CRANE CO /DE/
Form 10-K
February 26, 2019

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-K
ý 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
Commission file number 1-1657
CRANE CO.

Delaware State of or other jurisdiction of incorporation or organization:	13-1952290 (I.R.S. Employer identification No.)
100 First Stamford Place, Stamford, CT (Address of principal executive offices)	06902 (Zip Code)

Registrant's telephone number, including area code: (203) 363-7300
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 $1.00	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 ý 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 ý
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 ý 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 ý No ¨
Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of the registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ¨
Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer", "accelerated filer", "non-accelerated filer,", "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act). (Check one):

Large accelerated filer x Accelerated filer o

Non-accelerated filer o Smaller reporting company o
Emerging growth company o
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. o
Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).
Yes ¨ No ý
Based on the closing stock price of $80.13 on June 29, 2018, the last business day of the registrant's most recently completed second fiscal quarter, the aggregate market value of the voting common equity held by nonaffiliates of the registrant was $3,989,286,215
The number of shares outstanding of the registrant's common stock, par value $1.00, was 59,773,329 at January 31, 2019.
DOCUMENTS INCORPORATED BY REFERENCE
Portions of the registrant's Proxy Statement for the 2019 Annual Meeting of Stockholders are incorporated herein by reference in Part III of this Annual Report on Form 10-K to the extent stated herein. Such proxy statement will be filed with the Securities and Exchange Commission within 120 days of the registrant's fiscal year ended December 31, 2018

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FORWARD-LOOKING INFORMATION

This Annual Report on Form 10-K contains information about us, some of which includes “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements are statements other than historical information or statements about our current condition. You can identify forward-looking statements by the use of terms such as: “believes,” “contemplates,” “expects,” “may,” “will,” “could,” “should “would,” or “anticipates,” other similar phrases, or the negatives of these terms.

We have based the forward-looking statements relating to our operations on our current expectations, estimates and projections about us and the markets we serve. We caution you that these statements are not guarantees of future performance and involve risks and uncertainties. These statements should be considered in conjunction with the discussion in Part I, the information set forth under Item 1A, “Risk Factors” and with the discussion of the business included in Part II, Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations.” We have based many of these forward-looking statements on assumptions about future events that may prove to be inaccurate. Accordingly, our actual outcomes and results may differ materially from what we have expressed or forecast in the forward-looking statements. Any differences could result from a variety of factors, including the following:

- The effect of changes in economic conditions in the markets in which we operate, including financial market conditions, end markets for our products, fluctuations in raw material prices and the financial condition of our customers and suppliers;
- Economic, social and political instability, currency fluctuation and other risks of doing business outside of the United States;
- Competitive pressures, including the need for technology improvement, successful new product development and introduction and any inability to pass increased costs of raw materials to customers;
- Our ability to successfully integrate acquisitions and to realize synergies and opportunities for growth and innovation;
- Our ability to successfully value acquisitions;
- Our ongoing need to attract and retain highly qualified personnel and key management;
- The ability of the U.S. government to terminate our government contracts;
- Our ability to predict the timing and award of substantial contracts in our recently acquired banknote business;
- A reduction in congressional appropriations that affect defense spending;
- The outcomes of legal proceedings, claims and contract disputes;
- Adverse effects on our business and results of operations, as a whole, as a result of increases in asbestos claims or the cost of defending and settling such claims;
- Adverse effects as a result of further increases in environmental remediation activities, costs and related claims;
- Investment performance of our pension plan assets and fluctuations in interest rates, which may affect the amount and timing of future pension plan contributions; and
- Adverse effects of changes in tax, environmental and other laws and regulations in the United States and other countries in which we operate.

Part I

Reference herein to “Crane,” “we,” “us” and “our” refer to Crane Co. and our subsidiaries unless the context specifically states or implies otherwise. Amounts in the following discussion are presented in millions, except employee, square feet, number of properties, share and per share data, or unless otherwise stated.

Item 1. Business

General

We are a diversified manufacturer of highly engineered industrial products comprised of four segments: Fluid Handling, Payment & Merchandising Technologies, Aerospace & Electronics and Engineered Materials. Our primary markets are chemicals, oil & gas, power, non-residential construction, automated payment solutions, banknote design and production and aerospace & defense, along with a wide range of general industrial and certain consumer related end markets.

We have been committed to the highest standards of business conduct since 1855 when our founder, R.T. Crane, resolved “to conduct my business in the strictest honesty and fairness; to avoid all deception and trickery; to deal fairly with both customers and competitors; to be liberal and just toward employees; and to put my whole mind upon the business.”

Our strategy is to grow earnings and cash flow by focusing on the manufacturing of highly engineered industrial products for specific markets where our scale is a relative advantage, and where we can compete based on our proprietary and differentiated technology, our deep vertical expertise, and our responsiveness to unique and diverse customer needs. We continuously evaluate our portfolio, pursue acquisitions that complement our existing businesses and are accretive to our growth profile, selectively divest businesses where appropriate, and pursue internal mergers to improve efficiency. We strive to foster a performance-based culture focused on productivity and continuous improvement, to attract and retain a committed management team whose interests are directly aligned with those of our shareholders, and to maintain a focused, efficient corporate structure.

We deploy a comprehensive set of business processes, philosophies and operational excellence tools to drive continuous improvement throughout our businesses. Beginning with a core value of integrity, we incorporate “Voice of the Customer” teachings (specific processes designed to capture our customers’ requirements) and a broad range of tools into a disciplined strategy deployment process that drives profitable growth by focusing on continuously improving safety, quality, delivery, cost and growth. An embedded intellectual capital development process ensures that we attract, develop, promote and retain talent to drive continuity and repeatable results.

Reportable Segments

For additional information on recent business developments and other information about us and our business, you should refer to the information set forth under the captions, “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” in Part II, Item 7 of this report, as well as in Part II, Item 8 under Note 3, “Segment Information,” in the Notes to Consolidated Financial Statements for sales, operating profit and assets employed by each segment.

Fluid Handling

The Fluid Handling segment is a provider of highly engineered fluid handling equipment for critical performance applications that require high reliability. The segment is comprised of Process Valves and Related Products, Commercial Valves and Other Products.

Process Valves and Related Products includes on/off valves and related products for critical and demanding applications in the chemical, oil & gas, power and general industrial end markets globally. Products are sold under the trade names Crane, Saunders, Jenkins, Pacific, Xomox, Krombach, DEPA, ELRO, REVO, Flowseal, Centerline, Resistoflex, Duochek, Barksdale, Westlock and WTA. Manufacturing locations, along with sales and service centers, are located across the Americas, Europe, the Middle East, Asia and Australia.

Commercial Valves is engaged primarily in the manufacturing and distribution of valves and related products for the non-residential construction, general industrial, and to a lesser extent, municipal markets. The primary geographies served include Canada, the United Kingdom, the Middle East and continental Europe. Brands include Stockham, Wask, Viking Johnson, IAT, Hattersley, NABIC, Sperryn, Wade, Rhodes and Brownall. Manufacturing facilities are located in the United Kingdom and China, with additional sales offices in continental Europe and the Middle East; distribution facilities are located throughout Canada.

Other Products includes pumps and related products for water and wastewater applications in the industrial, municipal, commercial and military markets, primarily in the United States. Products are sold under the trade names Deming, Weinman, Burks and Barnes. Facilities are located in the United States and Canada.

Payment & Merchandising Technologies

The Payment & Merchandising Technologies segment consists of Crane Payment Innovations (“CPI”), Crane Merchandising Systems ("CMS") and Crane Currency.

CPI provides high technology payment acceptance products that improve our customers’ productivity in numerous global markets including retail self-checkout, vending, casino gaming, government lotteries, parking, transit fare collection, payment kiosks and banking. Products for these markets include coin acceptors and dispensers, coin hoppers, coin recyclers, bill validators, bill recyclers and cashless systems. Facilities are located in the United States, Mexico, Japan, Switzerland, Germany and the Ukraine, with additional sales offices across the world.

CMS is primarily engaged in the design and manufacture of vending equipment and related solutions. CMS’ innovative products and solutions create value by improving the consumer experience, and driving higher same store, or vendor machine, profitability. Products include a full line of vending equipment that dispenses food, snack, and hot and cold beverages. Other solutions include vending management software, cashless payment products, and wireless connectivity to enable our customers to operate their businesses more profitably. Primary customers include vending operators and food and beverage companies, primarily in the United States and Europe. Facilities are located in the United States and the United Kingdom.

On January 10, 2018, we completed the acquisition of Crane & Co., Inc. (“Crane Currency”), a supplier of banknotes and highly engineered banknote security features. The base purchase price of the acquisition was $800 million on a cash-free, debt-free basis, subject to a later adjustment reflecting Crane Currency’s net working capital, cash, the assumption by Crane of certain debt-like items, and Crane Currency’s transaction expenses. Founded in 1801, Crane Currency is a pioneer in advanced micro-optic security technology, and a fully integrated supplier of secure and highly engineered banknotes for central banks all over the world. Facilities are located in the United States, Sweden and Malta.

Aerospace & Electronics

The Aerospace & Electronics segment supplies critical components and systems, including original equipment and aftermarket parts, primarily for the commercial aerospace and military aerospace and defense markets. The commercial market and military market accounted for 66% and 34%, respectively, of total segment sales in 2018. Sales to original equipment manufacturers ("OEM") and aftermarket customers were 73% and 27%, respectively, in 2018.

Crane Aerospace & Electronics has strong brands which have been supplying products to these end markets for several decades. Brands include Hydro-Aire, ELDEC, Lear Romec, P.L. Porter, Keltec, Interpoint, Signal Technology, Merrimac Industries, and Polyflon.

Products include a wide range of custom designed, highly engineered products used in landing systems, sensing and utility systems, fluid management, seat actuation, power and microelectronic applications, and microwave systems. Our products are sold directly to aircraft manufacturers, commercial Tier 1 integrators (companies which make products specifically for an aircraft manufacturer), defense and space prime contractors, airlines, government agencies including the United States ("U.S.") Department of Defense, foreign allied defense organizations, aircraft seat manufacturers, and aircraft maintenance, repair and overhaul organizations.

Facilities are located in the United States, Taiwan, and France.

Engineered Materials

The Engineered Materials segment manufactures fiberglass-reinforced plastic ("FRP") panels and coils, primarily for use in the manufacturing of recreational vehicles ("RVs"), truck bodies, truck trailers, with additional applications in commercial and industrial buildings. Engineered Materials sells the majority of its products directly to RV, trailer, and truck manufacturers, and it uses distributors and retailers to serve the commercial and industrial construction markets. Manufacturing facilities are located in the United States.

Other Matters Relating to Our Business as a Whole

Competitive Conditions

Our businesses participate in markets that are highly competitive. Because of the diversity of products manufactured and sold, our businesses typically have a different set of competitors in each geographic area and end market in which they participate. Accordingly, it is not possible to estimate the number of competitors, or precise market share;

however, we believe that we are a principal competitor in most of our markets. Our primary basis of competition is providing high quality products, with technological differentiation, at competitive prices, with superior customer service and timely delivery.

Our products are sold into markets, including chemicals, oil & gas, power, non-residential construction, automated payment solutions, banknote design and production, and aerospace & defense, along with a wide range of general industrial and certain consumer related end markets. As such, our revenues depend on numerous unpredictable factors, including changes in market demand, general economic conditions, customer capital spending, timing and amount of contract awards and credit availability. Since our products are sold in such a wide variety of markets, we do not believe that we can reliably quantify or predict the potential effects of changes in any of the aforementioned factors.
Our engineering and product development activities are focused on improving existing products, customizing existing products for particular customer requirements, as well as the development of new products. We own numerous patents, trademarks, copyrights, trade secrets and licenses to intellectual property, no one of which is of such importance that termination would materially affect our business. From time to time, however, we do engage in litigation to protect our intellectual property.

Research and Development

Research and development costs are expensed when incurred. These costs were $58.4 million, $58.5 million and $61.5 million in 2018, 2017 and 2016, respectively, and were incurred primarily by our Aerospace & Electronics and Payment & Merchandising Technologies segments.

Our Customers

No customer accounted for more than 10% of our consolidated revenues in 2018, 2017 or 2016.

Backlog

The following sets forth the unfulfilled orders attributable to each of our segments as of the indicated dates:

(in millions)	December 31, 2018	December 31, 2017
Fluid Handling	$ 279.6	$ 262.1
Payment & Merchandising Technologies	331.5	76.4
Aerospace & Electronics	446.6	373.6
Engineered Materials	14.9	13.6
Total Backlog	$ 1,072.6	$ 725.7

Our Employees

As of December 31, 2018, we employed approximately 12,000 people in the Americas, Europe, the Middle East, Asia and Australia. For a discussion of risks related to employee relations, please refer to Item 1A. “Risk Factors.”

Raw Materials

Our manufacturing operations employ a wide variety of raw materials, including steel, copper, cast iron, electronic components, aluminum, plastics, cotton, flax and various petroleum-based products. We purchase raw materials from a large number of independent sources around the world. Although market forces have at times caused increases in the costs of steel, copper and petroleum-based products, there have been no raw materials shortages that have had a material adverse impact on our business, and we believe that we will generally be able to obtain adequate supplies of major raw material requirements or reasonable substitutes at acceptable costs. For a further discussion of risks related to raw materials; please refer to Item 1A. “Risk Factors.”

Seasonal Nature of Business

In aggregate, our business does not experience significant seasonality.

Government Contracts

We have agreements relating to the sale of products to government entities, primarily involving products in our Aerospace & Electronics and Payment & Merchandising Technologies segments and, to a lesser extent, our Fluid Handling segment. As a result, we are subject to various statutes and regulations that apply to companies doing business with the government. The laws and regulations governing government contracts differ from those governing private contracts. For example, some government contracts require disclosure of cost and pricing data and impose certain sourcing conditions that are not applicable to private contracts. Our failure to comply with these laws could result in suspension of these contracts, criminal or civil sanctions, administrative penalties and fines or suspension or debarment from government contracting or subcontracting for a period of

time. For a further discussion of risks related to compliance with government contracting requirements; please refer to Item 1A. “Risk Factors.”

Environmental Compliance and Climate Change

We are regulated by federal, state and international environmental laws governing our use, transport and disposal of substances and control of emissions. Our manufacturing facilities generally do not produce significant volumes or quantities of byproducts, including greenhouse gases, that would be considered hazardous waste or otherwise harmful to the environment. Accordingly, compliance with these existing laws has not had a material impact on our capital expenditures or earnings.

However, we occasionally engage in environmental remediation activities pursuant to federal and state laws. In addition, we may be exposed to other environmental costs including participation in superfund sites. When it is reasonably probable we will pay remediation costs at a site, and those costs can be reasonably estimated, we accrue a liability for such future costs with a related charge against our earnings. For a further discussion of environmental related risks; please refer to Item 1A. “Risk Factors.”

Recent Financing Arrangements

On December 20, 2017, we entered into a $150 million 364-day credit agreement (the "364-day Credit Agreement") and a $200 million 3-year term loan credit agreement (the "3-year Term Loan Credit Agreement") to fund our acquisition of Crane Currency. On January 10, 2018, we completed the acquisition of Crane Currency. To fund the acquisition, we issued $340 million of commercial paper under our commercial paper program, drew $100 million and $200 million from each of our 364-day Credit Agreement and 3-year Term Loan Credit Agreement, respectively, and used cash on hand.

On February 5, 2018, we completed a public offering of $350 million aggregate principal amount of 4.20% Senior Notes due March 2048 (the “Public Offering”). In March 2018, we used the net proceeds from the Public Offering, together with cash on hand, to repay all of the $100 million outstanding under our 364-day Credit Agreement as well as $250 million of outstanding 2.75% notes due in December 2018.

On October 23, 2018, we increased the size of our commercial paper program to permit the issuance of commercial paper notes in an aggregate principal amount not to exceed $550 million at any time outstanding. Prior to this increase, the commercial paper program permitted us to issue commercial paper notes in an aggregate principal amount not to exceed $500 million at any time outstanding.

See Part II, Item 8 under Note 12, “Financing,” in the Notes to Consolidated Financial Statements.

Available Information

We file annual, quarterly and current reports and amendments to these reports, proxy statements and other information with the U.S. Securities and Exchange Commission (“SEC”). You may read and copy any materials we file with the SEC at the SEC’s Public Reference Room at 100 F Street, NE, Washington, DC 20549. You may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC maintains an Internet site that contains reports, proxy and information statements and other information regarding issuers, like us, that file electronically with the SEC. The address of the SEC’s website is www.sec.gov.

We also make our filings available free of charge through our Internet website, as soon as reasonably practicable after filing such material electronically with, or furnishing such material, to the SEC. Also posted on our website are our Corporate Governance Guidelines, Standards for Director Independence, Crane Co. Code of Ethics and the charters and a brief description of each of the Audit Committee, the Management Organization and Compensation Committee and the Nominating and Governance Committee. These items are available in the “Investors – Corporate Governance” section of our website at www.craneco.com. The content of our website is not part of this report.

