technologies for the pharmaceutical, food and personal care markets. Fitzpatrick designs and manufactures customized size reduction, roll compaction and drying systems to support their customers' product development and manufacturing processes. Fitzpatrick is headquartered in Waterloo, Canada. Microfluidics is a global leader in the design and manufacture of laboratory and commercial equipment used in the production of micro and nano scale materials for the pharmaceutical and chemical markets. Microfluidics is the exclusive producer of the Microfluidizer family of high shear fluid processors for uniform particle size reduction, robust cell disruption and nanoparticle creation. Microfluidics is also based in Waterloo, Canada and has offices in Newton, Massachusetts. Matcon is a global leader in material processing solutions for high value powders used in the manufacture of pharmaceuticals, food, plastics and fine chemicals. Matcon's innovative products consist of the original cone valve powder discharge system and filling, mixing and packaging systems, all of which support its customers' automation and process requirements. These products are critical to its customers' need to maintain clean, reliable and repeatable formulations of prepackaged foods and pharmaceuticals while helping them achieve lean and agile manufacturing. Matcon is located in Evesham, England. Approximately 65% of Material Processing Technologies' 2018 sales were to customers outside the U.S.

FIRE & SAFETY/DIVERSIFIED PRODUCTS SEGMENT

The Fire & Safety/Diversified Products segment designs, produces and distributes firefighting pumps, valves, rescue tools, lifting bags and other components and systems for the fire and rescue industry, engineered stainless steel banding and clamping devices used in a variety of industrial and commercial applications and precision equipment for dispensing, metering and mixing colorants and paints used in a variety of retail and commercial businesses around the world.



The Fire & Safety/Diversified Products segment accounted for 26% , 26% and 25% of IDEX's sales in 2018 , 2017 and 2016 , respectively, with approximately 53% of its 2018 sales to customers outside the U.S. The segment accounted for 26% , 26% and 25% of total segment operating income in 2018 , 2017 and 2016 , respectively.

Fire & Safety. Fire & Safety consists of the Company's Class 1, Hale, Godiva, Akron Brass, AWG Fittings, Dinglee, Hurst Jaws of Life, Lukas and Vetter businesses, which produce truck-mounted and portable fire pumps, stainless steel valves, monitors, apparatus valves, nozzles, foam and compressed air foam systems, pump modules and pump kits, electronic controls and information systems, conventional and networked electrical systems, mechanical components for the fire, rescue and specialty vehicle markets, hydraulic, battery, gas and electric-operated rescue equipment, hydraulic re-railing equipment, hydraulic tools for industrial applications, recycling cutters, pneumatic lifting and sealing bags for vehicle and aircraft rescue, environmental protection and disaster control and shoring equipment for vehicular or structural collapse. Fire & Safety's customers are OEMs as well as public and private fire and rescue organizations. Fire & Safety maintains facilities in Ocala, Florida (Class 1 and Hale products); Warwick, England (Godiva products); Wooster and Columbus, Ohio (Akron Brass and Weldon products); Ballendorf, Germany (AWG Fittings products); Shelby, North Carolina (Hurst Jaws of Life products); Tianjin, China (Dinglee products); Erlangen, Germany (Lukas products); and Zulpich, Germany (Vetter products). Approximately 52% of Fire & Safety's 2018 sales were to customers outside the U.S.

Band-It. Band-It is a leading producer of high-quality stainless steel banding, buckles and clamping systems. The BAND-IT brand is highly recognized worldwide. Band-It products are used for securing exhaust system heat and sound shields, industrial hose fittings, traffic signs and signals, electrical cable shielding, identification and bundling and in numerous other industrial and commercial applications. Band-It products primarily serve the automotive, transportation equipment, oil and gas, general industrial maintenance, electronics, electrical, communications, aerospace, utility, municipal and subsea marine markets. Band-It is based in Denver, Colorado, with additional operations in Staveley, England. Approximately 42% of Band-It's 2018 sales were to customers outside the U.S.

Dispensing. Dispensing produces precision equipment for dispensing, metering and mixing colorants and paints used in a variety of retail and commercial businesses around the world. Dispensing is a global supplier of precision-designed tinting, mixing, dispensing and measuring equipment for auto refinishing and architectural paints. Dispensing products are used in retail and commercial stores, hardware stores, home centers, department stores, automotive body shops as well as point-of-purchase dispensers. Dispensing maintains facilities in Sassenheim, The Netherlands, Wheeling, Illinois, Unanderra, Australia and Milan, Italy as well as IDEX shared manufacturing facilities in India and China. Approximately 67% of Dispensing's 2018 sales were to customers outside the U.S.

INFORMATION APPLICABLE TO THE COMPANY'S BUSINESS IN GENERAL AND ITS SEGMENTS

Competitors

The Company's businesses participate in highly competitive markets. IDEX believes that the principal points of competition are product quality, design and engineering capabilities, product development, conformity to customer specifications, quality of post-sale support, timeliness of delivery and effectiveness of our distribution channels.

Principal competitors of the Fluid & Metering Technologies segment are the Pumps Group (Maag, Blackmer and Wilden products) of Dover Corporation (with respect to pumps and small horsepower compressors used in liquified petroleum gas distribution facilities, rotary gear pumps and air-operated double-diaphragm pumps); Milton Roy LLC (with respect to metering pumps and controls); and Tuthill Corporation (with respect to rotary gear pumps).

Principal competitors of the Health & Science Technologies segment are the Thomas division of Gardner Denver, Inc. (with respect to vacuum pumps and compressors); Thermo Scientific Dionex products (with respect to analytical instrumentation); Parker Hannifin (with respect to sealing devices); Valco Instruments Co., Inc. (with respect to fluid injectors and valves); and Gooch & Housego PLC (with respect to electro-optic and precision photonics solutions used in the life sciences market).

The principal competitors of the Fire & Safety/Diversified Products segment are Waterous Company, a unit of American Cast Iron Pipe Company (with respect to truck-mounted firefighting pumps); Holmatro, Inc. (with respect to rescue tools); Corob S.p.A. (with respect to dispensing and mixing equipment for the paint industry); and Panduit Corporation (with respect to stainless steel bands, buckles and clamping systems).

Customers

The principal customers for our products are discussed immediately above by product category in each segment. None of our customers in 2018 accounted for more than two percent of net sales.

Employees

At December 31, 2018 , the Company had 7,352 employees. Approximately 7% of employees were represented by labor unions, with various contracts expiring through October 2022. Management believes that the Company has a positive relationship with its employees. The Company historically has been able to renegotiate its collective bargaining agreements satisfactorily, with its last work stoppage occurring in March 1993.

Suppliers

The Company manufactures many of the parts and components used in its products. Substantially all materials, parts and components purchased by the Company are available from multiple sources.

Inventory and Backlog

The Company regularly and systematically adjusts production schedules and quantities based on the flow of incoming orders. Backlogs typically are limited to one and a half months of production. While total inventory levels also may be affected by changes in orders, the Company generally tries to maintain relatively stable inventory levels based on its assessment of the requirements of the various industries served.

Raw Materials

The Company uses a wide variety of raw materials which are generally available from a number of sources. As a result, shortages from any single supplier have not had, and are not likely to have a material impact on operations.

Shared Services

The Company has production facilities in Suzhou, China and Vadodara, India that support multiple business units. IDEX also has personnel in China, India, Dubai, Mexico, Latin America and Singapore that provide sales and marketing, product design and engineering and sourcing support to its business units as well as personnel in various locations in South America, the Middle East, Korea and Japan to support sales and marketing efforts of IDEX businesses in those regions.

Segment Information

For segment financial information for the years 2018 , 2017 and 2016 , including financial information about foreign and domestic sales and operations, see "Management's Discussion and Analysis of Financial Condition and Results of Operations" and Note 12 of the Notes to Consolidated Financial Statements in Part II, Item 8, "Financial Statements and Supplementary Data."

Executive Officers of the Registrant

Set forth below are the names of the executive officers of the Company, their ages, years of service, the positions held by them and their business experience during the past five years.

Name	Age	Years of Service	Position
Andrew K. Silvernail	48	10	Chairman of the Board and Chief Executive Officer
William K. Grogan	40	7	Senior Vice President and Chief Financial Officer
Eric D. Ashleman	51	10	Senior Vice President and Chief Operating Officer
Denise R. Cade	56	3	Senior Vice President, General Counsel and Corporate Secretary
Daniel J. Salliotte	52	14	Senior Vice President-Corporate Development
Michael J. Yates	53	13	Vice President and Chief Accounting Officer
Jeffrey D. Bucklew	48	7	Senior Vice President-Chief Human Resources Officer
James MacLennan	55	7	Senior Vice President-Chief Information Officer

Mr. Silvernail has served as Chief Executive Officer since August 2011 and as Chairman of the Board since January 2012. Prior to that, Mr. Silvernail was Vice President-Group Executive Health & Science Technologies, Global Dispensing and Fire & Safety/Diversified Products from January 2011 to August 2011. From February 2010 to December 2010, Mr. Silvernail was Vice President-Group Executive Health & Sciences Technologies and Global Dispensing. Mr. Silvernail joined IDEX in January 2009 as Vice President-Group Executive Health & Science Technologies.

Mr. Grogan has served as Senior Vice President and Chief Financial Officer since January 2017. Prior to that, Mr. Grogan served as Vice President of Finance, Operations from July 2015 through January 2017. From January 2012 through July 2015, Mr. Grogan was Vice President-Finance for the Company's Health & Science Technologies and Fire & Safety/Diversified Products segments.

Mr. Ashleman has served as Senior Vice President and Chief Operating Officer since July 2015. Prior to that, Mr. Ashleman served as the Vice President-Group Executive of the Company's Health & Science Technologies and Fire & Safety/Diversified Products segments from January 2014 through July 2015 and President-Group Executive of the Company's Fire & Safety/Diversified Products segment from 2011 through January 2014. Mr. Ashleman joined IDEX in 2008 as the President of Gast Manufacturing.

Ms. Cade has served as Senior Vice President, General Counsel and Corporate Secretary since joining IDEX in October 2015. Prior to joining IDEX, Ms. Cade was Senior Vice President, General Counsel, Corporate Secretary and Chief Compliance Officer for SunCoke Energy, Inc. from March 2011 to October 2015 and held various roles at PPG Industries before joining SunCoke.

Mr. Salliotte has served as Senior Vice President-Corporate Development since March 2018. Prior to that, Mr. Salliotte served as Senior Vice President-Corporate Strategy, Mergers & Acquisitions and Treasury since February 2011. Mr. Salliotte joined IDEX in October 2004 as Vice President-Strategy and Business Development.

Mr. Yates has served as Vice President and Chief Accounting Officer since February 2010, and served as interim Chief Financial Officer from September 2016 to December 2016. Mr. Yates joined IDEX as Vice President-Controller in October 2005.

Mr. Bucklew has served as the Senior Vice President-Chief Human Resources Officer since joining IDEX in March 2012. Prior to joining IDEX, Mr. Bucklew served as the Vice President of Human Resources for Accretive Health from March 2009 to March 2012.

Mr. MacLennan has served as the Senior Vice President-Chief Information Officer since joining IDEX in March 2012. Prior to joining IDEX, Mr. MacLennan had a dual role as CIO for Pactiv LLC and Vice President of IT for Reynolds Services Inc.

The Company's executive officers are elected at a meeting of the Board of Directors immediately following the annual meeting of stockholders, and they serve until the meeting of the Board immediately following the next annual meeting of stockholders, or until their successors are duly elected and qualified or until their death, resignation or removal.

Public Filings

Copies of the Company's annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports are made available free of charge at www.idexcorp.com as soon as reasonably practicable after being filed electronically with the United States Securities and Exchange Commission (the "SEC"). Our reports are also available free of charge on the SEC's website, www.sec.gov. Information on the Company's website is not incorporated into this Form 10-K.

Item 1A. ***Risk Factors.***

For an enterprise as diverse and complex as the Company, a wide range of factors present risks to the Company and could materially affect future developments and performance. In addition to the factors affecting specific business operations identified in connection with the description of our operations and the financial results of our operations elsewhere in this report, the most significant of these factors are as follows:

Changes in U.S. or International Economic Conditions Could Adversely Affect the Sales and Profitability of Our Businesses.

In 2018 , 49% of the Company's sales were derived from domestic operations while 51% were derived from international operations. The Company's largest end markets include industrial, life sciences and medical technologies, fire and rescue, oil and gas, paint and coatings, chemical processing, agriculture, water and wastewater treatment and optical filters and components. A slowdown in the U.S. or global economy and, in particular, any of these specific end markets could reduce the Company's sales and profitability.

Change to Political and Economic Conditions in the U.S. and Foreign Countries in Which We Operate Could Adversely Affect Our Business.

In 2018 , approximately 51% of our total sales were to customers outside the U.S. We expect our international operations and export sales to continue to be significant for the foreseeable future. Our sales from international operations and our sales from export are both subject in varying degrees to risks inherent in doing business outside the U.S. These risks include the following:

- possibility of unfavorable circumstances arising from host country laws or regulations;
- risks of economic instability;
- currency exchange rate fluctuations and restrictions on currency repatriation;
- potential negative consequences from changes to taxation policies;
- disruption of operations from labor and political disturbances;
- withdrawal from or renegotiation of international trade agreements and other restrictions on the trade between the United States and other countries;
- effects of the United Kingdom's decision to exit the European Union and related potential disruption to trade;
- changes in tariff and trade barriers, including recently imposed tariffs with respect to certain products imported from China or exported to China, and import or export licensing requirements; and
- political instability, terrorism, insurrection or war.

Any of these events could have an adverse impact on our business and operations.

Our Inability to Continue to Develop New Products Could Limit Our Sales Growth.

Our ability to continue to grow organically is tied in large part to our ability to continue to develop new products. A failure to continue to develop and deliver new, innovative and competitive products to the market could limit our sales growth and negatively impact our business, financial condition, results of operations and cash flow.

Our Growth Strategy Includes Acquisitions and We May Not be Able to Make Acquisitions of Suitable Candidates or Integrate Acquisitions Successfully.

Our historical growth has included, and our future growth is likely to continue to include, acquisitions. We intend to continue to seek acquisition opportunities both to expand into new markets and to enhance our position in existing markets throughout the world. We may not be able to successfully identify suitable candidates, negotiate appropriate acquisition terms, obtain financing needed to consummate those acquisitions, complete proposed acquisitions or successfully integrate acquired businesses into our existing operations. In addition, any acquisition, once successfully integrated, may not perform as planned, be accretive to earnings, or otherwise prove beneficial to us.

Acquisitions involve numerous risks, including the assumption of undisclosed or unindemnified liabilities, difficulties in the assimilation of the operations, technologies, services and products of the acquired companies and the diversion of management's attention from other business concerns. In addition, prior acquisitions have resulted in, and future acquisitions could result in, the incurrence of substantial additional indebtedness and other expenses.

The Markets We Serve are Highly Competitive and this Competition Could Reduce our Sales and Operating Margins.

Most of our products are sold in competitive markets. Maintaining and improving our competitive position will require continued investment by us in manufacturing, engineering, quality standards, marketing, customer service and support and our distribution networks. We may not be successful in maintaining our competitive position. Our competitors may develop products that are superior to our products or may develop methods of more efficiently and effectively providing products and services or may adapt more quickly than us to new technologies or evolving customer requirements. Pricing pressures may require us to adjust the prices of our products to stay competitive. We may not be able to compete successfully with our existing competitors or with new competitors. Failure to continue competing successfully could reduce our sales, operating margins and overall financial performance.

We are Dependent on the Availability of Raw Materials, Parts and Components Used in Our Products.

While we manufacture certain parts and components used in our products, we require substantial amounts of raw materials and purchase some parts and components from suppliers. The availability and prices for raw materials, parts and components may be subject to curtailment or change due to, among other things, suppliers' allocations to other purchasers, interruptions in production by suppliers, changes in exchange rates and prevailing price levels. Any change in the supply of, or price for, these raw materials or parts and components could materially affect our business, financial condition, results of operations and cash flow.

Significant Movements in Foreign Currency Exchange Rates May Harm Our Financial Results.

We are exposed to fluctuations in foreign currency exchange rates, particularly with respect to the Euro, Swiss Franc, Canadian Dollar, British Pound, Indian Rupee and Chinese Renminbi. Any significant change in the value of the currencies of the countries in which we do business against the U.S. Dollar could affect our ability to sell products competitively and control our cost structure, which could have a material adverse effect on our results of operations. For additional detail related to this risk, see Part II, Item 7A, "Quantitative and Qualitative Disclosure About Market Risk."

Fluctuations in Interest Rates Could Adversely Affect Our Results of Operations and Financial Position.

Our profitability may be adversely affected during any periods of unexpected or rapid increases in interest rates. We maintain a revolving credit facility, which bears interest at either an alternate base rate or an adjusted LIBOR rate plus, in each case, an applicable margin based on the Company's senior, unsecured, long-term debt rating. A significant increase in LIBOR would significantly increase our cost of borrowings. We are also exposed to risks if the U.S. Federal Reserve raises its benchmark interest rate, which may reduce the availability and increase the cost of obtaining new debt and refinancing existing indebtedness. For additional detail related to this risk, see Part II, Item 7A, "Quantitative and Qualitative Disclosure About Market Risk."

An Unfavorable Outcome of Any of Our Pending Contingencies or Litigation Could Adversely Affect Us.

We are currently involved in pending and threatened legal, regulatory and other proceedings arising in the ordinary course of business. These proceedings may pertain to matters such as product liability or contract disputes, and may also involve governmental inquiries, inspections, audits or investigations relating to issues such as tax matters, intellectual property, environmental, health and safety issues, governmental regulations, employment and other matters. Where it is reasonably possible to do so, we accrue estimates of the probable costs for the resolution of these matters. These estimates are developed in consultation with outside counsel and are based upon an analysis of potential results and the availability of insurance coverage, assuming a combination of litigation and settlement strategies. It is possible, however, that future operating results for any particular quarter or annual period could be materially affected by changes in our assumptions, the continued availability of insurance coverage or the effectiveness of our strategies related to these proceedings. For additional detail related to this risk, see Item 3, "Legal Proceedings" and Note 9 in Part II, Item 8, "Financial Statements and Supplementary Data."

Our Intangible Assets, Including Goodwill, are a Significant Portion of Our Total Assets and a Write-off of Our Intangible Assets or Goodwill Would Adversely Impact Our Operating Results and Significantly Reduce Our Net Worth.

Our total assets reflect substantial intangible assets, primarily goodwill and identifiable intangible assets. At December 31, 2018 , goodwill and intangible assets totaled $1,698.0 million and $383.3 million , respectively. These assets primarily result from our acquisitions, representing the excess of the purchase price over the fair value of the tangible net assets we have acquired. Annually, or when certain events occur that require a more current valuation, we assess whether there has been an impairment in the value of our goodwill and identifiable intangible assets. If future operating performance at one or more of our reporting units were to fall significantly below forecasted levels, we could be required to reflect, under current applicable accounting rules, a non-cash charge to operating income for an impairment. Any determination requiring the write-off of a significant portion of our

goodwill or identifiable intangible assets would adversely impact our results of operations and net worth. See Note 5 in Part II, Item 8, "Financial Statements and Supplementary Data" for further discussion on goodwill and intangible assets.

A Significant or Sustained Decline in Commodity Prices, Including Oil, Could Negatively Impact the Levels of Expenditures by Certain of Our Customers.

Demand for our products depends, in part, on the level of new and planned expenditures by certain of our customers. The level of expenditures by our customers is dependent on, among other factors, general economic conditions, availability of credit, economic conditions within their respective industries and expectations of future market behavior. Volatility in commodity prices, including oil, can negatively affect the level of these activities and can result in postponement of capital spending decisions or the delay or cancellation of existing orders. The ability of our customers to finance capital investment and maintenance may also be affected by the conditions in their industries. Reduced demand for our products could result in the delay or cancellation of existing orders or lead to excess manufacturing capacity, which unfavorably impacts our absorption of fixed manufacturing costs. This reduced demand could have a material adverse effect on our business, financial condition and results of operations.

Our Success Depends on Our Executive Management and Other Key Personnel.

Our future success depends to a significant degree on the skills, experience and efforts of our executive management and other key personnel and their ability to provide the Company with uninterrupted leadership and direction. The loss of the services of any of our executive officers or a failure to provide adequate succession plans for key personnel could have an adverse impact. The availability of highly qualified talent is limited and the competition for talent is robust. However, we provide long-term equity incentives and certain other benefits for our executive officers which provide incentives for them to make a long-term commitment to our Company. Our future success will also depend on our ability to have adequate succession plans in place and to attract, retain and develop qualified personnel. A failure to efficiently replace executive management members and other key personnel and to attract, retain and develop new qualified personnel could have an adverse effect on our operations and implementation of our strategic plan.

Challenges with Respect to Labor Availability Could Negatively Impact our Ability to Operate or Grow our Business.

Our success depends in part on the ability of our businesses to proactively attract, motivate and retain a qualified and highly skilled workforce in an intensely competitive labor market. A failure to attract, motivate and retain highly skilled personnel could adversely affect our operating results or our ability to operate or grow our business.

Our Business Operations May Be Adversely Affected by Information Systems Interruptions or Intrusion.

We depend on various information technologies throughout our Company to administer, store and support multiple business activities. If these systems (or the systems of our customers or third-party hosting services) are damaged, cease to function properly or are subject to cyber-security attacks, such as those involving unauthorized access, malicious software and/or other intrusions, we could experience production downtimes, operational delays, other detrimental impacts on our operations or ability to provide products and services to our customers, the compromising of confidential or otherwise protected information, destruction or corruption of data, security breaches, other manipulation or improper use of our systems or networks, financial losses from remedial actions, loss of business or potential liability, penalties, fines and/or damage to our reputation. While we attempt to mitigate these risks by employing a number of measures, including employee training, technical security controls and maintenance of backup and protective systems, our systems, networks, products and services remain potentially vulnerable to known or unknown threats, any of which could have a material adverse effect on our business, financial condition or results of operations. Further, given the unpredictability, nature and scope of cyber-security attacks, it is possible that potential vulnerabilities could go undetected for an extended period.

Failure To Comply with the U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act or Other Applicable Anti-bribery Laws Could Have an Adverse Effect on Our Business.

The U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act and similar anti-bribery laws in other jurisdictions generally prohibit companies and their intermediaries from making improper payments for the purpose of obtaining or retaining business. Recent years have seen a substantial increase in anti-bribery law enforcement activity with more frequent and aggressive investigations and enforcement proceedings by both the Department of Justice and the SEC, increased enforcement activity by non-U.S. regulators and increases in criminal and civil proceedings brought against companies and individuals. Our policies mandate compliance with all anti-bribery laws. However, we operate in certain countries that are recognized as having governmental and commercial corruption. Our internal control policies and procedures may not always protect us from reckless or criminal acts

committed by our employees or third-party intermediaries. Violations of these anti-bribery laws may result in criminal or civil sanctions, which could have a material adverse effect on our business, financial condition and results of operations.

Changes in Applicable Tax Regulations and Resolutions of Tax Disputes Could Negatively Affect Our Financial Results.

The Company is subject to taxation in the U.S. and numerous foreign jurisdictions. On December 22, 2017, the U.S. government enacted comprehensive tax legislation commonly referred to as the Tax Cuts and Jobs Act (the "Tax Act"). The changes included in the Tax Act were broad and complex. The Company finalized the impact of the reduction in the corporate rate and the deemed repatriation transition tax based upon the Company's interpretations of the Tax Act. However, additional guidance issued by the Internal Revenue Service, the U.S. Department of Treasury or any other applicable taxing authority or actions taken by the Company may result in a different impact.

In addition, foreign jurisdictions may enact tax legislation that could significantly affect our ongoing operations. Aspects of U.S. tax reform could also lead foreign jurisdictions to respond by enacting additional tax legislation that is unfavorable to us.

Item 1B. ***Unresolved Staff Comments.***

None.

Item 2. ***Properties .***

The Company's principal plants and offices have an aggregate floor space area of approximately 4.6 million square feet, of which 3.0 million square feet (65%) is located in the U.S. and approximately 1.6 million square feet (35%) is located outside the U.S., primarily in Germany (9%), U.K. (7%), Italy (6%), India (3%), China (2%), Canada (2%), Switzerland (2%) and The Netherlands (2%). Management considers these facilities suitable and adequate for the Company's operations. Management believes the Company can meet demand increases over the near term with its existing facilities, especially given its operational improvement initiatives that usually increase capacity. The Company's executive office occupies 36,588 square feet of leased space in Lake Forest, Illinois and 16,268 square feet of leased space in Chicago, Illinois.

Approximately 3.1 million square feet (68%) of the principal plant and office floor area is owned by the Company and the balance is held under lease. Approximately 1.7 million square feet (38%) of the principal plant and office floor area is held by business units in the Fluid & Metering Technologies segment; 1.4 million square feet (29%) is held by business units in the Health & Science Technologies segment; and 1.3 million square feet (28%) is held by business units in the Fire & Safety/Diversified Products segment. The remaining 0.2 million square feet (5%) include the executive office as well as shared services locations.

Item 3. ***Legal Proceedings.***

The Company and its subsidiaries are party to legal proceedings as described in Note 9 in Part II, Item 8, "Commitments and Contingencies," and such disclosure is incorporated by reference into this Item 3, "Legal Proceedings." In addition, the Company and six of its subsidiaries are presently named as defendants in a number of lawsuits claiming various asbestos-related personal injuries, allegedly as a result of exposure to products manufactured with components that contained asbestos. These components were acquired from third party suppliers and were not manufactured by the Company or any of the defendant subsidiaries. To date, the majority of the Company's settlements and legal costs, except for costs of coordination, administration, insurance investigation and a portion of defense costs, have been covered in full by insurance, subject to applicable deductibles. However, the Company cannot predict whether and to what extent insurance will be available to continue to cover these settlements and legal costs, or how insurers may respond to claims that are tendered to them. Claims have been filed in jurisdictions throughout the United States and the United Kingdom. Most of the claims resolved to date have been dismissed without payment. The balance of the claims have been settled for various insignificant amounts. Only one case has been tried, resulting in a verdict for the Company's business unit. No provision has been made in the financial statements of the Company, other than for insurance deductibles in the ordinary course, and the Company does not currently believe the asbestos-related claims will have a material adverse effect on the Company's business, financial position, results of operations or cash flows.

Item 4. ***Mine Safety Disclosures.***

Not applicable.

PART II

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

The Company's common stock trades on the New York Stock Exchange under the symbol "IEX". As of February 15, 2019 , there were approximately 5,151 stockholders of record of our common stock and there were 75,792,814 shares outstanding.

Our payment of dividends in the future will be determined by our Board of Directors and will depend on business conditions, our earnings and other factors.

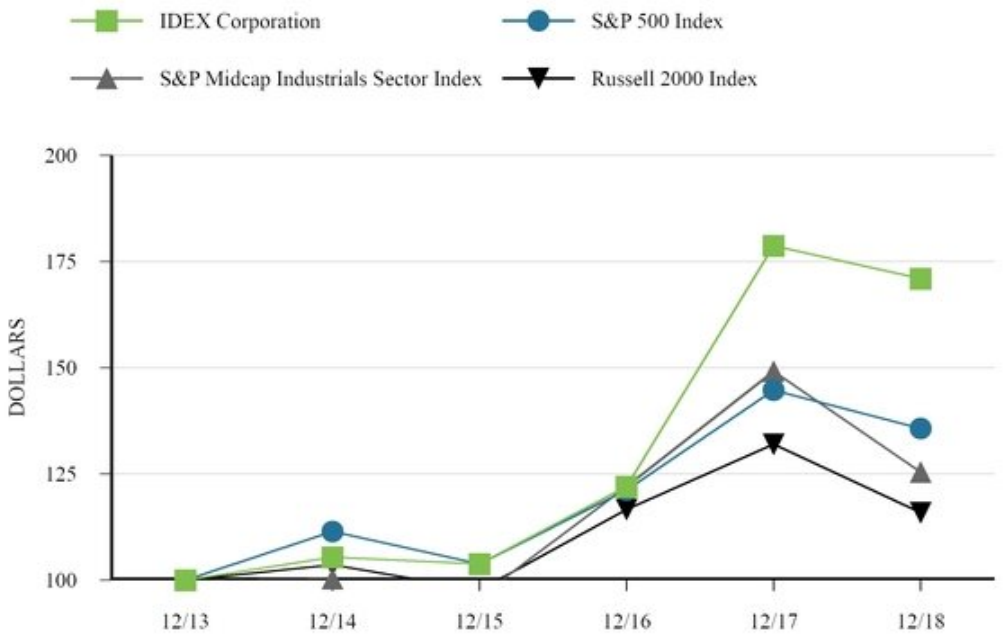
For information pertaining to securities authorized for issuance under equity compensation plans and the related weighted average exercise price, see Part III, Item 12, "Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters."

The Company's purchases of common stock during the quarter ended December 31, 2018 are as follows:

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs (1)	Maximum Dollar Value that May Yet be Purchased Under the Plans or Programs (1)
October 1, 2018 to October 31, 2018	172,705	$ 132.14	172,705	$ 476,454,817
November 1, 2018 to November 30, 2018	420,000	134.26	420,000	420,066,720
December 1, 2018 to December 31, 2018	324,666	132.62	324,666	377,010,479
Total	917,371	$ 133.28	917,371	$ 377,010,479

(1) On December 1, 2015 , the Company's Board of Directors approved an increase of $300.0 million in the authorized level of repurchases of common stock. This followed the prior Board of Directors approved repurchase authorization of $400.0 million that was announced by the Company on November 6, 2014. These authorizations have no expiration date.

Performance Graph. The following table compares total stockholder returns over the last five years to the Standard & Poor's (the "S&P") 500 Index, the S&P Midcap Industrials Sector Index and the Russell 2000 Index assuming the value of the investment in our common stock and each index was $100 on December 31, 2013 . Total return values for our common stock, the S&P 500 Index, S&P Midcap Industrials Sector Index and the Russell 2000 Index were calculated on cumulative total return values assuming reinvestment of dividends. The stockholder return shown on the graph below is not necessarily indicative of future performance.