Executive Officers of the Registrant

Name	Position	Business Experience During Past Five Years	Age	Executive Officer Since
Max H. Mitchell	President and Chief Executive Officer	Chief Executive Officer since January 2014. President since January 2013. Chief Operating Officer from 2011 through January 2013.	55	2004
Curtis A. Baron, Jr.	Vice President, Controller	Vice President, Controller since 2011.	49	2011
Anthony M. D'Iorio	Vice President, General Counsel and Secretary	Vice President, General Counsel and Secretary since February 2018. Deputy General Counsel from January 2014 through February 2018. Assistant General Counsel from 2005 through January 2014.	55	2018
Bradley L. Ellis	Senior Vice President	Senior Vice President since December 2014. Group President, Merchandising Systems from 2003 through December 2014.	50	1997 - 2003 2007 - present
James A. Lavish	Vice President, CBS, People & Performance	Vice President, CBS, People & Performance since January 2016. Vice President, Crane Business System from March 2013 through January 2016. President, Crane Pumps & Systems from 2008 to March 2013.	52	2016
Richard A. Maue	Senior Vice President and Chief Financial Officer	Senior Vice President since January 2019. Vice President - Finance from 2013 through January 2019. Chief Financial Officer since January 2013. Principal Accounting Officer since 2007.	48	2007
Louis V. Pinkham	Senior Vice President	Senior Vice President since December 2014. Group President, Fluid Handling from 2012 through December 2014.	47	2012
Kristian R. Salovaara	Vice President of Business Development and Strategy	Vice President of Business Development and Strategy since March 2014. Vice President, Business Development from 2011 to March 2014.	58	2011
Edward S. Switter	Vice President, Treasurer and Tax	Vice President, Treasurer and Tax since September 2016. Vice President, Tax from 2011 through September 2016.	44	2011

Item 1A. Risk Factors
The following is a description of what we consider the key challenges and risks confronting our business. This discussion should be considered in conjunction with the discussion under the caption "Forward-Looking Information" preceding Part I, the information set forth under Item 1, "Business" and with the discussion of the business included in Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations." These risks comprise the material risks of which we are aware. If any of the events or developments described below or elsewhere in this Annual Report on Form 10-K, or in any documents that we subsequently file publicly were to occur, it could have a material adverse effect on our business, financial condition, results of operations and cash flows.
Risks Relating to Our Business
We are subject to numerous lawsuits for asbestos-related personal injury, and costs associated with these lawsuits may adversely affect our financial condition, results of operations and cash flows.
We are subject to numerous lawsuits for asbestos-related personal injury. Estimation of our ultimate exposure for asbestos-related claims is subject to significant uncertainties, as there are multiple variables that can affect the timing, severity and quantity of claims. Our estimate of the future expense of these claims is derived from assumptions with respect to future claims, settlement and defense costs which are based on experience during the last few years and which may not prove reliable as predictors. A significant upward or downward trend in the number of claims filed, depending on the nature of the alleged injury, the jurisdiction where filed and the quality of the product identification, or a significant upward or downward trend in the costs of defending claims, could change the estimated liability, as would substantial adverse verdicts at trial or on appeal. A legislative solution or a structured settlement transaction could also change the estimated liability. These uncertainties may result in our incurring future charges or increases to income to adjust the carrying value of recorded liabilities and assets, particularly if the number of claims and settlements and defense costs escalates or if legislation or another alternative solution is implemented; however, we are currently unable to predict such future events. The resolution of these claims may take many years, and the effect our financial condition, results of operations and cash flows in any given period from a revision to these estimates could be material.
As of December 31, 2018, we were one of a number of defendants in cases involving 29,089 pending claims filed in various state and federal courts that allege injury or death as a result of exposure to asbestos. See Part II, Item 8 under Note 11, "Commitments and Contingencies," in the Notes to Consolidated Financial Statements for additional information on:

- Our pending claims;
- Our historical settlement and defense costs for asbestos claims;
- The liability we have recorded in our financial statements for pending and reasonably anticipated asbestos claims through 2059;
- The asset we have recorded in our financial statements related to our estimated insurance coverage for asbestos claims; and
- Uncertainties related to our net asbestos liability.

In the fourth quarter of 2016, we updated and extended the estimate of our asbestos liability and recorded a pre-tax charge of $192 million ($125 million after tax). Our updated liability estimate is for pending and reasonably anticipated asbestos claims through the generally accepted end point of such claims in 2059. Due to uncertainties in the tort system, as well as uncertainties inherent in the estimation process, future reviews may result in adjustments to our total asbestos-related liability. The aggregate liability was $517.3 million as of December 31, 2018.
Macroeconomic fluctuations may harm our business, results of operations and stock price.
Our business, financial condition, operating results and cash flows may be adversely affected by changes in global economic conditions and geopolitical risks, including credit market conditions, trade agreements, levels of consumer and business confidence, commodity prices, exchange rates, levels of government spending and deficits, political conditions and other challenges that could affect the global economy. These economic conditions could affect businesses such as ours in a number of ways. Such conditions could have an adverse impact on our flexibility to react to changing economic and business conditions and on our ability to fund our operations or refinance maturing debt balances at economically favorable interest rates. In addition, restrictions on credit availability could adversely affect

the ability of our customers to obtain financing for significant purchases and could result in decreases in or cancellation of orders for our products and services as well as impact the ability of our customers to make payments. Similarly, credit restrictions may adversely affect our supplier base and increase the potential for one or more of our suppliers to experience financial distress or bankruptcy. See "Specific Risks Related to Our Business Segments".

Demand for our products is variable and subject to factors beyond our control, which could result in unanticipated events significantly impacting our results of operations.

A substantial portion of our sales is concentrated in industries that are cyclical in nature or subject to market conditions which may cause customer demand for our products to be volatile. These industries often are subject to fluctuations in domestic and international economies as well as to currency fluctuations and inflationary pressures. Reductions in demand by these industries would reduce the sales and profitability of the affected business segments. Our Fluid Handling business is dependent on global economic conditions, customer capital spending and commodity prices. Deterioration in any of these economic factors could result in sales and profits falling below our current outlook. Results at our Payment & Merchandising Technologies segment could be affected by sustained weakness in certain geographic markets such as China or certain end markets such as gaming, retail or banking, as well as low employment levels, office occupancy rates and factors affecting vending operator profitability such as higher fuel, food and equipment financing costs; results could also be impacted by unforeseen advances in payment processing technologies. In addition, our results in this segment are subject to significant variability due to the timing and size of contract awards by central banks for banknote production. In our Aerospace & Electronics segment, a significant decline in demand for air travel, or a decline in airline profitability generally, could result in reduced orders for aircraft and could also cause airlines to reduce their purchases of repair parts from our businesses. In addition, our Aerospace & Electronics segment could also be impacted to the extent that major aircraft manufacturers encountered production problems, or if pricing pressure from aircraft customers caused the manufacturers to press their suppliers to lower prices and/or extend payment terms; in addition, demand for military and defense products is dependent upon government spending in certain areas which can vary year to year. In our Engineered Materials segment, sales and profits could be affected by declines in demand for truck trailers, RVs, or building products; results could also be impacted by unforeseen changes in capacity or price increases related to certain raw materials, in particular, resin.

We may be unable to identify or to complete acquisitions, or to successfully integrate the businesses we acquire.

We have evaluated, and expect to continue to evaluate, a wide array of potential acquisition transactions. Our acquisition program attempts to address the potential risks inherent in assessing the value, strengths, weaknesses, contingent or other liabilities, systems of internal control and potential profitability of acquisition candidates, as well as other challenges such as retaining the employees and integrating the operations of the businesses we acquire. Integrating acquired operations, such as our 2018 acquisition of Crane Currency, involves significant risks and uncertainties, including:

- Maintenance of uniform standards, controls, policies and procedures;
- Unplanned expenses associated with the integration efforts;
- Inability to achieve planned facility repositioning savings or related efficiencies from recent and ongoing investments, such as those related to the transition of our print operations from Sweden to Malta; and
- Unidentified issues not discovered in the due diligence process, including legal contingencies.

There can be no assurance that suitable acquisition opportunities will be available in the future, that we will continue to acquire businesses or that any business acquired will be integrated successfully or prove profitable, which could adversely impact our growth rate. Our ability to achieve our growth goals depends in part upon our ability to identify and successfully acquire and integrate companies and businesses at appropriate prices and realize anticipated cost savings.

Our operations expose us to the risk of environmental liabilities, costs, litigation and violations that could adversely affect our financial condition, results of operations, cash flows and reputation.

Our operations are subject to environmental laws and regulations in the jurisdictions in which they operate, which impose limitations on the discharge of pollutants into the ground, air and water and establish standards for the generation, treatment, use, storage and disposal of solid and hazardous wastes. We must also comply with various health and safety regulations in the U.S. and abroad in connection with our operations. Failure to comply with any of these laws could result in civil and criminal liability, monetary and non-monetary penalties and damage to our reputation. In addition, we cannot provide assurance that our costs related to remedial efforts or alleged environmental damage associated with past or current waste disposal practices or other hazardous materials handling practices will not exceed our estimates or adversely affect our financial condition, results of operations and cash flows. For example, in 2014, the U.S. Environmental Protection Agency issued a Record of Decision amendment requiring, among other things, additional source area remediation resulting in us recording a charge of $49 million pertaining to the Phoenix-Goodyear Airport North Superfund Site (the "Goodyear Site"), extending the accrued costs through 2022. The total estimated gross liability was $33.1 million as of December 31, 2018, of which we have recorded a receivable of $6.7 million for the expected reimbursements from the U.S. Government in respect of the aggregate liability as at that date.

Additional tax expense or exposures could affect our financial condition, results of operations and cash flows.
We are subject to income taxes in the U.S. and various international jurisdictions. Our financial condition, results of operations and cash flow could be affected by changes to any or all of the following: tax laws, regulations, accounting principles and judicial rulings, including the U.S. Tax Cuts and Jobs Act (the "TCJA"), the geographic mix of our earnings, the valuation of our deferred tax assets and liabilities, and the amount of our earnings permanently reinvested outside the U.S. In addition, the results of audits and examinations of previously filed tax returns could also have an effect on our financial conditions, results of operations and cash flows.
Enactment of the TCJA on December 22, 2017 brought significant changes to existing U.S. federal corporate income tax laws, including reducing the U.S. federal corporate income tax rate from 35% to 21%, modifying how distributions from and income earned by our non-U.S. subsidiaries are taxed in the U.S., and imposing a one-time tax on cumulative undistributed non-U.S. earnings. The U.S. Department of Treasury and Internal Revenue Service have issued proposed guidance on certain changes brought by the TCJA, while guidance in other areas remains pending. In addition, U.S. states' responses to the TCJA are in various stages of finality. The actual impact of the TCJA may differ from our calculations due to the issuance of final and/or further regulations or guidance by the U.S. federal and state taxing authorities. Any significant changes to our calculations from these items could have an adverse effect on our financial condition, results of operations and cash flows.
Our businesses are subject to extensive governmental regulation; failure to comply with those regulations could adversely affect our financial condition, results of operations, cash flows and reputation.
We are required to comply with various import and export control laws, which may affect our transactions with certain customers, particularly in our Aerospace & Electronics, Fluid Handling and Payment & Merchandising Technology segments, as discussed more fully under "Specific Risks Relating to Our Business Segments". In certain circumstances, export control and economic sanctions regulations may prohibit the export of certain products, services and technologies, and in other circumstances we may be required to obtain an export license before exporting the controlled item. A failure to comply with these requirements might result in suspension of these contracts and suspension or debarment from government contracting or subcontracting. In addition, we are subject to the Foreign Corrupt Practices Act, which prohibits U.S. companies and their intermediaries from making improper payments to foreign officials for the purpose of obtaining or retaining business, or securing any improper advantage. We are also subject to the anti-bribery laws of other jurisdictions. Failure to comply with any of these regulations could result in civil and criminal liability, monetary and non-monetary penalties, fines, disruptions to our business, limitations on our ability to export products and services, and damage to our reputation.
The prices of our raw materials could fluctuate dramatically, which may adversely affect our profitability.
The costs of certain raw materials that are critical to our profitability are volatile. This volatility can have a significant impact on our profitability. The costs in our Engineered Materials segment are affected by fluctuations in the price of resin, with lesser exposure to other input costs. The costs in our Fluid Handling, Payment & Merchandising Technologies and Aerospace & Electronics segments are affected by fluctuations in the price of cotton, flax and metals such as steel and copper. While we have taken actions aimed at securing an adequate supply of raw materials at prices which are favorable to us, if the prices of critical raw materials increase, our operating costs could be adversely affected.
Our ability to source parts and raw materials from our suppliers could be disrupted or delayed in our supply chain which could adversely affect our results of operations.
Our operations require significant amounts of necessary parts and raw materials. We deploy a continuous, company-wide process to source our parts and raw materials from fewer suppliers, and to obtain parts from suppliers in low-cost countries where possible. If we are unable to source these parts or raw materials, our operations may be disrupted, or we could experience a delay or halt in certain of our manufacturing operations. We believe that our supply management and production practices are based on an appropriate balancing of the foreseeable risks and the costs of alternative practices. Nonetheless, supplier capacity constraints, supplier production disruptions, supplier financial condition, increases in duties and tariff costs, price volatility or the unavailability of some raw materials could have an adverse effect on our financial condition, results of operations and cash flows.

We could face potential product liability or warranty claims, we may not accurately estimate costs related to such claims, and we may not have sufficient insurance coverage available to cover such claims.

Our products are used in a wide variety of commercial applications and certain residential applications. We face an inherent business risk of exposure to product liability or other claims in the event our products are alleged to be defective or that the use of our products is alleged to have resulted in harm to others or to property. We may in the future incur liability if product liability lawsuits against us are successful. Moreover, any such lawsuits, whether or not successful, could result in adverse publicity to us, which could cause our sales to decline.

In addition, consistent with industry practice, we provide warranties on many of our products and we may experience costs of warranty or breach of contract claims if our products have defects in manufacture or design or they do not meet contractual specifications. We estimate our future warranty costs based on historical trends and product sales, but we may fail to accurately estimate those costs and thereby fail to establish adequate warranty reserves for them. We maintain insurance coverage to protect us against product liability claims, but that coverage may not be adequate to cover all claims that may arise or we may not be able to maintain adequate insurance coverage in the future at an acceptable cost. Any liabilities not covered by insurance or that exceed our established reserves could have an adverse effect on our financial condition, results of operations and cash flows.

We may be unable to improve productivity, reduce costs and align manufacturing capacity with customer demand.

We are committed to continuous productivity improvement, and we continue to evaluate opportunities to reduce costs, simplify or improve global processes, and increase the reliability of order fulfillment and satisfaction of customer needs. In order to operate more efficiently and control costs, from time to time we execute restructuring activities, which include workforce reductions and facility consolidations. For example, we recorded pre-tax restructuring charges of $7.2 million and $13.0 million in 2018 and 2017, respectively, associated with broad-based repositioning actions designed to improve profitability. Together with additional costs of approximately $15 million, we expect to achieve $53 million in annualized savings by 2020. While these are proactive actions to increase our productivity and operating effectiveness, our failure to respond to potential declines in global demand for our products and services and properly align our cost base could have an adverse effect on our financial condition, results of operations and cash flows.

We may be unable to successfully develop and introduce new products, which would limit our ability to grow and maintain our competitive position and adversely affect our financial condition, results of operations and cash flow.

Our growth depends, in part, on continued sales of existing products, as well as the successful development and introduction of new products or technologies, which face the uncertainty of customer acceptance and reaction from competitors. Any delay in the development or launch of a new product could result in our not being the first to market, which could compromise our competitive position. Further, the development and introduction of new products may require us to make investments in specialized personnel and capital equipment, increase marketing efforts and reallocate resources away from other uses. We also may need to modify our systems and strategy in light of new products that we develop. If we are unable to develop and introduce new products in a cost-effective manner or otherwise manage effectively the operations related to new products, our financial condition, results of operations and cash flows could be adversely impacted.

Our business could be harmed if we are unable to protect our intellectual property.

We rely on a combination of trade secrets, patents, trademarks, copyrights and confidentiality procedures to protect our products and technology. Existing trade secret, patent, trademark and copyright laws offer only limited protection. Our patents could be invalidated or circumvented. In addition, others may develop substantially equivalent, or superseding proprietary technology, or competitors may offer equivalent non-infringing products in competition with our products, thereby substantially reducing the value of our proprietary rights. The laws of some foreign countries in which our products are or may be manufactured or sold may not protect our products or intellectual property rights to the same extent as do the laws of the U.S. We cannot assure that the steps we take to protect our intellectual property will be adequate to prevent misappropriation of our technology. Our inability to protect our intellectual property could have an adverse effect on our financial condition, results of operations and cash flows.