	12/13	12/14	12/15	12/16	12/17	12/18
IDEX Corporation	$ 100.00	$ 105.40	$ 103.74	$ 121.95	$ 178.70	$ 170.97
S&P 500 Index	$ 100.00	$ 111.39	$ 110.58	$ 121.13	$ 144.65	$ 135.63
S&P Midcap 400 Industrials Sector Index	$ 100.00	$ 100.30	$ 96.01	$ 122.00	$ 149.08	$ 125.40
Russell 2000 Index	$ 100.00	$ 103.53	$ 97.62	$ 116.63	$ 131.96	$ 115.89

Item 6. ***Selected Financial Data.*** [1]

(Dollars in thousands, except per share data)	2018	2017	2016	2015	2014
RESULTS OF OPERATIONS					
Net sales	$ 2,483,666	$ 2,287,312	$ 2,113,043	$ 2,020,668	$ 2,147,767
Gross profit	1,117,895	1,026,678	930,767	904,315	949,315
Selling, general and administrative expenses	536,724	524,940	492,398	474,156	500,719
Loss (gain) on sale of businesses - net	—	(9,273)	22,298	(18,070)	—
Restructuring expenses	12,083	8,455	3,674	11,239	13,672
Operating income	569,088	502,556	412,397	436,990	434,924
Other (income) expense - net	(3,985)	2,394	(1,731)	3,009	589
Interest expense	44,134	44,889	45,616	41,636	41,895
Provision for income taxes	118,366	118,016	97,403	109,538	113,054
Net income	410,573	337,257	271,109	282,807	279,386
Earnings per share: [2]					
— basic	$ 5.36	$ 4.41	$ 3.57	$ 3.65	$ 3.48
— diluted	$ 5.29	$ 4.36	$ 3.53	$ 3.62	$ 3.45
Weighted average shares outstanding:					
— basic	76,412	76,232	75,803	77,126	79,715
— diluted	77,563	77,333	76,758	77,972	80,728
Year-end shares outstanding	75,953	76,694	76,441	76,535	78,766
Cash dividends per share	$ 1.72	$ 1.48	$ 1.36	$ 1.28	$ 1.12
FINANCIAL POSITION					
Current assets	$ 1,092,532	$ 1,004,043	$ 822,721	$ 862,684	$ 1,075,791
Current liabilities	364,661	360,975	309,158	309,597	411,968
Current ratio	3.0	2.8	2.7	2.8	2.6
Operating working capital [3]	451,552	406,823	396,739	370,213	366,209
Total assets	$ 3,473,857	$ 3,399,628	$ 3,154,944	$ 2,805,443	$ 2,903,463
Total borrowings	848,818	859,046	1,015,281	840,794	859,345
Shareholders' equity	1,994,640	1,886,542	1,543,894	1,443,291	1,486,451
PERFORMANCE MEASURES AND OTHER DATA					
Percent of net sales:					
Gross profit	45.0%	44.9%	44.0%	44.8%	44.2%
Selling, general and administrative expenses	21.6%	23.0%	23.3%	23.5%	23.3%
Operating income	22.9%	22.0%	19.5%	21.6%	20.3%
Income before income taxes	21.3%	19.9%	17.4%	19.4%	18.3%
Net income	16.5%	14.7%	12.8%	14.0%	13.0%
Capital expenditures	$ 56,089	$ 43,858	$ 38,242	$ 43,776	$ 47,997
Depreciation and amortization	77,544	84,216	86,892	78,120	76,907
Return on average assets [4]	11.9%	10.3%	9.1%	9.9%	9.7%
Borrowings as a percent of capitalization [4]	29.9%	31.3%	39.7%	36.8%	36.6%
Return on average shareholders' equity [4]	21.2%	19.7%	18.2%	19.3%	18.3%
Employees at year end	7,352	7,167	7,158	6,801	6,712
NON-GAAP MEASURES [5]					
EBITDA	$ 650,617	$ 584,378	$ 501,020	$ 512,101	$ 511,242
EBITDA margin	26.2%	25.5%	23.7%	25.3%	23.8%
Adjusted EBITDA	$ 662,700	$ 583,560	$ 530,546	$ 505,270	$ 524,914
Adjusted EBITDA margin	26.7%	25.5%	25.1%	25.0%	24.4%
Adjusted operating income	$ 581,171	$ 501,738	$ 438,369	$ 430,159	$ 448,596
Adjusted operating margin	23.4%	21.9%	20.7%	21.3%	20.9%
Adjusted net income	$ 419,624	$ 333,667	$ 288,373	$ 277,229	$ 288,823
Adjusted earnings per share	$ 5.41	$ 4.31	$ 3.75	$ 3.55	$ 3.57

(1) For additional detail, see Notes to Consolidated Financial Statements in Part II, Item 8, "Financial Statements and Supplementary Data."

(2) Calculated by applying the two-class method of allocating earnings to common stock and participating securities as required by Accounting Standards Codification ("ASC") 260, *Earnings Per Share* .

(3) Operating working capital is defined as inventory plus accounts receivable minus accounts payable.

(4) Return on average assets is calculated as: Net income / (Current year Total assets + Prior year Total assets) / 2; Borrowings as a percent of capitalization is calculated as: (Long-term borrowings + Short-term borrowings) / (Long-term borrowings + Short-term borrowings + Total shareholders' equity); Return on average shareholders' equity is calculated as Net Income / (Current year Total shareholders' equity + Prior year Total shareholders' equity) / 2.

(5) Set forth below are reconciliations of Adjusted operating income, Adjusted net income, Adjusted EPS, EBITDA and Adjusted EBITDA to the comparable measures of net income and operating income, as determined in accordance with generally accepted accounting principles in the U.S. ("U.S. GAAP"). We have reconciled Adjusted operating income to Operating income; Adjusted net income to Net income; Adjusted EPS to EPS; consolidated EBITDA, segment EBITDA, adjusted EBITDA and adjusted segment EBITDA to net income. The reconciliation of segment EBITDA to net income was performed on a consolidated basis due to the fact that we do not allocate consolidated interest expense or the consolidated provision for income taxes to our segments.

Management uses Adjusted operating income, Adjusted net income and Adjusted EPS as metrics by which to measure performance of the Company since they exclude items that are not reflective of ongoing operations, such as gains/losses on the sale of businesses, restructuring expenses and pension settlements. Management also supplements its U.S. GAAP financial statements with adjusted information to provide investors with greater insight, transparency and a more comprehensive understanding of the information used by management in its financial and operational decision making.

EBITDA means earnings before interest, income taxes, depreciation and amortization. Given the acquisitive nature of the Company which results in a higher level of amortization expense from recently acquired businesses, management uses EBITDA as an internal operating metric to provide another representation of the businesses' performance across our three segments and for enterprise valuation purposes. EBITDA is also used to calculate certain financial covenants, as discussed in Note 6 of the Notes to Consolidated Financial Statements in Part II, Item 8, "Financial Statements and Supplementary Data." In addition, EBITDA has been adjusted for items that are not reflective of ongoing operations, such as gains/losses on the sale of businesses, restructuring expenses and pension settlements to arrive at Adjusted EBITDA. Management believes that Adjusted EBITDA is useful as a performance indicator of ongoing operations. We believe that Adjusted EBITDA is also useful to some investors as an indicator of the strength and performance of the Company and its segments' ongoing business operations and a way to evaluate and compare operating performance and value companies within our industry. The definition of Adjusted EBITDA used here may differ from that used by other companies.

Also set forth below is a reconciliation of the change in organic net sales to the comparable measure of net sales as determined in accordance with U.S. GAAP, which represents the year-over-year consistency in net sales after excluding the impact from acquisitions/divestitures and foreign currency translation.

The non-GAAP financial measures disclosed by the Company should not be considered a substitute for, or superior to, financial measures prepared in accordance with U.S. GAAP. The financial results prepared in accordance with U.S. GAAP and the reconciliations from these results should be carefully evaluated.

1. Reconciliations of Consolidated EBITDA

	For the Years Ended December 31,				
	2018	**2017**	**2016**	**2015**	**2014**
			(In thousands)		
Net income	$ 410,573	$ 337,257	$ 271,109	$ 282,807	$ 279,386
+ Provision for income taxes	118,366	118,016	97,403	109,538	113,054
+ Interest expense	44,134	44,889	45,616	41,636	41,895
+ Depreciation and amortization	77,544	84,216	86,892	78,120	76,907
EBITDA	**650,617**	**584,378**	**501,020**	**512,101**	**511,242**
+ Restructuring expenses	12,083	8,455	3,674	11,239	13,672
+ Loss (gain) on sale of businesses - net	—	(9,273)	22,298	(18,070)	—
+ Pension settlement	—	—	3,554	—	—
Adjusted EBITDA	**$ 662,700**	**$ 583,560**	**$ 530,546**	**$ 505,270**	**$ 524,914**
Net sales	$ 2,483,666	$ 2,287,312	$ 2,113,043	$ 2,020,668	$ 2,147,767
EBITDA margin	26.2%	25.5%	23.7%	25.3%	23.8%
Adjusted EBITDA margin	26.7%	25.5%	25.1%	25.0%	24.4%

2. Reconciliations of Segment EBITDA

	For the Years Ended December 31,								
	2018			**2017**			**2016**		
FMT	**HST**	**FSDP**	**FMT**	**HST**	**FSDP**	**FMT**	**HST**	**FSDP**
				(In thousands)				

EBITDA	$ 296,079	$ 246,810	$ 186,538	$ 263,610	$ 225,649	$ 159,610	$ 242,892	$ 200,980	$ 135,400
+ Restructuring expenses	2,458	5,904	2,184	3,374	4,696	255	932	1,117	1,425
+ Pension settlement	—	—	—	—	—	—	2,032	—	540
Adjusted EBITDA	**$ 298,537**	**$ 252,714**	**$ 188,722**	**$ 266,984**	**$ 230,345**	**$ 159,865**	**$ 245,856**	**$ 202,097**	**$ 137,365**
Net sales	$ 951,552	$ 896,419	$ 637,028	$ 880,957	$ 820,131	$ 587,533	$ 849,101	$ 744,809	$ 520,009
EBITDA margin	31.1%	27.5%	29.3%	29.9%	27.5%	27.2%	28.6%	27.0%	26.0%
Adjusted EBITDA margin	31.4%	28.2%	29.6%	30.3%	28.1%	27.2%	29.0%	27.1%	26.4%

3. Reconciliations of Consolidated Reported-to-Adjusted Operating Income and Margin

	For the Years Ended December 31,				
	2018	**2017**	**2016**	**2015**	**2014**
	(In thousands)				
Operating income	$ 569,088	$ 502,556	$ 412,397	$ 436,990	$ 434,924
+ Restructuring expenses	12,083	8,455	3,674	11,239	13,672
+ Loss (gain) on sale of businesses - net	—	(9,273)	22,298	(18,070)	—
Adjusted operating income	$ 581,171	$ 501,738	$ 438,369	$ 430,159	$ 448,596
Net sales	$ 2,483,666	$ 2,287,312	$ 2,113,043	$ 2,020,668	$ 2,147,767
Operating margin	22.9%	22.0%	19.5%	21.6%	20.3%
Adjusted operating margin	23.4%	21.9%	20.7%	21.3%	20.9%

4. Reconciliations of Segment Reported-to-Adjusted Operating Income and Margin

	For the Years Ended December 31,								
	2018			**2017**			**2016**		
	FMT	**HST**	**FSDP**	**FMT**	**HST**	**FSDP**	**FMT**	**HST**	**FSDP**
	(In thousands)								
Operating income	$ 275,060	$ 205,679	$ 168,601	$ 241,030	$ 179,567	$ 147,028	$ 217,500	$ 153,691	$ 123,605
+ Restructuring expenses	2,458	5,904	2,184	3,374	4,696	255	932	1,117	1,425
Adjusted operating income	$ 277,518	$ 211,583	$ 170,785	$ 244,404	$ 184,263	$ 147,283	$ 218,432	$ 154,808	$ 125,030
Net sales	$ 951,552	$ 896,419	$ 637,028	$ 880,957	$ 820,131	$ 587,533	$ 849,101	$ 744,809	$ 520,009
Operating margin	28.9%	22.9%	26.5%	27.4%	21.9%	25.0%	25.6%	20.6%	23.8%
Adjusted operating margin	29.2%	23.6%	26.8%	27.7%	22.5%	25.1%	25.7%	20.8%	24.0%

5. Reconciliations of Reported-to-Adjusted Net Income and EPS

	For the Years Ended December 31,				
	2018	**2017**	**2016**	**2015**	**2014**
	(In thousands)				
Net income	$ 410,573	$ 337,257	$ 271,109	$ 282,807	$ 279,386
+ Restructuring expenses	12,083	8,455	3,674	11,239	13,672
+ Tax impact on restructuring expenses	(3,032)	(2,772)	(1,299)	(3,586)	(4,235)
+ Loss (gain) on sale of businesses	—	(9,273)	22,298	(18,070)	—
+ Tax impact on loss (gain) on sale of businesses	—	—	(9,706)	4,839	—

+ Pension settlement	—	—	3,554	—	—
+ Tax impact on pension settlement	—	—	(1,257)	—	—
Adjusted net income	$ 419,624	$ 333,667	$ 288,373	$ 277,229	$ 288,823
EPS	$ 5.29	$ 4.36	$ 3.53	$ 3.62	$ 3.45
+ Restructuring expenses	0.16	0.11	0.05	0.14	0.17
+ Tax impact on restructuring expenses	(0.04)	(0.04)	(0.02)	(0.04)	(0.05)
+ Loss (gain) on sale of businesses	—	(0.12)	0.29	(0.23)	—
+ Tax impact on loss (gain) on sale of businesses	—	—	(0.13)	0.06	—
+ Pension settlement	—	—	0.05	—	—
+ Tax impact on pension settlement	—	—	(0.02)	—	—
Adjusted EPS	$ 5.41	$ 4.31	$ 3.75	$ 3.55	$ 3.57
Diluted weighted average shares	77,563	77,333	76,758	77,972	80,728

6. Reconciliations of EBITDA to Net Income (dollars in thousands)

	For the Year Ended December 31, 2018				
	FMT	**HST**	**FSDP**	**Corporate**	**IDEX**
Operating income (loss)	$ 275,060	$ 205,679	$ 168,601	$ (80,252)	$ 569,088
- Other (income) expense - net	1,351	(1,192)	(3,444)	(700)	(3,985)
+ Depreciation and amortization	22,370	39,939	14,493	742	77,544
EBITDA	296,079	246,810	186,538	(78,810)	650,617
- Interest expense					44,134
- Provision for income taxes					118,366
- Depreciation and amortization					77,544
Net income					$ 410,573
Net sales (eliminations)	$ 951,552	$ 896,419	$ 637,028	$ (1,333)	$ 2,483,666
Operating margin	28.9%	22.9%	26.5%	n/m	22.9%
EBITDA margin	31.1%	27.5%	29.3%	n/m	26.2%

	For the Year Ended December 31, 2017				
	FMT	**HST**	**FSDP**	**Corporate**	**IDEX**
Operating income (loss)	$ 241,030	$ 179,567	$ 147,028	$ (65,069)	$ 502,556
- Other (income) expense - net	1,007	(795)	1,959	223	2,394
+ Depreciation and amortization	23,587	45,287	14,541	801	84,216
EBITDA	263,610	225,649	159,610	(64,491)	584,378
- Interest expense					44,889
- Provision for income taxes					118,016
- Depreciation and amortization					84,216
Net income					$ 337,257
Net sales (eliminations)	$ 880,957	$ 820,131	$ 587,533	$ (1,309)	$ 2,287,312
Operating margin	27.4%	21.9%	25.0%	n/m	22.0%
EBITDA margin	29.9%	27.5%	27.2%	n/m	25.5%

	For the Year Ended December 31, 2016				
	FMT	**HST**	**FSDP**	**Corporate**	**IDEX**
Operating income (loss)	$ 217,500	$ 153,691	$ 123,605	$ (82,399)	$ 412,397
- Other (income) expense - net	3,066	(1,991)	161	(2,967)	(1,731)
+ Depreciation and amortization	28,458	45,298	11,956	1,180	86,892

EBITDA	242,892	200,980	135,400	(78,252)	501,020
- Interest expense					45,616
- Provision for income taxes					97,403
- Depreciation and amortization					86,892
Net income					$ 271,109
Net sales (eliminations)	$ 849,101	$ 744,809	$ 520,009	$ (876)	$ 2,113,043
Operating margin	25.6%	20.6%	23.8%	n/m	19.5%
EBITDA margin	28.6%	27.0%	26.0%	n/m	23.7%

7. Reconciliation of the Change in Net Sales to Net Organic Sales

	For the Year Ended December 31,											
	2018				2017				2016			
	FMT	HST	FSDP	IDEX	FMT	HST	FSDP	IDEX	FMT	HST	FSDP	IDEX
Change in net sales	8 %	9%	8%	9%	4 %	10 %	13%	8%	(1)%	1 %	23 %	5 %
- Net impact from acquisitions/divestitures	(2)%	2%	—%	—%	(2)%	3 %	9%	2%	1 %	3 %	27 %	7 %
- Impact from FX	1 %	1%	1%	1%	— %	(1)%	—%	—%	(1)%	(1)%	(1)%	(1)%
Change in organic net sales	9 %	6%	7%	8%	6 %	8 %	4%	6%	(1)%	(1)%	(3)%	(1)%

Refer to Management's Discussion and Analysis for definition and further discussion on organic sales.

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

2018 Overview and Outlook

IDEX is an applied solutions company specializing in the manufacture of fluid and metering technologies, health and science technologies and fire, safety and other diversified products built to customers' specifications. IDEX's products are sold in niche markets across a wide range of industries throughout the world. Accordingly, IDEX's businesses are affected by levels of industrial activity and economic conditions in the U.S. and in other countries where it does business and by the relationship of the U.S. dollar to other currencies. Levels of capacity utilization and capital spending in certain industries and overall industrial activity are important factors that influence the demand for IDEX's products.

The Company has three reportable business segments: Fluid & Metering Technologies, Health & Science Technologies and Fire & Safety/Diversified Products. Within our three reportable segments, the Company maintains 13 platforms, where we focus on organic growth and strategic acquisitions. Each of our 13 platforms is also a reporting unit that we annually test goodwill for impairment.

The Fluid & Metering Technologies segment designs, produces and distributes positive displacement pumps, flow meters, injectors and other fluid-handling pump modules and systems and provides flow monitoring and other services for the food, chemical, general industrial, water and wastewater, agriculture and energy industries. The Fluid & Metering Technologies segment contains the Energy platform (comprised of Corken, Liquid Controls, SAMPI and Toptech), the Valves platform (comprised of Alfa Valvole, Richter and Aegis), the Water platform (comprised of Pulsafeeder, OBL, Knight, ADS, Trebor and iPEK), the Pumps platform (comprised of Viking and Warren Rupp) and the Agriculture platform (comprised of Banjo).

The Health & Science Technologies segment designs, produces and distributes a wide range of precision fluidics, rotary lobe pumps, centrifugal and positive displacement pumps, roll compaction and drying systems used in beverage, food processing, pharmaceutical and cosmetics, pneumatic components and sealing solutions, including very high precision, low-flow rate pumping solutions required in analytical instrumentation, clinical diagnostics and drug discovery, high performance molded and extruded sealing components, biocompatible medical devices and implantables, air compressors used in medical, dental and industrial applications, optical components and coatings for applications in the fields of scientific research, defense, biotechnology, aerospace, telecommunications and electronics manufacturing, laboratory and commercial equipment used in the production of micro and nano scale materials, precision photonic solutions used in life sciences, research and defense markets and precision gear and peristaltic pump technologies that meet exacting original equipment manufacturer specifications. The Health & Science Technologies segment contains the Scientific Fluidics & Optics platform (comprised of Eastern Plastics, Rheodyne, Sapphire Engineering, Upchurch Scientific, ERC, CiDRA Precision Services, thinXXS, CVI Melles Griot, Semrock, AT Films and FLI), the Sealing Solutions platform (comprised of Precision Polymer Engineering, FTL Seals Technology, Novotema and SFC Koenig) the Gast platform, the Micropump platform and the Material Processing Technologies platform (comprised of Quadro, Fitzpatrick, Microfluidics and Matcon).

The Fire & Safety/Diversified Products segment designs, produces and develops firefighting pumps, valves and controls, rescue tools, lifting bags and other components and systems for the fire and rescue industry, engineered stainless steel banding and clamping devices used in a variety of industrial and commercial applications and precision equipment for dispensing, metering, and mixing colorants and paints used in a variety of retail and commercial businesses around the world. The Fire & Safety/Diversified Products segment is comprised of the Fire & Safety platform (comprised of Class 1, Hale, Akron Brass, AWG Fittings, Godiva, Dinglee, Hurst Jaws of Life, Lukas and Vetter), the Band-It platform and the Dispensing platform.

Our 2018 financial results were as follows:

- Sales of $2.5 billion increased 9% , reflecting an 8% increase in organic sales and a 1% increase due to foreign currency translation.
- Operating income of $569.1 million was up 13% and operating margin of 22.9% was up 90 basis points from the prior year.
- Net income increased 22% to $410.6 million .
- Diluted EPS of $5.29 increased $0.93 , or 21% , compared to 2017 .

Our 2018 financial results, adjusted for $12.1 million of restructuring expense, compared to our 2017 financial results, adjusted for $8.5 million of restructuring expense and a $9.3 million gain on sale of a business, were as follows (these non-GAAP measures have been reconciled to U.S. GAAP measures in Item 6, "Selected Financial Data"):

- Adjusted operating income of $581.2 million was up 16% and adjusted operating margin of 23.4% was up 150 basis points from the prior year.
- Adjusted net income increased 26% to $419.6 million .
- Adjusted EPS of $5.41 was 26% higher than prior year adjusted EPS of $4.31 .

Although trade tensions persist and the geopolitical environment remains uncertain, we are confident in our outlook given our market leading positions in our diversified portfolio and our track record of strong execution in volatile times. Consistent with our long-term strategic objective to grow faster than underlying market growth, we are projecting 4 to 5 percent organic revenue growth in 2019 and full year 2019 EPS is expected to be in the range of $5.60 to $5.80.

Results of Operations

The following is a discussion and analysis of our results of operations for each of the three years in the period ended December 31, 2018 . For purposes of this Item, reference is made to the Consolidated Statements of Operations in Part II, Item 8, “Financial Statements and Supplementary Data.” Segment operating income excludes unallocated corporate operating expenses. Management’s primary measurements of segment performance are sales, operating income and operating margin.

In the following discussion, and throughout this report, references to organic sales, a non-GAAP measure, refers to sales from continuing operations calculated according to generally accepted accounting principles in the United States but excludes (1) the impact of foreign currency translation and (2) sales from acquired or divested businesses during the first twelve months of ownership or divestiture. The portion of sales attributable to foreign currency translation is calculated as the difference between (a) the period-to-period change in organic sales and (b) the period-to-period change in organic sales after applying prior period foreign exchange rates to the current year period. Management believes that reporting organic sales provides useful information to investors by helping identify underlying growth trends in our business and facilitating easier comparisons of our revenue performance with prior and future periods and to our peers. The Company excludes the effect of foreign currency translation from organic sales because foreign currency translation is not under management’s control, is subject to volatility and can obscure underlying business trends. The Company excludes the effect of acquisitions and divestitures because they can obscure underlying business trends and make comparisons of long-term performance difficult due to the varying nature, size and number of transactions from period to period and between the Company and its peers.

Performance in 2018 Compared with 2017

(In thousands)	2018	2017	Change	
Net sales	$ 2,483,666	$ 2,287,312	9%	
Operating income	569,088	502,556	13%	
Operating margin	22.9%	22.0%	90	bps

Sales in 2018 were $2.5 billion , a 9% increase from last year. This increase reflects an 8% increase in organic sales and a 1% favorable impact from foreign currency translation. Sales to customers outside the U.S. represented approximately 51% of total sales in 2018 compared with 49% in 2017 .

In 2018 , Fluid & Metering Technologies contributed 38% of sales and 42% of total segment operating income; Health & Science Technologies contributed 36% of sales and 32% of total segment operating income; and Fire & Safety/Diversified Products contributed 26% of sales and 26% of total segment operating income.

Gross profit of $1.1 billion in 2018 increased $91.2 million , or 9% , from 2017 , while gross margin increased 10 basis points to 45.0 % in 2018 from 44.9% in 2017 . The increase in gross profit and margin is primarily a result of productivity initiatives and volume leverage, partially offset by higher engineering costs.

Selling, general and administrative (“SG&A”) expenses increased to $536.7 million in 2018 from $524.9 million in 2017 . The $11.8 million increase is mainly attributable to a stamp duty tax in Switzerland associated with the restructuring of intercompany loans and higher stock compensation. As a percentage of sales, SG&A expenses were 21.6% for 2018 and 23.0% for 2017 .

In 2017, the Company divested its Faure Herman business for a pre-tax gain of $9.3 million.

In 2018 and 2017 , the Company incurred pre-tax restructuring expenses totaling $12.1 million and $8.5 million , respectively, as part of initiatives that support the implementation of key strategic efforts designed to facilitate long-term, sustainable growth through cost reduction actions primarily consisting of employee reductions and facility rationalization.

Operating income of $569.1 million in 2018 increased from $502.6 million in 2017 , primarily due to volume leverage, partially offset by the gain on the sale of a business in 2017 and higher restructuring costs in 2018. Operating margin of 22.9% in 2018 was up 90 basis points from 22.0% in 2017 primarily due to higher volume and productivity initiatives, partially offset by the gain on the sale of a business in 2017 and higher restructuring costs in 2018.

Other (income) expense - net changed by $6.4 million , from expense of $2.4 million in 2017 to income of $4.0 million in 2018 mainly due to a foreign currency transaction gain on intercompany loans in 2018.

Interest expense decreased to $44.1 million in 2018 from $44.9 million in 2017 . The decrease was primarily due to slightly lower borrowings on the revolving credit facility during 2018 compared to 2017.

The provision for income taxes is based upon estimated annual tax rates for the year applied to federal, state and foreign income. The provision for income taxes increased to $118.4 million in 2018 compared to $118.0 million in 2017 . The effective tax rate decreased to 22.4% in 2018 compared to 25.9% in 2017 due to the enactment of the Tax Cuts and Jobs Act (the “Tax Act”), including the one-time Transition Tax incurred in 2017 on the mandatory deemed repatriation of foreign earnings, the 14% decrease in the U.S. statutory income tax rate and the introduction of the Foreign-Derived Intangible Income (“FDII”) deduction, as well as the excess tax benefits related to share-based compensation. These amounts were offset by the removal of the domestic production activities deduction, the new Global Intangible Low-Taxed Income (“GILTI”) provision, increased limitation on the deductibility of executive compensation and the mix of global pre-tax income among jurisdictions.

Net income for the year of $410.6 million increased from $337.3 million in 2017 . Diluted earnings per share in 2018 of $5.29 increased $0.93 from $4.36 in 2017 .

Fluid & Metering Technologies Segment

(In thousands)	2018	2017	Change	
Net sales	$ 951,552	$ 880,957	8%	
Operating income	275,060	241,030	14%	
Operating margin	28.9%	27.4%	150	bps

Sales of $951.6 million increased $70.6 million , or 8% , in 2018 compared with 2017 . This increase reflected a 9% increase in organic sales and a 1% favorable impact from foreign currency translation, partially offset by a 2 % decline from a divestiture (Faure Herman - October 2017). In 2018 , sales were up 5% domestically and 12% internationally. Sales to customers outside the U.S. were approximately 43% of total segment sales in 2018 compared with 42% in 2017 .

Sales within our Pumps platform increased compared to 2017 due to strength in the North American industrial distribution market as well as strength in the oil and gas end market and lease automated custody transfer (“LACT”) products. Sales within the Water platform increased compared to 2017 due to strong international sales and increased project demand. Sales within our Agriculture platform increased year over year due to broad based demand across both OEM and distribution channels in North America and Europe. Sales within the Valves platform increased over 2017 primarily due to strong demand within the chemical end market in Europe and Asia. Sales within our Energy platform decreased slightly compared to 2017 primarily as a result of the divestiture of our Faure Herman business in October 2017, partially offset by strong truck builds and project gains in the LPG end market.

Operating income and operating margin of $275.1 million and 28.9% , respectively, were higher than the $241.0 million and 27.4% , respectively, recorded in 2017 , primarily due to higher volume and productivity initiatives, partially offset by higher restructuring expenses in 2018 and the divestiture in 2017.

Health & Science Technologies Segment

(In thousands)	2018	2017	Change	
Net sales	$ 896,419	$ 820,131	9%	
Operating income	205,679	179,567	15%	
Operating margin	22.9%	21.9%	100	bps

Sales of $896.4 million increased $76.3 million , or 9% , in 2018 compared with 2017 . This increase reflected a 6% increase in organic sales, a 2% increase from acquisitions (FLI - July 2018 and thinXXS - December 2017) and a 1% favorable impact

from foreign currency translation. In 2018 , sales increased 7% domestically and 11% internationally. Sales to customers outside the U.S. were approximately 56% of total segment sales in 2018 and 55% in 2017 .

Sales within our Scientific Fluidics & Optics platform increased compared to 2017 due to new product introductions, market share gains, strong demand across our end markets, including IVD, biotechnology, semiconductor and defense and the Finger Lakes Instrumentation and thinXXS acquisitions. Sales within our Material Processing Technologies platform increased compared to 2017 primarily due to the timing of several large projects in 2018 and continued demand within the pharmaceutical end market in Asia, partially offset by the impact of strategic changes in product focus which resulted in discontinued product offerings in 2017 . Sales within our Sealing Solutions platform increased compared to 2017 due to the extremely strong global demand in the semiconductor end market and strength in the energy, automotive and industrial end markets. Sales in our Gast platform increased compared to 2017 primarily due to the impact of OEM tailwinds and higher distribution volume as well as new product introductions. Sales within our Micropump platform increased compared to 2017 due to increasing demand in the printing end market.