Pension benefit cost and pension contributions associated with our retirement benefit plans may fluctuate significantly depending upon changes in actuarial assumptions and future market performance of plan assets.

Total net pension benefit cost and pension contributions were $15.3 million and $57.5 million (including a $28 million discretionary contribution), respectively, in 2018. The costs of our defined benefit pension plans are dependent upon various factors, including rates of return on investment assets, discount rates for future payment obligations, and expected mortality, among other things. In addition, funding requirements for benefit obligations of our pension plans are subject to legislative and other government regulatory actions. Variances in related estimates could have an adverse effect on our financial condition, results of operations and cash flows.

We face significant competition which may adversely impact our financial condition, results of operations, and cash flows in the future.

While we are a principal competitor in most of our markets, all of our markets are highly competitive. The competitors in many of our business segments can be expected in the future to improve technologies, reduce costs and develop and introduce new products. The ability of our business segments to achieve similar advances will be important to our competitive positions. Competitive pressures, including those discussed above, could cause one or more of our business segments to lose market share or could result in significant price erosion, either of which could have an adverse effect on our financial condition, results of operations and cash flows.

We conduct a substantial portion of our business outside the U.S. and face risks inherent in non-domestic operations.

Net sales and assets related to our operations outside the U.S. were 37% and 47% of our consolidated amounts, respectively, in 2018. These operations and transactions are subject to the risks associated with conducting business internationally, including the risks of currency fluctuations, slower payment of invoices, adverse trade regulations and possible social, economic and political instability in the countries and regions in which we operate. In addition, we expect that non-U.S. sales will continue to account for a significant portion of our revenues for the foreseeable future. Accordingly, fluctuations in foreign currency exchange rates, primarily the euro, the British pound, the Canadian dollar and the Japanese yen, could adversely affect our reported results, primarily in our Fluid Handling and Payment & Merchandising Technologies segments, as amounts earned in other countries are translated into U.S. dollars for reporting purposes.

We are dependent on key personnel, and we may not be able to retain our key personnel or hire and retain additional personnel needed for us to sustain and grow our business as planned.

Certain of our business segments and corporate offices are dependent upon highly qualified personnel, and we generally are dependent upon the continued efforts of key management employees. We may have difficulty retaining such personnel or locating and hiring additional qualified personnel. The loss of the services of any of our key personnel or our failure to attract and retain other qualified and experienced personnel on acceptable terms could impair our ability to successfully sustain and grow our business, which could have an adverse effect on our results of operations.

If our internal controls are found to be ineffective, our financial results or our stock price may be adversely affected.

We believe that we currently have adequate internal control procedures in place for future periods, including processes related to newly acquired businesses; however, increased risk of internal control breakdowns generally exists in any business environment that is decentralized such as ours. In addition, if our internal control over financial reporting is found to be ineffective, investors may lose confidence in the reliability of our financial statements, which may adversely affect our stock price.

Failure to maintain the security of our information systems and technology networks, including personally identifiable and other information, non-compliance with our contractual or other legal obligations regarding such information, or a violation of our privacy and security policies with respect to such information, could adversely affect us.

We are dependent on information technology networks and systems, including the Internet, to process, transmit and store electronic information, and, in the normal course of our business, we collect and retain certain types of personally identifiable and other information pertaining to our customers, stockholders and employees. The legal, regulatory and contractual environment surrounding information security and privacy is constantly evolving and companies that collect and retain such information are under increasing attack by cyber-criminals around the world. A theft, loss, fraudulent use or misuse of customer, stockholder, employee or our proprietary data by cybercrime or otherwise, non-compliance with our contractual or other legal obligations regarding such data or a violation of our privacy and security policies with respect to such data could adversely impact our reputation and could result in costs, fines, litigation or regulatory action against us. Security breaches can create system disruptions and shutdowns that could result in disruptions to our operations. We cannot be certain that advances in criminal capabilities, new vulnerabilities or other developments will not compromise or breach the security solutions protecting our information technology, networks and systems.

The results of the United Kingdom's ("UK") European Union ("EU") membership referendum could adversely affect customer demand, our relationships with customers and suppliers and our business and financial statements.

Approximately 37% of our sales are conducted outside of the U.S., the majority of which is in the UK and the EU. We continue to evaluate the potential effect of the planned departure of the UK from the EU (commonly referred to as Brexit) on our business operations and financial results, including the impacts if the UK fails to reach an agreement with the EU on Brexit by the March 29, 2019 deadline. The political and economic instability created by Brexit has caused and may continue to cause volatility in global stock markets, currency exchange rate fluctuations and global economic uncertainty, which could adversely affect customer demand, our relationships with customers and suppliers and our business and financial statements.

Possible new tariffs could have a material adverse effect on our business.

The United States has recently announced the implementation of new tariffs on imported steel and aluminum, and is also reportedly considering tariffs on additional items. Items that may be impacted by these additional tariffs could include items imported by us from China or other countries. In addition, China has announced a plan to impose tariffs on a wide range of American products in retaliation for these new American tariffs. There is a concern that the imposition of additional tariffs by the United States could result in the adoption of additional tariffs by China and other countries as well. Any resulting escalation of trade tensions could negatively impact the global markets and could have an adverse effect on our financial condition, results of operations and cash flows.

Our future results of operations and financial condition could be adversely impacted by intangible asset impairment charges.

As of December 31, 2018, we had goodwill and other intangible assets, net of accumulated amortization, of approximately $1,886 million, which represented approximately 47% of our total assets. Our goodwill is subject to an impairment test on an annual basis and is also tested whenever events and circumstances indicate that goodwill may be impaired. Any excess goodwill resulting from the impairment test must be written off in the period of determination. Intangible assets (other than goodwill) are generally amortized over the useful life of such assets. In addition, from time to time, we may acquire or make an investment in a business that will require us to record goodwill based on the purchase price and the value of the acquired assets. We may subsequently experience unforeseen issues with such business that adversely affect the anticipated returns of the business or value of the intangible assets and trigger an evaluation of the recoverability of the recorded goodwill and intangible assets for such business. Future determinations of significant write-offs of goodwill or intangible assets as a result of an impairment test or any accelerated amortization of other intangible assets could have an adverse effect on our financial condition and results of operations.

Specific Risks Relating to Our Reportable Segments

Fluid Handling

Our Fluid Handling segment competes in markets that are fragmented and highly competitive. The business competes against large, well established global companies, as well as smaller regional and local companies. We compete based on our products' quality, reliability and safety, our brand reputation, value-added technical expertise and customer support and consistent on-time delivery. However, pricing can be highly competitive, particularly in regions and end markets with weakening levels of demand, or in markets where our value proposition - quality, reliability, and safety - is not valued as highly.

Demand for our Fluid Handling products is heavily dependent on our customers' level of new capital investment and planned maintenance expenditures. Customer spending typically depends on general economic conditions, availability of credit, and expectations of future demand. Slowing global economic growth, volatility in commodity prices, including continued weakness in oil prices could all contribute to lower levels of customer spending, and project delays or cancellations.

A portion of this segment's business is subject to government contracting rules and regulations. Failure to comply with these requirements could result in suspension or debarment from government contracting or subcontracting, civil and criminal liability, monetary and non-monetary penalties, disruptions to our business, limitations on our ability to export products and services, or damage to our reputation. At our foreign operations, results could also be adversely impacted by a weakening of local currencies against the U.S. dollar; our Fluid Handling business has the greatest exposure to the euro, British pound, and Canadian dollar, although there is lesser exposure to several other currencies.

Payment & Merchandising Technologies

Our Payment & Merchandising Technologies segment sales are dependent on capital spending in a variety of end markets and across numerous geographies. The level of capital expenditures by our customers depends on general economic conditions, availability of credit, and expectations of future demand. In addition, our results in this segment are subject to significant variability due to the timing and size of contract awards by central banks for banknote production. Our results in this segment could be adversely impacted if our recently acquired Crane Currency business is not integrated successfully, including achieving planned cost savings from ongoing repositioning actions.

This business regularly develops and markets new products. Delays in the product development process, or the inability of new products to meet targeted performance measures, could hurt future sales. This business is also directly and indirectly exposed to changes in government regulations; for example, changes in gaming regulations could influence the spending patterns of our casino operator customers, or changes in anti-money laundering regulations could result in additional technical requirements for our products. We are also subject to investigation and audit for compliance with the requirements governing government contracts, including requirements related to procurement integrity, manufacturing practices and quality procedures, export control, employment practices, the accuracy of records and the recording of costs and information security requirements. A failure to comply with these requirements could result in suspension of these contracts, and suspension or debarment from government contracting or subcontracting. Failure to comply with any of these regulations could result in civil and criminal

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liability, monetary and non-monetary penalties, fines, disruptions to our business, limitations on our ability to export products and services, and damage to our reputation.

At our foreign operations, results could also be adversely impacted by a weakening of local currencies against the U.S. dollar; the business has the greatest exposure to the euro, British pound, the Japanese yen, the Mexican peso, and the Canadian dollar, although there is lesser exposure to several other currencies. In addition, our facility in Mexico operates under the Mexican Maquiladora program. This program provides for reduced tariffs and eased import regulations; we could be adversely affected by changes in such program, or by our failure to comply with its requirements.

Aerospace & Electronics

Our Aerospace & Electronics segment sales are primarily affected by conditions in the commercial aerospace industry which is cyclical in nature, and by changes in defense spending by the U.S. government.

Commercial aircraft are procured primarily by airlines, and airline capital spending can be affected by a number of factors including credit availability, current and expected fuel prices, and current and forecast air traffic demand levels. Air traffic levels are affected by a different array of factors including general economic conditions and global corporate travel spending, although other non-economic events can also adversely impact airline traffic, including terrorism or pandemic health concerns. Our commercial business is also affected by the market for business jets where demand is typically tied to corporate profitability levels, and the freight markets which are most heavily influenced by general economic conditions. Demand for our commercial aftermarket business is closely tied to total aircraft flight hours. Any decrease in demand for new aircraft or equipment, or use of existing aircraft and equipment, would likely result in decreased sales of our products and services.

The defense portion of the segment’s business is dependent primarily on U.S. government spending, and to a lesser extent, foreign government spending, on the specific military platforms and programs where our business participates. Any reduction in appropriations for these platforms or programs could impact the performance of our business. Our sales to defense customers are also affected by the level of activity in military flight operations.

We are required to comply with various export control laws, which may affect our transactions with certain customers. In certain circumstances, export control and economic sanctions regulations may prohibit the export of certain products, services and technologies, and in other circumstances we may be required to obtain an export license before exporting the controlled item. We are also subject to investigation and audit for compliance with the requirements governing government contracts, including requirements related to procurement integrity, manufacturing practices and quality procedures, export control, employment practices, the accuracy of records and the recording of costs and information security requirements. A failure to comply with these requirements could result in suspension of these contracts, and suspension or debarment from government contracting or subcontracting. Failure to comply with any of these regulations could result in civil and criminal liability, monetary and non-monetary penalties, fines, disruptions to our business, limitations on our ability to export products and services, and damage to our reputation.

Due to the lengthy research and development cycle involved in bringing commercial and military products to market, we cannot accurately predict the demand levels that will exist once a given new product is ready for market. In addition, if we are unable to develop and introduce new products in a cost-effective manner or otherwise effectively manage the introduction of new products and/or programs, our results of operations and financial condition could be adversely impacted. Demand for our products could also be adversely impacted by industry consolidation that could result in greater acceptance of competitors' products.

Engineered Materials

Our Engineered Materials segment manufactures and sells FRP panels and coils, primarily for use in the manufacturing of RVs, trucks, and trailers, with additional applications in commercial and industrial building construction. Demand in these end markets is dependent on general economic conditions, credit availability, and consumer and corporate spending levels. A decline in demand in any of these end markets, including a significant change in RV industry capacity; a loss of market share; or customer pricing pressure would result in lower sales and profits for this business. Profitability could also be adversely affected by an increase in the price of resin or fiberglass if we are unable to pass the incremental costs on to our customers. Additional risks include the loss of a principal supplier, and potential loss of market share to competing materials, such as wood or aluminum.

Item 1B. Unresolved Staff Comments

None

Item 2. Properties

The following is a summary of our principal facilities as of December 31, 2018:

Facilities - Owned

Location	Fluid Handling		Payment & Merchandising Technologies		Aerospace & Electronics		Engineered Materials		Corporate		Total	
	Number	Area (sq. ft.)	Number	Area (sq. ft.)	Number	Area (sq. ft.)	Number	Area (sq. ft.)	Number	Area (sq. ft.)	Number	A(
Manufacturing:												
United States	7	798,509	9	1,391,552	6	724,240	4	644,333	—	—	26	3
Canada	—	—	—	—	—	—	—	—	—	—	—	—
Europe	7	1,081,454	4	828,766	—	—	—	—	—	—	11	1
Other international	5	468,972	2	294,666	—	—	—	—	—	—	7	7
	19	2,348,935	15	2,514,984	6	724,240	4	644,333	—	—	44	6
Non-Manufacturing:											—	—
United States	2	98,510	3	27,724	—	—	—	—	—	—	5	1
Canada	7	154,674	—	—	—	—	—	—	—	—	7	1
Europe	2	73,780	—	—	—	—	—	—	—	—	2	7
Other international	—	—	—	—	—	—	—	—	—	—	—	—
	11	326,964	3	27,724	—	—	—	—	—	—	14	3

Facilities - Leased

Location	Fluid Handling		Payment & Merchandising Technologies		Aerospace & Electronics		Engineered Materials		Corporate		Total	
	Number	Area (sq. ft.)	Number	Area (sq. ft.)	Number	Area (sq. ft.)	Number	Area (sq. ft.)	Number	Area (sq. ft.)	Number	Area (sq. ft
Manufacturing												
United States	2	97,220	1	141,049	2	97,723	—	—	—	—	5	335,99
Canada	1	20,572	1	61,183	—	—	—	—	—	—	2	81,75
Europe	3	517,890	1	20,053	—	—	—	—	—	—	4	537,94
Other international	2	111,659	—	—	1	63,653	—	—	—	—	3	175,31
	8	747,341	3	222,285	3	161,376	—	—	—	—	14	1,131,
Non-Manufacturing												
United States	4	76,555	8	336,460	2	12,911	3	78,950	2	39,875	19	544,7
Canada	22	472,554	—	—	—	—	—	—	—	—	22	472,5
Europe	7	51,648	5	50,570	3	21,962	—	—	—	—	15	124,1
Other international	19	145,044	5	18,324	—	—	—	—	—	—	24	163,3
	52	745,801	18	405,354	5	34,873	3	78,950	2	39,875	80	1,304,

In our opinion, these properties have been well maintained, are in good operating condition and contain all necessary equipment and facilities for their intended purposes.

Item 3. Legal Proceedings.

Discussion of legal matters is incorporated by reference to Part II, Item 8 under Note 11, "Commitments and Contingencies," in the Notes to Consolidated Financial Statements.

Item 4. Mine Safety Disclosures.

Not applicable.

Part II

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

Market Information

Crane Co. common stock is traded on the New York Stock Exchange (“NYSE”) under the symbol "CR". As of December 31, 2018, there were 1,949 holders of record of Crane Co. common stock.

Stock Performance Graph

The following chart compares the total stockholder returns (stock price increase plus reinvested dividends) on our common stock from December 31, 2013 through December 31, 2018 with the total stockholder returns for the S&P 500 Index and the S&P MidCap Capital Goods Index. The graph assumes that the value of the investment in the common stock and each index was $100 on December 31, 2013 and that all dividends were reinvested.

COMPARISON OF FIVE YEAR CUMULATIVE TOTAL RETURN

Among Crane Co., S&P 500, and S&P 400 Mid Cap Capital Goods

Fiscal Year Ending December 31,

Purchases of Equity Securities

The following table summarizes our share repurchases during the three months ended December 31, 2018:

	Total number of shares purchased	Average price paid per share	Total number of shares purchased as part of publicly announced plans or programs	Maximum number (or approximate dollar value) of shares that may yet be purchased under the plans or programs
October 1-31	290,955	$ 85.92	—	—
November 1-30	—	—	—	—
December 1-31	—	—	—	—
Total October 1 — December 31, 2018	290,955	$ 85.92	—	—

The table above only includes the open-market repurchases of our common stock during the three months ended December 31, 2018. We routinely receive shares of our common stock as payment for stock option exercises and the withholding taxes due on stock option exercises and the vesting of restricted share units from stock-based compensation program participants.

Equity Compensation Plans

For information regarding equity compensation plans, see Item 12 of this annual report on Form 10-K.