Operating income and operating margin of $205.7 million and 22.9% , respectively, in 2018 were up from $179.6 million and 21.9% , respectively, in 2017 , primarily due to higher volume and productivity initiatives, partially offset by higher restructuring expenses in the current year related to site consolidations.

Fire & Safety/Diversified Products Segment

(In thousands)	2018	2017	Change	
Net sales	$ 637,028	$ 587,533	8%	
Operating income	168,601	147,028	15%	
Operating margin	26.5%	25.0%	150	bps

Sales of $637.0 million increased $49.5 million , or 8% , in 2018 compared with 2017 . This increase reflected a 7% increase in organic sales and a 1% favorable impact from foreign currency translation. In 2018 , sales increased 6% domestically and 11% internationally. Sales to customers outside the U.S. were approximately 53% of total segment sales in 2018 compared with 52% in 2017 .

Sales within our Dispensing platform increased compared to 2017 due to strong global demand led by the U.S. and Asia. Sales increased in our Band-It platform compared to 2017 due to market share gain across all global regions, strength in the energy, automotive and industrial end markets and several large project gains. Sales within our Fire & Safety platform increased compared to 2017 primarily due to OEM and distribution strength as well as strong demand for rescue tools across all geographies.

Operating income of $168.6 million and operating margin of 26.5% , respectively, were higher than the $147.0 million and 25.0% , respectively, in 2017 , primarily due to increased volume and productivity initiatives, partially offset by higher restructuring expenses in 2018.

Performance in 2017 Compared with 2016

(In thousands)	2017	2016	Change	
Net sales	$ 2,287,312	$ 2,113,043	8%	
Operating income	502,556	412,397	22%	
Operating margin	22.0%	19.5%	250	bps

Sales in 2017 were $2.3 billion, an 8% increase from 2016. This increase reflects a 6% increase in organic sales and a 2% increase from acquisitions/divestitures (Acquisitions: thinXXS - December 2017; SFC Koenig - September 2016; AWG Fittings - July 2016 and Akron Brass - March 2016 / Divestitures: Faure Herman - October 2017; CVI Korea - December 2016; IETG - October 2016; CVI Japan - September 2016 and Hydra-Stop - July 2016). Sales to customers outside the U.S. represented approximately 49% of total sales in 2017 compared with 50% in 2016.

In 2017, Fluid & Metering Technologies contributed 38% of sales and 42% of total segment operating income; Health & Science Technologies contributed 36% of sales and 32% of total segment operating income; and Fire & Safety/Diversified Products contributed 26% of sales and 26% of total segment operating income.

Gross profit of $1.0 billion in 2017 increased $95.9 million, or 10%, from 2016, while gross margin increased 90 basis points to 44.9% in 2017 from 44.0% in 2016. The increase in gross profit and margin is primarily a result of increased sales volume and the dilutive impact in the prior year attributable to $14.7 million of fair value inventory step-up charges from 2016 acquisitions.

SG&A expenses increased to $524.9 million in 2017 from $492.4 million in 2016. The $32.5 million increase is mainly attributable to $15.2 million of net incremental impact from acquisitions and divestitures as well as higher variable compensation and stock compensation expense. As a percentage of sales, SG&A expenses were 23.0% for 2017 and 23.3% for 2016.

In 2017, the Company divested its Faure Herman business for a pre-tax gain of $9.3 million. In 2016, the Company divested four businesses during the year (Hydra-Stop - July 2016; CVI Japan - September 2016; IETG - October 2016; and CVI Korea - December 2016) for a pre-tax loss-net of $22.3 million.

In 2017 and 2016, the Company incurred pre-tax restructuring expenses totaling $8.5 million and $3.7 million, respectively, as part of initiatives that support the implementation of key strategic efforts designed to facilitate long-term, sustainable growth through cost reduction actions primarily consisting of employee reductions and facility rationalization.

Operating income of $502.6 million in 2017 increased from $412.4 million in 2016, primarily due to a gain on a divestiture in 2017 compared to a net loss on four divestitures in 2016, higher sales volume and the $14.7 million of fair value inventory step- up charges from 2016 acquisitions, partially offset by higher restructuring costs in 2017 and overall higher SG&A costs in 2017 due to higher variable and share-based compensation as well as outside consulting costs. Operating margin of 22.0% in 2017 was up 250 basis points from 19.5% in 2016 primarily due to the gain on the sale of a business in 2017 compared to a net loss on the sale of businesses in 2016, the dilutive impact in the prior year due to $14.7 million of fair value inventory step-up charges from 2016 acquisitions, as well as higher volume and productivity initiatives.

Other (income) expense - net changed by $4.1 million, from income of $1.7 million in 2016 to expense of $2.4 million in 2017 mainly due to a $4.7 million foreign exchange gain on intercompany loans in the prior year that did not repeat in 2017 due to the fact that the Company entered into foreign currency exchange contracts to minimize the earnings impact associated with these intercompany loans.

Interest expense decreased to $44.9 million in 2017 from $45.6 million in 2016. The decrease was primarily due to slightly lower borrowings in 2017 compared with 2016.

The provision for income taxes is based upon estimated annual tax rates for the year applied to federal, state and foreign income. The provision for income taxes increased to $118.0 million in 2017 compared to $97.4 million in 2016. The effective tax rate decreased to 25.9% in 2017 compared to 26.4% in 2016 due to the enactment of the Tax Cuts and Jobs Act (the “Tax Act”), a change in the permanent reinvestment assertion related to certain foreign subsidiaries as well as the incurrence of certain foreign income withholding taxes in the prior year. These amounts were offset by the prior year tax benefits on the divestitures of CVI Korea and CVI Japan, certain return-to-provision adjustments, a partial change in the assertion of permanent reinvestment of certain foreign earnings, as well as the mix of global pre-tax income among jurisdictions.

Net income for the year of $337.3 million increased from $271.1 million in 2016. Diluted earnings per share in 2017 of $4.36 increased $0.83 from $3.53 in 2016.

Fluid & Metering Technologies Segment

(In thousands)	2017	2016	Change	
Net sales	$ 880,957	$ 849,101	4%	
Operating income	241,030	217,500	11%	
Operating margin	27.4%	25.6%	180	bps

Sales of $881.0 million increased $31.9 million, or 4%, in 2017 compared with 2016. This increase reflected a 6% increase in organic sales and a 2% decline from divestitures (Faure Herman - October 2017; IETG - October 2016; and Hydra-Stop - July 2016). In 2017, sales were up 7% domestically and down 1% internationally. Sales to customers outside the U.S. were approximately 42% of total segment sales in 2017 compared with 44% in 2016.

Sales within our Energy platform decreased compared to 2016 primarily due to the impact of the 2017 divestiture as well as a large, non-recurring project in 2016 and weakness in the midstream oil and gas markets, partially offset by continued strength within the aviation market, increased market share in LPG mobile and increasing truck builds. Sales within our Pumps platform

increased compared to 2016 due to strength in the upstream oil market and the improving economy as well as a strong U.S. distribution channel. Sales within the Water platform decreased slightly compared to 2016 primarily due to the Hydra-Stop and IETG divestitures, partially offset by increased municipal spending and share gain from new product development. Sales within our Agriculture platform increased year over year due to increased demand across both OEM and distribution channels as well as pre-season order strength in the fourth quarter of 2017. Sales within the Valves platform increased over 2016 as a result of strong global industrial markets as well as an uptick in chemical markets.

Operating income and operating margin of $241.0 million and 27.4%, respectively, were higher than the $217.5 million and 25.6%, respectively, recorded in 2016, primarily due to productivity initiatives and higher volume.

Health & Science Technologies Segment

(In thousands)	2017	2016	Change	
Net sales	$ 820,131	$ 744,809	10%	
Operating income (loss)	179,567	153,691	17%	
Operating margin	21.9%	20.6%	130	bps

Sales of $820.1 million increased $75.3 million, or 10%, in 2017 compared with 2016. This increase reflected an 8% increase in organic sales, a 3% increase from acquisitions / divestitures (Acquisitions: thinXXS - December 2017 and SFC Koenig - September 2016 / Divestitures: CVI Korea - December 2016 and CVI Japan - September 2016) and 1% of favorable foreign currency translation. In 2017, sales increased 10% both domestically and internationally. Sales to customers outside the U.S. were approximately 55% of total segment sales in both 2017 and 2016.

Sales within our Scientific Fluidics & Optics platform increased compared to 2016 due to strong demand in all primary end markets, including analytical instrumentation, in-vitro diagnostics and biotechnology, DNA sequencing and semiconductor, partially offset by the impact of the CVI Japan and CVI Korea divestitures in 2016. Sales within our Material Processing Technologies platform were relatively flat compared to the prior year primarily due to the impact of strategic changes in product focus which resulted in discontinued products, offset by global strength in the food and pharma end markets and a strong project funnel. Sales within our Sealing Solutions platform increased significantly compared to 2016 due to the full year impact of the SFC Koenig acquisition in 2016 as well as strength in the semiconductor market and an uptick in the oil and gas, mining and automotive markets. Sales in our Gast platform remained relatively flat year over year primarily due to the impact of OEM headwinds during the first half of 2017 offset by increasing demand in industrial and dental markets. Sales within our Micropump platform increased year over year due to solid demand in the North American industrial markets.

Operating income and operating margin of $179.6 million and 21.9%, respectively, in 2017 were up from $153.7 million and 20.6%, respectively, in 2016, primarily due to higher volume and the dilutive impact of the inventory step-up charge related to the SFC Koenig acquisition in the prior year, partially offset by higher restructuring expenses in 2017, costs associated with site consolidations within the Material Processing Technologies and the Scientific Fluidics & Optics platforms as well as additional engineering investments and operational challenges as a result of the strong growth within the segment.

Fire & Safety/Diversified Products Segment

(In thousands)	2017	2016	Change	
Net sales	$ 587,533	$ 520,009	13%	
Operating income	147,028	123,605	19%	
Operating margin	25.0%	23.8%	120	bps

Sales of $587.5 million increased $67.5 million , or 13.0% , in 2017 compared with 2016 . This increase reflected a 4% increase in organic sales and a 9% decline due to acquisitions (AWG Fittings - July 2016 and Akron Brass - March 2016). In 2017, sales increased 9% domestically and 17% internationally. Sales to customers outside the U.S. were approximately 52% of total segment sales in 2017 compared with 51% in 2016.

Sales within our Dispensing platform decreased slightly compared to 2016 due to declining markets in Latin America and U.S. retail, partially offset by growing strength in Europe and Asia. Sales increased in our Band-It platform compared to the prior year as a result of rebounding energy markets as well as strength across the transportation and industrial markets and increasing demand in Asia and Latin America. Sales within our Fire & Safety platform increased significantly compared to 2016 primarily due to the full year impact of the prior year acquisitions as well as strength in municipal and North American OEM markets.

Operating income of $147.0 million and operating margin of 25.0% were higher than the $123.6 million and 23.8%, respectively, in 2016, primarily due to higher volume and productivity, as well as the full year impact of the Akron Brass and AWG Fittings acquisitions on 2017 financial results and the inclusion of $7.5 million of fair value inventory step-up charges related to the acquisitions in the prior year period.

Liquidity and Capital Resources

Operating Activities

Cash flows from operating activities increased $46.6 million , or 11% , to $479.3 million in 2018 , primarily due to higher net income in 2018 , partially offset by investments in working capital to support long-term growth. At December 31, 2018 , working capital was $727.9 million and the Company's current ratio was 3.0 to 1. At December 31, 2018 , the Company's cash and cash equivalents totaled $466.4 million , of which $326.5 million was held outside of the United States.

Investing Activities

Cash flows used in investing activities increased $26.7 million to $81.4 million in 2018 , primarily due to $12.2 million of higher capital expenditures in 2018, $4.0 million spent on the purchase of intellectual property assets from Phantom Controls, Inc. ("Phantom"), $5.6 million of lower proceeds from the disposal of fixed assets in 2018, $21.8 million of proceeds from the sale of a business in 2017 which did not reoccur in 2018 and lower spending of $18.0 million on acquisitions in 2018 compared to 2017.

Cash flows from operations were more than adequate to fund capital expenditures of $56.1 million and $43.9 million in 2018 and 2017 , respectively. Capital expenditures were generally for machinery and equipment that supported growth, improved productivity, tooling, business system technology, replacement of equipment and investments in new facilities. Management believes that the Company has ample capacity in its plants and equipment to meet demand increases for future growth in the intermediate term.

Financing Activities

Cash flows used in financing activities increased $12.6 million to $290.0 million in 2018 , primarily due to $16.3 of higher dividend payments and $144.9 million of higher purchases of common stock, partially offset by $156.3 million of lower repayments under the revolving credit facility (net of borrowings).

On June 13, 2016, the Company completed a private placement of a $100 million aggregate principal amount of 3.20% Senior Notes due June 13, 2023 and a $100 million aggregate principal amount of 3.37% Senior Notes due June 13, 2025 (collectively, the "Notes") pursuant to a Note Purchase Agreement, dated June 13, 2016 (the "Purchase Agreement"). Each series of Notes bears interest at the stated amount per annum, which is payable semi-annually in arrears on each June 13 th and December 13 th . The Notes are unsecured obligations of the Company and rank pari passu in right of payment with all of the Company's other unsecured, unsubordinated debt. The Company may at any time prepay all, or any portion of the Notes; provided that such portion is greater than 5% of the aggregate principal amount of the Notes then outstanding. In the event of a prepayment, the Company will pay an amount equal to par plus accrued interest plus a make-whole amount. In addition, the Company may repurchase the Notes by making an offer to all holders of the Notes, subject to certain conditions.

The Company maintains a revolving credit facility (the "Revolving Facility"), which is a $700.0 million unsecured, multi-currency bank credit facility expiring on June 23, 2020. At December 31, 2018 , there was no balance outstanding under the Revolving Facility and $8.8 million of outstanding letters of credit, resulting in a net available borrowing capacity under the Revolving Facility at December 31, 2018 of $691.2 million . Borrowings under the Revolving Facility bear interest, at either an alternate base rate or an adjusted LIBOR rate plus, in each case, an applicable margin. This applicable margin is based on the Company's senior, unsecured, long-term debt rating and can range from .005% to 1.50% . Based on the Company's credit rating at December 31, 2018 , the applicable margin was 1.10% . Interest is payable (a) in the case of base rate loans, quarterly, and (b) in the case of LIBOR rate loans, on the maturity date of the borrowing, or quarterly from the effective date for borrowings exceeding three months. The Company may request increases in the lending commitments under the Credit Agreement, but the aggregate lending commitments pursuant to such increases may not exceed $350.0 million. An annual Revolving Facility fee, also based on the Company's credit rating, is currently 15 basis points and is payable quarterly.

On December 9, 2011, the Company completed a public offering of $350.0 million 4.2% senior notes due December 15, 2021 ("4.2% Senior Notes"). The net proceeds from the offering of $346.2 million, after deducting a $0.9 million issuance discount, a $2.3 million underwriting commission and $0.6 million of offering expenses, were used to repay $306.0 million of outstanding bank indebtedness, with the balance used for general corporate purposes. The 4.2% Senior Notes bear interest at a rate of 4.2% per

annum, which is payable semi-annually in arrears on each June 15 and December 15. The Company may redeem all or part of the 4.2% Senior Notes at any time prior to maturity at the redemption prices set forth in the Note Indenture governing the 4.2% Senior Notes. The Company may issue additional debt from time to time pursuant to the Indenture. The Indenture and 4.2% Senior Notes contain covenants that limit the Company's ability to, among other things, incur certain liens securing indebtedness, engage in certain sale-leaseback transactions, and enter into certain consolidations, mergers, conveyances, transfers or leases of all or substantially all of the Company's assets. The terms of the 4.2% Senior Notes also require the Company to make an offer to repurchase the 4.2% Senior Notes upon a change of control triggering event (as defined in the Indenture) at a price equal to 101% of their principal amount plus accrued and unpaid interest, if any.

On December 6, 2010, the Company completed a public offering of $300.0 million 4.5% senior notes due December 15, 2020 ("4.5% Senior Notes"). The net proceeds from the offering of $295.7 million, after deducting a $1.6 million issuance discount, a $1.9 million underwriting commission and $0.8 million of offering expenses, were used to repay $250.0 million of outstanding bank indebtedness, with the balance used for general corporate purposes. The 4.5% Senior Notes bear interest at a rate of 4.5% per annum, which is payable semi-annually in arrears on each June 15 and December 15. The Company may redeem all or a portion of the 4.5% Senior Notes at any time prior to maturity at the redemption prices set forth in the Note Indenture governing the 4.5% Senior Notes. The Company may issue additional debt from time to time pursuant to the Indenture. The Indenture and 4.5% Senior Notes contain covenants that limit the Company's ability to, among other things, incur certain liens securing indebtedness, engage in certain sale-leaseback transactions, and enter into certain consolidations, mergers, conveyances, transfers or leases of all or substantially all of the Company's assets. The terms of the 4.5% Senior Notes also require the Company to make an offer to repurchase the 4.5% Senior Notes upon a change of control triggering event (as defined in the Indenture) at a price equal to 101% of their principal amount plus accrued and unpaid interest, if any.

There are two key financial covenants that the Company is required to maintain in connection with the Revolving Facility and the Notes, a minimum interest coverage ratio of 3.0 to 1 and a maximum leverage ratio of 3.50 to 1 . At December 31, 2018 , the Company was in compliance with both of these financial covenants, as the Company's interest coverage ratio was 15.65 to 1 and the leverage ratio was 1.27 to 1. There are no financial covenants relating to the 4.5% Senior Notes or 4.2% Senior Notes; however, both are subject to cross-default provisions.

On December 1, 2015 the Company's Board of Directors approved an increase of $300.0 million in the authorized level for repurchases of common stock. This followed the prior Board of Directors approved repurchase authorization of $400.0 million that was announced by the Company on November 6, 2014. Repurchases under the program will be funded with future cash flow generation or borrowings available under the Revolving Facility. During 2018 , the Company purchased a total of 1.3 million shares at a cost of $173.9 million compared to 0.3 million shares purchased in 2017 at a cost of $29.1 million . As of December 31, 2018 , the amount of share repurchase authorization remaining is $377.0 million .

The Company believes current cash, cash from operations and cash available under the Revolving Facility will be sufficient to meet its operating cash requirements, planned capital expenditures, interest and principal payments on all borrowings, pension and postretirement funding requirements, authorized share repurchases and annual dividend payments to holders of the Company's common stock for the next twelve months. Additionally, in the event that suitable businesses are available for acquisition upon acceptable terms, the Company may obtain all or a portion of the financing for these acquisitions through the incurrence of additional borrowings. As of December 31, 2018 , there was no balance outstanding under the Revolving Facility and $8.8 million of outstanding letters of credit, resulting in a net available borrowing capacity under the Revolving Facility at December 31, 2018 of approximately $691.2 million .

Contractual Obligations

Our contractual obligations include pension and postretirement medical benefit plans, rental payments under operating leases, payments under capital leases and other long-term obligations arising in the ordinary course of business. There are no identifiable events or uncertainties, including the lowering of our credit rating, which would accelerate payment or maturity of any of these commitments or obligations.

The following table summarizes our significant contractual obligations and commercial commitments at December 31, 2018 and the future periods in which such obligations are expected to be settled in cash. In addition, the table reflects the timing of principal and interest payments on outstanding borrowings. Additional detail regarding these obligations is provided in the Notes to Consolidated Financial Statements in Part II, Item 8, "Financial Statements and Supplementary Data."

Payments Due by Period	Total	Less Than 1 Year	1-3 Years	3-5 Years	More Than 5 Years
			(In thousands)		
Borrowings [1]	$ 944,398	$ 35,265	$ 692,538	$ 111,540	$ 105,055
Lease obligations	85,359	17,509	23,678	14,514	29,658
Purchase obligations [2]	136,040	133,311	2,688	41	—
Repatriation tax payable	17,127	—	—	5,217	11,910
Pension and post-retirement obligations	110,436	11,357	22,831	21,937	54,311
Total contractual obligations [3]	$ 1,293,360	$ 197,442	$ 741,735	$ 153,249	$ 200,934

(1) Includes interest payments based on contractual terms and current interest rates for variable debt.
(2) Consists primarily of inventory commitments.
(3) Comprises liabilities recorded on the balance sheet of $955.1 million and obligations not recorded on the balance sheet of $345.5 million.

Critical Accounting Policies

We believe that the application of the following accounting policies, which are important to our financial position and results of operations, require significant judgments and estimates on the part of management. For a summary of all of our accounting policies, including the accounting policies discussed below, see Note 1 of the Notes to Consolidated Financial Statements in Part II, Item 8, "Financial Statements and Supplementary Data."

Revenue recognition — Revenue is recognized when control of the promised products or services is transferred to our customers in an amount that reflects the consideration we expect to be entitled to in exchange for transferring those products or providing those services. A performance obligation is a promise in a contract to transfer a distinct product or service to the customer. A contract's transaction price is allocated to each distinct performance obligation and recognized as revenue when, or as, the performance obligation is satisfied. Our performance obligations are satisfied at a point in time or over time as work progresses. Revenue from products and services transferred to customers at a point in time is recognized when obligations under the terms of the contract with our customer are satisfied. Generally, this occurs with the transfer of control of the asset, which is in line with shipping terms. Certain units recognize revenue over time because control transfers continuously to our customers. Revenue is recognized over time as work is performed based on the relationship between actual costs incurred to date for each contract and the total estimated costs for such contract at completion of the performance obligation (i.e. the cost-to-cost method) or is recognized ratably over the contract term. As a significant change in one or more of these estimates could affect the profitability of our contracts, we review and update our estimates regularly. Due to uncertainties inherent in the estimation process, it is reasonably possible that completion costs will be revised. Such revisions to costs and income are recognized in the period in which the revisions are determined as a cumulative catch-up adjustment. The impact of the adjustment on profit recorded to date on a contract is recognized in the period the adjustment is identified. If at any time the estimate of contract profitability indicates an anticipated loss on the contract, we recognize provisions for estimated losses on uncompleted contracts in the period in which such losses are determined.

The Company records allowances for discounts, product returns and customer incentives at the time of sale as a reduction of revenue as such allowances can be reliably estimated based on historical experience and known trends. The Company also offers product warranties (primarily assurance-type) and accrues its estimated exposure for warranty claims at the time of sale based upon the length of the warranty period, warranty costs incurred and any other related information known to the Company.

Goodwill, long-lived and intangible assets — The Company evaluates the recoverability of certain noncurrent assets utilizing various estimation processes. An impairment of a long-lived asset exists when the asset's carrying amount exceeds its fair value and is recorded when the carrying amount is not recoverable through future operations. An impairment of an indefinite-lived intangible asset or goodwill exists when the carrying amount of the intangible asset or goodwill exceeds its fair value. Assessments of possible impairments of long-lived or indefinite-lived intangible assets or goodwill are made if an event occurs or circumstances change that would more likely than not reduce the fair value of a reporting unit below its carrying amount. Additionally, testing for possible impairments of recorded indefinite-lived intangible asset balances and goodwill is performed annually. On October 31, or more frequently if triggering events occur, the Company compares the fair value of each reporting unit to the carrying amount of each reporting unit to determine if a goodwill impairment exists. The amount and timing of impairment charges for these assets require the estimation of future cash flows to determine the fair value of the related assets. In 2018 and 2017 , the Company concluded that there were no long-lived assets with a fair value that was less than the carrying value.

The Company's business acquisitions result in recording goodwill and other intangible assets, which affect the amount of amortization expense and possible impairment expense that the Company will incur in future periods. The Company follows the guidance prescribed in ASC 350, *Goodwill and Other Intangible Assets* , to test goodwill and intangible assets for impairment. The Company determines the fair value of each reporting unit utilizing an income approach (discounted cash flows) weighted 50% and a market approach (consisting of a comparable public company multiples methodology) weighted 50%. To determine the reasonableness of the calculated fair values, the Company reviews the assumptions to ensure that neither the income approach nor the market approach yielded significantly different valuations.

The key assumptions are updated every year for each reporting unit for the income and market approaches used to determine fair value. Various assumptions are utilized including forecasted operating results, annual operating plans, strategic plans, economic projections, anticipated future cash flows, the weighted average cost of capital, market data and market multiples. The assumptions that have the most significant effect on the fair value calculations are the weighted average cost of capital, market multiples, forecasted EBITDA and terminal growth rates. The 2018 and 2017 ranges for these three assumptions utilized by the Company are as follows:

Assumptions	**2018 Range**	**2017 Range**
Weighted average cost of capital	9.5% to 11.0%	8.75% to 10.5%
Market multiples	11.0x to 17.0x	11.0x to 20.0x
Terminal growth rates	3.0% to 3.5%	3.0% to 3.5%

In assessing the fair value of the reporting units, the Company considers both the market approach and the income approach. Under the market approach, the fair value of the reporting unit is determined by the respective trailing twelve month EBITDA and the forward looking 2019 EBITDA (50% each), based on multiples of comparable public companies. The market approach is dependent on a number of significant management assumptions including forecasted EBITDA and selected market multiples. Under the income approach, the fair value of the reporting unit is determined based on the present value of estimated future cash flows. The income approach is dependent on a number of significant management assumptions including estimates of operating results, capital expenditures, net working capital requirements, long-term growth rates and discount rates. Weighting was equally attributed to both the market and income approaches (50% each) in arriving at the fair value of the reporting units.

The Banjo trade name and the Akron Brass trade name are indefinite-lived intangible assets which are tested for impairment on an annual basis in accordance with ASC 350 or more frequently if events or changes in circumstances indicate that the assets might be impaired. The Company uses the relief-from-royalty method, a form of the income approach, to determine the fair value of these trade names. The relief-from-royalty method is dependent on a number of significant management assumptions, including estimates of revenues, royalty rates and discount rates.

In 2018 and 2017 , there were no events that occurred or circumstances that changed that would have required a review other than as of our annual test date. In 2018 and 2017 , there were no impairment charges recorded.

Defined benefit retirement plans — The plan obligations and related assets of the defined benefit retirement plans are presented in Note 16 of the Notes to Consolidated Financial Statements in Part II, Item 8, "Financial Statements and Supplementary Data." Level 1 assets are valued using unadjusted quoted prices for identical assets in active markets. Level 2 assets are valued using quoted prices or other observable inputs for similar assets. Level 3 assets are valued using unobservable inputs, but reflect the assumptions market participants would use in pricing the assets. Plan obligations and the annual pension expense are determined after consulting with actuaries on a number of key assumptions and on information provided by the Company. Key assumptions in the determination of the annual pension expense include the discount rate, the rate of salary increases and the estimated future return on plan assets. To the extent actual amounts differ from these assumptions and estimated amounts, results could be adversely affected.

The Society of Actuaries releases annual updates to mortality tables, which update life expectancy assumptions. IDEX adopts these annual updates and, in consideration of these tables, we modified the mortality assumptions used in determining our pension and post-retirement benefit obligations as of December 31, 2018 , which will have a related impact on our annual benefit expense in future years. New mortality tables may result in additional funding requirements dependent upon the funded status of our plans. These expectations presume all other assumptions remain constant and there are no changes to applicable funding regulations.

Changes in the discount rate assumptions will impact the (gain) loss amortization and interest cost components of the projected benefit obligation ("PBO"), which in turn, may impact the Company's funding decisions if the PBO exceeds plan assets. Each 100 basis point increase in the discount rate will cause a corresponding decrease in the PBO of approximately $25 million based

upon the December 31, 2018 data. Each 100 basis point decrease in the discount rate will cause a corresponding increase in the PBO of approximately $31 million based upon the December 31, 2018 data.

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

The Company is subject to market risk associated with changes in foreign currency exchange rates and interest rates. The Company may, from time to time, enter into foreign currency forward contracts and interest rate swaps on its debt when it believes there is a financial advantage in doing so. A treasury risk management policy, adopted by the Board of Directors, describes the procedures and controls over derivative financial and commodity instruments, including foreign currency forward contracts and interest rate swaps. Under the policy, the Company does not use financial or commodity derivative instruments for trading purposes, and the use of these instruments is subject to strict approvals by senior officers. Typically, the use of derivative instruments is limited to foreign currency forward contracts and interest rate swaps on the Company's outstanding long-term debt. As of December 31, 2018, the Company did not have any derivative instruments outstanding.

Foreign Currency Exchange Rates

The Company's foreign currency exchange rate risk is limited principally to the Euro, Swiss Franc, British Pound, Canadian Dollar, Indian Rupee and Chinese Renminbi. The Company manages its foreign exchange risk principally through invoicing customers in the same currency as the source of products. The foreign currency transaction (gains) losses for the years ending December 31, 2018 , 2017 and 2016 were $(2.4) million , $20.5 million , and $(6.2) million , respectively, and are reported within Other (income) expense-net in the Consolidated Statements of Operations. Of the $(2.4) million and $20.5 million reported as foreign currency transaction (gains) losses for the years ending December 31, 2018 and 2017, $0.9 million and $20.2 million, respectively, were due to intercompany loans established in conjunction with the SFC Koenig acquisition. See Note 7 in Part II, Item 8, "Financial Statements and Supplementary Data," for further discussion.

Interest Rate Fluctuations

The Company does not have significant interest rate exposure due to substantially all of the $851,078 of debt outstanding as of December 31, 2018 being fixed rate debt.

Item 8. ***Financial Statements and Supplementary Data.***

MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is a process to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with accounting principles generally accepted in the United States of America, and as defined in Exchange Act Rule 13a-15(f).

Internal control over financial reporting cannot provide absolute assurance of achieving financial reporting objectives because of its inherent limitations. Because of such limitations, there is a risk that material misstatements may not be prevented or detected on a timely basis by internal control over financial reporting.