Item 6. Selected Financial Data

FIVE YEAR SUMMARY OF SELECTED FINANCIAL DATA

	For the year ended December 31,				
(in millions, except per share data)	2018	2017	2016	2015	2014
Net sales	$3,345.5	$2,786.0	$2,748.0	$2,740.5	$2,925.0
Operating profit [(a)] [(c)]	441.3	388.4	186.7	356.3	299.9
Interest expense	(50.9)	(36.1)	(36.5)	(37.6)	(39.2)
Income before taxes [(a)]	411.4	367.5	164.1	336.5	281.2
Provision for income taxes [(b)]	75.9	195.0	40.3	106.5	87.6
Net income before allocation to noncontrolling interests	335.5	172.5	123.8	230.0	193.6
Net income attributable to common shareholders [(b)]	$335.6	$171.8	$122.8	$228.9	$192.7
Basic earnings per share [(b)]	$5.63	$2.89	$2.10	$3.94	$3.28
Diluted earnings per share [(b)]	$5.50	$2.84	$2.07	$3.89	$3.23
Cash dividends per common share	$1.40	$1.32	$1.32	$1.32	$1.26
Total assets	$4,042.7	$3,593.5	$3,428.0	$3,336.9	$3,445.5
Long-term debt and Current maturities of long-term debt	$949.2	$743.5	$745.3	$744.6	$743.9
Accrued pension and postretirement benefits	$244.0	$240.5	$249.1	$235.4	$278.3
Long-term asbestos liability	$451.3	$520.3	$624.9	$470.5	$534.5
Long-term insurance receivable — asbestos	$75.0	$90.1	$125.2	$108.7	$126.8

(a) Includes i) acquisition-related and integration charges of $19.8 million in 2018 and $7.8 million in 2017; ii) restructuring charges of $7.2 million in 2018 and restructuring charges, net of gain on property sale of $13.0 million in 2017; iii) an asbestos provision, net of insurance recoveries of $192.4 million in 2016; iv) a legal settlement charge of $5.0 million in 2016; v) an environmental liability provision of $55.8 million in 2014; and vi) a lawsuit settlement of $6.5 million in 2014.

(b) Includes the tax effect of items cited in note (a) as well as i) the impact of the TCJA of $87 million in 2017; ii) a gain of $1.0 million related to the deconsolidation of a joint venture in 2017; iii) loss on divestiture of a small business of $1.1 million in 2014; and iv) gain on divestiture of real estate of $4.2 million in 2014.

(c) In 2018, we adopted amended guidance related to the presentation of net periodic pension cost and net periodic postretirement cost which resulted in a reclassification of the non-service cost components of net benefit cost from selling, general and administrative expenses to miscellaneous income, net of of $21.1 million in 2018, $13.6 million in 2017, $13.6 million in 2016, $16.6 million in 2015 and $16.4 million in 2014.

MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

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

The following discussion and analysis of our financial condition and results of operations should be read together with our consolidated financial statements and related notes included under Item 8 of this Annual Report on Form 10-K.

We are a diversified manufacturer of highly engineered industrial products. Our business consists of four segments: Fluid Handling, Payment & Merchandising Technologies, Aerospace & Electronics and Engineered Materials. Our primary markets are chemicals, oil & gas, power, non-residential construction, automated payment solutions, banknote design and production and aerospace & defense, along with a wide range of general industrial and certain consumer related end markets.

Our strategy is to grow earnings and cash flow by focusing on the manufacturing of highly engineered industrial products for specific markets where our scale is a relative advantage, and where we can compete based on our proprietary and differentiated technology, our deep vertical expertise, and our responsiveness to unique and diverse customer needs. We continuously evaluate our portfolio, pursue acquisitions that complement our existing businesses and are accretive to our growth profile, selectively divest businesses where appropriate, and pursue internal mergers to improve efficiency. We strive to foster a performance-based culture focused on productivity and continuous improvement, to attract and retain a committed management team whose interests are directly aligned with those of our shareholders, and to maintain a focused, efficient corporate structure.

We will continue to execute this strategy while remaining committed to the values of our founder, R.T. Crane, who resolved to conduct business "in the strictest honesty and fairness; to avoid all deception and trickery; to deal fairly with both customers and competitors; to be liberal and just toward employees; and to put my whole mind upon the business."

Due to rounding, numbers presented throughout this report may not add up precisely to totals we provide and percentages may not precisely reflect the absolute figures.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Results of Operations — For the Years Ended December 31, 2018, 2017 and 2016

	For the year ended December 31,			2018 vs 2017 Favorable / (Unfavorable) Change		2017 vs 2016 Favorable / (Unfavorable) Change	
(in millions, except %)	2018	2017	2016	$	%	$	%
Net sales:							
Fluid Handling	$1,101.8	$1,042.5	$999.5	$59.3	5.7%	$43.0	4.3%
Payment & Merchandising Technologies	1,257.0	776.7	745.8	480.3	61.8%	30.9	4.1%
Aerospace & Electronics	743.5	691.4	745.7	52.1	7.5%	(54.3)	(7.3)%
Engineered Materials	243.2	275.4	257.0	(32.2)	(11.7)%	18.4	7.2%
Total net sales	$3,345.5	$2,786.0	$2,748.0	$559.5	20.1%	$38.0	1.4%
Sales growth:							
Core business				$76.7	2.8%	$31.0	1.1%
Foreign exchange				11.9	0.4%	(6.8)	(0.2)%
Acquisitions/dispositions				470.9	16.9%	13.8	0.5%
Total sales growth				$559.5	20.1%	$38.0	1.4%
Operating profit:							
Fluid Handling	$118.8	$101.7	$109.4	$17.1	16.8%	$(7.7)	(7.0)%
Payment & Merchandising Technologies	186.0	145.9	133.2	40.1	27.5%	12.7	9.5%
Aerospace & Electronics	164.2	160.3	149.7	3.9	2.4%	10.6	7.1%
Engineered Materials	37.8	49.4	49.0	(11.6)	(23.5)%	0.4	0.8%
Corporate expense	(65.5)	(68.9)	(62.2)	3.4	4.9%	(6.7)	(10.8)%
Corporate expense — Asbestos	—	—	(192.4)	—	NM	192.4	NM
Total operating profit	$441.3	$388.4	$186.7	$52.9	13.6%	$201.7	108.0%
Operating margin:							
Fluid Handling	10.8%	9.8%	10.9%				
Payment & Merchandising Technologies	14.8%	18.8%	17.9%				
Aerospace & Electronics	22.1%	23.2%	20.1%				
Engineered Materials	15.5%	17.9%	19.1%				
Total operating margin	13.2%	13.9%	6.8%				
Acquisition-related and integration charges [(a)]	$19.8	$7.8	$—				
Restructuring and related charges [(a)]	$14.7	$13.0	$—				
Change in presentation of pension and postretirement costs [(b)]	$21.1	$13.6	$13.6				

(a) Acquisition-related and integration charges and restructuring and related charges are included in operating profit and operating margin.

(b) In 2018, we adopted amended guidance related to the presentation of net periodic pension cost and net periodic postretirement cost which resulted in a reclassification of the non-service cost components of net benefit cost from selling, general and administrative expenses to miscellaneous income, net of $21.1 million in 2018 and $13.6 million in each of 2017 and 2016.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Items Affecting Comparability of Reported Results

The comparability of our results from operations for the years ended December 31, 2018, 2017 and 2016 is affected by the following significant items:

Acquisition-Related and Integration Charges

During 2018 and 2017, we recorded pre-tax acquisition-related and integration charges of $19.8 million and $7.8 million, respectively, related to acquisition activity.

Acquisition-Related Inventory Step-Up and Backlog Amortization

In 2018, we recorded pre-tax acquisition-related inventory step-up and backlog amortization of $9.1 million, primarily associated with the acquisition of Crane Currency.

Restructuring and Related Charges

In 2018, we recorded pre-tax restructuring and related charges of $14.7 million related to the acquisition of Crane Currency and the 2017 repositioning actions. In 2017, we recorded pre-tax restructuring charges, net of gain on property sale, of $13.0 million related to repositioning activities in our Fluid Handling, Payment & Merchandising Technologies and Aerospace & Electronics segments.

Asbestos Charge

In 2016, we recorded a pre-tax charge of $192.4 million associated with extending the time horizon of our estimated asbestos liability through the generally accepted end point in 2059. Please refer to Part II, Item 8 under Note 11, "Commitments and Contingencies" in the Notes to Consolidated Financial Statements for further discussion of the asbestos charge.

Huttig Legal Settlement Charge

In 2016, we recorded a pre-tax charge of $5.0 million associated with settlement of a legal matter with Huttig Building Products, Inc.

2018 compared with 2017

Sales increased by $559.5 million, or 20.1%, to $3,345.5 million in 2018. Net sales related to operations outside the U.S. for the years ended December 31, 2018 and 2017 was 37% of total net sales. The year-over-year change in sales included:

- an increase in sales related to acquisitions, net, of $470.9 million, or 16.9%;
- an increase in core sales of $76.7 million, or 2.8%; and
- favorable foreign currency translation of $11.9 million, or 0.4%.

Operating profit increased by $52.9 million, or 13.6%, to $441.3 million in 2018. The increase in operating profit reflected the higher operating profit in our Payment & Merchandising Technologies, Fluid Handling and Aerospace & Electronics segments and lower corporate costs, partially offset by lower operating profit in our Engineered Materials segment. Operating profit in 2018 included 1) acquisition-related and integration charges of $19.8 million in connection with the acquisition of Crane Currency; 2) acquisition-related inventory and backlog amortization of $9.1 million, primarily associated with the acquisition of Crane Currency; and 3) restructuring and related charges of $14.7 million.

2017 compared with 2016

Sales increased by $38.0 million to $2,786.0 million in 2017. Net sales related to operations outside the U.S. for the years ended December 31, 2017 and 2016 were 37% and 36% of total net sales, respectively. The year-over-year change in sales included:

- an increase in core sales of $31.0 million, or 1.1%; and
- a net acquisition benefit of $13.8 million, or 0.5%; partially offset by
- unfavorable foreign currency translation of $6.8 million, or 0.2%.

Operating profit increased by $201.7 million, or 108.0%, to $388.4 million in 2017. The increase primarily related to the absence of a $192.4 million asbestos charge recorded in 2016, together with higher operating profit in our Payment & Merchandising Technologies, Aerospace & Electronics and Engineered Materials segments. These increases were partially offset by lower operating profit in our Fluid Handling segment, a $13.0 million pre-tax restructuring charge, net of gain on property sale, and higher corporate costs.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Comprehensive income

(in millions) For the year ended December 31,	2018	2017	2016
Net income before allocation to noncontrolling interests	$335.5	$172.5	$123.8
Other comprehensive (loss) income, net of tax			
Currency translation adjustment	(41.6)	86.9	(64.7)
Changes in pension and postretirement plan assets and benefit obligation, net of tax	(26.2)	9.2	(35.2)
Other comprehensive (loss) income, net of tax	(67.8)	96.1	(99.9)
Comprehensive income before allocation to noncontrolling interests	267.7	268.6	23.9
Less: Noncontrolling interests in comprehensive income	(0.3)	0.7	1.0
Comprehensive income attributable to common shareholders	$268.0	$267.9	$22.9

2018 compared with 2017

For the year ended December 31, 2018, comprehensive income before allocations to noncontrolling interests was $267.7 million compared to $268.6 million in 2017. The $0.9 million decrease was primarily driven by a $128.5 million unfavorable impact of foreign currency translation adjustments year over year including fluctuations in the British pound, Canadian dollar, euro and Japanese yen, and a $35.4 million decrease due to changes in pension and postretirement plan assets and benefit obligations. These decreases were substantially offset by higher net income before allocation to noncontrolling interests of $163.0 million.

2017 compared with 2016

For the year ended December 31, 2017, comprehensive income before allocations to noncontrolling interests was $268.6 million compared to $23.9 million in 2016. The $244.7 million increase was primarily driven by a $151.6 million favorable impact of foreign currency translation adjustments year over year including fluctuations in the British pound, Canadian dollar, euro and Japanese yen. The change was also attributable to a $48.7 million increase in net income before allocation to noncontrolling interests.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

FLUID HANDLING

(in millions, except %) For the year ended December 31,	2018	2017	2016
Net sales by product line:			
Process Valves and Related Products	$685.4	$640.1	$619.2
Commercial Valves	325.4	310.1	290.9
Other Products	91.0	92.3	89.4
Total net sales	$1,101.8	$1,042.5	$999.5
Operating profit	$118.8	$101.7	$109.4
Acquisition-related and integration charges [(a)]	$—	$2.9	$—
Restructuring and related charges [(a)]	$10.0	$10.6	$—
Change in presentation of pension and postretirement costs [(b)]	$15.3	$10.1	$10.1
Assets	$878.2	$941.6	$845.9
Operating margin	10.8 %	9.8 %	10.9 %

(a) Acquisition-related and integration charges and restructuring and related charges are included in operating profit and operating margin.

(b) In 2018, we adopted amended guidance related to the presentation of net periodic pension cost and net periodic postretirement cost which resulted in a reclassification of the non-service cost components of net benefit cost from selling, general and administrative expenses to miscellaneous income, net of $15.3 million in 2018 and $10.1 million in each of 2017 and 2016.

2018 compared with 2017

Fluid Handling sales increased by $59.3 million, or 5.7%, to $1,101.8 million, driven by a core sales increase of $44.9 million, or 4.3%, favorable foreign currency translation of $12.2 million, or 1.2%, and a favorable net impact from acquisitions of $2.2 million, or 0.2%.

- Sales of Process Valves and Related Products increased by $45.3 million, or 7.1%, to $685.4 million in 2018. The increase reflected a core sales increase of $26.8 million, or 4.2%, favorable foreign currency translation of $7.8 million, or 1.2%, as the euro strengthened against the U.S. dollar, and an increase in sales related to the Westlock acquisition of $10.7 million, or 1.7%. The core sales increase primarily reflects higher sales to the general industrial, chemical and oil & gas markets.

- Sales of Commercial Valves increased by $15.3 million, or 4.9%, to $325.4 million in 2018, primarily driven by a core sales increase of $10.9 million, or 3.5%, and favorable foreign currency translation of $4.4 million, or 1.4%, as the British pound strengthened against the U.S. dollar. The core sales increase reflected higher sales in the Canadian non-residential construction market.

- Sales of Other Products decreased by $1.3 million, or 1.4%, to $91.0 million in 2018, primarily reflecting a loss of sales due to the deconsolidation of a joint venture of $8.5 million, or 9.2%, partially offset by a core sales increase of $7.2 million, or 7.8%. The higher core sales were primarily a result of broad-based strength across primary end markets.

Fluid Handling operating profit increased by $17.1 million, or 16.8%, to $118.8 million in 2018. The increase was driven primarily by productivity and leverage on the higher sales volumes, partially offset by unfavorable mix.

2017 compared with 2016

Fluid Handling sales increased by $43.0 million, or 4.3%, to $1,042.5 million, driven by a core sales increase of $22.8 million, or 2.3%, a favorable net impact from acquisitions of $19.8 million, or 2.0%, and favorable foreign currency translation of $0.4 million.

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Sales of Process Valves and Related Products increased by $20.9 million, or 3.4%, to $640.1 million in 2017, primarily related to a $21.5 million, or 3.5%, increase in sales related to an acquisition and, to a lesser extent, favorable foreign currency translation of $3.6 million, or 0.6%. These increases were partially offset by a core sales decline of $4.2 million, or 0.7%, primarily related to weaker conventional power end markets.

Sales of Commercial Valves increased by $19.2 million, or 6.6%, to $310.1 million in 2017, primarily driven by a core sales increase of $22.5 million, or 7.7%, partially offset by unfavorable foreign currency translation of $3.5 million, or

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

1.1%. The core sales increase primarily reflected stronger sales to the U.K. gas market and Canadian non-residential construction markets.

- Sales of Other Products increased by $2.9 million, or 3.2%, to $92.3 million in 2017, primarily reflecting a core sales increase of $4.5 million, or 5.0%, partially offset by the loss of sales due to the deconsolidation of a joint venture of $1.6 million, or 1.8%. The higher core sales were primarily a result of greater demand from U.S. municipal end markets.

Fluid Handling operating profit decreased by $7.7 million, or 7.0%, to $101.7 million in 2017. The decrease was driven by the impact of unfavorable mix, higher restructuring and related charges of $10.6 million, higher material costs and higher transaction related expenses of $2.9 million, partially offset by productivity, price increases and the impact of higher volumes.

PAYMENT & MERCHANDISING TECHNOLOGIES

(in millions, except %) For the year ended December 31,	2018	2017	2016
Net sales by product line:			
Payment Acceptance and Dispensing Products	$594.2	$575.9	$511.8
Banknotes and Security Products	458.2	—	—
Merchandising Equipment	204.6	200.8	234.0
Total net sales	$1,257.0	$776.7	$745.8
Operating profit	$186.0	$145.9	$133.2
Acquisition-related and integration charges [a]	$19.8	$0.7	$—
Restructuring and related charges [a]	$3.7	$12.2	$—
Change in presentation of pension and postretirement costs [b]	$2.9	$2.5	$2.3
Assets	$2,074.4	$1,215.7	$1,188.9
Operating margin	14.8 %	18.8 %	17.9 %

(a) Acquisition-related and integration charges and restructuring and related charges are included in operating profit and operating margin.

(b) In 2018, we adopted amended guidance related to the presentation of net periodic pension cost and net periodic postretirement cost which resulted in a reclassification of the non-service cost components of net benefit cost from selling, general and administrative expenses to miscellaneous income, net of $2.9 million, $2.5 million and $2.3 million in 2018, 2017 and 2016, respectively.

2018 compared with 2017

Payment & Merchandising Technologies sales increased by $480.3 million, or 61.8%, to $1,257.0 million in 2018, reflecting an increase in sales related to acquisitions of $468.7 million, or 60.3%, and an increase in core sales of $12.2 million, or 1.6%, partially offset by unfavorable foreign currency translation of $0.6 million, or 0.1%.

- Sales of Payment Acceptance and Dispensing Products increased $18.3 million, or 3.2%, to $594.2 million in 2018, reflecting a core sales increase of $9.4 million, or 1.6%, favorable foreign currency translation of $7.2 million, or 1.3%, as the British pound and euro strengthened against the U.S. dollar, and higher sales related to the 2017 Microtronic acquisition of $1.7 million, or 0.3%. The higher core sales were primarily related to higher sales to the financial services, gaming and vending vertical markets.
- Sales of Banknotes and Security Products increased $458.2 million due to the acquisition of Crane Currency.
- Sales of Merchandising Equipment increased $3.8 million, or 1.9%, to $204.6 million in 2018. The increase reflected a core sales increase of $2.8 million, or 1.4%, and favorable foreign currency of $1.0 million, or 0.5%.

Payment & Merchandising Technologies operating profit increased by $40.1 million, or 27.5%, to $186.0 million in 2018. The increase was driven by the contribution from the Crane Currency acquisition, leverage on higher core sales, strong productivity, restructuring savings, and lower restructuring and related charges. These increases were partially offset by an increase of $19.1 million of acquisition-related and integration charges and $8.7 million of acquisition-related inventory and backlog amortization associated with the Crane Currency acquisition, and to a lesser extent, accelerated strategic growth investments.

2017 compared with 2016

Payment & Merchandising Technologies sales increased by $30.9 million, or 4.1%, to $776.7 million in 2017, reflecting a core sales increase of $44.5 million, or 5.9%, partially offset by unfavorable foreign currency translation of $7.6 million, or 1.0%, and a decrease in sales related to divestitures, net of acquisitions, of $6.0 million, or 0.8%.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

- Sales of Payment Acceptance and Dispensing Products increased $64.0 million, or 12.5%, to $575.9 million in 2017, driven by a core sales increase of $76.5 million, or 14.9%, reflecting strength across several end markets, but most notably in the retail vertical. Core sales were partially offset by unfavorable foreign currency translation of $6.5 million, or 1.3%, and a net divestiture/acquisition impact $6.0 million, or 1.1%. Unfavorable foreign currency translation was primarily a result of the British pound and, to a lesser extent, the Japanese yen weakening against the U.S. dollar.
- Sales of Merchandising Equipment decreased $33.2 million, or 14.2%, to $200.8 million in 2017, reflecting a core sales decrease of $32.0 million, or 13.7%, and unfavorable foreign currency translation of $1.2 million, or 0.5%. The decrease in core sales was primarily related to lower capital spending by certain of our U.S. bottler customers.

Payment & Merchandising Technologies operating profit increased by $12.7 million, or 9.5%, to $145.9 million in 2017. The increase was primarily driven by the impact from the higher core sales and productivity, partially offset by unfavorable mix and an increase of $12.2 million in restructuring and related charges.

AEROSPACE & ELECTRONICS

(in millions, except %) For the year ended December 31,	2018	2017	2016
Net sales by product line:			
Commercial Original Equipment	$343.4	$346.1	$354.9
Military Original Equipment	195.7	159.0	200.3
Commercial Aftermarket	150.5	134.0	132.8
Military Aftermarket	53.9	52.3	57.7
Total net sales	$743.5	$691.4	$745.7
Operating profit	$164.2	$160.3	$149.7
Restructuring charges (gains), net [(a)]	$1.0	$(9.8)	$—
Change in presentation of pension and postretirement costs [(b)]	$0.6	$(0.1)	$0.1
Assets	$603.9	$573.0	$555.5
Operating margin	22.1 %	23.2 %	20.1 %

(a) Restructuring charges (gains), net are included in operating profit and operating margin.

(b) In 2018, we adopted amended guidance related to the presentation of net periodic pension cost and net periodic postretirement cost which resulted in a reclassification of the non-service cost components of net benefit cost from selling, general and administrative expenses to miscellaneous income, net of $0.6 million, $(0.1) million and $0.1 million in 2018, 2017 and 2016, respectively.

2018 compared with 2017

Aerospace & Electronics sales increased $52.1 million, or 7.5%, to $743.5 million in 2018. The commercial market and military market accounted for 66% and 34%, respectively, of total segment sales in 2018. Sales to OEM and aftermarket customers in 2018 were 73% and 27% of total sales, respectively.

- Sales of Commercial Original Equipment decreased by $2.7 million, or 0.8%, to $343.4 million in 2018. The sales decrease was driven by lower funded engineering sales following the completion of several development projects, partially offset by higher sales for large commercial aircraft and business jets.
- Sales of Military Original Equipment increased by $36.7 million, or 23.1%, to $195.7 million in 2018, primarily reflecting sales for a large ground-based radar program in our Microwave business, as well as higher funded engineering sales.
- Sales of Commercial Aftermarket increased by $16.5 million, or 12.3%, to $150.5 million in 2018, primarily reflecting higher sales of commercial spares.
- Sales of Military Aftermarket increased by $1.6 million, or 3.1%, to $53.9 million in 2018, primarily reflecting higher sales of military spares, partially offset by lower sales related to modernization and upgrade programs.

Aerospace & Electronics operating profit increased by $3.9 million, or 2.4%, to $164.2 million in 2018, primarily as a result of the impact from the higher sales volumes, partially offset by the absence of the gain on sale of property recognized in 2017.

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2017 compared with 2016

Aerospace & Electronics sales decreased $54.3 million, or 7.3%, to $691.4 million in 2017. The commercial market and military market accounted for 69% and 31%, respectively, of total segment sales in 2017. Sales to OEM and aftermarket customers in 2017 were 73% and 27% of total sales, respectively.

- Sales of Commercial Original Equipment decreased by $8.8 million, or 2.5%, to $346.1 million in 2017. The sales decrease was primarily driven by weaker sales to business jet and wide body end markets.
- Sales of Military Original Equipment decreased by $41.3 million, or 20.6%, to $159.0 million in 2017. The sales decrease primarily reflected the non-repeat of a large military program that shipped in 2016.
- Sales of Commercial Aftermarket increased by $1.2 million or 0.9%, to $134.0 million in 2017.
- Sales of Military Aftermarket decreased by $5.4 million, or 9.4%, to $52.3 million in 2017. The sales decrease primarily reflected higher sales of modernization & upgrade programs in 2016.

Aerospace & Electronics operating profit increased by $10.6 million, or 7.1%, to $160.3 million in 2017, primarily as a result of strong productivity and a gain on sale of property, net of restructuring charges, related to repositioning activities in the fourth quarter of 2017, partially offset by the impact of the lower sales volume.

ENGINEERED MATERIALS

(in millions, except %) For the year ended December 31,	2018	2017	2016
Net sales by product line:			
FRP- Recreational Vehicles	$119.0	$150.5	$131.2
FRP- Building Products	92.2	95.2	89.6
FRP- Transportation	32.0	29.7	36.2
Total net sales	$243.2	$275.4	$257.0
Operating profit	$37.8	$49.4	$49.0
Change in presentation of pension and postretirement costs [a]	$0.2	$—	$—
Assets	$222.1	$220.8	$224.7
Operating margin	15.5 %	17.9 %	19.1 %

(a) In 2018, we adopted amended guidance related to the presentation of net periodic pension cost and net periodic postretirement cost which resulted in a reclassification of the non-service cost components of net benefit cost from selling, general and administrative expenses to miscellaneous income, net of $0.2 million in 2018.

2018 compared with 2017

Engineered Materials sales decreased by $32.2 million, or 11.7%, to $243.2 million in 2018.

- Sales of FRP panels to RV manufacturers decreased by $31.5 million, or 20.9%, to $119.0 million in 2018, reflecting lower RV industry production rates.
- Sales of FRP to building products customers decreased $3.0 million, or 3.2%, to $92.2 million in 2018.
- Sales of FRP to transportation customers increased $2.3 million, or 7.7%, to $32.0 million in 2018, primarily reflecting higher sales for trailer-related products.

Engineered Materials operating profit decreased by $11.6 million, or 23.5%, to $37.8 million in 2018, primarily reflecting the impact from the lower sales volumes and higher raw material costs, partially offset by higher pricing and productivity.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

2017 compared with 2016

Engineered Materials sales increased by $18.4 million, or 7.2%, to $275.4 million in 2017.

- Sales of FRP panels to RV manufacturers increased by $19.3 million, or 14.7%, to $150.0 million in 2017, resulting primarily from market share gains and underlying market growth.
- Sales of FRP to building products customers increased $5.6 million, or 6.3%, to $95.2 million in 2017, primarily reflecting higher sales in international markets and in the domestic retail channel, reflecting improved non-residential construction activity.
- Sales of FRP to transportation customers decreased $6.5 million, or 18.0%, to $29.7 million in 2017, primarily reflecting lower sales of side skirts and tank cladding products.

Engineered Materials operating profit increased by $0.4 million, or 0.8%, to $49.4 million in 2017, reflecting higher volumes and strong productivity, partially offset by higher material costs.

CORPORATE

(in millions) For the year ended December 31,	2018	2017	2016
Corporate expense	$(65.5)	$(68.9)	$(62.2)
Corporate expense — Asbestos	—	—	(192.4)
Total Corporate expense	$(65.5)	$(68.9)	$(254.6)
Interest income	$2.3	$2.5	$1.9
Interest expense	$(50.9)	$(36.1)	$(36.5)
Miscellaneous income, net	$18.7	$12.7	$12.0
Change in presentation of pension and postretirement costs [a]	$2.1	$1.1	$1.1

(a) In 2018, we adopted amended guidance related to the presentation of net periodic pension cost and net periodic postretirement cost which resulted in a reclassification of the non-service cost components of net benefit cost from selling, general and administrative expenses to miscellaneous income, net of $2.1 million in 2018 and $1.1 million in each of 2017 and 2016.

2018 compared with 2017

Total Corporate expense was lower by $3.4 million in 2018 primarily due to the absence of $4.2 million of transaction costs related to the acquisition of Crane Currency that were recorded in 2017.

Interest expense increased $14.8 million, or 41.0%. The increase was primarily related to additional debt associated with the acquisition of Crane Currency.

2017 compared with 2016

Total Corporate expense was lower by $185.7 million in 2017 primarily due to the absence of a $192.4 million asbestos charge and a $5.0 million legal settlement charge, both recorded in 2016. This decline was partially offset by transaction costs of $4.2 million related to the acquisition of Crane Currency. See Part II, Item 8 under Note 11, "Commitments and Contingencies" in the Notes to Consolidated Financial Statements for further discussion on the 2016 asbestos and legal settlement charges. See Part II, Item 8 under Note 2 "Acquisitions and Divestitures," in the Notes to Consolidated Financial Statements for further discussion on the acquisition of Crane Currency.

Income Tax

(in millions, except %) For the year ended December 31,	2018	2017	2016
Income before tax — U.S.	$296.4	$270.1	$63.5
Income before tax — non-U.S.	115.0	97.4	100.6
Income before tax — worldwide	$411.4	$367.5	$164.1
Provision for income taxes	$75.9	$195.0	$40.3
Effective tax rate	18.4 %	53.1 %	24.6 %

Our effective tax rate is affected by a number of items, both recurring and discrete, including the amount of income we earn in different jurisdictions and their respective statutory tax rates, acquisitions and dispositions, changes in the valuation of our deferred tax assets and liabilities, changes in tax laws, regulations and accounting principles, the continued availability of statutory tax credits and deductions, and examinations initiated by tax authorities around the world. See Application of Critical Accounting

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Policies included later in this Item 7 for additional information about our provision for income taxes. A reconciliation of the statutory U.S. federal tax rate to our effective tax rate is set forth in Part II, Item 8 under Note 7, "Income Taxes" in the Notes to Consolidated Financial Statements.

2018 compared with 2017

Enacted on December 22, 2017, the TCJA significantly changed U.S. corporate income tax law and caused us to:

- Remeasure our net deferred tax assets to the reduced 21% corporate income tax rate effective January 1, 2018 ("Re-measurement"),
- Record a one-time transition tax on our previously deferred non-U.S. earnings ("Toll Tax"), and
- Reassess our assertion regarding the re-investment of our non-US undistributed earnings ("Assertion Tax").

We availed ourselves of the one-year measurement period provided by Staff Accounting Bulletin No. 118 ("SAB 118"), as described below, and have now completed our accounting for the TCJA.

During the years ended December 31, 2018 and 2017, we recorded the following (benefit) provision related to the enactment of the TCJA:

(in millions) December 31,	2018	2017
Re-measurement	$(5.1)	$75.0
Toll Tax	0.7	8.0
Assertion Tax	(0.4)	4.0
Total (benefit) provision for income taxes	$(4.8)	$87.0

2017 compared with 2016

On December 22, 2017, the TCJA significantly changed U.S. corporate income tax law by reducing federal statutory tax rates from 35% to 21%, instituting a territorial tax system that provides a 100% exemption on future repatriations from certain foreign subsidiaries, and imposing a one-time transition tax on previously deferred non-U.S. earnings.

Our effective tax rate in 2017 was significantly affected by TCJA. Specifically, we recorded a one-time charge of $87 million primarily consisting of:

- A re-measurement of our net deferred tax assets due to a reduction in U.S. corporate income tax rate from 35% to 21% effective January 1, 2018, totaling $75 million; and
- A one-time mandatory transition tax on previous deferred earnings of foreign subsidiaries and a reassessment of our assertion regarding re-investment of our non-US subsidiaries' undistributed earnings, together totaling $12 million.

We calculated this charge based on our understanding of both the TCJA as drafted and interpretative guidance issued as of the time of the filing of our Form 10-K last year.

On December 22, 2017, the SEC released SAB 118 which allowed registrants that do not have the necessary information available, prepared, or analyzed to complete the accounting for the TCJA to report provisional amounts in their SEC filings based on reasonable estimates. Further, it provided a one year measurement period for registrants to complete their accounting for the TCJA.