Management has used the framework set forth in the report entitled "Internal Control — Integrated Framework" (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission to assess the effectiveness of the Company's internal control over financial reporting. Based on that assessment, management has concluded that the Company's internal control over financial reporting was effective as of December 31, 2018 .

The effectiveness of the Company's internal control over financial reporting as of December 31, 2018 , has been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in their report which appears herein.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the shareholders and the Board of Directors of IDEX Corporation

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of IDEX Corporation and subsidiaries (the "Company") 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, the Company maintained, 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 COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements as of and for the year ended December 31, 2018 , of the Company and our report dated February 28, 2019 , expressed an unqualified opinion on those financial statements.

Basis for Opinion

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

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

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

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

/s/ DELOITTE & TOUCHE LLP

Chicago, Illinois
February 28, 2019

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the shareholders and the Board of Directors of IDEX Corporation

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of IDEX Corporation and subsidiaries (the "Company") as of December 31, 2018 and 2017 , the related consolidated statements of operations, comprehensive income, shareholders' equity, and cash flows, for each of the three years in the period ended December 31, 2018 , and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements 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.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2018 , based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 28, 2019 , expressed an unqualified opinion on the Company's internal control over financial reporting.

Basis for Opinion

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

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

/s/ DELOITTE & TOUCHE LLP

Chicago, Illinois
February 28, 2019

We have served as the Company's auditor since 1987.

IDEX CORPORATION
CONSOLIDATED BALANCE SHEETS

	As of December 31,	
	2018	2017
	(In thousands except share and per share amounts)	
ASSETS		
Current assets		
Cash and cash equivalents	$ 466,407	$ 375,950
Receivables - net	312,192	294,166
Inventories	279,995	259,724
Other current assets	33,938	74,203
Total current assets	1,092,532	1,004,043
Property, plant and equipment - net	281,220	258,350
Goodwill	1,697,955	1,704,158
Intangible assets - net	383,327	414,746
Other noncurrent assets	18,823	18,331
Total assets	$ 3,473,857	$ 3,399,628
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current liabilities		
Trade accounts payable	$ 143,196	$ 147,067
Accrued expenses	187,536	184,705
Short-term borrowings	483	258
Dividends payable	33,446	28,945
Total current liabilities	364,661	360,975
Long-term borrowings	848,335	858,788
Deferred income taxes	128,007	137,638
Other noncurrent liabilities	138,214	155,685
Total liabilities	1,479,217	1,513,086
Commitments and contingencies (Note 9)		
Shareholders' equity		
Preferred stock:		
Authorized: 5,000,000 shares, $.01 per share par value; Issued: none	—	—
Common stock:		
Authorized: 150,000,000 shares, $.01 per share par value; Issued: 90,112,028 shares at December 31, 2018 and 90,162,211 shares at December 31, 2017	901	902
Additional paid-in capital	738,339	716,906
Retained earnings	2,342,079	2,057,915
Treasury stock at cost: 14,159,251 shares at December 31, 2018 and 13,468,675 shares at December 31, 2017	(957,454)	(799,674)
Accumulated other comprehensive loss	(129,225)	(89,507)
Total shareholders' equity	1,994,640	1,886,542
Total liabilities and shareholders' equity	$ 3,473,857	$ 3,399,628

See Notes to Consolidated Financial Statements.

IDEX CORPORATION

CONSOLIDATED STATEMENTS OF OPERATIONS

	For the Year Ended December 31,		
	2018	**2017**	**2016**
	(In thousands except per share amounts)		
Net sales	$ 2,483,666	$ 2,287,312	$ 2,113,043
Cost of sales	1,365,771	1,260,634	1,182,276
Gross profit	1,117,895	1,026,678	930,767
Selling, general and administrative expenses	536,724	524,940	492,398
Loss (gain) on sale of businesses - net	—	(9,273)	22,298
Restructuring expenses	12,083	8,455	3,674
Operating income	569,088	502,556	412,397
Other (income) expense - net	(3,985)	2,394	(1,731)
Interest expense	44,134	44,889	45,616
Income before income taxes	528,939	455,273	368,512
Provision for income taxes	118,366	118,016	97,403
Net income	$ 410,573	$ 337,257	$ 271,109
Earnings per common share:			
Basic earnings per common share	$ 5.36	$ 4.41	$ 3.57
Diluted earnings per common share	$ 5.29	$ 4.36	$ 3.53
Share data:			
Basic weighted average common shares outstanding	76,412	76,232	75,803
Diluted weighted average common shares outstanding	77,563	77,333	76,758

See Notes to Consolidated Financial Statements.

IDEX CORPORATION

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

	For the Year Ended December 31,		
	2018	2017	2016
	(In thousands)		
Net income	$ 410,573	$ 337,257	$ 271,109
Other comprehensive income (loss):			
Reclassification adjustments for derivatives, net of tax	5,006	4,210	4,361
Pension and other postretirement adjustments, net of tax	9,825	(1,302)	3,049
Foreign currency adjustments:			
Cumulative translation adjustment	(48,114)	110,421	(76,822)
Tax effect of reversal of indefinite assertion on certain intercompany loans	—	(3,932)	—
Reclassification of foreign currency translation to earnings upon sale of businesses	—	2,749	14,257
Other comprehensive income (loss)	(33,283)	112,146	(55,155)
Comprehensive income	$ 377,290	$ 449,403	$ 215,954

See Notes to Consolidated Financial Statements.

IDEX CORPORATION

CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY

	Common Stock and Additional Paid-In Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss)			Treasury Stock	Total Shareholders' Equity
			Cumulative Translation Adjustment	Retirement Benefits Adjustments	Cumulative Unrealized Gain (Loss) on Derivatives		
	(In thousands except share and per share amounts)						
Balance, December 31, 2015	$ 680,525	$ 1,666,680	$ (92,979)	$ (30,901)	$ (22,618)	$ (757,416)	$ 1,443,291
Net income	—	271,109	—	—	—	—	271,109
Cumulative translation adjustment	—	—	(62,565)	—	—	—	(62,565)
Net change in retirement obligations (net of tax of $2,107)	—	—	—	3,049	—	—	3,049
Net change on derivatives designated as cash flow hedges (net of tax of $2,490)	—	—	—	—	4,361	—	4,361
Issuance of 594,919 shares of common stock from issuance of unvested shares, performance share units and exercise of stock options (net of tax of $5,305)	253	—	—	—	—	29,987	30,240
Repurchase of 738,593 shares of common stock	—					(54,950)	(54,950)
Share-based compensation	17,337	—	—	—	—	—	17,337
Shares surrendered for tax withholding	—	—	—	—	—	(4,928)	(4,928)
Cash dividends declared - $1.36 per common share outstanding	—	(103,050)	—	—	—	—	(103,050)
Balance, December 31, 2016	$ 698,115	$ 1,834,739	$ (155,544)	$ (27,852)	$ (18,257)	$ (787,307)	$ 1,543,894
Net income	—	337,257	—	—	—	—	337,257
Cumulative translation adjustment	—	—	113,170	—	—	—	113,170
Net change in retirement obligations (net of tax of $239)	—	—	—	(1,302)	—	—	(1,302)
Net change on derivatives designated as cash flow hedges (net of tax of $2,445)	—	—	—	—	4,210	—	4,210
Issuance of 557,591 shares of common stock from issuance of unvested shares, performance share units and exercise of stock options (net of tax of $6,027)	—	—	—	—	—	22,935	22,935
Repurchase of 266,000 shares of common stock	—	—	—	—	—	(29,074)	(29,074)
Share-based compensation	19,693	—	—	—	—	—	19,693
Shares surrendered for tax withholding	—	—	—	—	—	(6,228)	(6,228)
Tax effect of reversal of indefinite assertion on certain intercompany loans	—	—	(3,932)	—	—	—	(3,932)
Cash dividends declared - $1.48 per common share outstanding	—	(114,081)	—	—	—	—	(114,081)
Balance, December 31, 2017	$ 717,808	$ 2,057,915	$ (46,306)	$ (29,154)	$ (14,047)	$ (799,674)	$ 1,886,542
Net income	—	410,573	—	—	—	—	410,573
Adjustment for adoption of ASU 2016-16	—	(645)	—	—	—	—	(645)
Adjustment for adoption of ASU 2018-02	—	6,435	—	(3,411)	(3,024)	—	—
Cumulative translation adjustment	—	—	(48,114)	—	—	—	(48,114)
Net change in retirement obligations (net of tax of $3,076)	—	—	—	9,825	—	—	9,825
Net change on derivatives designated as cash flow hedges (net of tax of $1,469)	—	—	—	—	5,006	—	5,006
Issuance of 583,385 shares of common stock from issuance of unvested shares, performance share units and exercise of stock options (net of tax of $4,267)	—	—	—	—	—	27,701	27,701
Repurchase of 1,273,961 shares of common stock	—	—	—	—	—	(173,926)	(173,926)
Share-based compensation	21,432	—	—	—	—	—	21,432
Shares surrendered for tax withholding	—	—	—	—	—	(11,555)	(11,555)
Cash dividends declared - $1.72 per common share outstanding	—	(132,199)	—	—	—	—	(132,199)
Balance, December 31, 2018	$ 739,240	$ 2,342,079	$ (94,420)	$ (22,740)	$ (12,065)	$ (957,454)	$ 1,994,640

See Notes to Consolidated Financial Statements.

IDEX CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS

	For the Year Ended December 31,		
	2018	2017	2016
	(In thousands)		
Cash flows from operating activities			
Net income	$ 410,573	$ 337,257	$ 271,109
Adjustments to reconcile net income to net cash provided by operating activities:			
Loss (gain) on sale of fixed assets - net	946	315	(28)
Loss (gain) on sale of businesses - net	—	(9,273)	22,298
Asset impairments	—	—	205
Depreciation and amortization	39,049	38,314	37,854
Amortization of intangible assets	38,495	45,902	49,038
Amortization of debt issuance expenses	1,332	1,320	1,295
Share-based compensation expense	24,754	24,405	20,326
Deferred income taxes	(4,345)	(33,742)	(17,308)
Non-cash interest expense associated with forward starting swaps	6,475	6,655	6,851
Pension settlement	—	—	3,554
Changes in (net of the effect from acquisitions and divestitures):			
Receivables	(23,419)	(15,803)	302
Inventories	(23,031)	760	32,747
Other current assets	25,162	(20,031)	(22,006)
Trade accounts payable	(1,220)	12,556	73
Accrued expenses	4,148	19,710	(5,470)
Other - net	(19,574)	24,408	(923)
Net cash flows provided by operating activities	479,345	432,753	399,917
Cash flows from investing activities			
Purchases of property, plant and equipment	(56,089)	(43,858)	(38,242)
Purchase of intellectual property	(4,000)	—	—
Acquisition of businesses, net of cash acquired	(20,205)	(38,161)	(510,001)
Proceeds from disposal of fixed assets	363	6,011	49
Proceeds from sale of businesses, net of cash sold	—	21,795	39,064
Other - net	(1,500)	(533)	(69)
Net cash flows used in investing activities	(81,431)	(54,746)	(509,199)
Cash flows from financing activities			
Borrowings under revolving credit facilities	—	33,000	501,529
Proceeds from issuance of 3.20% Senior Notes	—	—	100,000
Proceeds from issuance of 3.37% Senior Notes	—	—	100,000
Payments under revolving credit facilities	(11,284)	(200,618)	(520,125)
Debt issuance costs	—	—	(246)
Dividends paid	(127,478)	(111,172)	(102,650)
Proceeds from stock option exercises	27,639	22,935	30,240
Purchases of common stock	(173,926)	(29,074)	(57,272)
Shares surrendered for tax withholding	(11,555)	(6,228)	(4,928)
Settlement of foreign exchange contracts	6,593	13,736	—
Net cash flows provided by (used in) financing activities	(290,011)	(277,421)	46,548
Effect of exchange rate changes on cash and cash equivalents	(17,446)	39,400	(29,320)
Net increase (decrease) in cash	90,457	139,986	(92,054)
Cash and cash equivalents at beginning of year	375,950	235,964	328,018
Cash and cash equivalents at end of year	$ 466,407	$ 375,950	$ 235,964
Supplemental cash flow information			
Cash paid for:			
Interest	$ 36,327	$ 36,818	$ 37,067

Income taxes - net	90,733	104,852	109,399
Significant non-cash activities:			
Contingent consideration for acquisition	3,375	—	—
Capital expenditures for construction of new leased facility	11,616	—	—

See Notes to Consolidated Financial Statements.

IDEX CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. Significant Accounting Policies

Business

IDEX is an applied solutions company specializing in the manufacture of fluid and metering technologies, health and science technologies and fire, safety and other diversified products built to customers' specifications. IDEX's products are sold in niche markets across a wide range of industries throughout the world. The Company's products include industrial pumps, compressors, flow meters, injectors, valves and related controls for use in a wide variety of process applications; precision fluidics solutions, including pumps, valves, degassing equipment, corrective tubing, fittings and complex manifolds, optical filters and specialty medical equipment and devices for use in life science applications; precision-engineered equipment for dispensing, metering and mixing paints; and engineered products for industrial and commercial markets, including fire and rescue, transportation equipment, oil and gas, electronics and communications. These activities are grouped into three reportable segments: Fluid & Metering Technologies, Health & Science Technologies and Fire & Safety/Diversified Products.

Principles of Consolidation

The consolidated financial statements include the Company and its subsidiaries. All intercompany transactions and accounts have been eliminated.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America ("U.S. GAAP") requires management to make estimates and judgments that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities and reported amounts of revenue and expenses during the reporting period. Actual results could differ from those estimates. The principal areas of estimation reflected in the financial statements are revenue recognition, sales returns and allowances, allowance for doubtful accounts, inventory valuation, recoverability of long-lived assets, valuation of goodwill and intangible assets, income taxes, product warranties, contingencies and litigation, insurance-related items, defined benefit retirement plans and purchase accounting related to acquisitions.

Revenue Recognition

Revenue is recognized when control of the promised products or services is transferred to our customers in an amount that reflects the consideration we expect to be entitled to in exchange for transferring those products or providing those services. A performance obligation is a promise in a contract to transfer a distinct product or service to the customer. A contract's transaction price is allocated to each distinct performance obligation and recognized as revenue when, or as, the performance obligation is satisfied. Our performance obligations are satisfied at a point in time or over time as work progresses. Revenue from products and services transferred to customers at a point in time is recognized when obligations under the terms of the contract with our customer are satisfied. Generally, this occurs with the transfer of control of the asset, which is in line with shipping terms. Certain units recognize revenue over time because control transfers continuously to our customers. Revenue is recognized over time as work is performed based on the relationship between actual costs incurred to date for each contract and the total estimated costs for such contract at completion of the performance obligation (i.e. the cost-to-cost method) or is recognized ratably over the contract term. As a significant change in one or more of these estimates could affect the profitability of our contracts, we review and update our estimates regularly. Due to uncertainties inherent in the estimation process, it is reasonably possible that completion costs will be revised. Such revisions to costs and income are recognized in the period in which the revisions are determined as a cumulative catch-up adjustment. The impact of the adjustment on profit recorded to date on a contract is recognized in the period the adjustment is identified. If at any time the estimate of contract profitability indicates an anticipated loss on the contract, we recognize provisions for estimated losses on uncompleted contracts in the period in which such losses are determined.

The Company records allowances for discounts, product returns and customer incentives at the time of sale as a reduction of revenue as such allowances can be reliably estimated based on historical experience and known trends. The Company also offers product warranties (primarily assurance-type) and accrues its estimated exposure for warranty claims at the time of sale based upon the length of the warranty period, warranty costs incurred and any other related information known to the Company.

The Company's other revenue not accounted for under Accounting Standards Codification 606, *Revenue from Contracts with Customers* ("ASC 606"), is not material to its results of operations.

Shipping and Handling Costs

Shipping and handling costs are included in Cost of sales and are recognized as a period expense during the period in which they are incurred.

Advertising Costs

Advertising costs of $17.0 million , $15.8 million and $15.3 million for 2018 , 2017 and 2016 , respectively, are expensed as incurred within Selling, general and administrative expenses.

Cash and Cash Equivalents

The Company considers all highly liquid instruments purchased with an original maturity of 3 months or less to be cash and cash equivalents.

Accounts Receivable and Allowance for Doubtful Accounts

Accounts receivable are recorded at face amounts less an allowance for doubtful accounts. The Company maintains an allowance for doubtful accounts for estimated losses as a result of customers' inability to make required payments. Management evaluates the aging of the accounts receivable balances, the financial condition of its customers, historical trends and the time outstanding of specific balances to estimate the amount of accounts receivable that may not be collected in the future and records the appropriate provision.

Inventories

The Company states inventories at the lower of cost or net realizable value. Cost, which includes material, labor and factory overhead, is determined on a FIFO basis. We make adjustments to reduce the cost of inventory to its net realizable value, if required, for estimated excess, obsolete or impaired balances. Factors influencing these adjustments include changes in market demand, product life cycle and engineering changes.

Impairment of Long-Lived Assets

A long-lived asset is reviewed for impairment if an event occurs or circumstances change that would more likely than not reduce the fair value of a long-lived asset below its carrying amount, as measured by comparing its net book value to the projected undiscounted future cash flows generated by its use. A long-lived asset impairment exists when the carrying amount of the asset exceeds its fair value. The amount and timing of the impairment charge for this asset requires the estimation of future cash flows to determine the fair value of the asset. An impaired asset is recorded at its estimated fair value based on a discounted cash flow analysis. In 2018 and 2017 , the Company concluded that there were no long-lived assets with a fair value that was less than the carrying value. In 2016 , the Company concluded that certain long-lived assets had a fair value that was less than the carrying value of the assets, resulting in $0.2 million , respectively, of long-lived asset impairment charges.

Goodwill and Indefinite-Lived Intangible Assets

The Company reviews the carrying value of goodwill and indefinite-lived intangible assets annually as of October 31, or if an event occurs or circumstances change that would more likely than not reduce the fair value of a reporting unit below its carrying value. The Company evaluates the recoverability of these assets based on the estimated fair value of each of the 13 reporting units and the indefinite-lived intangible assets. See Note 5 for a further discussion on goodwill and intangible assets.

Borrowing Expenses

Expenses incurred in securing and issuing debt are capitalized and included as a reduction of Long-term borrowings. These amounts are amortized over the life of the related borrowing and the related amortization is included in Interest expense.

Earnings per Common Share

Earnings per common share ("EPS") is computed by dividing net income by the weighted average number of shares of common stock (basic) plus common stock equivalents (diluted) outstanding during the year. Common stock equivalents consist of stock

options, which have been included in the calculation of weighted average shares outstanding using the treasury stock method, restricted stock and performance share units.

ASC 260, *Earnings per Share* , concludes that all outstanding unvested share-based payment awards that contain rights to nonforfeitable dividends participate in undistributed earnings with common shareholders. If awards are considered participating securities, the Company is required to apply the two-class method of computing basic and diluted earnings per share. The Company has determined that its outstanding shares of restricted stock are participating securities. Accordingly, EPS was computed using the two-class method prescribed by ASC 260.

Basic weighted average shares outstanding reconciles to diluted weighted average shares outstanding as follows:

	2018	2017	2016
		(In thousands)	
Basic weighted average common shares outstanding	76,412	76,232	75,803
Dilutive effect of stock options, restricted stock and performance share units	1,151	1,101	955
Diluted weighted average common shares outstanding	77,563	77,333	76,758

Options to purchase approximately 0.3 million , zero and 0.9 million shares of common stock in 2018 , 2017 and 2016 , respectively, were not included in the computation of diluted EPS because the effect of their inclusion would have been antidilutive.

Share-Based Compensation

The Company accounts for share-based payments in accordance with ASC 718, *Compensation-Stock Compensation* . Accordingly, the Company expenses the fair value of awards made under its share-based compensation plans. That cost is recognized in the consolidated financial statements over the requisite service period of the grants. See Note 14 for further discussion on share-based compensation.

Depreciation and Amortization

Property and equipment are stated at cost, with depreciation and amortization provided using the straight-line method over the following estimated useful lives:

Land improvements	8 to 12 years
Buildings and improvements	8 to 30 years
Machinery, equipment and other	3 to 12 years
Office and transportation equipment	3 to 10 years

Certain identifiable intangible assets are amortized over their estimated useful lives using the straight-line method. The estimated useful lives used in the computation of amortization of identifiable intangible assets are as follows:

Patents	5 to 17 years
Trade names	5 to 20 years
Customer relationships	6 to 20 years
Unpatented technology and other	7 to 20 years

Research and Development Expenditures

Costs associated with engineering activities, including research and development, are expensed in the period incurred and are included in Cost of sales.

Total engineering expenses, which include research and development as well as application and support engineering, were $84.9 million , $76.4 million and $68.8 million in 2018 , 2017 and 2016 , respectively. Research and development expenses, which include costs associated with developing new products and major improvements to existing products, were $48.0 million , $42.4 million and $39.4 million in 2018 , 2017 and 2016 , respectively.

Foreign Currency

The functional currency of substantially all operations outside the United States is the respective local currency. Accordingly, those foreign currency balance sheet accounts have been translated using the exchange rates in effect as of the balance sheet date. Income statement amounts have been translated using the average exchange rate for the year. The gains and losses resulting from changes in exchange rates from year to year have been reported in Accumulated other comprehensive loss in the Consolidated Balance Sheets. The foreign currency transaction losses (gains) for the periods ending December 31, 2018 , 2017 and 2016 were $(2.4) million , $20.5 million and $(6.2) million , respectively, and are reported within Other (income) expense - net on the Consolidated Statements of Operations. Of the $20.5 million reported as foreign currency transaction losses for the period ending December 31, 2017, $20.2 million was due to intercompany loans established in conjunction with the SFC Koenig acquisition. See Note 7 for further discussion.

Income Taxes

Income tax expense includes United States, state, local and international income taxes. Deferred tax assets and liabilities are recognized for the tax consequences of temporary differences between the financial reporting and the tax basis of existing assets and liabilities and for loss carryforwards. The tax rate used to determine the deferred tax assets and liabilities is the enacted tax rate for the year and manner in which the differences are expected to reverse. Valuation allowances are recorded to reduce deferred tax assets to the amount that will more likely than not be realized.

Refer to Note 11 for further discussion on income taxes.

Concentration of Credit Risk

The Company is not dependent on a single customer as its largest customer accounted for less than 2% of net sales for all years presented.

Recently Adopted Accounting Standards

In February 2018, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) 2018-02, *Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income* , which allows an entity to reclassify the stranded tax effects in accumulated other comprehensive income (loss) to retained earnings in the statement of shareholders’ equity. The Company early adopted this standard on a retrospective basis on January 1, 2018. The adoption resulted in an increase of $6.4 million to Retained earnings and a corresponding change of $6.4 million to Accumulated other comprehensive income (loss) at January 1, 2018.

In January 2017, the FASB issued ASU 2017-01, *Clarifying the Definition of a Business* , which clarifies the definition of a business and assists entities with evaluating whether transactions should be accounted for as acquisitions or disposals of assets or businesses. Under this guidance, when substantially all of the fair value of gross assets acquired is concentrated in a single asset or a group of similar assets, the assets acquired would not represent a business. In addition, in order to be considered a business, an acquisition would have to include at a minimum an input and a substantive process that together significantly contribute to the ability to create an output. The amended guidance also narrows the definition of outputs by more closely aligning it with how outputs are described in the FASB guidance for revenue recognition. The Company adopted this standard on January 1, 2018 and accounted for the purchase of the intellectual property assets from Phantom Controls utilizing this guidance. See Note 5 for further information.

In October 2016, the FASB issued ASU 2016-16, *Intra-Entity Transfers of Assets Other Than Inventory* , which amends Accounting Standards Codification (“ASC”) 740, *Income Taxes* . This ASU requires that the income tax consequences of an intra-entity asset transfer other than inventory are recognized at the time of the transfer. An entity will continue to recognize the income tax consequences of an intercompany transfer of inventory when the inventory is sold to a third party. The Company adopted this standard on a modified retrospective basis on January 1, 2018. The adoption resulted in a decrease of $7.3 million to Other current assets, a decrease of $6.7 million to Deferred income taxes and a decrease of $0.6 million to Retained earnings at January 1, 2018.

In August 2016, the FASB issued ASU 2016-15, *Classification of Certain Cash Receipts and Cash Payments* (a consensus of the FASB Emerging Issues Task Force). This ASU addresses the following eight specific cash flow issues: debt prepayment or debt extinguishment costs; settlement of zero-coupon debt instruments or other debt instruments with coupon interest rates that are insignificant in relation to the effective interest rate of the borrowing; contingent consideration payments made after a business

combination; proceeds from the settlement of insurance claims; proceeds from the settlement of corporate-owned life insurance policies (including bank-owned life insurance policies); distributions received from equity method investees; beneficial interests in securitization transactions; and separately identifiable cash flows and application of the predominance principle. The Company adopted this standard on January 1, 2018. The adoption of this standard did not have a material impact on our consolidated financial statements.

In May 2014, the FASB issued ASU 2014-09, *Revenue from Contracts with Customers,* which replaces numerous requirements in U.S. GAAP, including industry-specific requirements, and provides companies with a new five-step model for recognizing revenue from contracts with customers. Under ASU 2014-09, an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. This ASU also requires disclosures sufficient to enable users to understand the nature, amount, timing, and uncertainty of revenue and cash flows arising from contracts with customers, including qualitative and quantitative disclosures about contracts with customers, significant judgments and changes in judgments, and assets recognized from the costs to obtain or fulfill a contract. The FASB has also issued the following standards which clarify ASU 2014-09 and have the same effective date as the original standard: ASU 2016-08, *Revenue from Contracts with Customers: Principal versus Agent Considerations (Reporting Revenue Gross versus Net)* ; ASU 2016-10, *Revenue from Contracts with Customers: Identifying Performance Obligations and Licensing* ; ASU 2016-12 *, Revenue from Contracts with Customers: Narrow-Scope Improvements and Practical Expedients* ; and ASU 2016-20 *, Technical Corrections and Improvements to Topic 606, Revenue from Contracts with Customers.*

In 2016, we established an implementation team and analyzed the impact of the standard by surveying business units and performing extensive contract reviews to identify potential differences that may result from applying the requirements of the new standard. The contract reviews generally supported the recognition of revenue at a point in time, which was consistent with the revenue recognition model used by most of our business units. As a result, revenue recognition was unchanged under the new standard. For our business units that previously recognized revenue under a percentage of completion model, revenue recognition was also unchanged as the contract reviews supported the recognition of revenue over time. The Company implemented the appropriate changes to its processes, systems and controls to comply with the new guidance. The Company adopted this standard on January 1, 2018 using the modified retrospective approach applied to contracts that were not completed as of January 1, 2018. The adoption of this standard did not have an impact on our consolidated financial statements, except to provide additional disclosures. The Company elected the following practical expedients: significant financing component, sales tax presentation, contract costs, shipping and handling activities and disclosures. See Note 4 for further details on revenue.

New Accounting Pronouncements

In February 2016, the FASB issued ASU 2016-02, *Leases* , which sets out the principles for the recognition, measurement, presentation and disclosure of leases for both parties to a contract (i.e. lessees and lessors). The standard introduces a new lessee model that will require most leases to be recorded on the balance sheet and eliminates the required use of bright line tests in current U.S. GAAP for determining lease classification. The new standard requires lessors to account for leases using an approach that is substantially equivalent to existing guidance for sales-type leases, direct financing leases and operating leases. This standard is effective for fiscal years beginning after December 15, 2018 and interim periods within those fiscal years. This new guidance requires adoption on a retrospective basis unless it is impracticable to apply, in which case the company would be required to apply the amendments prospectively as of the earliest date practicable. In July 2018, the FASB also issued the following standards which clarify ASU 2016-02 and have the same effective date as the original standard: ASU 2018-10, *Codification Improvements to Topic 842* , Leases and ASU 2018-11, *Leases (Topic 842): Targeted Improvements* . ASU 2018-11 includes an option to not restate comparative periods in transition and elect to use the effective date of ASU 2016-02 as the date of initial application of transition.

We will adopt this standard on January 1, 2019 using the transition method that allows us to apply this standard prospectively as of January 1, 2019. As we will not restate comparative periods, the adoption will have no impact on our previously reported results. We expect to use the package of practical expedients that allows us to not reassess: (1) whether any expired or existing contracts are or contain leases, (2) lease classification for any expired or existing leases and (3) initial direct costs for any expired or existing leases. We additionally expect to use the practical expedient that allows lessees to treat the lease and non-lease components of leases as a single lease component. The adoption of the new standard will have a material impact on our consolidated balance sheet due to the recognition of right of use assets and lease liabilities. Upon adoption, we expect to recognize right of use assets and lease liabilities of approximately $70 million that reflect the present value of future lease payments. We do not expect the adoption of this standard to have a material impact on our results of operations or cash flows.

2. Acquisitions and Divestitures

All of the Company's acquisitions of businesses have been accounted for under ASC 805, *Business Combinations* . Accordingly, the accounts of the acquired companies, after adjustments to reflect the fair values assigned to assets and liabilities, have been included in the Company's consolidated financial statements from their respective dates of acquisition. The results of operations of the acquired companies have been included in the Company's consolidated results since the date of each acquisition. Supplemental pro forma information has not been provided as the acquisitions did not have a material impact on the Company's consolidated results of operations individually or in the aggregate.

2018 Acquisition

On July 23, 2018, the Company acquired FLI, a technology leader in the design, development and production of low-noise cooled CCD and high speed, high-sensitivity Scientific CMOS cameras for the astronomy and life science markets. Headquartered in Lima, NY, FLI operates in our Health & Sciences Technologies segment. FLI was acquired for an aggregate purchase price of $23.6 million , consisting of $20.2 million in cash and contingent consideration valued at $3.4 million as of the opening balance sheet date. The contingent consideration is based on the achievement of financial objectives during the 24 -month period following the close of the transaction. The entire purchase price was funded with cash on hand. Goodwill and intangible assets recognized as part of this transaction were $12.4 million and $7.9 million , respectively. Acquired intangible assets consist of trade names, customer relationships and unpatented technology. The goodwill recorded for the acquisition reflects the strategic fit, revenue and earnings growth potential of this business. The goodwill is deductible for tax purposes.