In accordance with SAB 118, we considered the entire $87 million charge to be a provisional estimate as of December 31, 2017.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

LIQUIDITY AND CAPITAL RESOURCES

(in millions) For the year ended December 31,	2018	2017	2016
Net cash provided by (used in):			
Operating activities	$413.8	$317.5	$318.1
Investing activities	(752.3)	(86.7)	(50.6)
Financing activities	(7.9)	(80.8)	(100.4)
Effect of exchange rates on cash and cash equivalents	(16.4)	46.5	(20.9)
(Decrease) increase in cash and cash equivalents	$(362.8)	$196.5	$146.2

Our operating philosophy is to deploy cash provided from operating activities, when appropriate, to provide value to shareholders by reinvesting in existing businesses, by making acquisitions that will strengthen and complement our portfolio, by divesting businesses that are no longer strategic and by paying dividends and/or repurchasing shares.
Our current cash balance, together with cash we expect to generate from future operations along with our commercial paper program or borrowings available under our revolving credit facility, is expected to be sufficient to finance our short- and long-term capital requirements, as well as to fund payments associated with our asbestos and environmental liabilities and expected pension contributions. In addition, we believe our investment grade credit ratings afford us adequate access to public and private debt markets.
On January 10, 2018, we completed the acquisition of Crane Currency, a supplier of banknotes and highly engineered banknote security features. The base purchase price of the acquisition was $800 million on a cash-free and debt-free basis. To fund the acquisition, we issued $340 million of commercial paper under our commercial paper program, drew $100 million and $200 million from our 364-day Credit Agreement and 3-year Term Loan Credit Agreement, respectively, together with cash on hand.
On February 5, 2018, we completed a public offering of $350 million aggregate principal amount of 4.20% Senior Notes due March 2048. In March 2018, we used the net proceeds from the Public Offering, together with cash on hand, to repay all of the $100 million outstanding under our 364-day Credit Agreement as well as the $250 million of outstanding 2.75% notes due in December 2018.
On October 23, 2018, we increased the size of our commercial paper program to permit the issuance of commercial paper notes in an aggregate principal amount not to exceed $550 million at any time outstanding. Prior to this increase, the commercial paper program permitted us to issue commercial paper notes in an aggregate principal amount not to exceed $500 million under the original terms of the commercial paper program at any time outstanding. There were no borrowings outstanding under our commercial paper program as of December 31, 2018.
As described in Note 7, "Income Taxes," the TCJA significantly changed U.S. tax law, eliminating the incremental U.S. taxes normally due upon repatriation. As a result, we distributed $357 million from our non-U.S. subsidiaries during the second quarter of 2018 to repay our $200 million 3-year Term Loan Credit Agreement and certain amounts outstanding under the commercial paper program. While our non-U.S. subsidiaries held $336 million as of December 31, 2018, we do not currently forecast the need to use to this cash to fund our day-to-day U.S. operations.
Operating Activities
Cash provided by operating activities, a key source of our liquidity, was $413.8 million in 2018, compared to $317.5 million in 2017. Increases in cash generated resulted primarily from higher cash earnings partially offset by higher defined benefit plan and postretirement contributions, which included a $28.0 million discretionary contribution in the third quarter of 2018. Net pre-tax asbestos-related payments in 2018 and 2017 were $63.9 million and $62.5 million, respectively. In 2019, we expect to make payments related to asbestos settlement and defense costs, net of related insurance recoveries, of approximately $50 million.
Investing Activities
Cash flows relating to investing activities consist primarily of cash used for acquisitions and capital expenditures and cash provided by divestitures of businesses or assets. Cash used for investing activities was $752.3 million in 2018, compared to $86.7 million in 2017. The increase in cash used for investing activities was driven by net cash paid of

$648.0 million for the acquisition of Crane Currency and, to a lesser extent, higher capital expenditures compared to the prior year. Capital expenditures are made primarily for increasing capacity, replacing equipment, supporting new product development and improving information systems. We expect capital expenditures of approximately $90 million in 2019, reflecting $30 million of capital requirements resulting from Crane Currency, as well as continued investments in new product development initiatives, primarily in our Aerospace & Electronics, Payment & Merchandising Technologies and Fluid Handling segments.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Financing Activities
Financing cash flows consist primarily of dividend payments to shareholders, share repurchases, repayments of indebtedness, proceeds from the issuance of commercial paper and proceeds from the issuance of common stock. Cash used for financing activities was $7.9 million in 2018, compared to $80.8 million in 2017. The decrease in cash used was driven by $109.6 million of debt proceeds, net of repayments, partially offset by $25.1 million of additional cash used for the repurchase of shares and $9.1 million of lower proceeds from stock option exercises.
Financing Arrangements
On March 2, 2015, we entered into a commercial paper program (the "CP Program") from which we may issue short-term, unsecured commercial paper notes (the "Notes") pursuant to the exemption from registration contained in Section 4(a)(2) of the Securities Act of 1933, as amended. Amounts available under the CP Program may be borrowed, repaid and re-borrowed from time to time, with the aggregate principal amount of the Notes outstanding under the CP Program at any time not to exceed $500 million under the original terms of the CP Program. The Notes have maturities of up to 397 days from date of issue. The Notes rank at least pari passu with all of our other unsecured and unsubordinated indebtedness. As of December 31, 2017, there were no outstanding borrowings. In January 2018, we issued $340 million under the CP Program to fund the acquisition of Crane Currency. On October 23, 2018, we increased the size of the CP Program to permit the issuance of Notes in an aggregate principal amount not to exceed $550 million at any time outstanding. As of December 31, 2018, there were no borrowings outstanding under the CP Program.
In December 2017, we entered into a $550 million five year Revolving Credit Agreement (the "2017 Facility"), which replaced an existing $500 million revolving credit facility. The 2017 Facility allows us to borrow, repay, or to the extent permitted by the agreement, prepay and re-borrow funds at any time prior to the stated maturity date. The loan proceeds may be used for general corporate purposes including financing for acquisitions. Interest is based on, at our option, (1) a base rate, plus a margin ranging from 0.0% to 0.50% depending upon the ratings by S&P and Moody's of its senior unsecured long-term debt (the "Index Debt Rating"), or (2) an adjusted LIBOR for an interest period to be selected by the Company, plus a margin ranging from 0.805% to 1.50% depending upon the Index Debt Rating. The 2017 Facility contains customary affirmative and negative covenants for credit facilities of this type, including limitations on us and our subsidiaries with respect to indebtedness, liens, mergers, consolidations, liquidations and dissolutions, sales of all or substantially all assets, transactions with affiliates and hedging arrangements. We must also maintain a debt to capitalization ratio not to exceed 0.65 to 1.00 at all times. The 2017 Facility also provides for customary events of default, including failure to pay principal, interest or fees when due, failure to comply with covenants, any representation or warranty made by us or any of our material subsidiaries being false in any material respect, default under certain other material indebtedness, certain insolvency or receivership events affecting us and our material subsidiaries, certain ERISA events, material judgments and a change in control of the Company. As of December 31, 2018, there were no outstanding borrowings under the 2017 Facility.

Total debt was $949.2 million and $743.5 million as of December 31, 2018 and 2017, respectively. Our indebtedness as of December 31, 2018 was as follows:

- $298.6 million of 4.45% notes due 2023;
- $198.2 million of 6.55% notes due 2036;
- $345.9 million of 4.20% notes due 2048;
- $81.4 million of a Syndicated loan facility due through 2033; and
- $26.7 million of a Building loan facility due through 2037.

4.45% notes due December 2023 - In December 2013, we issued 10 year notes having an aggregate principal amount of $300 million. The notes are unsecured, senior obligations that mature on December 15, 2023 and bear interest at

4.45% per annum, payable semi-annually on June 15 and December 15 of each year. The notes have no sinking fund requirement, but may be redeemed, in whole or part, at our option. These notes do not contain any material debt covenants or cross default provisions. If there is a change in control of the Company, and if as a consequence, the notes are rated below investment grade by both Moody's Investors Service and Standard & Poor's, then holders of the notes may require us to repurchase them, in whole or in part, for 101% of the principal amount plus accrued and unpaid interest. Debt issuance costs are deferred and included in long-term debt and are amortized as a component of interest expense over the term of the notes. Including debt issuance cost amortization, these notes have an effective annualized interest rate of 4.56%.

6.55% notes due November 2036 - In November 2006, we issued 30 year notes having an aggregate principal amount of $200 million. The notes are unsecured, senior obligations that mature on November 15, 2036 and bear interest at 6.55% per annum, payable semi-annually on May 15 and November 15 of each year. The notes have no sinking fund requirement, but may be

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

redeemed, in whole or in part, at our option. These notes do not contain any material debt covenants or cross default provisions. If there is a change in control of the Company, and if as a consequence, the notes are rated below investment grade by both Moody's Investors Service and Standard & Poor's, then holders of the notes may require us to repurchase them, in whole or in part, for 101% of the principal amount plus accrued and unpaid interest. Debt issuance costs are deferred and included in long-term debt and are amortized as a component of interest expense over the term of the notes. Including debt issuance cost amortization; these notes have an effective annualized interest rate of 6.67%.

4.20% notes due March 2048 - In February 2018, we completed a public offering of $350 million aggregate principal amount of 4.20% Senior Notes due 2048 (the "2048 Notes"). The 2048 Notes bear interest at a rate of 4.20% per annum and mature on March 15, 2048. Interest on the 2048 Notes is payable on March 15 and September 15 of each year, commencing on September 15, 2018. These notes do not contain any material debt covenants or cross default provisions. If there is a change in control of the Company, and if as a consequence, the notes are rated below investment grade by both Moody's Investors Service and Standard & Poor's, then holders of the notes may require us to repurchase them, in whole or in part, for 101% of the principal amount plus accrued and unpaid interest. Debt issuance costs are deferred and included in long-term debt and are amortized as a component of interest expense over the term of the notes. Including debt issuance cost amortization, these notes have an effective annualized interest rate of 4.29%

The 4.45% notes due December 2023 were issued under an indenture dated as of December 13, 2013. The 6.55% notes due November 2036 were issued under an indenture dated as of April 1, 1991. The 4.20% notes due December 2048 were issued under an indenture dated as of February 5, 2018. The indentures contain certain restrictions, including a limitation that restricts our ability and the ability of certain of our subsidiaries to create or incur secured indebtedness, enter into certain sale and leaseback transactions, and consolidate, merge or transfer all or substantially all of our assets and the assets of our subsidiaries.

Syndicated Loan and Building Loan Facilities - As part of the acquisition of Crane Currency, we assumed €59 million of borrowings under a €72 million Syndicated Loan Facility Agreement (the "Syndicated Loan Facility") with the borrower being Crane Currency Malta. The Syndicated Loan Facility allows borrowings under two facilities in the amounts of €49 million ("Facility 1") and €23 million ("Facility 2"). The proceeds from the Syndicated Loan Facility may be used to purchase equipment for a printing facility in Malta. As of December 31, 2018, there was €71.1 million (€48.1 million from Facility 1 and €23.0 million from Facility 2) of outstanding borrowings. The Syndicated Loan Facility requires monthly principal payments, after the facilities are fully drawn, of €0.3 million from October 2018 through March 2032 for Facility 1 and €0.1 million from June 2019 through January 2033 for Facility 2. Interest is based on EURIBOR, plus a margin of 3.5% and is payable on a monthly basis. The Syndicated Loan Facility contains customary affirmative and negative covenants, including limitations on the subsidiary with respect to indebtedness, liens, mergers, consolidations, liquidations and dissolutions, sales of all or substantially all assets, transactions with affiliates and payment of dividends. Crane Currency Malta must also maintain a debt service cover ratio ranging from 1.2 to 1.5 over specified periods and a debt-to-equity ratio ranging from 2.5 to 1.5 over specified periods. The Syndicated Loan Facility provides for customary events of default. We also assumed €22.4 million of borrowings under a €27.0 million Building Loan Facility Agreement (the "Building Loan Facility"). The proceeds from the Building Loan Facility may be used to finance construction of the printing facility in Malta. As of December 31, 2018, there were €23.3 million of outstanding borrowings. The Building Loan Facility requires quarterly principal payments of €0.4 million from March 2018 through March 2037. Interest is 1.5% and is payable on a quarterly basis. The Building Loan Facility provides for customary events of default.

As of December 31, 2018, our total debt to total capitalization ratio was 38%, computed as follows:

(in millions)	December 31, 2018
Current maturities of long-term debt	$6.9
Long-term debt	942.3

Total indebtedness	$949.2
Total shareholders’ equity	1,524.2
Capitalization	$2,473.4
Total indebtedness to capitalization	38 %

Other - As of December 31, 2018, we had open standby letters of credit of $57.9 million issued pursuant to a $165.5 million uncommitted Letter of Credit Reimbursement Agreement, and certain other credit lines.

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Credit Ratings

As of December 31, 2018, our senior unsecured debt was rated BBB by Standard & Poor's with a Stable outlook and Baa2 with a Stable outlook by Moody's Investors Service. We believe that these ratings afford us adequate access to the public and private debt markets.

Contractual Obligations

Under various agreements, we are obligated to make future cash payments in fixed amounts. These include payments under our long-term debt agreements and rent payments required under operating lease agreements. The following table summarizes our fixed cash obligations as of December 31, 2018:

	Payment due by Period				
(in millions)	Total	2019	2020 -2021	2022 -2023	2024 and after
Debt (a)	$958.1	$6.9	$15.5	$315.5	$620.2
Fixed interest payments (b)	757.2	44.8	88.9	87.3	536.2
Operating lease payments	147.3	23.4	36.6	26.6	60.7
Purchase obligations	123.5	118.9	4.0	0.5	0.1
Pension and postretirement benefits (c)	554.8	49.5	102.3	108.8	294.2
Other long-term liabilities reflected on Consolidated Balance Sheets (d)	—	—	—	—	—
Total	$2,540.9	$243.5	$247.3	$538.7	$1,511.4

(a) Debt includes scheduled principal payments only.

(b) Variable interest payments under our Syndicated Loan Facility were estimated using EURIBOR plus 3.5% as of December 31, 2018.

(c) Pension benefits are funded by the respective pension trusts. The postretirement benefit component of the obligation is approximately $2 million per year for which there is no trust and will be directly funded by us. Pension benefits are included through 2028.

(d) As the timing of future cash outflows is uncertain, the following long-term liabilities (and related balances) are excluded from the above table: Long-term asbestos liability ($451.3 million), long-term environmental liability ($22.3 million) and gross unrecognized tax benefits ($38.1 million) and related gross interest and penalties ($7.2 million).

Capital Structure

The following table sets forth our capitalization:

(in millions, except %) December 31,	2018	2017
Current maturities of long-term debt	$6.9	$249.4
Long-term debt	942.3	494.1
Total debt	949.2	743.5
Less cash and cash equivalents	343.4	706.2
Net debt *	605.8	37.3
Equity	1,527.1	1,348.5
Net capitalization*	$2,132.9	$1,385.8
Net debt to equity*	39.7 %	2.8 %
Net debt to net capitalization*	28.4 %	2.7 %

* Net debt, a non-GAAP measure, represents total debt less cash and cash equivalents. Net debt is comprised of components disclosed above which are presented on our Consolidated Balance Sheets. We report our financial results in accordance with U.S. generally accepted accounting principles (U.S. GAAP). However, management believes that certain non-GAAP financial measures, which include the presentation of net debt, provide useful information about our ability to satisfy our debt obligation with currently available funds. Management also uses these non-GAAP financial measures in making financial, operating, planning and compensation decisions and in evaluating our performance.

Non-GAAP financial measures, which may be inconsistent with similarly captioned measures presented by other companies, should be viewed in the context of the definitions of the elements of such measures we provide and in addition to, and not as a substitute for, our reported results prepared and presented in accordance with U.S. GAAP.

In 2018, equity increased $178.6 million as a result of net income attributable to common shareholders of $335.5 million and changes in stock option exercises of $24.0 million, partially offset by cash dividends of $83.5 million, share repurchases of $50.1 million, changes in currency translation adjustment of $41.6 million and changes in pension and post retirement plan assets and benefit obligations, net of tax of $26.2 million

Off Balance Sheet Arrangements

We do not have any majority-owned subsidiaries that are not included in the consolidated financial statements, nor do we have any interests in or relationships with any special purpose off balance sheet financing entities.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

OUTLOOK

Overall

Our sales depend heavily on industries that are cyclical in nature or are subject to market conditions which may cause customer demand for our products to be volatile and unpredictable. Demand in these industries is affected by fluctuations in domestic and international economic conditions, as well as currency fluctuations, commodity costs, and a variety of other factors.

For 2019, we expect a total year-over-year sales decline of approximately 2%, driven by a slight core sales decline, and a 1% to 2% impact from unfavorable foreign exchange. We expect an improvement in operating profit, driven primarily by improved productivity and benefits from repositioning actions, and lower acquisition-related and integration charges and restructuring related costs.

Fluid Handling

In 2019, we expect Fluid Handling sales to increase in the low single-digit range compared to 2018, driven by mid single-digit core sales growth, largely offset by unfavorable foreign currency translation.

We expect Process Valves and Related Products sales to increase in the low single-digit range compared to 2018, driven by a mid single-digit core sales increase, partially offset by unfavorable foreign exchange. Excluding foreign exchange, we expect order rates in 2019 to improve compared to 2018 as our end markets continue to slowly recover.

We expect Commercial Valves sales to decrease in the low single-digit range compared to 2018, driven by a mid single-digit impact from unfavorable foreign exchange, partially offset by low single-digit core growth.

We expect Other Products sales to increase in the mid to high single-digit range compared to 2018 driven by growth in the U.S. military, municipal and non-residential construction markets.

For the segment, we expect an improvement in both operating profit and operating margin compared to 2018, driven by benefits from core sales growth, strong productivity, restructuring savings and lower restructuring and related costs.

Payment & Merchandising Technologies

We expect Payment & Merchandising Technologies sales to decline in the high single-digit range compared to 2018, driven by a mid to high single-digit decline in core sales, and a low single-digit impact from unfavorable foreign exchange.

At CPI, we expect core sales growth to be positive despite very challenging comparisons in the gaming and retail vertical markets, with growth across vending, financial services and transportation vertical markets. At CMS, we expect an improvement in core sales driven primarily by better demand from large bottler customers and full-line operators. At Crane Currency, we expect core sales to decline driven by substantially lower sales to one particular customer. We expect the segment's operating profit and operating margin to increase compared to 2018, driven by substantially lower acquisition and restructuring costs, along with benefits from repositioning actions and productivity, partially offset by the impact of the lower volume.

Aerospace & Electronics

We expect Aerospace & Electronics core sales to increase in the mid single-digit range compared to 2018. For 2019, we expect that commercial market conditions will remain generally positive, and we expect continued sales growth from our commercial OEM business. We do expect a decline in our defense OEM business because of challenging comparisons from a large ground based radar program in 2018. We expect 2019 aftermarket sales to be approximately flat compared to last year after extremely strong shipments in 2018 and reflecting timing related to certain initial provisioning orders. We expect segment operating profit and operating margin in 2019 to increase compared to 2018 driven primarily by the impact of the higher volume, improved productivity, and benefits from repositioning actions, partially offset by unfavorable mix.

Engineered Materials

In 2019, we expect the Engineered Materials segment sales will be comparable to 2018. We expect a modest decline in sales to RV manufacturers, offset by higher sales to our building product customers. Segment operating profit and operating margin are expected to decline slightly compared to 2018.

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APPLICATION OF CRITICAL ACCOUNTING POLICIES

Our consolidated financial statements are prepared in accordance with accounting principles generally accepted in the United States. Our significant accounting policies are more fully described in Part II, Item 8 under Note 1, "Nature of Operations and Significant Accounting Policies" in the Notes to Consolidated Financial Statements. Certain accounting policies require us to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenue and expense during the reporting period. On an ongoing basis, we evaluate our estimates and assumptions, and the effects of revisions are reflected in the financial statements in the period in which they are determined to be necessary. The accounting policies described below are those that most frequently require us to make estimates and judgments and, therefore, are critical to understanding our results of operations. We have discussed the development and selection of these accounting estimates and the related disclosures with the Audit Committee of our Board of Directors.

Revenue Recognition. In accordance with Accounting Standards Codification ("ASC") Topic 606 "Revenue from Contracts with Customers", we recognize revenue when control of the promised goods or services in a contract transfers to the customer, in an amount that reflects the consideration we expect to be entitled to in exchange for those goods or services. We account for a contract when both parties have approved and committed to the terms, each party's rights and payment obligations under the contract are identifiable, the contract has commercial substance, and it is probable that we will collect substantially all of the consideration.

We primarily generate revenue through the manufacture and sale of engineered industrial products. Each product within a contract generally represents a separate performance obligation, as we do not provide a significant service of integrating or installing the products, the products do not customize each other, and the products can function independently of each other. Control of products generally transfers to the customer at a point in time, as the customer does not control the products as they are manufactured. We exercise judgment and consider the timing of right to payment, transfer of risk and rewards, transfer of title, transfer of physical possession, and customer acceptance when determining when control transfers to the customer. As a result, revenue from the sale of products is generally recognized at a point in time - either upon shipment or delivery - based on the specific shipping terms in the contract. When products are customized or products are sold directly to the U.S. government or indirectly to the U.S. government through subcontracts, revenue is recognized over time because control is transferred continuously to customers, as the contract progresses. We exercise judgment to determine whether the products have an alternative use to us. When an alternative use exists for these products and we are entitled to payment for performance completed to date which includes a reasonable profit margin, revenue is recognized over time. When a contract with the U.S. government or subcontract for the U.S. government contains clauses indicating that the U.S. government owns any work-in-progress as the contracted product is being built, revenue is recognized over time. The measure of progress applied by us is the cost-to-cost method as this provides the most faithful depiction of the pattern of transfer of control. Under this method, we measure progress by comparing costs incurred to date to the total estimated costs to provide the performance obligation. This method effectively reflects our progress toward completion, as this methodology includes any work-in-process amounts as part of the measure of progress. Costs incurred represent work performed, which corresponds with, and thereby depicts, the transfer of control to the customer. Total revenue recognized and cost estimates are updated on a monthly basis.

Income Taxes. We account for income taxes in accordance with ASC Topic 740 "Income Taxes" ("ASC 740"), which requires an asset and liability approach for the financial accounting and reporting of income taxes. Under this method, deferred income taxes are recognized for the expected future tax consequences of differences between the tax bases of assets and liabilities and their reported amounts in the financial statements. These balances are measured using the enacted tax rates expected to apply in the year(s) in which these temporary differences are expected to reverse. The effect of a change in tax rates on deferred income taxes is recognized in income in the period when the change is enacted.

Based on consideration of all available evidence regarding their utilization, we record net deferred tax assets to the extent that it is more likely than not that they will be realized. Where, based on the weight of all available evidence, it is more likely than not that some amount of a deferred tax asset will not be realized, we establish a valuation allowance for the amount that, in our judgment, is sufficient to reduce the deferred tax asset to an amount that is more likely than not to be realized. The evidence we consider in reaching such conclusions includes, but is not limited to; (1) future reversals of existing taxable temporary differences, (2) future taxable income exclusive of reversing taxable temporary differences, (3) taxable income in prior carryback year(s) if carryback is permitted under the tax law, (4) cumulative losses in recent years, (5) a history of tax losses or credit carryforwards expiring unused, (6) a carryback or carryforward period that is so brief it limits realization of tax benefits, and (7) a strong earnings history exclusive of the loss that created the carryforward and support showing that the loss is an aberration rather than a continuing condition.

We account for unrecognized tax benefits in accordance with ASC 740, which prescribes a minimum probability threshold that a tax position must meet before a financial statement benefit is recognized. The minimum threshold is defined as a tax

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

position that is more likely than not to be sustained upon examination by the applicable taxing authority, including resolution of any related appeals or litigation, based solely on the technical merits of the position. The tax benefit recognized is the largest amount of benefit that is greater than 50% likely of being realized upon ultimate settlement.

We recognize interest and penalties related to unrecognized tax benefits within the income tax expense line of the Consolidated Statement of Operations, while accrued interest and penalties are included within the related tax liability line of our Consolidated Balance Sheets.

Goodwill and Other Intangible Assets. As of December 31, 2018, we had $1,403.7 million of goodwill. Our business acquisitions typically result in the generation of goodwill and other intangible assets. We follow the provisions under ASC Topic 350, "Intangibles – Goodwill and Other" ("ASC 350") as it relates to the accounting for goodwill in our consolidated financial statements. These provisions require that we, on at least an annual basis, evaluate the fair value of the reporting units to which goodwill is assigned and attributed and compare that fair value to the carrying value of the reporting unit to determine if impairment exists. Impairment testing takes place more often than annually if events or circumstances indicate a change in the impairment status. A reporting unit is an operating segment unless discrete financial information is prepared and reviewed by segment management for businesses one level below that operating segment (a "component"), in which case the component would be the reporting unit. As of December 31, 2018, we had eight reporting units.

When performing our annual impairment assessment, we compare the fair value of each of our reporting units to their respective carrying value. Goodwill is considered to be potentially impaired when the net book value of a reporting unit exceeds its estimated fair value. Fair values are established primarily by discounting estimated future cash flows at an estimated cost of capital which varies for each reporting unit and which, as of our most recent annual impairment assessment, ranged between 10.0% and 13.0% (a weighted average of 10.9%), reflecting the respective inherent business risk of each of the reporting units tested. This methodology for valuing our reporting units (commonly referred to as the Income Method) has not changed from the prior year. The determination of discounted cash flows is based on the businesses' strategic plans and long-range planning forecasts, which change from year to year. The revenue growth rates included in the forecasts represent our best estimates based on current and forecasted market conditions, and the profit margin assumptions are projected by each reporting unit based on the current cost structure and anticipated net cost increases/reductions. There are inherent uncertainties related to these assumptions, including changes in market conditions, and management's judgment in applying them to the analysis of goodwill impairment. In addition to the foregoing, for each reporting unit, market multiples are used to corroborate our discounted cash flow results where fair value is estimated based on earnings before income taxes, depreciation, and amortization ("EBITDA") and revenue multiples determined by available public information of comparable businesses. While we believe we have made reasonable estimates and assumptions to calculate the fair value of our reporting units, it is possible a material change could occur. If actual results are not consistent with management's estimates and assumptions, goodwill and other intangible assets may be overstated and a charge would need to be taken against net earnings. Furthermore, in order to evaluate the sensitivity of the fair value calculations on the goodwill impairment test, we applied a hypothetical, reasonably possible 10% decrease to the fair values of each reporting unit. The effects of this hypothetical 10% decrease would still result in a fair value calculation exceeding our carrying value for each of our reporting units. No impairment charges have been required during 2018, 2017 or 2016.

As of December 31, 2018, we had $481.8 million of net intangible assets, of which $69.9 million were intangibles with indefinite useful lives, consisting of trade names. Intangibles with indefinite useful lives are tested annually for impairment, or when events or changes in circumstances indicate the potential for impairment. If the carrying amount of an indefinite lived intangible asset exceeds its fair value, the intangible asset is written down to its fair value. Fair value is calculated using relief of royalty method. We amortize the cost of definite-lived intangibles over their estimated useful lives.

In addition to annual testing for impairment of indefinite-lived intangible assets, we review all of our definite-lived intangible assets for impairment whenever events or changes in circumstances indicate the carrying amount of an asset may not be recoverable. Examples of events or changes in circumstances could include, but are not limited to, a prolonged economic downturn, current period operating or cash flow losses combined with a history of losses or a forecast of continuing losses associated with the use of an asset or asset group, or a current expectation that an asset or asset group will be sold or disposed of before the end of its previously estimated useful life. Recoverability is based upon projections of anticipated future undiscounted cash flows associated with the use and eventual disposal of the definite-lived intangible asset (or asset group), as well as specific appraisal in certain instances. Reviews occur at the lowest level for which identifiable cash flows are largely independent of cash flows associated with other long-lived assets or asset groups and include estimated future revenues, gross profit margins, operating profit margins and capital expenditures which are based on the businesses' strategic plans and long-range planning forecasts, which change from year to year. The revenue growth rates included in the forecasts represent our best estimates based on current and forecasted market conditions, and the profit margin assumptions are based on the current cost structure and anticipated net cost increases/reductions. There are inherent uncertainties related to these assumptions, including changes in market conditions, and management's judgment in applying them to the analysis. If the future undiscounted cash

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

flows are less than the carrying value, then the definite-lived intangible asset is considered impaired and a charge would be taken against net earnings based on the amount by which the carrying amount exceeds the estimated fair value. Judgments which impact these assessments relate to the expected useful lives of definite-lived assets and our ability to realize any undiscounted cash flows in excess of the carrying amounts of such assets, and are affected primarily by changes in the expected use of the assets, changes in technology or development of alternative assets, changes in economic conditions, changes in operating performance and changes in expected future cash flows. Since judgment is involved in determining the recoverable amount of definite-lived intangible assets, there is risk that the carrying value of our definite-lived intangible assets may require adjustment in future periods. Historical results to date have generally approximated expected cash flows for the identifiable cash flow generating level. We believe there have been no events or circumstances which would more likely than not reduce the fair value of our indefinite-lived or definite-lived intangible assets below their carrying value.
Asbestos Liability and Related Insurance Coverage and Receivable. As of December 31, 2018, we had an aggregate asbestos
liability of $517 million for pending claims and future claims projected to be filed against us through 2059. Estimation of our exposure for asbestos-related claims is subject to significant uncertainties, as there are multiple variables that can affect the timing, severity and quantity of claims and the manner of their resolution. We retained an independent actuarial firm to assist management in estimating our asbestos liability in the tort system. The actuarial consultants review information provided by us concerning claims filed, settled and dismissed, amounts paid in settlements and relevant claim information such as the nature of the asbestos-related disease asserted by the claimant, the jurisdiction where filed and the time lag from filing to disposition of the claim. The methodology used by the actuarial consultants to project future asbestos costs is based on our recent historical experience for claims filed, settled and dismissed during a base reference period. Our experience is then compared to estimates of the number of individuals likely to develop asbestos-related diseases determined based on widely used previously conducted epidemiological studies augmented with current data inputs. Those studies were undertaken in connection with national analyses of the population of workers believed to have been exposed to asbestos. Using that information, the actuarial consultants estimate the number of future claims that would be filed against us and estimates the aggregate settlement or indemnity costs that would be incurred to resolve both pending and future claims based upon the average settlement costs by disease during the reference period. This methodology has been accepted by numerous courts. After discussions with us, the actuarial consultants augment our liability estimate for the costs of defending asbestos claims in the tort system using a forecast from us which is based upon discussions with our defense counsel. Based on this information, the actuarial consultants compile an estimate of our asbestos liability for pending and future claims using a range of reference periods based on claim experience and covering claims expected to be filed through the indicated forecast period. The most significant factors affecting the liability estimate are (1) the number of new mesothelioma claims filed against us, (2) the average settlement costs for mesothelioma claims, (3) the percentage of mesothelioma claims dismissed against us and (4) the aggregate defense costs incurred by us. These factors are interdependent, and no one factor predominates in determining the liability estimate. These factors have both positive and negative effects on the dynamics of asbestos litigation in the tort system and the related best estimate of our asbestos liability, and these effects do not move in a linear fashion but rather change over multi-year periods. Accordingly, we continue to monitor these trend factors over time and periodically assesses whether an alternative forecast period is appropriate.

Effective as of December 31, 2016, we extended our estimate of the asbestos liability, including the costs of settlement or indemnity payments and defense costs relating to currently pending claims and future claims projected to be filed against us through the generally accepted end point of such claims in 2059. Our previous estimate was for asbestos claims filed or projected to be filed through 2021. Our estimate of the asbestos liability for pending and future claims through 2059 is based on the projected future asbestos costs resulting from our experience using a range of reference periods for claims filed, settled and dismissed. Based on this estimate, we recorded an additional liability of $227 million (an aggregate asbestos liability of $696 million) as of December 31, 2016.

Management has made its best estimate of the costs through 2059. Through December 31, 2018, our actual experience during the updated reference period for mesothelioma claims filed and dismissed generally approximated the assumptions in our liability estimate. In addition to this claims experience, we considered additional quantitative and qualitative factors such as the nature of the aging of pending claims, significant appellate rulings and legislative developments, and their respective effects on expected future settlement values. Based on this evaluation, we determined that no change in the estimate was warranted for the period ended December 31, 2018.

In conjunction with developing the aggregate liability estimate referenced above, we also developed an estimate of probable insurance recoveries for our asbestos liabilities. As of December 31, 2016, we had an aggregate asbestos insurance receivable of $143 million. In developing this estimate, we considered our coverage-in-place and other settlement agreements, as well as a number of additional factors. These additional factors include the financial viability of the insurance companies, the method by which losses will be allocated to the various insurance policies and the years covered by those policies, how settlement and

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

defense costs will be covered by the insurance policies and interpretation of the effect on coverage of various policy terms and limits and their interrelationships. The insurance receivable was $91 million as of December 31, 2018.

Environmental. For environmental matters, we record a liability for estimated remediation costs when it is probable that we will be responsible for such costs and they can be reasonably estimated. Generally, third party specialists assist in the estimation of remediation costs. The environmental remediation liability as of December 31, 2018 is substantially all for the Goodyear Site. Estimates of our environmental liabilities at the Goodyear Site are based on currently available facts, present laws and regulations and current technology available for remediation, and are recorded on an undiscounted basis. These estimates consider our prior experience in the Goodyear Site investigation and remediation, as well as available data from, and in consultation with, our environmental specialists. Estimates at the Goodyear Site are subject to significant uncertainties caused primarily by the dynamic nature of the Goodyear Site conditions, the range of remediation alternatives available, together with the corresponding estimates of cleanup methodology and costs, as well as ongoing, required regulatory approvals, primarily from the EPA. During the third quarter of 2014, the EPA issued a Record of Decision amendment requiring, among other things, additional source area remediation resulting in us recording a charge of $49 million, extending the accrued costs through 2022. As of December 31, 2018, the total estimated gross liability for the Goodyear Site was $33.1 million.

On July 31, 2006, we entered into a consent decree with the U.S. Department of Justice on behalf of the Department of Defense and the Department of Energy pursuant to which, among other things, the U.S. Government reimburses us for 21% of qualifying costs of investigation and remediation activities at the Goodyear Site.

Pension Plans. In the U.S., we sponsor a defined benefit pension plan that covers approximately 20% of all U.S. employees. The benefits are based on years of service and compensation on a final average pay basis, except for certain hourly employees where benefits are fixed per year of service. This plan is funded with a trustee in respect to past and current service. Charges to expense are based upon costs computed by an independent actuary. Contributions are intended to provide for future benefits earned to date. A number of our non-U.S. subsidiaries sponsor defined benefit pension plans that cover approximately 9% of all non-U.S. employees. The benefits are typically based upon years of service and compensation. These plans are generally funded with trustees in respect to past and current service.