The Company made an initial allocation of the purchase price for the FLI acquisition as of the acquisition date based on its understanding of the fair value of the acquired assets and assumed liabilities. These nonrecurring fair value measurements are classified as Level 3 in the fair value hierarchy. As the Company continues to obtain additional information about these assets and liabilities, and continues to learn more about the newly acquired business, we will refine the estimates of fair value and more accurately allocate the purchase price. Only items identified as of the acquisition date are considered for subsequent adjustment. The Company will make the appropriate adjustments to the purchase price allocation prior to the completion of the measurement period, as required.

The Company incurred $3.0 million of acquisition-related transaction costs in 2018 . These costs were recorded in Selling, general and administrative expenses and were related to completed transactions, pending transactions and potential transactions, including transactions that ultimately were not completed.

2017 Acquisition

On December 8, 2017, the Company acquired the stock of thinXXS, a leader in the design, manufacture, and sale of microfluidic components serving the point of care, veterinary, and life science markets. The business was acquired to complement our existing CiDRA Precision Services business and expand on our microfluidic and nanofluidic capabilities. Headquartered in Zweibrücken, Germany, thinXXS operates in our Health & Science Technologies segment. thinXXS was acquired for cash consideration of $38.2 million and the assumption of $1.2 million of debt. The purchase price was funded with cash on hand. Goodwill and intangible assets recognized as part of the transaction were $25.2 million and $10.6 million , respectively. Acquired intangible assets consist of trade names, customer relationships and unpatented technology. The goodwill recorded for the acquisition reflects the strategic fit, revenue and earnings growth potential of this business. The goodwill is not deductible for tax purposes.

The Company finalized its allocation of the purchase price for the thinXXS acquisition as of the acquisition date based on its understanding of the fair value of the acquired assets and assumed liabilities. These nonrecurring fair value measurements were classified as Level 3 in the fair value hierarchy.

The Company incurred $1.3 million of acquisition-related transaction costs in 2017. These costs were recorded in Selling, general and administrative expenses and were related to completed transactions, pending transactions and potential transactions, including transactions that ultimately were not completed.

2016 Acquisitions

On March 16, 2016, the Company acquired the stock of Akron Brass, a producer of a large array of engineered life–safety products for the safety and emergency response markets, which includes apparatus valves, monitors, nozzles, specialty lighting, electronic vehicle–control systems and firefighting hand tools. The business was acquired to complement and create synergies

with our existing Hale, Class 1, and Godiva businesses. Headquartered in Wooster, Ohio, Akron Brass operates in our Fire & Safety/Diversified Products segment. Akron Brass was acquired for cash consideration of $221.4 million . The purchase price was funded with borrowings under the Company's revolving facilities. Goodwill and intangible assets recognized as part of the transaction were $124.6 million and $90.4 million , respectively. The goodwill is not deductible for tax purposes.

On July 1, 2016, the Company acquired the stock of AWG Fittings, a producer of engineered products for the safety and emergency response markets, including valves, monitors and nozzles. The business was acquired to complement and create synergies with our existing Hale, Class 1, Godiva and Akron Brass businesses. Headquartered in Ballendorf, Germany, AWG Fittings operates in our Fire & Safety/Diversified Products segment. AWG Fittings was acquired for cash consideration of $47.5 million (€42.8 million). The purchase price was funded with cash on hand. Goodwill and intangible assets recognized as part of the transaction were $22.1 million and $10.3 million , respectively. The goodwill is not deductible for tax purposes.

On August 31, 2016, the Company acquired the stock of SFC Koenig, a producer of highly engineered expanders and check valves for critical applications across the transportation, hydraulic, aviation and medical markets. Headquartered in Dietikon, Switzerland, SFC Koenig operates in our Health & Science Technologies segment. SFC Koenig was acquired for cash consideration of $241.1 million (€215.9 million). The purchase price was funded with cash on hand and borrowings under the Company's revolving facilities. Goodwill and intangible assets recognized as part of the transaction were $141.3 million and $117.0 million , respectively. The goodwill is not deductible for tax purposes.

The allocation of the acquisition costs to the assets acquired and liabilities assumed, based on their estimated fair values at their respective acquisition dates, is as follows:

	Akron Brass	AWG Fittings	SFC Koenig	Total
(In thousands)				
Accounts receivable	$ 14,523	$ 5,867	$ 9,190	$ 29,580
Inventory	29,157	11,766	20,639	61,562
Other assets, net of cash acquired	446	565	4,501	5,512
Property, plant and equipment	12,195	6,595	4,637	23,427
Goodwill	124,643	22,055	141,298	287,996
Intangible assets	90,400	10,279	116,998	217,677
Deferred income taxes	—	3,928	—	3,928
Total assets acquired	271,364	61,055	297,263	629,682
Current liabilities	(7,081)	(5,117)	(11,704)	(23,902)
Deferred income taxes	(36,439)	—	(36,168)	(72,607)
Other noncurrent liabilities	(6,445)	(8,444)	(8,283)	(23,172)
Net assets acquired	$ 221,399	$ 47,494	$ 241,108	$ 510,001

Acquired intangible assets consist of trade names, customer relationships and unpatented technology. The goodwill recorded for the acquisitions reflects the strategic fit, revenue and earnings growth potential of these businesses.

Of the $217.7 million of acquired intangible assets, $28.8 million was assigned to the Akron Brass trade name and is not subject to amortization. The acquired intangible assets and weighted average amortization periods are as follows:

(In thousands, except weighted average life)	Total	Weighted Average Life
Trade names	$ 14,078	15
Customer relationships	134,519	13
Unpatented technology	40,280	13
Amortized intangible assets	188,877	
Indefinite lived - Akron Brass trade name	28,800	
Total acquired intangible assets	$ 217,677	

The Company incurred $4.7 million of acquisition-related transaction costs in 2016. These costs were recorded in Selling, general and administrative expenses and were related to completed transactions, pending transactions and potential transactions, including transactions that ultimately were not completed. The Company also incurred $14.7 million of non-cash acquisition fair value inventory step-up charges associated with the completed 2016 acquisitions. These charges were recorded in Cost of sales.

Divestitures

The Company periodically reviews its operations for businesses which may no longer be aligned with its strategic objectives and focuses on core business and customers. Any resulting gain or loss recognized due to divestitures is recorded within Loss (gain) on sale of businesses - net. The Company concluded that none of the divestitures that took place during the years ended December 31, 2018 , 2017 and 2016 met the criteria for reporting discontinued operations.

On October 31, 2017, the Company completed the sale of its Faure Herman subsidiary for $21.8 million in cash, resulting in a pre-tax gain on the sale of $9.3 million . There was no income tax expense associated with this transaction. The results of Faure Herman were reported within the Fluid & Metering Technologies segment and generated $14.1 million of revenues in 2017 through the date of sale.

On July 29, 2016, the Company completed the sale of its Hydra-Stop product line for $15.0 million in cash, resulting in a pre-tax gain on the sale of $5.8 million . In addition, the Company earned $1.0 million for the achievement of 2016 net sales objectives and $1.0 million for the achievement of 2017 net sales objectives, which represents the maximum earn outs for both 2016 and 2017. The Company recorded $2.8 million of income tax expense associated with this transaction during the year ended December 31, 2016. The results of Hydra-Stop were reported within the Fluid & Metering Technologies segment and generated $7.5 million of revenues in 2016 through the date of sale.

On September 9, 2016, the Company completed the sale of its Melles Griot KK (“CVI Japan”) subsidiary for $17.5 million in cash, resulting in a pre-tax loss on the sale of $7.9 million . The Company recorded $3.4 million of income tax benefit associated with this transaction during the year ended December 31, 2016. The results of CVI Japan were reported within the Health & Science Technologies segment and generated $13.1 million of revenues in 2016 through the date of sale.

On October 10, 2016, the Company completed the sale of its IETG and 40Seven subsidiaries for $2.7 million in cash, resulting in a pre-tax loss on the sale of $4.2 million . There was no income tax impact associated with this transaction. The results of IETG and 40Seven were reported within the Fluid & Metering Technologies segment and generated $8.3 million of revenues in 2016 through the date of sale.

On December 30, 2016, the Company completed the sale of its Korea Electro-Optics Co., Ltd. (“CVI Korea”) subsidiary for $3.8 million in cash, resulting in a pre-tax loss on the sale of $16.0 million . The Company recorded $9.1 million of income tax benefit associated with this transaction during the year ended December 31, 2016. The results of CVI Korea were reported within the Health & Science Technologies segment and generated $11.7 million of revenues in 2016 through the date of sale.

3. Balance Sheet Components

	December 31,	
	2018	2017
	(In thousands)	
RECEIVABLES		
Customers	$ 313,719	$ 297,796
Other	5,182	4,134
Total	318,901	301,930
Less allowance for doubtful accounts	6,709	7,764
Total receivables - net	$ 312,192	$ 294,166
INVENTORIES		
Raw materials and components parts	$ 178,805	$ 169,676
Work in process	37,495	33,668
Finished goods	63,695	56,380
Total	$ 279,995	$ 259,724
PROPERTY, PLANT AND EQUIPMENT		
Land and improvements	$ 32,100	$ 32,984
Buildings and improvements	189,744	175,467
Machinery, equipment and other	372,804	356,728
Office and transportation equipment	96,350	96,541
Construction in progress	24,328	14,715
Total	715,326	676,435
Less accumulated depreciation and amortization	434,106	418,085
Total property, plant and equipment - net	$ 281,220	$ 258,350
ACCRUED EXPENSES		
Payroll and related items	$ 78,944	$ 75,869
Management incentive compensation	25,321	24,320
Income taxes payable	23,844	28,033
Insurance	10,422	9,424
Warranty	5,303	6,281
Deferred revenue	8,055	11,031
Restructuring	6,170	4,180
Liability for uncertain tax positions	980	1,745
Accrued interest	1,759	1,759
Other	26,738	22,063
Total accrued expenses	$ 187,536	$ 184,705
OTHER NONCURRENT LIABILITIES		
Pension and retiree medical obligations	$ 80,667	$ 99,646
Transition tax payable	17,127	27,877
Liability for uncertain tax positions	3,183	1,047
Deferred revenue	3,027	3,297
Liability for construction of new leased facility	11,616	—
Contingent consideration for acquisition	3,375	—
Other	19,219	23,818
Total other noncurrent liabilities	$ 138,214	$ 155,685

The valuation and qualifying account activity for the years ended December 31, 2018 , 2017 and 2016 is as follows:

	2018	2017	2016
		(In thousands)	
ALLOWANCE FOR DOUBTFUL ACCOUNTS [1]			
Beginning balance January 1	$ 7,764	$ 8,078	$ 7,812
Charged to costs and expenses, net of recoveries	290	720	1,425
Utilization	(1,396)	(1,418)	(1,585)
Currency translation and other	51	384	426
Ending balance December 31	$ 6,709	$ 7,764	$ 8,078

[1] Includes provision for doubtful accounts and sales discounts granted to customers.

4. Revenue

IDEX is an applied solutions company specializing in the manufacture of fluid and metering technologies, health and science technologies and fire, safety and other diversified products built to customers' specifications. The Company's products include industrial pumps, compressors, flow meters, injectors, valves and related controls for use in a wide variety of process applications; precision fluidics solutions, including pumps, valves, degassing equipment, corrective tubing, fittings and complex manifolds, optical filters and specialty medical equipment and devices for use in life science applications; precision-engineered equipment for dispensing, metering and mixing paints; and engineered products for industrial and commercial markets, including fire and rescue, transportation equipment, oil and gas, electronics and communications. The Company's revenue is accounted for under ASC 606, which we adopted on January 1, 2018 using the modified retrospective method.

Revenue is recognized when control of the promised products or services is transferred to our customers in an amount that reflects the consideration we expect to be entitled to in exchange for transferring those products or providing those services. We account for a contract when it has approval and commitment from both parties, the rights of the parties are identified, payment terms are identified, the contract has commercial substance and collectibility of the consideration is probable. We determine the appropriate revenue recognition for our contracts with customers by analyzing the type, terms and conditions of each contract or arrangement with a customer.

Disaggregation of Revenue

We have a comprehensive offering of products, including technologies, built to customers' specifications that are sold in niche markets throughout the world. We disaggregate our revenue from contracts with customers by reporting unit and geographical region for each of our segments as we believe it best depicts how the nature, amount, timing and uncertainty of our revenue and cash flows are affected by economic factors. Revenue was attributed to geographic areas based on location of the customer and no country outside the U.S. was greater than 10% of total revenues. The following tables present our revenue disaggregated by reporting unit and geographical region.

Revenue by reporting unit for the year ended December 31, 2018 was as follows:

	For the Year Ended December 31, 2018
Energy	$ 163,996
Valves	113,136
Water	251,020
Pumps	324,222
Agriculture	99,178
Intersegment elimination	(277)
Fluid & Metering Technologies	951,275
Scientific Fluidics & Optics	417,859
Sealing Solutions	200,316
Gast	126,787
Micropump	36,827
Material Processing Technologies	114,630
Intersegment elimination	(449)
Health & Science Technologies	895,970
Fire & Safety	396,926
Band-It	105,785
Dispensing	134,317
Intersegment elimination	(607)
Fire & Safety/Diversified Products	636,421
Total net sales	$ 2,483,666

Revenue by geographical region for the year ended December 31, 2018 was as follows:

	For the Year Ended December 31, 2018			
	FMT	HST	FSDP	IDEX
U.S.	$ 540,697	$ 392,140	$ 297,717	$ 1,230,554
North America, excluding U.S.	57,917	18,770	28,779	105,466
Europe	172,630	278,634	164,307	615,571
Asia	119,822	189,342	111,169	420,333
Other [1]	60,486	17,533	35,056	113,075
Intersegment elimination	(277)	(449)	(607)	(1,333)
Total net sales	$ 951,275	$ 895,970	$ 636,421	$ 2,483,666

[1] Other includes: South America, Middle East, Australia and Africa.

Contract Balances

The timing of revenue recognition, billings and cash collections results in customer receivables, advance payments and billings in excess of revenue recognized. Customer receivables include amounts billed and currently due from customers as well as unbilled amounts (contract assets) and are included in Receivables on our Consolidated Balance Sheets. Amounts are billed in accordance with contractual terms or as work progresses in accordance with contractual terms. Unbilled amounts arise when the timing of billing differs from the timing of revenue recognized, such as when contract provisions require specific milestones to be met before a customer can be billed. Unbilled amounts primarily relate to performance obligations satisfied over time when the cost-to-cost method is utilized and the revenue recognized exceeds the amount billed to the customer as there is not yet a right to payment in accordance with contractual terms. Unbilled amounts are recorded as a contract asset when the revenue associated with the contract is recognized prior to billing and derecognized when billed in accordance with the terms of the contract. Customer receivables are

recorded at face amounts less an allowance for doubtful accounts. The Company maintains allowances for doubtful accounts for estimated losses as a result of customers' inability to make required payments. Management evaluates the aging of the customer receivable balances, the financial condition of its customers, historical trends and the time outstanding of specific balances to estimate the amount of customer receivables that may not be collected in the future and records the appropriate provision.

The composition of Customer receivables was as follows:

	December 31, 2018	January 1, 2018
Billed receivables	$ 299,227	$ 285,800
Unbilled receivables	14,492	11,996
Total customer receivables	$ 313,719	$ 297,796

Advance payments and billings in excess of revenue recognized are included in Deferred revenue which is classified as current or noncurrent based on the timing of when we expect to recognize the revenue. The current portion is included in Accrued expenses and the noncurrent portion is included in Other noncurrent liabilities on our Consolidated Balance Sheets. Advance payments and billings in excess of revenue recognized represent contract liabilities and are recorded when customers remit contractual cash payments in advance of us satisfying performance obligations under contractual arrangements, including those with performance obligations satisfied over time. Billings in excess of revenue recognized primarily relate to performance obligations satisfied over time when the cost-to-cost method is utilized and revenue cannot yet be recognized as the Company has not completed the corresponding performance obligation. We generally receive advance payments from customers related to maintenance services which we recognize ratably over the service term. Contract liabilities are derecognized when revenue is recognized and the performance obligation is satisfied.

The composition of Deferred revenue was as follows:

	December 31, 2018	January 1, 2018
Deferred revenue - current	$ 8,055	$ 11,031
Deferred revenue - noncurrent	3,027	3,297
Total deferred revenue	$ 11,082	$ 14,328

Performance Obligations

A performance obligation is a promise in a contract to transfer a distinct product or service to the customer. A contract's transaction price is allocated to each distinct performance obligation and recognized as revenue when, or as, the performance obligation is satisfied. For our contracts that require complex design, manufacturing and installation activities that are not separately identifiable from other promises in the contract and, therefore, not distinct, the entire contract is accounted for as a single performance obligation. For our contracts that include distinct products or services that are substantially the same and have the same pattern of transfer to the customer over time, they are recognized as a series of distinct products or services. Certain of our contracts have multiple performance obligations for which we allocate the transaction price to each performance obligation using an estimate of the standalone selling price of each distinct product or service in the contract. For product sales, each product sold to a customer generally represents a distinct performance obligation. In such cases, the observable standalone sales are used to determine the standalone selling price. In certain cases, we may be required to estimate standalone selling price using the expected cost plus margin approach, under which we forecast our expected costs of satisfying a performance obligation and then add an appropriate margin for that distinct product or service.

Our performance obligations are satisfied at a point in time or over time as work progresses. Performance obligations are supported by contracts with customers that provide a framework for the nature of the distinct products or services or bundle of products and services. We define service revenue as revenue from activities that are not associated with the design, development or manufacture of a product or the delivery of a software license.

Revenue from products and services transferred to customers at a point in time approximated 95% in the year ended December 31, 2018 . Revenue recognized at a point in time relates to the majority of our product sales. Revenue on these contracts is recognized when obligations under the terms of the contract with our customer are satisfied. Generally, this occurs with the transfer of control of the asset, which is in line with shipping terms.

Revenue from products and services transferred to customers over time approximated 5% in the year ended December 31, 2018 . Revenue earned by certain business units within the Water, Energy, Material Processing Technologies ("MPT") and Dispensing reporting units is recognized over time because control transfers continuously to our customers. When accounting for over-time contracts, we use an input measure to determine the extent of progress towards completion of the performance obligation. For certain business units within the Water, Energy and MPT reporting units, revenue is recognized over time as work is performed based on the relationship between actual costs incurred to date for each contract and the total estimated costs for such contract at completion of the performance obligation (i.e. the cost-to-cost method). We believe this measure of progress best depicts the transfer of control to the customer which occurs as we incur costs on our contracts. Incurred cost represents work performed, which corresponds with the transfer of control to the customer. Contract costs include labor, material and overhead. Contract estimates are based on various assumptions to project the outcome of future events. These assumptions include labor productivity and availability; the complexity of the work to be performed; the cost and availability of materials; the performance of subcontractors; and the availability and timing of funding from the customer. Revenues, including estimated fees or profits, are recorded proportionally as costs are incurred. For certain business units within the Energy and Dispensing reporting units, revenue is recognized ratably over the contract term.

As a significant change in one or more of these estimates could affect the profitability of our contracts, we review and update our estimates regularly. Due to uncertainties inherent in the estimation process, it is reasonably possible that completion costs, including those arising from contract penalty provisions and final contract settlements, will be revised. Such revisions to costs and income are recognized in the period in which the revisions are determined as a cumulative catch-up adjustment. The impact of the adjustment on profit recorded to date on a contract is recognized in the period the adjustment is identified. Revenue and profit in future periods of contract performance are recognized using the adjusted estimate. If at any time the estimate of contract profitability indicates an anticipated loss on the contract, we recognize provisions for estimated losses on uncompleted contracts in the period in which such losses are determined.

The Company records allowances for discounts, product returns and customer incentives at the time of sale as a reduction of revenue as such allowances can be reliably estimated based on historical experience and known trends. The Company also offers product warranties (primarily assurance-type) and accrues its estimated exposure for warranty claims at the time of sale based upon the length of the warranty period, warranty costs incurred and any other related information known to the Company.

5. Goodwill and Intangible Assets

The changes in the carrying amount of goodwill for 2018 and 2017 , by reportable business segment, were as follows:

	Fluid & Metering Technologies	Health & Science Technologies	Fire & Safety/ Diversified Products	Total
	(In thousands)			
Goodwill	$ 594,158	$ 849,119	$ 389,946	$ 1,833,223
Accumulated goodwill impairment losses	(20,721)	(149,820)	(30,090)	(200,631)
Balance at January 1, 2017	573,437	699,299	359,856	1,632,592
Foreign currency translation	15,748	19,225	18,206	53,179
Acquisitions	—	23,929	—	23,929
Disposition of businesses	(3,121)	—	—	(3,121)
Acquisition adjustments	—	(2,421)	—	(2,421)
Balance at December 31, 2017	586,064	740,032	378,062	1,704,158
Foreign currency translation	(5,023)	(8,391)	(6,505)	(19,919)
Acquisitions	—	12,399	—	12,399
Disposition of businesses	—	—	—	—
Acquisition adjustments	—	1,317	—	1,317
Balance at December 31, 2018	$ 581,041	$ 745,357	$ 371,557	$ 1,697,955

ASC 350 requires that goodwill be tested for impairment at the reporting unit level on an annual basis and between annual tests if an event occurs or circumstances change that would more likely than not reduce the fair value of a reporting unit below its carrying amount. In 2018 and 2017 , there were no events that occurred or circumstances that changed that would have required a

review other than as of our annual test date. Goodwill represents the purchase price in excess of the net amount assigned to assets acquired and liabilities assumed.

Goodwill and other acquired intangible assets with indefinite lives were tested for impairment as of October 31, 2018 , the Company's annual impairment date. In assessing the fair value of the reporting units, the Company considers both the market approach and the income approach. Under the market approach, the fair value of the reporting unit is determined by the respective trailing twelve month EBITDA and the forward looking 2019 EBITDA (50% each), based on multiples of comparable public companies. The market approach is dependent on a number of significant management assumptions including forecasted EBITDA and selected market multiples. Under the income approach, the fair value of the reporting unit is determined based on the present value of estimated future cash flows. The income approach is dependent on a number of significant management assumptions including estimates of operating results, capital expenditures, net working capital requirements, long-term growth rates and discount rates. Weighting was equally attributed to both the market and the income approaches (50% each) in arriving at the fair value of the reporting units.

The following table provides the gross carrying value and accumulated amortization for each major class of intangible asset at December 31, 2018 and 2017 :

	At December 31, 2018			Weighted Average Life	At December 31, 2017		
	Gross Carrying Amount	Accumulated Amortization	Net		Gross Carrying Amount	Accumulated Amortization	Net
	(In thousands)				(In thousands)		
Amortized intangible assets:							
Patents	$ 6,468	$ (4,693)	$ 1,775	12	$ 9,633	$ (7,143)	$ 2,490
Trade names	115,899	(57,227)	58,672	16	117,206	(50,604)	66,602
Customer relationships	256,202	(85,652)	170,550	14	317,316	(124,566)	192,750
Unpatented technology	96,922	(35,685)	61,237	12	91,166	(29,428)	61,738
Other	700	(507)	193	10	839	(573)	266
Total amortized intangible assets	476,191	(183,764)	292,427		536,160	(212,314)	323,846
Indefinite-lived intangible assets:							
Banjo trade name	62,100	—	62,100		62,100	—	62,100
Akron Brass trade name	28,800	—	28,800		28,800	—	28,800
Total intangible assets	$ 567,091	$ (183,764)	$ 383,327		$ 627,060	$ (212,314)	$ 414,746

On June 22, 2018, the Company acquired the intellectual property assets of Phantom Controls ("Phantom") for cash consideration of $4.0 million . The operational capabilities and innovative pump operation of Phantom's technology complements our existing water-flow expertise of Hale, Akron Brass and Class 1 to improve fire ground safety and reduce operational complexity during mission critical response. This acquisition of intellectual property assets did not meet the definition of a business under ASU 2017-01 and thus the Company recorded the entire purchase price to the Unpatented technology class of intangible assets on the Consolidated Balance Sheets.

The Banjo trade name and the Akron Brass trade name are indefinite-lived intangible assets which are tested for impairment on an annual basis in accordance with ASC 350 or more frequently if events or changes in circumstances indicate that the assets might be impaired. The Company uses the relief-from-royalty method, a form of the income approach, to determine the fair value of these trade names. The relief-from-royalty method is dependent on a number of significant management assumptions, including estimates of revenues, royalty rates and discount rates.

In 2018 and 2017 , there were no events that occurred or circumstances that changed that would have required a review other than as of our annual test date.

Amortization of intangible assets was $38.5 million , $45.9 million and $49.0 million in 2018 , 2017 and 2016 , respectively. Based on the intangible asset balances as of December 31, 2018 , amortization expense is expected to approximate $36.5 million in 2019 , $34.8 million in 2020 , $33.9 million in 2021 , $32.2 million in 2022 and $29.3 million in 2023 .

6. Borrowings

Borrowings at December 31, 2018 and 2017 consisted of the following:

	2018	2017
	(In thousands)	
Revolving Facility	$ —	$ 10,740
4.50% Senior Notes, due December 2020	300,000	300,000
4.20% Senior Notes, due December 2021	350,000	350,000
3.20% Senior Notes, due June 2023	100,000	100,000
3.37% Senior Notes, due June 2025	100,000	100,000
Other borrowings	1,078	1,446
Total borrowings	851,078	862,186
Less current portion	483	258
Less deferred debt issuance costs	1,593	2,204
Less unaccreted debt discount	667	936
Total long-term borrowings	$ 848,335	$ 858,788

On June 13, 2016, the Company completed a private placement of $100 million aggregate principal amount of 3.20% Senior Notes due June 13, 2023 and $100 million aggregate principal amount of 3.37% Senior Notes due June 13, 2025 (collectively, the "Notes") pursuant to a Note Purchase Agreement, dated June 13, 2016 (the "Purchase Agreement"). Each series of Notes bears interest at the stated amount per annum, which is payable semi-annually in arrears on each June 13 th and December 13 th . The Notes are unsecured obligations of the Company and rank pari passu in right of payment with all of the Company's other unsecured, unsubordinated debt. The Company may at any time prepay all, or any portion of the Notes; provided that such portion is greater than 5% of the aggregate principal amount of the Notes then outstanding. In the event of a prepayment, the Company will pay an amount equal to par plus accrued interest plus a make-whole amount. In addition, the Company may repurchase the Notes by making an offer to all holders of the Notes, subject to certain conditions.

The Purchase Agreement contains certain covenants that restrict the Company's ability to, among other things, transfer or sell assets, incur indebtedness, create liens, transact with affiliates and engage in certain mergers or consolidations or other change of control transactions. In addition, the Company must comply with a leverage ratio and interest coverage ratio, as further described below, and the Purchase Agreement also limits the outstanding principal amount of priority debt that may be incurred by the Company to 15% of consolidated assets. The Purchase Agreement provides for customary events of default. In the case of an event of default arising from specified events of bankruptcy or insolvency, all of the outstanding Notes will become due and payable immediately without further action or notice. In the case of payment event of default, any holder of the Notes affected thereby may declare all of the Notes held by it due and payable immediately. In the case of any other event of default, a majority of the holders of the Notes may declare all of the Notes to be due and payable immediately.

On June 23, 2015, the Company entered into a credit agreement (the "Credit Agreement") along with certain of its subsidiaries, as borrowers (the "Borrowers"), Bank of America, N.A., as administrative agent, swing line lender and an issuer of letters of credit, with other agents party thereto. The Credit Agreement replaced the Company's existing five -year $700 million credit agreement, dated as of June 27, 2011, which was due to expire on June 27, 2016.

The Credit Agreement consists of a revolving credit facility (the "Revolving Facility") in an aggregate principal amount of $700 million , with a final maturity date of June 23, 2020 . The maturity date may be extended under certain conditions for an additional one -year term. Up to $75 million of the Revolving Facility is available for the issuance of letters of credit. Additionally, up to $50 million of the Revolving Facility is available to the Company for swing line loans, available on a same-day basis.

Proceeds of the Revolving Facility are available for use by the Borrowers for acquisitions, working capital and other general corporate purposes, including refinancing existing debt of the Company and its subsidiaries. The Company may request increases in the lending commitments under the Credit Agreement, but the aggregate lending commitments pursuant to such increases may not exceed $350 million . The Company has the right, subject to certain conditions set forth in the Credit Agreement, to designate certain foreign subsidiaries of the Company as borrowers under the Credit Agreement. In connection with any such designation, the Company is required to guarantee the obligations of any such subsidiaries.

Borrowings under the Credit Agreement bear interest at either an alternate base rate or an adjusted LIBOR rate plus, in each case, an applicable margin. Such applicable margin is based on the Company's senior, unsecured, long-term debt rating and can range from .005% to 1.50% . Based on the Company's credit rating at December 31, 2018 , the applicable margin was 1.10% . Interest is payable (a) in the case of base rate loans, quarterly, and (b) in the case of LIBOR rate loans, on the maturity date of the borrowing, or quarterly from the effective date for borrowings exceeding three months.

The Credit Agreement requires payment to the lenders of a facility fee based upon (a) the amount of the lenders' commitments under the credit facility from time to time and (b) the applicable corporate credit ratings of the Company. Voluntary prepayments of any loans and voluntary reductions of the unutilized portion of the commitments under the credit facility are permissible without penalty, subject to break funding payments and minimum notice and minimum reduction amount requirements.

The negative covenants include, among other things, limitations (each of which is subject to customary exceptions for financings of this type) on our ability to grant liens; enter into transactions resulting in fundamental changes (such as mergers or sales of all or substantially all of the assets of the Company); restrict subsidiary dividends or other subsidiary distributions; enter into transactions with the Company's affiliates; and incur certain additional subsidiary debt.

The Credit Agreement also contains customary events of default (subject to grace periods, as appropriate) including among others: nonpayment of principal, interest or fees; breach of the representations or warranties in any material respect; breach of the financial, affirmative or negative covenants; payment default on, or acceleration of, other material indebtedness; bankruptcy or insolvency; material judgments entered against the Company or any of its subsidiaries; certain specified events under the Employee Retirement Income Security Act of 1974, as amended; certain changes in control of the Company; and the invalidity or unenforceability of the Credit Agreement or other documents associated with the Credit Agreement.

At December 31, 2018 , there was no balance outstanding under the Revolving Facility and $8.8 million of outstanding letters of credit, resulting in a net available borrowing capacity under the Revolving Facility at December 31, 2018 of approximately $691.2 million .

On December 9, 2011, the Company completed a public offering of $350.0 million 4.2% senior notes due December 15, 2021 (" 4.2% Senior Notes"). The net proceeds from the offering of $346.2 million , after deducting a $0.9 million issuance discount, a $2.3 million underwriting commission and $0.6 million of offering expenses, were used to repay $306.0 million of outstanding bank indebtedness, with the balance used for general corporate purposes. The 4.2% Senior Notes bear interest at a rate of 4.2% per annum, which is payable semi-annually in arrears on each June 15th and December 15th. The Company may redeem all or a portion of the 4.2% Senior Notes at any time prior to maturity at the redemption prices set forth in the Note Indenture governing the 4.2% Senior Notes. The Company may issue additional debt from time to time pursuant to the Indenture. The Indenture and 4.2% Senior Notes contain covenants that limit the Company's ability to, among other things, incur certain liens securing indebtedness, engage in certain sale-leaseback transactions, and enter into certain consolidations, mergers, conveyances, transfers or leases of all or substantially all of the Company's assets. The terms of the 4.2% Senior Notes also require the Company to make an offer to repurchase the 4.2% Senior Notes upon a change of control triggering event (as defined in the Indenture) at a price equal to 101% of their principal amount plus accrued and unpaid interest, if any.

On December 6, 2010, the Company completed a public offering of $300.0 million 4.5% senior notes due December 15, 2020 (" 4.5% Senior Notes"). The net proceeds from the offering of $295.7 million , after deducting a $1.6 million issuance discount, a $1.9 million underwriting commission and $0.8 million of offering expenses, were used to repay $250.0 million of outstanding bank indebtedness, with the balance used for general corporate purposes. The 4.5% Senior Notes bear interest at a rate of 4.5% per annum, which is payable semi-annually in arrears on each June 15th and December 15th. The Company may redeem all or a portion of the 4.5% Senior Notes at any time prior to maturity at the redemption prices set forth in the Note Indenture governing the 4.5% Senior Notes. The Company may issue additional debt from time to time pursuant to the Indenture. The Indenture and 4.5% Senior Notes contain covenants that limit the Company's ability to, among other things, incur certain liens securing indebtedness, engage in certain sale-leaseback transactions, and enter into certain consolidations, mergers, conveyances, transfers or leases of all or substantially all of the Company's assets. The terms of the 4.5% Senior Notes also require the Company to make an offer to repurchase the 4.5% Senior Notes upon a change of control triggering event (as defined in the Indenture) at a price equal to 101% of their principal amount plus accrued and unpaid interest, if any.

There are two key financial covenants that the Company is required to maintain in connection with the Revolving Facility and the Notes, a minimum interest coverage ratio of 3.0 to 1 and a maximum leverage ratio of 3.50 to 1 , which is the ratio of the Company's consolidated total debt to its consolidated EBITDA. At December 31, 2018 , the Company was in compliance with

both of these financial covenants. There are no financial covenants relating to the 4.5% Senior Notes or 4.2% Senior Notes; however, both are subject to cross-default provisions.

Total borrowings at December 31, 2018 have scheduled maturities as follows:

(In thousands)		
2019	$	483
2020		300,595
2021		350,000
2022		—
2023		100,000
Thereafter		100,000
Total borrowings	$	851,078

7. Derivative Instruments

The Company enters into cash flow hedges from time to time to reduce the exposure to variability in certain expected future cash flows. The types of cash flow hedges the Company enters into include foreign currency exchange contracts designed to minimize the earnings impact on certain intercompany loans and interest rate exchange agreements that effectively convert a portion of floating-rate debt to fixed-rate debt and are designed to reduce the impact of interest rate changes on future interest expense.

The effective portion of gains or losses on interest rate exchange agreements is reported in accumulated other comprehensive income (loss) in shareholders' equity and reclassified into net income in the same period or periods in which the hedged transaction affects net income. The remaining gain or loss in excess of the cumulative change in the present value of future cash flows or the hedged item, if any, is recognized in net income during the period of change. See Note 15 for the amount of loss reclassified into income for interest rate contracts for the years ended December 31, 2018 , 2017 and 2016 . As of December 31, 2018, the Company did not have any interest rate contracts outstanding.

On April 15, 2010, the Company entered into a forward starting interest rate contract with a notional amount of $300.0 million and a settlement date in December 2010. This contract was entered into in anticipation of the issuance of the 4.5% Senior Notes and was designed to lock in the market interest rate as of April 15, 2010. In December 2010, the Company settled and paid this interest rate contract for $31.0 million . The $31.0 million is being amortized into interest expense over the 10 year term of the 4.5% Senior Notes, which results in an effective interest rate of 5.8% .

On July 12, 2011, the Company entered into a forward starting interest rate contract with a notional amount of $350.0 million and a settlement date of September 30, 2011 . This contract was entered into in anticipation of the issuance of the 4.2% Senior Notes and was designed to lock in the market interest rate as of July 12, 2011. On September 29, 2011, the Company settled this interest rate contract for $34.7 million with a payment made on October 3, 2011. Simultaneously, the Company entered into a separate interest rate contract with a notional amount of $350.0 million and a settlement date of February 28, 2012 . The contract was entered into in anticipation of the expected issuance of the 4.2% Senior Notes and was designed to maintain the market rate as of July 12, 2011. In December 2011, the Company settled and paid the September interest rate contract for $4.0 million , resulting in a total settlement of $38.7 million . Of the $38.7 million , $0.8 million was recognized as other expense in 2011 and the balance of $37.9 million is being amortized into interest expense over the 10 year term of the 4.2% Senior Notes, which results in an effective interest rate of 5.3% .

The amount of expense reclassified into interest expense for interest rate contracts for the years ended December 31, 2018 , 2017 and 2016 is $6.5 million , $6.7 million and $6.9 million , respectively.

Approximately $6.3 million of the pre-tax amount included in accumulated other comprehensive loss in shareholders' equity at December 31, 2018 will be recognized in net income over the next 12 months as the underlying hedged transactions are realized.

At December 31, 2017, the Company had outstanding foreign currency exchange contracts with a combined notional value of €180 million that were not designated as hedges for accounting purposes and, as a result, the change in the fair value of these foreign currency exchange contracts and the corresponding foreign currency gain or loss on the revaluation of the intercompany loans are

both recorded through earnings within Other (income) expense - net in the Consolidated Statements of Operations each period as incurred.

In April 2018, the Company settled all of its outstanding foreign currency exchange contracts in conjunction with its repayment of the underlying intercompany loans and did not extend these foreign currency exchange contracts. This resulted in the Company receiving $6.6 million of proceeds. During the years ended December 31, 2018 and 2017, the Company recorded gains of $0.9 million and $19.8 million , respectively, within Other (income) expense - net in the Consolidated Statements of Operations related to these foreign currency exchange contracts. During the years ended December 31, 2018 and 2017, the Company recorded foreign currency transaction losses of $0.9 million and $20.2 million , respectively, within Other (income) expense - net in the Consolidated Statements of Operations related to these intercompany loans. In connection with the elimination of the intercompany loans and their conversion to capital, the Company paid a $2.2 million stamp duty in Switzerland which was recorded within Selling, general and administrative expenses in the Consolidated Statements of Operations.

Fair values relating to derivative financial instruments reflect the estimated amounts that the Company would receive or pay to sell or buy the contracts based on quoted market prices of comparable contracts at each balance sheet date.

The following table sets forth the fair value amounts of derivative instruments held by the Company as of December 31, 2018 and 2017 :

	Fair Value Assets (Liabilities)		
	December 31, 2018	December 31, 2017	Balance Sheet Caption
	(In thousands)		
Foreign currency exchange contracts	$ —	$ 5,779	Other current assets

8. Fair Value Measurements

ASC 820, *Fair Value Measurements and Disclosures,* defines fair value, provides guidance for measuring fair value and requires certain disclosures. This standard discusses valuation techniques, such as the market approach (comparable market prices), the income approach (present value of future income or cash flow), and the cost approach (cost to replace the service capacity of an asset or replacement cost). The standard utilizes a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value into three broad levels. The following is a brief description of those three levels:

- Level 1: Observable inputs such as quoted prices (unadjusted) in active markets for identical assets or liabilities.
- Level 2: Inputs, other than quoted prices that are observable for the asset or liability, either directly or indirectly. These include quoted prices for similar assets or liabilities in active markets and quoted prices for identical or similar assets or liabilities in markets that are not active.
- Level 3: Unobservable inputs that reflect the reporting entity's own assumptions.

The following table summarizes the basis used to measure the Company's financial assets (liabilities) at fair value on a recurring basis in the balance sheets at December 31, 2018 and 2017 :

		Basis of Fair Value Measurements		
	Balance at December 31, 2018	Level 1	Level 2	Level 3
		(In thousands)		
Available for sale securities	$ 7,598	$ 7,598	$ —	$ —
Contingent consideration	3,375	—	—	3,375

		Basis of Fair Value Measurements		
	Balance at December 31, 2017	Level 1	Level 2	Level 3
		(In thousands)		
Available for sale securities	$ 6,742	$ 6,742	$ —	$ —
Foreign currency exchange contracts	5,779	—	5,779	—

There were no transfers of assets or liabilities between Level 1 and Level 2 in 2018 or 2017 .

The Company utilized a Monte Carlo Simulation during the earn-out period to determine the fair value of the contingent consideration associated with the acquisition of FLI. The $3.4 million represents management's best estimate of the liability, based on a range of outcomes of FLI's two-year operating results, from August 1, 2018 to July 31, 2020, and is expected to be paid during the third quarter of 2020. As of December 31, 2018 , the $3.4 million of contingent consideration is included in Other noncurrent liabilities on the Consolidated Balance Sheets.

The carrying value of our cash and cash equivalents, accounts receivable, accounts payable and accrued expenses approximates their fair values because of the short term nature of these instruments. At December 31, 2018 , the fair value of the outstanding indebtedness under our 3.2% Senior Notes, 3.37% Senior Notes, 4.5% Senior Notes, 4.2% Senior Notes and other borrowings based on quoted market prices and current market rates for debt with similar credit risk and maturity was approximately $851.5 million compared to the carrying value of $850.4 million . At December 31, 2017 , the fair value of the outstanding indebtedness under our Revolving Facility, 3.2% Senior Notes, 3.37% Senior Notes, 4.5% Senior Notes and 4.2% Senior Notes based on quoted market prices and current market rates for debt with similar credit risk and maturity was approximately $886.3 million compared to the carrying value of $861.0 million . These fair value measurements are classified as Level 2 within the fair value hierarchy since they are determined based upon significant inputs observable in the market, including interest rates on recent financing transactions to entities with a credit rating similar to ours.

9. Commitments and Contingencies

The Company leases certain office facilities, warehouses and data processing equipment under operating leases. Rental expense totaled $21.8 million , $19.0 million and $18.6 million in 2018 , 2017 and 2016 , respectively.

The aggregate future minimum lease payments for leases as of December 31, 2018 were as follows:

	Lease Obligations
2019	$ 17,509
2020	13,162
2021	10,516
2022	7,979
2023	6,535
2024 and thereafter	29,658
	$ 85,359

Warranty costs are provided for at the time of sale. The warranty provision is based on historical costs and adjusted for specific known claims. A rollforward of the warranty reserve is as follows:

	2018	2017	2016
		(In thousands)	
Beginning balance at January 1	$ 6,281	$ 5,628	$ 7,936
Provision for warranties	2,334	2,895	1,828
Claim settlements	(2,981)	(2,317)	(3,539)
Other adjustments, including acquisitions, divestitures and currency translation	(331)	75	(597)
Ending balance at December 31	$ 5,303	$ 6,281	$ 5,628

The Company and certain of its subsidiaries are involved in pending and threatened legal, regulatory and other proceedings arising in the ordinary course of business. These proceedings may pertain to matters such as product liability or contract disputes, and may also involve governmental inquiries, inspections, audits or investigations relating to issues such as tax matters, intellectual property, environmental, health and safety issues, governmental regulations, employment and other matters. Although the results of such legal proceedings cannot be predicted with certainty, the Company believes that the ultimate disposition of these matters

will not have a material adverse effect, individually or in the aggregate, on the Company's business, financial condition, results of operations or cash flows.

10. Common and Preferred Stock

On December 1, 2015 the Company's Board of Directors approved a $300.0 million increase in the authorized level for repurchases of common stock. Repurchases under the program will be funded with future cash flow generation or borrowings available under the Revolving Facility. During 2018 , the Company repurchased a total of 1.3 million shares at a cost of $173.9 million , compared to 0.3 million shares purchased at a cost of $29.1 million in 2017 . As of December 31, 2018 , the amount of share repurchase authorization remaining was $377 million .

At December 31, 2018 and 2017 , the Company had 150 million shares of authorized common stock, with a par value of $.01 per share, and five million shares of authorized preferred stock, with a par value of $.01 per share. No preferred stock was outstanding at December 31, 2018 and 2017 .

11. Income Taxes

Pretax income for 2018 , 2017 and 2016 was taxed in the following jurisdictions:

	2018	2017	2016
		(In thousands)	
U.S.	$ 357,585	$ 302,515	$ 265,260
Foreign	171,354	152,758	103,252
Total	$ 528,939	$ 455,273	$ 368,512

The provision (benefit) for income taxes for 2018 , 2017 and 2016 was as follows:

	2018	2017	2016
		(In thousands)	
Current			
U.S.	$ 67,793	$ 91,641	$ 67,668
State and local	8,056	9,342	4,503
Foreign	46,862	50,775	42,540
Total current	122,711	151,758	114,711
Deferred			
U.S.	(5,471)	(36,390)	(6,249)
State and local	(17)	3,305	(331)
Foreign	1,143	(657)	(10,728)
Total deferred	(4,345)	(33,742)	(17,308)
Total provision for income taxes	$ 118,366	$ 118,016	$ 97,403

Deferred tax assets (liabilities) at December 31, 2018 and 2017 were:

	2018	2017
	(In thousands)	
Employee and retiree benefit plans	$ 27,615	$ 31,804
Capital loss carryforwards	12,754	12,853
Depreciation and amortization	(168,485)	(176,592)
Inventories	5,969	8,548
Allowances and accruals	11,540	4,572
Interest rate exchange agreement	3,543	5,007
Other	(6,388)	(8,019)
Total gross deferred tax (liabilities)	(113,452)	(121,827)
Capital loss valuation allowance	(12,754)	(12,853)
Total deferred tax (liabilities), net of valuation allowances	$ (126,206)	$ (134,680)

The deferred tax assets and liabilities recognized in the Company's Consolidated Balance Sheets as of December 31, 2018 and 2017 were:

	2018	2017
	(In thousands)	
Noncurrent deferred tax asset - Other noncurrent assets	$ 1,801	$ 2,958
Noncurrent deferred tax liabilities - Deferred income taxes	(128,007)	(137,638)
Net deferred tax liabilities	$ (126,206)	$ (134,680)

The Company had prepaid income taxes, recorded within Other current assets on the Consolidated Balance Sheets, of $8.3 million and $40.9 million as of December 31, 2018 and 2017 , respectively.

The provision for income taxes differs from the amount computed by applying the statutory federal income tax rate to pretax income. The computed amount and the differences for 2018 , 2017 and 2016 are as follows:

	2018	2017	2016
		(In thousands)	
Pretax income	$ 528,939	$ 455,273	$ 368,512
Provision for income taxes:			
Computed amount at statutory rate	$ 111,077	$ 159,346	$ 128,979
State and local income tax (net of federal tax benefit)	8,280	5,841	4,070
Taxes on non-U.S. earnings-net of foreign tax credits	5,725	(24,914)	(6,666)
Global Intangible Lowed-Taxed Income	2,725	—	—
Foreign-Derived Intangible Income Deduction	(5,410)	—	—
Effect of flow-through entities	1,215	192	(8,735)
U.S. business tax credits	(3,056)	(1,928)	(1,665)
Domestic activities production deduction	—	(8,516)	(9,043)
Capital loss on divestitures	—	(2,275)	(23,444)
Share-based payments	(9,348)	(6,844)	(6,520)
Valuation allowance	—	(361)	17,973
Impact of Tax Act	10,298	(100)	—
Other	(3,140)	(2,425)	2,454
Total provision for income taxes	$ 118,366	$ 118,016	$ 97,403

On December 22, 2017, the President signed into law the Tax Cuts and Jobs Act (the “Tax Act”). The Tax Act included significant changes to the existing tax law, including, but not limited to, a permanent reduction to the U.S. federal corporate income tax rate from 35% to 21%, effective January 1, 2018 and the creation of a modified territorial tax system with a one-time repatriation tax on certain deferred foreign income (“Transition Tax”). The income tax effects of the Tax Act on the Company are further described below.

The Company has $18.2 million and $350 million of permanently reinvested earnings of non-U.S. subsidiaries as of December 31, 2018 and 2017, respectively. The significant decrease in permanently reinvested earnings of non-U.S. subsidiaries was due to the Company’s removal of its permanently reinvested assertion on all non-U.S. subsidiaries except for its entity in India, mainly in response to the deemed distribution and repatriation tax incurred in 2017 as a result of the Tax Act. No deferred U.S. income taxes have been provided on the $18.2 million permanently reinvested earnings, as these earnings are considered to be reinvested for an indefinite period of time. It should also be noted that the aforementioned earnings will not incur U.S. taxes when ultimately repatriated other than potentially U.S. state and local taxes and/or U.S. federal income taxes on foreign exchange gains or losses crystalized on the distribution of such earnings. Such distributions could also be subject to additional foreign withholding and foreign income taxes. The amount of unrecognized deferred income tax liabilities on currently permanently reinvested earnings is estimated to be $3.7 million as of December 31, 2018.

During the years ended December 31, 2018, 2017 and 2016, the Company repatriated $135 million , $3.3 million and $28.8 million of foreign earnings, respectively. These actual distributions resulted in no incremental income tax expense, $6.4 million of incremental income tax benefit and $2.7 million of incremental income tax expense in 2018, 2017 and 2016, respectively. These repatriations represent distributions of previously taxed income as well as distributions from liquidating subsidiaries.

Because the changes included in the Tax Act were broad and complex, on December 22, 2017, the SEC issued Staff Accounting Bulletin (“SAB 118”), which provided guidance on accounting for the tax effects of the Tax Act. SAB 118 provided a measurement period that should not extend beyond one year from the Tax Act enactment date for companies to complete the accounting under ASC 740. In accordance with SAB 118, a company was required to reflect the income tax effects of those aspects of the Tax Act for which the accounting under ASC 740 was complete. To the extent that a company’s accounting for certain income tax effects of the Tax Act was incomplete but it was able to determine a reasonable estimate, it was required to record a provisional estimate to be included in the financial statements. As of December 31, 2018, the Company, as required under SAB 118, has completed the accounting for all of the enactment-date income tax effects of the Tax Act. The Company’s completed accounting of the enactment-date income tax effects of the Tax Act is as follows:

Deemed Repatriation Transition Tax: The Deemed Repatriation Transition Tax is a tax on previously untaxed accumulated and current earnings and profits of certain foreign subsidiaries. To determine the amount of the Transition Tax, the Company had to determine, in addition to other factors, the amount of post-1986 earnings and profits of the relevant subsidiaries, as well as the amount of non-U.S. income taxes paid on such earnings. The Company was able to make a reasonable estimate of the Transition Tax and recorded a provisional Transition Tax obligation of $30.3 million for the year ended December 31, 2017. During the first quarter, the IRS released Revenue Procedure 2018-17 and Notice 2018-26, the effects of which increased the provisional Transition Tax by $0.1 million . The Company finalized its Transaction Tax obligation in the fourth quarter 2018 recording a $3.9 million tax benefit which, together with the first quarter adjustment, resulted in a final Transition Tax obligation of $26.5 million .

Reduction of U.S. federal corporate tax rate : The Tax Act reduces the corporate tax rate to 21%, effective January 1, 2018. The Company recorded a decrease in its deferred tax liability of $40.6 million , with a corresponding adjustment to deferred income tax benefit of $40.6 million for the year ended December 31, 2017. The Company finalized the impact of the rate change on its deferred tax liability in the fourth quarter of 2018 recording an additional $1.1 million tax benefit. The total reduction to the deferred tax liability related to the rate change was $41.7 million .

Removal of Permanent Reinvestment Representation on certain undistributed foreign earnings : As a result of the enactment of the Tax Act, the Company had decided to remove the Permanent Reinvestment Representation with respect to certain of its subsidiaries in Canada, Italy and Germany as of December 31, 2017. Under the mandatory repatriation provisions of the Tax Act, post-1986 undistributed earnings were taxed in the U.S. as if they were distributed before December 31, 2017. However, with the removal of the Permanent Reinvestment Representation with respect to select subsidiaries in Canada, Italy and Germany, the non-creditable withholding taxes and any local country taxes associated with future dividends from these subsidiaries were required to be recorded as deferred tax liabilities as of the end of 2017. The Company recorded a provisional increase in its deferred tax liability of $9.2 million , with a corresponding adjustment to deferred income tax expense of $9.2 million for the year ending December 31, 2017. During the second quarter, the deferred tax liability was reduced by $1.4 million to $7.8 million . No adjustments were made to the deferred tax liability during the third quarter of 2018. The Company removed the Permanent Reinvestment Representation during the fourth quarter of 2018 for all remaining non-U.S. subsidiaries except for its entity in India. This change resulted in an additional $9.1 million increase to its deferred tax liability with a corresponding adjustment to deferred tax expense.

Global intangible low taxed income (GILTI) : The Tax Act creates a new requirement that certain income (i.e. GILTI) earned by controlled foreign corporations (CFCs) must be included currently in the gross income of the CFC's U.S. shareholder. GILTI is the excess of the U.S. shareholder's "net CFC tested income" over the net deemed intangible income return, which is currently defined as the excess of (1) 10% of the aggregate of the U.S. shareholder's pro rata share of the qualified business asset investment of each CFC with respect to which it is a U.S. shareholder over (2) the amount of certain interest expense taken into account in the determination of net CFC-tested income. In January 2018, FASB released guidance on the accounting for the GILTI tax. The guidance indicates that either accounting for deferred taxes related to GILTI tax inclusions or treating the GILTI tax as a period cost are both acceptable methods subject to an accounting policy election. The Company will treat the GILTI tax as a period cost.

A reconciliation of the beginning and ending amount of unrecognized tax benefits for 2018 , 2017 and 2016 is as follows:

	2018	2017	2016
		(In thousands)	
Beginning balance January 1	$ 2,722	$ 3,775	$ 7,228
Gross increases for tax positions of prior years	2,308	537	201
Gross decreases for tax positions of prior years	(229)	(587)	(93)
Settlements	(160)	(604)	(2,014)
Lapse of statute of limitations	(571)	(399)	(1,547)
Ending balance December 31	$ 4,070	$ 2,722	$ 3,775

The Company recognizes interest and penalties related to uncertain tax positions in income tax expense. As of December 31, 2018 , 2017 and 2016 , we had approximately $0.1 million , $0.1 million and $0.1 million , respectively, of accrued interest related

to uncertain tax positions. As of December 31, 2018 and 2017, the Company had no accrued penalties related to uncertain tax positions, while in 2016 we had approximately $0.1 million .

The total amount of unrecognized tax benefits that would affect the Company's effective tax rate if recognized is $3.0 million , $0.9 million and $1.8 million as of December 31, 2018 , 2017 and 2016 , respectively. The tax years 2012-2017 remain open to examination by major taxing jurisdictions. Due to the potential for resolution of federal, state and foreign examinations and the expiration of various statutes of limitation, it is reasonably possible that the Company's gross unrecognized tax benefits balance may change within the next 12 months by a range of zero to $1 million .

The Company had net operating loss and credit carryforwards related to prior acquisitions for U.S. federal purposes at December 31, 2018 and 2017 of $1.3 million and $2.4 million, respectively. The U.S. federal net operating loss carryforwards are available for use against the Company's consolidated U.S. federal taxable income and expire between 2021 and 2028. For non-U.S. purposes, the Company had net operating loss carryforwards at December 31, 2018 and 2017 of $29.5 million and $24.5 million, respectively, the majority of which relates to acquisitions. The entire balance of the non-U.S. net operating losses is available to be carried forward. At December 31, 2018 and 2017 , the Company had U.S. state net operating loss carryforwards of approximately $15.8 million and $6.7 million , respectively. If unutilized, the U.S. state net operating loss will expire between 2019 and 2038. At December 31, 2018 and 2017 , the Company recorded a valuation allowance against the deferred tax asset attributable to the U.S. state net operating loss of $0.6 million and $0.1 million , respectively.

The Company had a capital loss carryover for U.S. federal purposes at December 31, 2018 and 2017 of approximately $46.1 million and $46.0 million , respectively. U.S. federal capital loss carryovers can be carried back three years and forward five years, thus, if unutilized, the U.S. federal capital loss carryover will expire in 2021. At December 31, 2018 and 2017 , the Company recorded a valuation allowance against the deferred tax asset attributable to the U.S. federal capital loss carryover of $9.7 million and $9.7 million , respectively. At December 31, 2018 and 2017 , the Company had U.S. state capital loss carryovers of $62.7 million and $62.7 million , respectively. If unutilized, the U.S. state capital loss carryovers will expire between 2021 and 2031. At December 31, 2018 and 2017 , the Company recorded a valuation allowance against the deferred tax assets attributable to the U.S. state capital loss carryovers of $0.8 million and $0.8 million , respectively. At December 31, 2018 and 2017 , the Company had a foreign capital loss carryforward of approximately $13.4 million and $14.2 million , respectively. The foreign capital loss can be carried forward indefinitely. At both December 31, 2018 and 2017 , the Company has a full valuation allowance against the deferred tax asset attributable to the foreign capital loss.

12. Business Segments and Geographic Information

IDEX has three reportable business segments: Fluid & Metering Technologies, Health & Science Technologies and Fire & Safety/Diversified Products.

The Fluid & Metering Technologies segment designs, produces and distributes positive displacement pumps, flow meters, injectors, and other fluid-handling pump modules and systems and provides flow monitoring and other services for the food, chemical, general industrial, water & wastewater, agriculture and energy industries.

The Health & Science Technologies segment designs, produces and distributes a wide range of precision fluidics, rotary lobe pumps, centrifugal and positive displacement pumps, roll compaction and drying systems used in beverage, food processing, pharmaceutical and cosmetics, pneumatic components and sealing solutions, including very high precision, low-flow rate pumping solutions required in analytical instrumentation, clinical diagnostics and drug discovery, high performance molded and extruded sealing components, biocompatible medical devices and implantables, air compressors used in medical, dental and industrial applications, optical components and coatings for applications in the fields of scientific research, defense, biotechnology, aerospace, telecommunications and electronics manufacturing, laboratory and commercial equipment used in the production of micro and nano scale materials, precision photonic solutions used in life sciences, research and defense markets, and precision gear and peristaltic pump technologies that meet exacting original equipment manufacturer specifications.

The Fire & Safety/Diversified Products segment designs, produces and distributes firefighting pumps, valves and controls, rescue tools, lifting bags and other components and systems for the fire and rescue industry, engineered stainless steel banding and clamping devices used in a variety of industrial and commercial applications and precision equipment for dispensing, metering and mixing colorants and paints used in a variety of retail and commercial businesses around the world.

Information on the Company's business segments is presented below based on the nature of products and services offered. The Company evaluates performance based on several factors, of which sales, operating income and operating margin are the primary financial measures. Intersegment sales are accounted for at fair value as if the sales were to third parties.

	2018	2017	2016
		(In thousands)	
NET SALES			
Fluid & Metering Technologies			
External customers	$ 951,275	$ 880,648	$ 848,708
Intersegment sales	277	309	393
Total segment sales	951,552	880,957	849,101
Health & Science Technologies			
External customers	895,970	819,719	744,380
Intersegment sales	449	412	429
Total segment sales	896,419	820,131	744,809
Fire & Safety/Diversified Products			
External customers	636,421	586,945	519,955
Intersegment sales	607	588	54
Total segment sales	637,028	587,533	520,009
Intersegment eliminations	(1,333)	(1,309)	(876)
Total net sales	$ 2,483,666	$ 2,287,312	$ 2,113,043
OPERATING INCOME (LOSS) [1]			
Fluid & Metering Technologies	$ 275,060	$ 241,030	$ 217,500
Health & Science Technologies	205,679	179,567	153,691
Fire & Safety/Diversified Products	168,601	147,028	123,605
Corporate office [2]	(80,252)	(65,069)	(82,399)
Total operating income	569,088	502,556	412,397
Interest expense	44,134	44,889	45,616
Other (income) expense - net	(3,985)	2,394	(1,731)
Income before taxes	$ 528,939	$ 455,273	$ 368,512

	2018	2017	2016
		(In thousands)	
ASSETS			
Fluid & Metering Technologies	$ 1,107,777	$ 1,101,580	$ 1,065,670
Health & Science Technologies	1,329,368	1,323,373	1,266,036
Fire & Safety/Diversified Products	806,075	744,515	705,735
Corporate office	230,637	230,160	117,503
Total assets	$ 3,473,857	$ 3,399,628	$ 3,154,944
DEPRECIATION AND AMORTIZATION [3]			
Fluid & Metering Technologies	$ 22,370	$ 23,587	$ 28,458
Health & Science Technologies	39,939	45,287	45,298
Fire & Safety/Diversified Products	14,493	14,541	11,956
Corporate office and other	742	801	1,180
Total depreciation and amortization	$ 77,544	$ 84,216	$ 86,892
CAPITAL EXPENDITURES			
Fluid & Metering Technologies	$ 19,541	$ 18,218	$ 16,389
Health & Science Technologies	26,039	16,340	15,665
Fire & Safety/Diversified Products	10,318	6,363	5,945
Corporate office and other	191	2,937	243
Total capital expenditures	$ 56,089	$ 43,858	$ 38,242

(1) Segment operating income (loss) excludes net unallocated corporate operating expenses.
(2) 2017 includes a $9.3 million gain on the sale of a business and 2016 includes a $22.3 million loss on the sale of businesses - net.
(3) Excludes amortization of debt issuance expenses.

Information about the Company's long-lived assets in different geographical regions for the years ended December 31, 2018 , 2017 and 2016 is shown below.

	2018	2017	2016
		(In thousands)	
LONG-LIVED ASSETS — PROPERTY, PLANT AND EQUIPMENT			
U.S.	$ 171,111	$ 145,808	$ 152,504
North America, excluding U.S.	3,398	3,627	1,533
Europe	85,100	85,932	71,681
Asia	21,355	22,613	21,793
Other	256	370	305
Total long-lived assets - net	$ 281,220	$ 258,350	$ 247,816

13. Restructuring

During 2018, the first and fourth quarters of 2017 and the fourth quarter of 2016, the Company recorded restructuring costs as part of restructuring initiatives that support the implementation of key strategic efforts designed to facilitate long-term, sustainable growth through cost reduction actions, primarily consisting of employee reductions and facility rationalization. The costs incurred related to these initiatives were included in Restructuring expenses in the Consolidated Statements of Operations while the related accruals were included in Accrued expenses in the Consolidated Balance Sheets. Severance costs primarily consisted of severance benefits through payroll continuation, COBRA subsidies, outplacement services, conditional separation costs and employer tax liabilities, while exit costs primarily consisted of asset disposals or impairments and lease exit and contract termination costs.

2018 Initiative

During 2018 , the Company recorded pre-tax restructuring expenses totaling $12.1 million related to the 2018 restructuring initiative. These expenses consisted of employee severance related to employee reductions across various functional areas as well as facility rationalization and contract termination costs. Severance payments will be substantially paid by the end of 2019 using cash from operations.

Pre-tax restructuring expenses by segment for the 2018 initiative were as follows:

	Severance Costs	Exit Costs	Total
		(In thousands)	
Fluid & Metering Technologies	$ 2,305	$ 153	$ 2,458
Health & Science Technologies	5,454	450	5,904
Fire & Safety/Diversified Products	2,184	—	2,184
Corporate/Other	1,537	—	1,537
Total restructuring costs	$ 11,480	$ 603	$ 12,083

2017 Initiative

During the fourth quarter of 2017 , the Company recorded pre-tax restructuring expenses totaling $3.7 million related to the 2017 restructuring initiative. These expenses consisted of employee severance related to employee reductions across various functional areas as well as facility rationalization and contract termination costs. Severance payments were fully paid by the end of 2018 using cash from operations.

Pre-tax restructuring expenses by segment for the 2017 initiative were as follows:

	Severance Costs	Exit Costs	Total Restructuring Costs
		(In thousands)	
Fluid & Metering Technologies	$ 1,375	$ 433	$ 1,808
Health & Science Technologies	1,510	158	1,668
Fire & Safety/Diversified Products	182	—	182
Corporate/Other	—	—	—
Total restructuring costs	$ 3,067	$ 591	$ 3,658

2016 Initiative

During the first quarter of 2017, the Company recorded pre-tax restructuring expenses totaling $4.8 million related to the 2016 restructuring initiative. During the fourth quarter of 2016, the Company recorded pre-tax restructuring expenses totaling $3.7 million related to the 2016 restructuring initiative. These expenses consisted of employee severance related to employee reductions across various functional areas as well as facility rationalization costs. Severance payments were substantially paid by the end of 2017 using cash from operations.

Pre-tax restructuring expenses by segment for the 2016 initiative were as follows:

	2017			2016
	Severance Costs	Exit Costs	Total Restructuring Costs	Total Restructuring Costs
	(In thousands)			
Fluid & Metering Technologies	$ 1,566	$ —	$ 1,566	$ 932
Health & Science Technologies	2,470	558	3,028	1,117
Fire & Safety/Diversified Products	73	—	73	1,425
Corporate/Other	130	—	130	200
Total restructuring costs	$ 4,239	$ 558	$ 4,797	$ 3,674

Restructuring accruals of $6.2 million and $4.2 million at December 31, 2018 and 2017 , respectively, are reflected in Accrued expenses in our Consolidated Balance Sheets as follows:

	Restructuring Initiatives
	(In thousands)
Balance at January 1, 2017	$ 3,893
Restructuring expenses	8,455
Payments, utilization and other	(8,168)
Balance at December 31, 2017	4,180
Restructuring expenses	12,083
Payments, utilization and other	(10,093)
Balance at December 31, 2018	$ 6,170

14. Share-Based Compensation

The Company maintains two share-based compensation plans for executives, non-employee directors and certain key employees that authorize the granting of stock options, restricted stock, performance share units and other types of awards consistent with the purpose of the plans. The number of shares authorized for issuance under the Company's plans as of December 31, 2018 totaled 15.6 million , of which 4.3 million shares were available for future issuance. The Company's policy is to recognize compensation cost on a straight-line basis, assuming forfeitures, over the requisite service period for the entire award.

Stock Options

Stock options granted under the Company's plans are generally non-qualified and are granted with an exercise price equal to the market price of the Company's stock at the date of grant. The majority of the options issued to employees become exercisable in four equal installments, beginning one year from the date of grant, and generally expire 10 years from the date of grant. Stock options granted to non-employee directors cliff vest after one year .

Weighted average option fair values and assumptions for the period are as follows:

	Years Ended December 31,		
	2018	2017	2016
Weighted average fair value of grants	$38.13	$24.19	$18.56
Dividend yield	1.07%	1.45%	1.69%
Volatility	28.46%	29.41%	29.70%
Risk-free interest rate	2.03% - 3.17%	0.83% - 3.04%	0.53% - 2.49%
Expected life (in years)	5.83	5.83	5.91

The assumptions are as follows:

- The Company estimated volatility using its historical share price performance over the contractual term of the option.
- The Company uses historical data to estimate the expected life of the option. The expected life assumption for the years ended December 31, 2018 , 2017 and 2016 is an output of the Binomial lattice option-pricing model, which incorporates vesting provisions, rate of voluntary exercise and rate of post-vesting termination over the contractual life of the option to define expected employee behavior.
- The risk-free interest rate is based on the U.S. Treasury yield curve in effect at the time of grant for periods within the contractual life of the option. For the years ended December 31, 2018 , 2017 and 2016 , we present the range of risk-free one-year forward rates, derived from the U.S. treasury yield curve, utilized in the Binomial lattice option-pricing model.
- The expected dividend yield is based on the Company's current dividend yield as the best estimate of projected dividend yield for periods within the contractual life of the option.

A summary of the Company's stock option activity as of December 31, 2018 , and changes during the year ended December 31, 2018 is presented as follows:

Stock Options	Shares	Weighted Average Price	Weighted-Average Remaining Contractual Term	Aggregate Intrinsic Value
Outstanding at January 1, 2018	1,924,683	$ 71.07	6.87	$ 117,209,218
Granted	314,895	138.40		
Exercised	(455,558)	60.81		
Forfeited/Expired	(70,017)	97.68		
Outstanding at December 31, 2018	1,714,003	$ 85.08	6.70	$ 74,191,783
Vested and expected to vest at December 31, 2018	1,635,247	$ 83.77	6.61	$ 72,632,325
Exercisable at December 31, 2018	836,917	$ 66.52	5.26	$ 50,027,326

The intrinsic value for stock options outstanding and exercisable is defined as the difference between the market value of the Company's common stock as of the end of the period and the grant price. The total intrinsic value of options exercised in 2018 , 2017 and 2016 was $38.0 million , $26.1 million and $26.5 million , respectively. In 2018 , 2017 and 2016 , cash received from options exercised was $27.6 million , $22.9 million and $30.2 million , respectively, while the actual tax benefit realized for the tax deductions from stock options exercised totaled $8.0 million , $9.5 million and $9.6 million , respectively.

Total compensation cost for stock options is recorded in the Consolidated Statements of Operations as follows:

	Years Ended December 31,		
	2018	2017	2016
	(In thousands)		
Cost of goods sold	$ 470	$ 428	$ 427
Selling, general and administrative expenses	8,313	7,347	6,561
Total expense before income taxes	8,783	7,775	6,988
Income tax benefit	(1,616)	(2,485)	(2,213)
Total expense after income taxes	$ 7,167	$ 5,290	$ 4,775

As of December 31, 2018 , there was $13.7 million of total unrecognized compensation cost related to stock options that is expected to be recognized over a weighted-average period of 1.3 years .

Restricted Stock

Restricted stock awards generally cliff vest after three years for employees and non-employee directors. Unvested restricted stock carries dividend and voting rights and the sale of the shares is restricted prior to the date of vesting. Dividends are paid on restricted stock awards and their fair value is equal to the market price of the Company's stock at the date of the grant. A summary of the Company's restricted stock activity as of December 31, 2018 , and changes during the year ending December 31, 2018 is as follows:

Restricted Stock	Shares	Weighted-Average Grant Date Fair Value
Unvested at January 1, 2018	182,023	$ 83.37
Granted	46,460	138.30
Vested	(68,172)	79.19
Forfeited	(12,270)	95.79
Unvested at December 31, 2018	148,041	$ 101.50

Total compensation cost for restricted stock is recorded in the Consolidated Statements of Operations as follows:

	Years Ended December 31,		
	2018	2017	2016
	(In thousands)		
Cost of goods sold	$ 367	$ 335	$ 390
Selling, general and administrative expenses	4,201	4,772	4,401
Total expense before income taxes	4,568	5,107	4,791
Income tax benefit	(825)	(1,654)	(1,410)
Total expense after income taxes	$ 3,743	$ 3,453	$ 3,381

As of December 31, 2018 , there was $5.5 million of total unrecognized compensation cost related to restricted stock that is expected to be recognized over a weighted-average period of 1.1 years .

Cash-Settled Restricted Stock

The Company also maintains a cash-settled share based compensation plan for certain employees. Cash-settled restricted stock awards generally cliff vest after three years . Dividend equivalents are paid on certain cash-settled restricted stock awards. A summary of the Company's unvested cash-settled restricted stock activity as of December 31, 2018 , and changes during the year ending December 31, 2018 is as follows:

Cash-Settled Restricted Stock	Shares	Weighted-Average Fair Value
Unvested at January 1, 2018	94,730	$ 131.97
Granted	30,795	137.82
Vested	(27,880)	137.11
Forfeited	(9,420)	126.26
Unvested at December 31, 2018	88,225	$ 126.26

Total compensation cost for cash-settled restricted stock is recorded in the Consolidated Statements of Operations as follows:

	Years Ended December 31,		
	2018	2017	2016
	(In thousands)		
Cost of goods sold	$ 809	$ 1,357	$ 764
Selling, general and administrative expenses	2,391	3,241	2,224
Total expense before income taxes	3,200	4,598	2,988
Income tax benefit	(337)	(808)	(419)
Total expense after income taxes	$ 2,863	$ 3,790	$ 2,569

At December 31, 2018 and 2017 , the Company has $4.5 million and $4.5 million , respectively, included in Accrued expenses in the Consolidated Balance Sheets and $2.4 million and $3.0 million , respectively, included in Other non-current liabilities.

Performance Share Units

Beginning in 2013, the Company granted performance share units to selected key employees that may be earned based on IDEX total shareholder return over the three-year period following the date of grant. Performance share units are expected to be made annually and are paid out at the end of a three -year period based on the Company's performance. Performance is measured by determining the percentile rank of the total shareholder return of IDEX common stock in relation to the total shareholder return of the S&P Midcap 400 Industrial Group (for awards granted prior to 2016) or the Russell Midcap Index (for awards granted in 2016 - 2018) for the three-year period following the date of grant. The payment of awards following the three-year award period will be based on performance achieved in accordance with the scale set forth in the plan agreement and may range from 0 percent to 250 percent of the initial grant. A target payout of 100 percent is earned if total shareholder return is equal to the 50 th percentile of the peer group. Performance share units earn dividend equivalents for the award period, which will be paid to participants with the award payout at the end of the period based on the actual number of performance share units that are earned. Payments made at the end of the award period will be in the form of stock for performance share units and will be in cash for dividend equivalents. The Company's performance share awards are considered performance condition awards and the grant date fair value of the awards, based on a Monte Carlo simulation model, is expensed ratably over the three-year term of the awards. The Company granted approximately 0.1 million of performance share units in each of 2018 , 2017 and 2016 .

Weighted average performance share unit fair values and assumptions for the period specified are as follows:

	Years Ended December 31,		
	2018	**2017**	**2016**
Weighted average fair value of grants	$216.59	$115.74	$111.42
Dividend yield	—%	—%	—%
Volatility	17.42%	17.36%	17.99%
Risk-free interest rate	2.40%	1.45%	0.89%
Expected life (in years)	2.85	2.85	2.86

The assumptions are as follows:

- The Company estimated volatility using its historical share price performance over the remaining performance period as of the grant date.
- The Company uses a Monte Carlo simulation model that uses an expected life commensurate with the performance period. As a result, the expected life of the performance share units was assumed to be the period from the grant date to the end of the performance period.
- The risk-free interest rate is based on the U.S. Treasury yield curve in effect at the time of grant with a term commensurate with the remaining performance period.
- Total Shareholder Return is determined assuming that dividends are reinvested in the issuing entity over the performance period, which is mathematically equivalent to utilizing a 0% dividend yield.

A summary of the Company's performance share unit activity as of December 31, 2018 , and changes during the year ending December 31, 2018 , is as follows:

Performance Share Units	**Shares**	**Weighted-Average Grant Date Fair Value**
Unvested at January 1, 2018	136,870	$ 113.81
Granted	52,375	216.59
Vested	(69,995)	111.42
Forfeited	(8,095)	139.17
Unvested at December 31, 2018	111,155	$ 142.42

Awards that vested in 2018 will result in 174,994 shares being issued in 2019 .

Total compensation cost for performance share units is as follows:

	Years Ended December 31,		
	2018	2017	2016
	(In thousands)		
Cost of goods sold	$ —	$ —	$ —
Selling, general and administrative expenses	8,203	6,925	5,559
Total expense before income taxes	8,203	6,925	5,559
Income tax benefit	(1,586)	(2,342)	(1,859)
Total expense after income taxes	$ 6,617	$ 4,583	$ 3,700

As of December 31, 2018 , there was $8.2 million of total unrecognized compensation cost related to performance shares that is expected to be recognized over a weighted-average period of 1.0 year .

15. Other Comprehensive Income (Loss)

The components of Other comprehensive income (loss) are as follows:

	For the Year Ended December 31, 2018			For the Year Ended December 31, 2017		
	Pre-tax	Tax	Net of tax	Pre-tax	Tax	Net of tax
	(In thousands)					
Foreign currency translation adjustments						
Cumulative translation adjustment	$ (48,114)	$ —	$ (48,114)	$ 110,421	$ —	$ 110,421
Reclassification of foreign currency translation to earnings upon sale of business	—	—	—	2,749	—	2,749
Tax effect of reversal of indefinite assertion on certain intercompany loans	—	—	—	(3,932)	—	(3,932)
Foreign currency translation adjustments	(48,114)	—	(48,114)	109,238	—	109,238
Pension and other postretirement adjustments						
Net gain (loss) arising during the year	9,963	(2,375)	7,588	(5,355)	828	(4,527)
Amortization/recognition of settlement loss	2,938	(701)	2,237	3,814	(589)	3,225
Pension and other postretirement adjustments	12,901	(3,076)	9,825	(1,541)	239	(1,302)
Reclassification adjustments for derivatives	6,475	(1,469)	5,006	6,655	(2,445)	4,210
Total other comprehensive income (loss)	$ (28,738)	$ (4,545)	$ (33,283)	$ 114,352	$ (2,206)	$ 112,146

	For the Year Ended December 31, 2016		
	Pre-tax	Tax	Net of tax
	(In thousands)		
Foreign currency translation adjustments			
Cumulative translation adjustment	$ (76,822)	$ —	$ (76,822)
Reclassification of foreign currency translation to earnings upon sale of business	14,257	—	14,257
Tax effect of reversal of indefinite assertion on certain intercompany loans	—	—	—
Foreign currency translation adjustments	(62,565)	—	(62,565)
Pension and other postretirement adjustments			
Net gain (loss) arising during the year	(1,927)	789	(1,138)
Amortization/recognition of settlement loss	7,083	(2,896)	4,187
Pension and other postretirement adjustments, net	5,156	(2,107)	3,049
Reclassification adjustments for derivatives	6,851	(2,490)	4,361
Total other comprehensive income (loss)	$ (50,558)	$ (4,597)	$ (55,155)

Amounts reclassified from accumulated other comprehensive income (loss) to net income are summarized as follows:

	For the Year Ended December 31,			
	2018	2017	2016	Income Statement Caption
Foreign currency translation:				
Reclassification upon sale of business	$ —	$ 2,749	$ 14,257	Loss (gain) on sale of businesses - net
Total before tax	—	2,749	14,257	
Provision for income taxes	—	—	—	
Total net of tax	$ —	$ 2,749	$ 14,257	
Pension and other postretirement plans:				
Amortization of service cost	$ 3,246	$ 3,580	$ 3,529	Other (income) expense - net
Recognition of settlement loss	(308)	234	3,554	Other (income) expense - net
Total before tax	2,938	3,814	7,083	
Provision for income taxes	(701)	(589)	(2,896)	
Total net of tax	$ 2,237	$ 3,225	$ 4,187	
Derivatives:				
Reclassification adjustments	$ 6,475	$ 6,655	$ 6,851	Interest expense
Total before tax	6,475	6,655	6,851	
Provision for income taxes	(1,469)	(2,445)	(2,490)	
Total net of tax	$ 5,006	$ 4,210	$ 4,361	

16. Retirement Benefits

The Company sponsors several qualified and nonqualified pension plans and other postretirement plans for its employees. The Company uses a measurement date of December 31 for its defined benefit pension plans and post retirement medical plans. The Company employs the measurement date provisions of ASC 715, *Compensation-Retirement Benefits* , which require the measurement date of plan assets and liabilities to coincide with the sponsor's year end.

During 2016, the Company offered a voluntary lump-sum pension payment opportunity to certain terminated vested U.S. pension plan participants. Total lump-sum payments of $11.0 million were made for those participants electing to receive lump sums using pension plan assets. The Company recognized pretax settlement losses of $3.5 million in the fourth quarter of 2016 for those plans where the settlement payment exceeded the sum of the plans' service and interest costs.

The following table provides a reconciliation of the changes in the benefit obligations and fair value of plan assets over the two-year period ended December 31, 2018 and a statement of the funded status at December 31 for both years.

	Pension Benefits				Other Benefits	
	2018		2017		2018	2017
	U.S.	Non-U.S.	U.S.	Non-U.S.		
	(In thousands)					
CHANGE IN BENEFIT OBLIGATION						
Obligation at January 1	$ 91,335	$ 97,451	$ 90,256	$ 87,764	$ 26,068	$ 24,636
Service cost	886	2,105	976	1,975	668	610
Interest cost	2,634	1,389	2,677	1,283	810	818
Plan amendments	—	52	—	—		—
Benefits paid	(5,171)	(2,791)	(6,258)	(1,942)	(847)	(738)
Actuarial loss (gain)	(4,497)	(3,378)	3,684	(15)	(3,930)	592
Currency translation	—	(3,335)	—	9,323	(176)	150
Settlements	(12)	(2,313)	—	(2,452)		—
Acquisition/Divestiture	—	—	—	(482)		—
Other	—	609	—	1,997		—
Obligation at December 31	$ 85,175	$ 89,789	$ 91,335	$ 97,451	$ 22,593	$ 26,068
CHANGE IN PLAN ASSETS						
Fair value of plan assets at January 1	$ 76,041	$ 36,316	$ 73,688	$ 32,586	$ —	$ —
Actual return on plan assets	2,070	496	5,046	1,792	—	—
Employer contributions	10,652	2,345	3,565	2,702	847	738
Benefits paid	(5,171)	(2,791)	(6,258)	(1,942)	(847)	(738)
Currency translation		(1,130)	—	2,446	—	—
Settlements		(2,313)	—	(2,452)	—	—
Acquisition/Divestiture			—	—	—	—
Other	(12)	609	—	1,184	—	—
Fair value of plan assets at December 31	$ 83,580	$ 33,532	$ 76,041	$ 36,316	$ —	$ —
Funded status at December 31	$ (1,595)	$ (56,257)	$ (15,294)	$ (61,135)	$ (22,593)	$ (26,068)
COMPONENTS ON THE CONSOLIDATED BALANCE SHEETS						
Other noncurrent assets	$ 3,058	$ —	$ —	$ —	$ —	$ —
Current liabilities	$ (556)	$ (1,174)	$ (658)	$ (1,159)	$ (1,116)	$ (1,034)
Other noncurrent liabilities	(4,097)	(55,083)	(14,636)	(59,976)	(21,477)	(25,034)
Net liability at December 31	$ (1,595)	$ (56,257)	$ (15,294)	$ (61,135)	$ (22,593)	$ (26,068)

The accumulated benefit obligation ("ABO") for all defined benefit pension plans was $169.5 million and $182.7 million at December 31, 2018 and 2017 , respectively.

The weighted average assumptions used in the measurement of the Company's benefit obligation at December 31, 2018 and 2017 were as follows:

	U.S. Plans		Non-U.S. Plans		Other Benefits	
	2018	2017	2018	2017	2018	2017
Discount rate	4.10%	3.46%	2.07%	1.82%	4.11%	3.50%
Rate of compensation increase	4.00%	4.00%	2.13%	2.37%	4.00%	4.00%

The pretax amounts recognized in Accumulated other comprehensive income (loss) on the Consolidated Balance Sheets as of December 31, 2018 and 2017 were as follows:

	Pension Benefits				Other Benefits	
	2018		2017		2018	2017
	U.S.	Non-U.S.	U.S.	Non-U.S.		
	(In thousands)					
Prior service cost (credit)	$ 62	$ 64	$ 86	$ 18	$ (117)	$ (483)
Net loss	22,478	12,955	27,789	17,986	(6,386)	(2,866)
Total	$ 22,540	$ 13,019	$ 27,875	$ 18,004	$ (6,503)	$ (3,349)

The amounts in Accumulated other comprehensive income (loss) on the Consolidated Balance Sheet as of December 31, 2018 that are expected to be recognized as components of net periodic benefit cost during 2019 are as follows:

	U.S. Pension Benefit Plans	Non-U.S. Pension Benefit Plans	Other Benefit Plans	Total
	(In thousands)			
Prior service cost (credit)	$ 15	$ 6	$ (70)	$ (49)
Net loss	1,931	1,131	(564)	2,498
Total	$ 1,946	$ 1,137	$ (634)	$ 2,449

The components of, and the weighted average assumptions used to determine, the net periodic benefit cost for the plans in 2018 , 2017 and 2016 are as follows:

	Pension Benefits					
	2018		2017		2016	
	U.S.	Non-U.S.	U.S.	Non-U.S.	U.S.	Non-U.S.
	(In thousands)					
Service cost	$ 886	$ 2,105	$ 976	$ 1,975	$ 1,016	$ 1,627
Interest cost	2,634	1,389	2,677	1,283	3,043	1,429
Expected return on plan assets	(3,943)	(1,120)	(3,832)	(1,088)	(4,777)	(993)
Settlement loss recognized	(1)	(307)	—	234	3,339	215
Net amortization	2,712	1,271	2,566	1,809	3,226	1,008
Net periodic benefit cost	$ 2,288	$ 3,338	$ 2,387	$ 4,213	$ 5,847	$ 3,286

	Other Benefits		
	2018	2017	2016
	(In thousands)		
Service cost	$ 668	$ 610	$ 601
Interest cost	810	818	811
Net amortization	(737)	(795)	(705)
Net periodic benefit cost	$ 741	$ 633	$ 707

	U.S. Plans			Non-U.S. Plans		
	2018	2017	2016	2018	2017	2016
Discount rate	3.46%	3.91%	4.12%	1.82%	1.76%	2.99%
Expected return on plan assets	5.50%	5.50%	6.50%	3.09%	3.20%	4.58%
Rate of compensation increase	4.00%	4.00%	4.00%	2.37%	2.29%	2.98%

	Other Benefits		
	2018	2017	2016
Discount rate	3.50%	3.94%	4.10%
Expected return on plan assets	—%	—%	—%
Rate of compensation increase	4.00%	4.00%	4.00%

The pretax change recognized in Accumulated other comprehensive income (loss) on the Consolidated Balance Sheet in 2018 is as follows:

	Pension Benefits		Other Benefits
	U.S.	Non-U.S.	
		(In thousands)	
Net gain (loss) in current year	$ 2,624	$ 2,754	$ 3,930
Prior service cost	—	(52)	—
Amortization of prior service cost (credit)	24	3	(366)
Amortization of net loss (gain)	2,687	961	(371)
Exchange rate effect on amounts in OCI	—	746	(39)
Total	$ 5,335	$ 4,412	$ 3,154

The discount rates for our plans are derived by matching the plan's cash flows to a yield curve that provides the equivalent yields on zero-coupon bonds for each maturity. The discount rate selected is the rate that produces the same present value of cash flows.

In selecting the expected rate of return on plan assets, the Company considers the historical returns and expected returns on plan assets. The expected returns are evaluated using asset return class, variance and correlation assumptions based on the plan's target asset allocation and current market conditions.

Prior service costs are amortized on a straight-line basis over the average remaining service period of active participants. Gains and losses in excess of 10% of the greater of the benefit obligation or the market value of assets are amortized over the average remaining service period of active participants.

Costs of defined contribution plans were $12.2 million , $10.2 million and $10.1 million for 2018 , 2017 and 2016 , respectively.

The Company, through its subsidiaries, participates in certain multi-employer pension plans covering approximately 343 participants under U.S. collective bargaining agreements. None of these plans are considered individually significant to the Company as contributions to these plans totaled $1.1 million , $1.0 million , and $1.3 million for 2018 , 2017 and 2016 , respectively.

For measurement purposes, a 6.04% weighted average annual rate of increase in the per capita cost of covered health care benefits was assumed for 2018 . The rate was assumed to decrease gradually each year to a rate of 4.50% for 2038 , and remain at that level thereafter. Assumed health care cost trend rates have an effect on the amounts reported for the health care plans. A 1% increase in the assumed health care cost trend rates would increase the service and interest cost components of the net periodic benefit cost by $0.2 million and the health care component of the accumulated postretirement benefit obligation by $1.9 million . A 1% decrease in the assumed health care cost trend rate would decrease the service and interest cost components of the net periodic benefit cost by $0.1 million and the health care component of the accumulated postretirement benefit obligation by $1.6 million .

Plan Assets

The Company's pension plan weighted average asset allocations at December 31, 2018 and 2017 , by asset category, were as follows:

	U.S. Plans		Non-U.S. Plans	
	2018	2017	2018	2017
Equity securities	9%	47%	13%	14%
Fixed income securities	90%	51%	31%	30%
Cash/Commingled Funds/Other [1]	1%	2%	56%	56%
Total	100%	100%	100%	100%

The basis used to measure the defined benefit plans' assets at fair value at December 31, 2018 and 2017 is summarized as follows:

		Basis of Fair Value Measurement		
	Outstanding Balances	Level 1	Level 2	Level 3
As of December 31, 2018	(In thousands)			
Equity				
U.S. Large Cap	$ 3,759	$ 3,759	$ —	$ —
U.S. Small / Mid Cap	770	—	770	—
International	7,532	4,445	3,087	—
Fixed Income				
U.S. Intermediate	581	—	581	—
U.S. Long Term	75,096	—	75,096	—
U.S. High Yield	1,098	—	1,098	—
International	8,604	244	8,360	—
Other Commingled Funds [1]	15,555	—	—	15,555
Cash and Equivalents	1,944	1,074	870	—
Other	2,173	—	2,173	—
	$ 117,112	$ 9,522	$ 92,035	$ 15,555

(1) Other commingled funds represent pooled institutional investments in non-U.S. plans.

As of December 31, 2017	Outstanding Balances	Basis of Fair Value Measurement: Level 1	Level 2	Level 3
		(In thousands)		
Equity				
U.S. Large Cap	$ 16,402	$ 16,402	$ —	$ —
U.S. Small / Mid Cap	7,966	7,051	915	—
International	16,844	13,205	3,639	—
Fixed Income				
U.S. Intermediate	13,568	13,483	85	—
U.S. Short Duration	13,362	13,362	—	—
U.S. High Yield	9,529	8,462	1,067	—
International	13,311	3,767	9,544	—
Other Commingled Funds [1]	16,059	—	—	16,059
Cash and Equivalents	2,613	1,346	1,267	—
Other	2,851	—	2,851	—
	$ 112,505	$ 77,078	$ 19,368	$ 16,059

(1) Other commingled funds represent pooled institutional investments in non-U.S. plans.

Equities that are valued using quoted prices are valued at the published market prices. Equities in a common collective trust or a registered investment company that are valued using significant other observable inputs are valued at the net asset value ("NAV") provided by the fund administrator. The NAV is based on the value of the underlying assets owned by the fund minus its liabilities. Fixed income securities that are valued using significant other observable inputs are valued at prices obtained from independent financial service industry-recognized vendors.

Investment Policies and Strategies

The investment objective of the U.S. plan, consistent with prudent standards for preservation of capital and maintenance of liquidity, is to earn the highest possible total rate of return consistent with the plan's tolerance for risk. The general asset allocation guidelines for plan assets are that "equities" will constitute 10% and "fixed income" obligations, including cash, will constitute from 90% of the market value of total fund assets. The investment objective of the UK plan, consistent with prudent standards for preservation of capital and maintenance of liquidity, is to earn a target return of UK Gilts plus 2% per year. The general asset allocation guidelines for plan assets are that "equities" will constitute from 40% to 50% of the market value of total fund assets with a target of 40% , and "fixed income" obligations, including cash, will constitute from 50% to 60% with a target of 60% . The term "equities" includes common stock, while the term "fixed income" includes obligations with contractual payments and a specific maturity date. The Company, through the use of a professional independent advisor, will monitor the asset allocation daily and maintain an asset allocation that closely replicates the designated targets. Diversification of assets is employed to ensure that adverse performance of one security or security class does not have an undue detrimental impact on the portfolio as a whole. Diversification is interpreted to include diversification by type, characteristic and number of investments as well as by investment style of designated investment fund managers. No restrictions are placed on the selection of individual investments by the investment fund managers. The total fund performance and the performance of the investment fund managers is reviewed on a regular basis using an appointed professional independent advisor. As of December 31, 2018, there were no shares of the Company's stock held in plan assets.

Cash Flows

The Company expects to contribute approximately $0.6 million to its defined benefit plans and $1.1 million to its other postretirement benefit plans in 2019 . The Company also expects to contribute approximately $12.0 million to its defined contribution plan and $9.7 million to its 401(k) savings plan in 2019 .

Estimated Future Benefit Payments

The future estimated benefit payments for the next five years and the five years thereafter are as follows: 2019 — $11.4 million ; 2020 — $11.5 million ; 2021 — $11.3 million ; 2022 — $11.0 million ; 2023 — $10.9 million ; 2024 to 2028 — $54.3 million .

17. Quarterly Results of Operations (Unaudited)

The unaudited quarterly results of operations for the years ended December 31, 2018 and 2017 are as follows:

	2018 Quarters (1)				2017 Quarters (1)			
	First	Second	Third	Fourth	First	Second	Third	Fourth
	(In thousands, except per share amounts)							
Net sales	$ 612,324	$ 634,360	$ 622,888	$ 614,094	$ 553,552	$ 573,366	$ 574,490	$ 585,904
Gross profit	276,652	287,367	280,233	273,643	250,941	256,925	257,930	260,882
Operating income	136,683	147,831	145,133	139,441	115,671	125,133	126,504	135,248
Net income	98,958	107,126	106,352	98,137	75,899	83,844	83,768	93,746
Basic EPS	$ 1.29	$ 1.40	$ 1.39	$ 1.29	$ 0.99	$ 1.10	$ 1.09	$ 1.23
Diluted EPS	$ 1.27	$ 1.38	$ 1.37	$ 1.27	$ 0.99	$ 1.08	$ 1.08	$ 1.21
Basic weighted average shares outstanding	76,419	76,539	76,562	76,128	76,115	76,220	76,309	76,283
Diluted weighted average shares outstanding	77,739	77,704	77,709	77,100	76,894	77,320	77,523	77,597

(1) Quarterly data includes acquisition of thinXXS (December 2017) and Finger Lakes Instrumentation (July 2018) from the date of acquisition. Quarterly data also includes the gain on the sale of Faure Herman (October 2017) and the results of the divested business through the date of disposition. See Note 2 for further discussion.

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

None.

Item 9A. ***Controls and Procedures.***

The Company maintains disclosure controls and procedures that are designed to ensure that information required to be disclosed in the Company's Exchange Act reports 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 the Company's management, including its Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

As required by SEC Rule 13a-15(b), the Company carried out an evaluation, under the supervision and with the participation of the Company's management, including the Company's Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of the Company's disclosure controls and procedures as of the end of the period covered by this report. Based on the foregoing, the Company's Chief Executive Officer and Chief Financial Officer concluded that the Company's disclosure controls and procedures were effective as of December 31, 2018 .

Management's Report on Internal Control Over Financial Reporting appearing on page 34 of this report is incorporated into this Item 9A by reference.

There has been no change in the Company's internal control over financial reporting during the Company's most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

Item 9B. ***Other Information.***

None.

PART III

Item 10. ***Directors, Executive Officers and Corporate Governance.***

Information under the headings "Election of Directors"; "Board Committees"; "Section 16(a) Beneficial Ownership Reporting Compliance"; and "Corporate Governance" in the 2019 Proxy Statement is incorporated into this Item 10 by reference. Information regarding executive officers of the Company is located in Part I, Item 1, of this report under the caption "Executive Officers of the Registrant."

The Company has adopted a Code of Business Conduct and Ethics applicable to the Company's directors, officers (including the Company's principal executive officer, principal financial officer and principal accounting officer) and employees. The Code of Business Conduct and Ethics, along with the Audit Committee Charter, Nominating and Corporate Governance Committee Charter, Compensation Committee Charter and Corporate Governance Guidelines are available on the Company's website at www.idexcorp.com under "Investor Relations." In the event we amend or waive any of the provisions of the Code of Business Conduct and Ethics applicable to our principal executive officer, principal financial officer or principal accounting officer, we intend to disclose the same on the Company's website.

Item 11. ***Executive Compensation.***

Information under the heading "Executive Compensation" in the 2019 Proxy Statement is incorporated into this Item 11 by reference.

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

Information under the heading "Security Ownership" in the 2019 Proxy Statement is incorporated into this Item 12 by reference.

Equity Compensation Plan Information

Information with respect to the Company's equity compensation plans as of December 31, 2018 is as follows:

Plan Category	Number of Securities To be Issued Upon Exercise of Outstanding Options, Warrants and Rights	Weighted-Average Exercise Price of Outstanding Options, Warrants and Rights	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (1)
Equity compensation plans approved by the Company's stockholders	2,030,145	$ 85.08	4,287,423

(1) Includes an indeterminate number of shares underlying deferred compensation units ("DCUs") granted under the Directors Deferred Compensation Plan and Deferred Compensation Plan for Non-officer Presidents which are issuable under the Company's Incentive Award Plan. Also includes an indeterminate number of shares underlying DCUs granted under the Deferred Compensation Plan for Officers, which shares are issuable under the Incentive Award Plan. The number of DCUs granted under these plans is determined by dividing the amount deferred by the closing price of the common stock the day before the date of deferral. The DCUs are entitled to receive dividend equivalents which are reinvested in DCUs based on the same formula for investment of a participant's deferral.

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

Information under the headings, "Corporate Governance" and "Board Committees" in the 2019 Proxy Statement is incorporated into this Item 13 by reference.

Item 14. ***Principal Accountant Fees and Services.***

Information under the heading "Principal Accountant Fees and Services" in the 2019 Proxy Statement is incorporated into this Item 14 by reference.

PART IV

Item 15. ***Exhibits and Financial Statement Schedules.***

(A) 1. Financial Statements

Consolidated financial statements filed as part of this report are listed under Part II. Item 8. "Financial Statements and Supplementary Data."

2. Financial Statement Schedules

Financial statement schedules are omitted because they are not applicable, not required, or because the required information is included in the Consolidated Financial Statements of the Company or the Notes thereto.

3. Exhibits

The exhibits filed with this report are listed on the "Exhibit Index."

(B) Exhibit Index

Exhibit Number	Description
3.1	Restated Certificate of Incorporation of IDEX Corporation as amended to date (incorporated by reference to Exhibit 3.1 to the Annual Report of IDEX Corporation on Form 10-K for the fiscal year ended December 31, 2017, Commission File No. 1-10235)
3.2	Amended and Restated By-Laws of IDEX Corporation (incorporated by reference to Exhibit No. 3.1 to the Current Report of IDEX on Form 8-K filed November 14, 2011, Commission File No. 1-10235)
4.1	Credit Agreement, dated as of June 23, 2015, among IDEX Corporation, Bank of America N.A. as Agent and Issuing Bank, and the Other Financial Institutions Party Hereto (incorporated by reference to Exhibit 10.1 to the Current Report of IDEX on Form 8-K filed June 25, 2015, Commission File No. 1-10235)
4.2	Indenture between IDEX Corporation and Wells Fargo Bank, National Association, as Trustee, dated as of December 6, 2010 (Debt Securities) (incorporated by reference to Exhibit No. 4.1 to the Current Report of IDEX on Form 8-K filed December 7, 2010, Commission File No. 1-10235)
4.3	First Supplemental Indenture between IDEX Corporation and Wells Fargo Bank, National Association, as Trustee, dated as of December 6, 2010 (as to 4.5% Senior Notes due 2020) (incorporated by reference to Exhibit No. 4.2 to the Current Report of IDEX on Form 8-K filed December 7, 2010, Commission File No. 1-10235)
4.4	Second Supplemental Indenture between IDEX Corporation and Wells Fargo Bank, National Association, as Trustee, dated as of December 13, 2011 (as to 4.2% Senior Notes due 2021) (incorporated by reference to Exhibit No. 4.1 to the Current Report of IDEX on Form 8-K filed December 14, 2011, Commission File No. 1-10235)
4.5	Note Purchase Agreement, dated June 13, 2016, between IDEX Corporation and the Purchasers listed in Schedule A thereto (incorporated by reference in Exhibit No. 4.1 to the Current Report of IDEX on Form 8-K filed June 15, 2016, Commission File No. 1-10235)
10.1**	Revised and Restated IDEX Management Incentive Compensation Plan for Key Employees Effective January 1, 2013 (incorporated by reference to Exhibit 10.2 to the Current Report of IDEX on Form 8-K filed February 20, 2013, Commission File No. 1-10235)
10.2**	IDEX Corporation Form of Director Indemnification Agreement (incorporated by reference to Exhibit 10.2 to the Annual Report of IDEX Corporation on Form 10-K for the fiscal year ended December 31, 2017, Commission File No. 1-10235)
10.3**	IDEX Corporation Amended and Restated Stock Option Plan for Outside Directors, adopted by resolution of the Board of Directors dated as of November 20, 2003 (incorporated by reference to Exhibit 10.6 (a) to the Annual Report of IDEX on Form 10-K for the year ended December 31, 2003, Commission File No. 1-10235)

Exhibit Number	Description
10.4**	IDEX Corporation Incentive Award Plan (as amended and restated) (incorporated by reference to Appendix A of the Proxy Statement of IDEX on Schedule 14A, filed March 5, 2015, Commission File No. 1-10235)
10.5**	Amended and Restated Employment Agreement dated February 22, 2018 between IDEX Corporation and Andrew K. Silvernail (incorporated by reference to Exhibit 10.5 to the Annual Report of IDEX Corporation on Form 10-K for the fiscal year ended December 31, 2017, Commission File No. 1-10235)
10.6**	Third Amended and Restated IDEX Corporation Directors Deferred Compensation Plan (incorporated by reference to Exhibit No. 10.30 to the Annual Report of IDEX on Form 10-K for the year ended December 31, 2010, Commission File No. 1-10235)
10.7**	IDEX Corporation Supplemental Executive Retirement and Deferred Compensation Plan (incorporated by reference to Exhibit No. 10.31 to the Annual Report of IDEX on Form 10-K for the year ended December 31, 2010, Commission File No. 1-10235)
10.8**	IDEX Amended and Restated Non-Employee Director Compensation Policy, effective January 1, 2018 (incorporated by reference to Exhibit 10.8 to the Annual Report of IDEX Corporation on Form 10-K for the fiscal year ended December 31, 2017, Commission File No. 1-10235)
10.9**	Letter Agreement between IDEX Corporation and Jeffrey Bucklew, dated January 16, 2012 (incorporated by reference to Exhibit No. 10.16 to the Annual Report of IDEX on Form 10-K for the year ended December 31, 2013, Commission File No. 1-10235)
10.10**	Letter Agreements between IDEX Corporation and Eric Ashleman, dated January 14, 2008 and February 12, 2014 (incorporated by reference to Exhibit No. 10.14 to the Annual Report of IDEX on Form 10-K for the year ended December 31, 2014, Commission File No. 1-10235)
10.11**	Form of IDEX Corporation Restricted Stock Award Agreement effective February 2015 (incorporated by reference to Exhibit No. 10.16 to the Annual Report of IDEX on Form 10-K for the year ended December 31, 2014, Commission File No. 1-10235)
10.12**	Form of IDEX Corporation Stock Option Agreement effective February 2015 (incorporated by reference to Exhibit No. 10.17 to the Annual Report of IDEX on Form 10-K for the year ended December 31, 2014, Commission File No. 1-10235)
10.13**	Form of IDEX Corporation Restricted Stock Unit Award Agreement effective February 2015 (incorporated by reference to Exhibit No. 10.18 to the Annual Report of IDEX on Form 10-K for the year ended December 31, 2014, Commission File No. 1-10235)
10.14**	Form of IDEX Corporation Restricted Stock Unit Award Agreement - Cash Settled effective February 2015 (incorporated by reference to Exhibit No. 10.19 to the Annual Report of IDEX on Form 10-K for the year ended December 31, 2014, Commission File No. 1-10235)
10.15**	Form of IDEX Corporation Performance Share Unit Award Agreement effective February 2015 (incorporated by reference to Exhibit No. 10.20 to the Annual Report of IDEX on Form 10-K for the year ended December 31, 2014, Commission File No. 1-10235)
10.16**	Form of IDEX Corporation Restricted Stock Unit Agreement for Directors effective February 2015 (incorporated by reference to Exhibit No. 10.21 to the Annual Report of IDEX on Form 10-K for the year ended December 31, 2014, Commission File No. 1-10235)
10.17**	Form of IDEX Corporation Stock Option Agreement effective February 2015 (incorporated by reference to Exhibit No. 10.22 to the Annual Report of IDEX on Form 10-K for the year ended December 31, 2014, Commission File No. 1-10235)
10.18**	Form of IDEX Corporation Restricted Stock Award Agreement effective February 2015 (incorporated by reference to Exhibit No. 10.23 to the Annual Report of IDEX on Form 10-K for the year ended December 31, 2014, Commission File No. 1-10235)

Exhibit Number	Description
10.19**	Amendment of Letter Agreement dated January 16, 2012, between IDEX Corporation and Jeffrey D. Bucklew, effective January 12, 2018 (incorporated by reference to Exhibit 10.19 to the Annual Report of IDEX Corporation on Form 10-K for the fiscal year ended December 31, 2017, Commission File No. 1-10235)
10.20**	Letter Agreement between IDEX Corporation and Denise Cade, dated September 24, 2015. (incorporated by reference to Exhibit No. 10.24 to the Annual Report of IDEX Corporation on Form 10-K for the fiscal year ended December 31, 2015, Commission File No. 1-10235)
10.21	Stock Purchase Agreement, dated February 4, 2016, by and among IDEX Corporation, Premier Farnell PLC, Celdis Limited, Premier Farnell Corp. and Akron Brass Holding Corp. (incorporated by reference to Exhibit No. 10.25 to the Annual Report of IDEX Corporation on Form 10-K for the fiscal year ended December 31, 2015, Commission File No. 1-10235)
10.22**	Letter Agreement between IDEX Corporation and William K. Grogan, dated December 30, 2016 (incorporated by reference to Exhibit 10.22 to the Annual Report of IDEX Corporation on Form 10-K for the fiscal year ended December 31, 2016, Commission File No. 1-10235)
10.23**	Amendment to Letter Agreement dated September 24, 2015, between IDEX Corporation and Denise R. Cade, effective as of April 24, 2017 (incorporated by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q of IDEX Corporation for the quarter ended March 31, 2017, Commission File No. 1-10235)
10.24**	Amendment to Letter Agreement dated February 12, 2014, between IDEX Corporation and Eric D. Ashleman, effective as of April 24, 2017 (incorporated by reference to Exhibit 10.2 to the Quarterly Report on Form 10-Q of IDEX Corporation for the quarter ended March 31, 2017, Commission File No. 1-10235)
10.25**	Amendment to Letter Agreement dated December 30, 2016, between IDEX Corporation and William K. Grogan, effective as of April 24, 2017 (incorporated by reference to Exhibit 10.3 to the Quarterly Report on Form 10-Q of IDEX Corporation for the quarter ended March 31, 2017, Commission File No. 1-10235)
10.26**	Form of IDEX Corporation Performance Share Unit Award Agreement - Stock Settled, effective February 2018 (incorporated by reference to Exhibit 10.26 to the Annual Report of IDEX Corporation on Form 10-K for the fiscal year ended December 31, 2017, Commission File No. 1-10235)
10.27**	Form of IDEX Corporation Restricted Stock Award Agreement, effective February 2018 (incorporated by reference to Exhibit 10.27 to the Annual Report of IDEX Corporation on Form 10-K for the fiscal year ended December 31, 2017, Commission File No. 1-10235)
10.28**	Form of IDEX Corporation Restricted Stock Unit Agreement for Directors, effective February 2018 (incorporated by reference to Exhibit 10.28 to the Annual Report of IDEX Corporation on Form 10-K for the fiscal year ended December 31, 2017, Commission File No. 1-10235)
10.29**	Form of IDEX Corporation Performance Share Unit Award Agreement - Cash Settled, effective February 2018 (incorporated by reference to Exhibit 10.29 to the Annual Report of IDEX Corporation on Form 10-K for the fiscal year ended December 31, 2017, Commission File No. 1-10235)
10.30**	Form of IDEX Corporation Stock Option Agreement, effective February 2018 (incorporated by reference to Exhibit 10.30 to the Annual Report of IDEX Corporation on Form 10-K for the fiscal year ended December 31, 2017, Commission File No. 1-10235)
10.31**	Form of IDEX Corporation Stock Option Agreement - Cash Settled, effective February 2018 (incorporated by reference to Exhibit 10.31 to the Annual Report of IDEX Corporation on Form 10-K for the fiscal year ended December 31, 2017, Commission File No. 1-10235)
10.32**	Form of IDEX Corporation Restricted Stock Unit Award Agreement - Cash Settled, effective February 2018 (incorporated by reference to Exhibit 10.32 to the Annual Report of IDEX Corporation on Form 10-K for the fiscal year ended December 31, 2017, Commission File No. 1-10235)
10.33**	Form of IDEX Corporation Restricted Stock Unit Award Agreement, effective December 2015 (incorporated by reference to Exhibit 10.33 to the Annual Report of IDEX Corporation on Form 10-K for the fiscal year ended December 31, 2017, Commission File No. 1-10235)
10.34**	Form of IDEX Corporation Confidential Information, Work Product and Restrictive Covenant Agreement (incorporated by reference to Exhibit 10.34 to the Annual Report of IDEX Corporation on Form 10-K for the fiscal year ended December 31, 2017, Commission File No. 1-10235)

21	Subsidiaries of IDEX
23	Consent of Deloitte & Touche LLP
31.1	Certification of Chief Executive Officer Pursuant to Rule 13a-14 (a) or Rule 15d-14 (a)
31.2	Certification of Chief Financial Officer Pursuant to Rule 13a-14 (a) or Rule 15d-14 (a)
***32.1	Certification pursuant to Section 1350 of Chapter 63 of Title 18 of the United States Code
***32.2	Certification pursuant to Section 1350 of Chapter 63 of Title 18 of the United States Code
****101	The following materials from IDEX Corporation's Annual Report on Form 10-K for the year ended December 31, 2018 formatted in XBRL (Extensible Business Reporting Language): (i) the Consolidated Balance Sheets at December 31, 2018 and 2017, (ii) the Consolidated Statements of Operations for the three years ended December 31, 2018, (iii) the Consolidated Statements of Comprehensive Income for the three years ended December 31, 2018, (iv) the Consolidated Statements of Shareholders' Equity for the three years ended December 31, 2018, (v) the Consolidated Statements of Cash Flows for the three years ended December 31, 2018, and (vi) Notes to the Consolidated Financial Statements.

** Management contract or compensatory plan or agreement.

*** Furnished herewith.

**** In accordance with Rule 406T of Regulation S-T, the XBRL related information in Exhibit 101 to this Annual Report on Form 10-K shall not be deemed to be "filed" for purposes of Section 18 of the Exchange Act, or otherwise subject to the liability of that section, and shall not be part of any registration statement or other document filed under the Securities Act or the Exchange Act, except as shall be expressly set forth by specific reference in such filing.

Item 16. ***Form 10-K Summary.***

None.

SIGNATURES

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

IDEX CORPORATION

By: /s/ WILLIAM K. GROGAN
William K. Grogan
Senior Vice President and Chief Financial Officer

Date: February 28, 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.

Signature	Title	Date
/s/ ANDREW K. SILVERNAIL Andrew K. Silvernail	Chairman of the Board and Chief Executive Officer (Principal Executive Officer)	February 28, 2019
/s/ WILLIAM K. GROGAN William K. Grogan	Senior Vice President and Chief Financial Officer (Principal Financial Officer)	February 28, 2019
/s/ MICHAEL J. YATES Michael J. Yates	Vice President and Chief Accounting Officer (Principal Accounting Officer)	February 28, 2019
/s/ MARK A. BECK Mark A. Beck	Director	February 28, 2019
/s/ MARK A. BUTHMAN Mark A. Buthman	Director	February 28, 2019
/s/ WILLIAM M. COOK William M. Cook	Director	February 28, 2019
/s/ KATRINA L. HELMKAMP Katrina L. Helmkamp	Director	February 28, 2019
/s/ ERNEST J. MROZEK Ernest J. Mrozek	Director	February 28, 2019
/s/ DAVID C. PARRY David C. Parry	Director	February 28, 2019
/s/ LIVINGSTON L. SATTERTHWAITE Livingston L. Satterthwaite	Director	February 28, 2019
/s/ CYNTHIA J. WARNER Cynthia J. Warner	Director	February 28, 2019

Exhibit 21

SUBSIDIARIES OF IDEX CORPORATION

SUBSIDIARY	JURISDICTION OF INCORPORATION
ADS Environmental Services Pty Limited	Australia
Fast and Fluid Management Australia Pty., Ltd.	Australia
Knight Equipment Pty Ltd.	Australia
Matcon Pacific Pty Limited	Australia
IDEX Holdings GmbH	Austria
iPEK Spezial TV GmbH	Austria
BarbIDEX International SRL	Barbados
Toptech Systems NV	Belgium
IDEX do Brasil Servicos e Vendas Ltda.	Brazil
ADS Environmental Technologies Inc.	Canada
Fluid Management Canada Inc.	Canada
Knight (Canada) Limited	Canada
Quadro Engineering Corp.	Canada
Viking Pump of Canada, Inc.	Canada
IDEX Dinglee Technology (Tianjin) Co., Ltd.	China
IDEX Precision Products (Suzhou) Co., Ltd	China
IDEX Technology (Suzhou) Co., Ltd.	China
IDEX Trading (Shanghai) Co., Ltd	China
Richter EP (Nanjing) Co. Ltd.	China
SFC KOENIG Flow Control (Suzhou) Co. Limited	China
SFC Trading Co. Ltd. Beijing	China
ADS Corp.	Delaware, USA
ADS LLC	Delaware, USA
Advanced Thin Films, Inc.	Delaware, USA
Akron Brass Company	Delaware, USA
Band-It-IDEX, Inc.	Delaware, USA
Corken, Inc.	Delaware, USA
CVI Laser, LLC	Delaware, USA
Fluid Management Operations LLC	Delaware, USA
Fluid Management, Inc.	Delaware, USA
FM Delaware, Inc.	Delaware, USA
FM Investment, Inc.	Delaware, USA
Hale Products, Inc.	Delaware, USA
IDEX Health & Science LLC	Delaware, USA
IDEX Holdings, Inc.	Delaware, USA
IDEX MPT Inc.	Delaware, USA
IDEX Service Corp.	Delaware, USA
Knight LLC	Delaware, USA
Knight, Inc.	Delaware, USA
Liquid Controls LLC	Delaware, USA
Microfluidics International Corporation	Delaware, USA

SUBSIDIARY	JURISDICTION OF INCORPORATION
Micropump, Inc.	Delaware, USA
Nova Technologies Corporation	Delaware, USA
Project Gold Acquisition Corp.	Delaware, USA
Pulsafeeder, Inc.	Delaware, USA
Richter Pumps & Valves Inc.	Delaware, USA
RV Acquisition Corp.	Delaware, USA
SFC Koenig LLC	Delaware, USA
Viking Pump, Inc.	Delaware, USA
Warren Rupp, Inc.	Delaware, USA
Wright Flow Technologies, Inc.	Delaware, USA
Band-It A/S	Denmark
Toptech Systems, Inc.	Florida, USA
FAST & Fluid Management France SARL	France
IDEX SAS	France
AWG Fittings GmbH	Germany
IDEX Europe GmbH	Germany
IDEX Leasing GmbH	Germany
iPEK International GmbH	Germany
LUKAS Hydraulik GmbH	Germany
Melles Griot GmbH	Germany
PP AWG GmbH	Germany
Richter Chemie-Technik GmbH	Germany
SFC Koenig Beteilgungs GmbH	Germany
SFC KOENIG GmbH	Germany
thinXXS Microtechnology AG	Germany
Vetter GmbH	Germany
KVT-KOENIG Holding Limited	Hong Kong
IDEX Sourcing Corporation	Illinois, USA
IDEX India Private Limited	India
Banjo Corporation	Indiana, USA
IDEX Pump Technologies (Ireland) Limited	Ireland
Alfa Valvole S.r.l.	Italy
Banjo Europe S.r.l.	Italy
FAST & Fluid Management S.r.l.	Italy
IDEX Italy S.r.l.	Italy
Novotema S.p.A	Italy
OBL Srl	Italy
S.A.M.P.I. S.p.A.	Italy
IDEX Health & Science KK	Japan
IDEX Japan GK	Japan
IDEX Korea, Ltd	Korea
AEGIS Flow Technologies, L.L.C.	Louisiana, USA
IDEX Mexico S.A. de C.V.	Mexico
Gast Manufacturing, Inc.	Michigan, USA
Fast & Fluid Management B.V.	Netherlands

SUBSIDIARY	JURISDICTION OF INCORPORATION
Melles Griot B.V.	Netherlands
Hurst Jaws of Life, Inc.	Pennsylvania, USA
Fast & Fluid Management Eastern Europe Sp. Z O.O.	Poland
Band-It Clamps (Asia) Pte., Ltd.	Singapore
IDEX Asia Pacific Pte. Ltd.	Singapore
IDEX Sweden AB	Sweden
SFC Koenig AG	Switzerland
XAM Holding I GmbH	Switzerland
PPE, LLC	Texas, USA
IDEX Middle East FZE	United Arab Emirates
Band-It Company Limited	United Kingdom
CVI Laser Limited	United Kingdom
FTL Seals Technology Limited	United Kingdom
Gast Group Limited	United Kingdom
Godiva Limited	United Kingdom
Godiva Products Limited	United Kingdom
Hale Products Europe Limited	United Kingdom
IDEX UK Investment Limited	United Kingdom
IDEX UK Ltd.	United Kingdom
Knight UK Limited	United Kingdom
Matcon (R&D) Limited	United Kingdom
Matcon Group Limited	United Kingdom
Matcon Limited	United Kingdom
Precision Polymer Engineering Limited	United Kingdom
Seals Limited	United Kingdom
Wright Flow Technologies Limited	United Kingdom
Trebor International, Inc.	Utah, USA

Exhibit 23

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statement Nos. 333-102882, 333-104768, 333-70450, 333-70452, 333-123558, 333-150142, 333-166981, and 333-205935 on Form S-8 of our reports dated February 28, 2019 , relating to the consolidated financial statements of IDEX Corporation and subsidiaries (the "Company"), and the effectiveness of the Company's internal control over financial reporting, appearing in this Annual Report on Form 10-K of IDEX Corporation for the year ended December 31, 2018 .

/s/ DELOITTE & TOUCHE LLP

Chicago, Illinois
February 28, 2019

Exhibit 31.1

Certification of Chief Executive Officer Pursuant to Section 302 of the Sarbanes Oxley Act of 2002

I, Andrew K. Silvernail, certify that:

1. I have reviewed this annual report on Form 10-K of IDEX Corporation;

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

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

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

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

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

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

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

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

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

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

February 28, 2019

/s/ ANDREW K. SILVERNAIL

Andrew K. Silvernail

Chairman of the Board and Chief Executive Officer

Exhibit 31.2

Certification of Chief Financial Officer Pursuant to Section 302 of the Sarbanes Oxley Act of 2002

I, William K. Grogan, certify that:

1. I have reviewed this annual report on Form 10-K of IDEX Corporation;

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

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

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

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

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

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

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

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

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

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

February 28, 2019

/s/ WILLIAM K. GROGAN

William K. Grogan

Senior Vice President and Chief Financial Officer

Exhibit 32.1

Certification of Chief Executive Officer

Pursuant to 18 U.S.C. § 1350, as created by Section 906 of the Sarbanes-Oxley Act of 2002, the undersigned officer of IDEX Corporation (the " Company ") hereby certifies, to such officer's knowledge, that:

(i) the accompanying Annual Report on Form 10-K of the Company for the annual period ended December 31, 2018 (the " Report ") fully complies with the requirements of Section 13(a) or Section 15(d), as applicable, of the Securities Exchange Act of 1934, as amended; and

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

February 28, 2019

/s/ ANDREW K. SILVERNAIL

Andrew K. Silvernail

Chairman of the Board and Chief Executive Officer

Exhibit 32.2

Certification of Chief Financial Officer

Pursuant to 18 U.S.C. § 1350, as created by Section 906 of the Sarbanes-Oxley Act of 2002, the undersigned officer of IDEX Corporation (the " Company ") hereby certifies, to such officer's knowledge, that:

(i) the accompanying Annual Report on Form 10-K of the Company for the annual period ended December 31, 2018 (the " Report ") fully complies with the requirements of Section 13(a) or Section 15(d), as applicable, of the Securities Exchange Act of 1934, as amended; and

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

February 28, 2019

/s/ WILLIAM K. GROGAN

William K. Grogan

Senior Vice President and Chief Financial Officer