The expected return on plan assets component of net periodic benefit cost is determined by applying the assumed expected return on plan assets to the fair value of plan assets. For one of the U.K. pension plans, a market-related value of assets is used in lieu of the fair value of plan assets for this purpose. The net actuarial loss (gain) is amortized to the extent that it exceeds 10% of the greater of the fair value of plan assets and the projected benefit obligation. The amortization period is the average life expectancy of plan participants for most plans. The amortization period for plans with a significant number of active participants accruing benefits is the average future working lifetime of plan participants. The prior service cost (credit) is amortized over the average future working lifetime of plan participants whose prior service benefits were changed.

The net periodic pension benefit was $15.3 million, $8.2 million and $8.9 million in 2018, 2017 and 2016, respectively. The net periodic pension benefit was $7.1 million higher in 2018 compared to 2017, driven by higher expected return on plan assets for both U.S. and non U.S. plans. Employer cash contributions were $57.5 million, $12.7 million and $8.3 million in 2018, 2017 and 2016, respectively. Employer cash contributions in 2018 included $28 million of discretionary contributions.

Holding all other factors constant, a decrease in the expected long-term rate of return of plan assets by 0.25 percentage points would have increased 2018 pension expense by $1.0 million for U.S. pension plans and $1.2 million for non-U.S. pension plans. Also, holding all other factors constant, a decrease in the discount rate used to determine net periodic pension cost by 0.25 percentage points would have increased 2018 pension expense by $0.1 million for U.S. pension plans and $0.6 million for non-U.S. pension plans.

MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The weighted average assumptions used to determine benefit obligations and net periodic benefit cost are as follows:

	Pension Benefits		
For the year ended December 31,	2018	2017	2016
Benefit Obligations			
U.S. Plans:			
Discount rate	4.36%	3.75%	4.29%
Rate of compensation increase	N/A	N/A	N/A
Non-U.S. Plans:			
Discount rate	2.42%	2.15%	2.29%
Rate of compensation increase	3.06%	2.80%	2.85%
Net Periodic Benefit Cost			
U.S. Plans:			
Discount rate	3.75%	4.29%	4.41%
Expected rate of return on plan assets	7.75%	7.75%	7.75%
Rate of compensation increase	N/A	N/A	N/A
Non-U.S. Plans:			
Discount rate	2.15%	2.29%	3.30%
Expected rate of return on plan assets	6.49%	6.45%	6.77%
Rate of compensation increase	2.80%	2.85%	2.81%

The long-term expected rate of return on plan assets assumptions were determined with input from independent investment consultants and plan actuaries, utilizing asset pricing models and considering historic returns. The discount rates we used for valuing pension liabilities are based on a review of high quality corporate bond yields with maturities approximating the remaining life of the projected benefit obligation.

Recent Accounting Pronouncements

Information regarding new accounting pronouncements is included in Part II, Item 8 under Note 1 to the Consolidated Financial Statements.

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

Our cash flows and earnings are subject to fluctuations from changes in interest rates and foreign currency exchange rates. We manage our exposures to these market risks through internally established policies and procedures and, when deemed appropriate, through the use of interest-rate swap agreements and forward exchange contracts. We do not enter into derivatives or other financial instruments for trading or speculative purposes.

Total debt outstanding was $949.2 million as of December 31, 2018, which was at fixed rates of interest ranging from 4.20% to 6.55%.

The following is an analysis of the potential changes in interest rates and currency exchange rates based upon sensitivity analysis that models effects of shifts in rates. These are not forecasts.

- Our year-end portfolio is comprised of fixed-rate debt; therefore, the effect of a market change in interest rates would not be significant.
- Based on a sensitivity analysis as of December 31, 2018, a 10% change in the foreign currency exchange rates for the year ended December 31, 2018 would have impacted our net earnings by approximately $11.8 million, due primarily to the British pound, Canadian dollar, Swedish krona and Euro. This calculation assumes that all currencies change in the same direction and proportion relative to the U.S. dollar and there are no indirect effects, such as changes in non-U.S. dollar sales volumes or prices.

Item 8. Financial Statements and Supplementary Data

MANAGEMENT’S RESPONSIBILITY
FOR FINANCIAL REPORTING

The accompanying consolidated financial statements of Crane Co. and subsidiaries have been prepared by management in conformity with accounting principles generally accepted in the United States of America and, in the judgment of management, present fairly and consistently the Company’s financial position and results of operations and cash flows. These statements by necessity include amounts that are based on management’s best estimates and judgments and give due consideration to materiality.

Management is responsible for establishing and maintaining adequate internal control over financial reporting. The Company’s internal control system was designed to provide reasonable assurance to the Company’s management and board of directors regarding the preparation and fair presentation of published financial statements.

All internal control systems, no matter how well designed, have inherent limitations. Therefore, even those systems determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation.

Management assessed the effectiveness of the Company’s internal control over financial reporting as of December 31, 2018. In making its assessment, management has utilized the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission in its Internal Control—Integrated Framework, released in 2013. Based on our assessment we believe that, as of December 31, 2018, the Company’s internal control over financial reporting is effective based on those criteria.

Deloitte & Touche LLP, the independent registered public accounting firm that also audited the Company’s consolidated financial statements included in this Annual Report on Form 10-K, audited the internal control over financial reporting as of December 31, 2018, and issued their related attestation report which is included herein.

/s/ Max H. Mitchell
Max H. Mitchell
President and Chief Executive Officer
(Principal Executive Officer)

/s/ Richard A. Maue
Richard A. Maue
Senior Vice President and Chief Financial Officer
(Principal Financial Officer)

The Section 302 certifications of the Company’s Chief Executive Officer and its Principal Financial Officer have been filed as Exhibit 31 to the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2018.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the shareholders and the Board of Directors of Crane Co.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Crane Co. and subsidiaries (the "Company") as of December 31, 2018 and 2017, the related consolidated statements of operations, comprehensive income (loss), cash flows, and changes in equity, for each of the three years in the period ended December 31, 2018, and the related notes and the schedules listed in the Index at Item 8 (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 25, 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
Stamford, CT
February 25, 2019

We have served as the Company's auditor since 1979.

CONSOLIDATED STATEMENTS OF OPERATIONS

	For the year ended December 31,		
(in millions, except per share data)	2018	2017	2016
Net sales	$3,345.5	$2,786.0	$2,748.0
Operating costs and expenses:			
Cost of sales	2,156.2	1,770.9	1,758.3
Selling, general and administrative	721.0	605.9	610.6
Asbestos provision	—	—	192.4
Restructuring charges	7.2	13.0	—
Acquisition-related and integration charges	19.8	7.8	—
	2,904.2	2,397.6	2,561.3
Operating profit	441.3	388.4	186.7
Other income (expense):			
Interest income	2.3	2.5	1.9
Interest expense	(50.9)	(36.1)	(36.5)
Miscellaneous income, net	18.7	12.7	12.0
	(29.9)	(20.9)	(22.6)
Income before income taxes	411.4	367.5	164.1
Provision for income taxes	75.9	195.0	40.3
Net income before allocation to noncontrolling interests	335.5	172.5	123.8
Less: Noncontrolling interest in subsidiaries' (loss) earnings	(0.1)	0.7	1.0
Net income attributable to common shareholders	$335.6	$171.8	$122.8
Basic earnings per share	$5.63	$2.89	$2.10
Weighted average basic shares outstanding	59.6	59.4	58.5
Diluted earnings per share	$5.50	$2.84	$2.07
Weighted average diluted shares outstanding	61.0	60.4	59.3

See Notes to Consolidated Financial Statements

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(in millions)	For the year ended December 31, 2018	2017	2016
Net income before allocation to noncontrolling interests	$335.5	$172.5	$123.8
Other comprehensive (loss) income, net of tax			
Currency translation adjustment	(41.6)	86.9	(64.7)
Changes in pension and postretirement plan assets and benefit obligation, net of tax	(26.2)	9.2	(35.2)
Other comprehensive (loss) income, net of tax	(67.8)	96.1	(99.9)
Comprehensive income before allocation to noncontrolling interests	267.7	268.6	23.9
Less: Noncontrolling interests in comprehensive income	(0.3)	0.7	1.0
Comprehensive income attributable to common shareholders	$268.0	$267.9	$22.9

See Notes to Consolidated Financial Statements

CONSOLIDATED BALANCE SHEETS

(in millions, except shares and per share data)	Balance as of December 31, 2018	2017
Assets		
Current assets:		
Cash and cash equivalents	$343.4	$706.2
Current insurance receivable — asbestos	16.0	25.0
Accounts receivable, net	515.8	418.4
Inventories	411.5	349.3
Other current assets	76.2	19.6
Total current assets	1,362.9	1,518.5
Property, plant and equipment, net	599.1	282.4
Insurance receivable — asbestos	75.0	90.1
Long-term deferred tax assets	18.8	104.2
Other assets	101.4	114.6
Intangible assets, net	481.8	276.8
Goodwill	1,403.7	1,206.9
Total assets	4,042.7	$3,593.5
Liabilities and equity		
Current liabilities:		
Current maturities of long-term debt	$6.9	$249.4
Accounts payable	329.2	247.4
Current asbestos liability	66.0	85.0
Accrued liabilities	337.1	252.1
U.S. and foreign taxes on income	1.0	3.6
Total current liabilities	740.2	837.5
Long-term debt	942.3	494.1
Accrued pension and postretirement benefits	244.0	240.5
Long-term deferred tax liability	53.2	44.9
Long-term asbestos liability	451.3	520.3
Other liabilities	84.6	107.7
Commitments and contingencies (Note 11)		
Equity:		
Preferred shares, par value $.01; 5,000,000 shares authorized	—	—
Common shares, par value $1.00; 200,000,000 shares authorized; 72,426,139 shares issued; 59,508,401 shares outstanding (59,411,636 in 2017)	72.4	72.4
Capital surplus	303.5	291.7
Retained earnings	2,072.1	1,813.3
Accumulated other comprehensive loss	(447.6)	(380.1)
Treasury stock; 12,917,713 treasury shares (13,014,503 in 2017)	(476.2)	(452.1)
Total shareholders’ equity	1,524.2	1,345.2
Noncontrolling interest	2.9	3.3
Total equity	1,527.1	1,348.5
Total liabilities and equity	$4,042.7	$3,593.5

See Notes to Consolidated Financial Statements

CONSOLIDATED STATEMENTS OF CASH FLOWS

	For year ended December 31,		
(in millions)	2018	2017	2016
Operating activities:			
Net income attributable to common shareholders	$335.6	$171.8	$122.8
Noncontrolling interest in subsidiaries' (loss) earnings	(0.1)	0.7	1.0
Net income before allocations to noncontrolling interests	335.5	172.5	123.8
Asbestos provision	—	—	192.4
Loss (gain) on deconsolidation of joint venture	1.7	(1.0)	—
Gain on sale of property related to facility consolidation	—	(11.1)	—
Depreciation and amortization	120.0	72.7	67.4
Stock-based compensation expense	21.6	21.8	21.7
Defined benefit plans and postretirement credit	(15.0)	(8.5)	(9.1)
Deferred income taxes	47.7	102.3	(25.1)
Cash provided by operating working capital	16.3	54.0	27.0
Defined benefit plans and postretirement contributions	(59.8)	(13.2)	(8.8)
Environmental payments, net of reimbursements	(6.3)	(6.3)	(11.6)
Payments for asbestos-related fees and costs, net of insurance recoveries	(63.9)	(62.5)	(56.0)
Other	16.0	(3.2)	(3.6)
Total provided by operating activities	413.8	317.5	318.1
Investing activities:			
Capital expenditures	(108.8)	(49.0)	(51.5)
Proceeds from disposition of capital assets	1.9	22.3	0.9
Impact of deconsolidation of joint ventures	2.6	(5.2)	—
Payments for acquisitions, net of cash acquired	(648.0)	(54.8)	—
Total used for investing activities	(752.3)	(86.7)	(50.6)
Financing activities:			
Dividends paid	(83.5)	(78.4)	(77.2)
Reacquisition of shares on open market	(50.1)	(25.0)	—
Stock options exercised, net of shares reacquired	16.1	25.2	26.4
Debt issuance costs	(5.4)	(2.6)	—
Repayment of long-term debt	(452.2)	—	—
Repayment of short-term debt	(100.0)	—	—
Repayment of commercial paper	—	—	(49.6)
Proceeds from issuance of long-term debt	567.2	—	—
Proceeds from issuance of short-term debt	100.0	—	—
Total used for financing activities	(7.9)	(80.8)	(100.4)
Effect of exchange rates on cash and cash equivalents	(16.4)	46.5	(20.9)
(Decrease) increase in cash and cash equivalents	(362.8)	196.5	146.2
Cash and cash equivalents at beginning of period	706.2	509.7	363.5
Cash and cash equivalents at end of period	$343.4	$706.2	$509.7
Detail of cash provided by (used for) operating working capital:			
Accounts receivable	$4.8	$(10.1)	$(6.2)
Inventories	(38.8)	6.4	24.9
Other current assets	(11.4)	0.8	(2.4)

Accounts payable	37.0	17.5	5.5
Accrued liabilities	40.9	30.8	9.6
U.S. and foreign taxes on income	(16.2)	8.6	(4.4)
Total	$16.3	$54.0	$27.0
Supplemental disclosure of cash flow information:			
Interest paid	$47.5	$36.0	$36.8
Income taxes paid	$58.4	$84.1	$69.8

See Notes to Consolidated Financial Statements.

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

(in millions, except share data)	Common Shares Issued at Par Value	Capital Surplus	Retained Earnings	Accumulated Other Comprehensive Loss	Treasury Stock	Total Shareholders' Equity	Noncontrolling Interest	Total Equity
BALANCE DECEMBER 31, 2015	72.4	$263.6	$1,674.3	$ (376.7)	$(494.2)	$1,139.4	$ 11.4	$1,150.8
Net income	—	—	122.8	—	—	122.8	1.0	123.8
Cash dividends ($1.32 per share)	—	—	(77.2)	—	—	(77.2)	—	(77.2)
Exercise of stock options, net of shares reacquired, 681,173	—	—	—	—	30.4	30.4	—	30.4
Stock option amortization	—	6.3	—	—	—	6.3	—	6.3
Restricted stock, net	—	7.0	—	—	4.5	11.5	—	11.5
Changes in pension and postretirement plan assets and benefit obligation, net of tax	—	—	—	(35.2)	—	(35.2)	—	(35.2)
Currency translation adjustment	—	—	—	(64.2)	—	(64.2)	(0.5)	(64.7)
BALANCE DECEMBER 31, 2016	72.4	$276.9	$1,719.9	$ (476.1)	$(459.3)	$1,133.8	$ 11.9	$1,145.7
Net income	—	—	171.8	—	—	171.8	0.7	172.5
Cash dividends ($1.32 per share)	—	—	(78.4)	—	—	(78.4)	—	(78.4)
Reacquisition on open market 331,632 shares	—	—	—	—	(25.0)	(25.0)	—	(25.0)
Exercise of stock options, net of shares reacquired, 620,927	—	—	—	—	30.6	30.6	—	30.6
Stock option amortization	—	6.1	—	—	—	6.1	—	6.1
Restricted stock, net	—	8.7	—	—	1.6	10.3	—	10.3
Deconsolidation of a joint venture	—	—	—	—	—	—	(9.4)	(9.4)
Changes in pension and postretirement plan assets and benefit obligation, net of tax	—	—	—	9.2	—	9.2	—	9.2
Currency translation adjustment	—	—	—	86.8	—	86.8	0.1	86.9
BALANCE DECEMBER 31, 2017	72.4	$291.7	$1,813.3	$ (380.1)	$(452.1)	$1,345.2	$ 3.3	$1,348.5
Net income	—	—	335.6	—	—	335.6	(0.1)	335.5
Cash dividends ($1.40 per share)	—	—	(83.5)	—	—	(83.5)	—	(83.5)
Reacquisition on open market 582,066 shares	—	—	—	—	(50.1)	(50.1)	—	(50.1)
Cumulative effect of adoption of ASC 606	—	—	6.7	—	—	6.7	—	6.7
	—	—	—	—	24.0	24.0	—	24.0

Exercise of stock options, net of shares reacquired 449,948								
Stock option amortization	—	5.9	—	—	—	5.9	—	5.9
Restricted stock, net	—	5.9	—	—	2.0	7.9	—	7.9
Changes in pension and postretirement plan assets and benefit obligation, net of tax	—	—	—	(26.2)	—	(26.2)	—	(26.2)
Currency translation adjustment	—	—	—	(41.3)	—	(41.3)	(0.3)	(41.6)
BALANCE DECEMBER 31, 2018	72.4	$303.5	$2,072.1	$ (447.6)	$(476.2)	$1,524.2	$ 2.9	$1,527.1

See Notes to Consolidated Financial Statements

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Note 1 – Nature of Operations and Significant Accounting Policies
Nature of Operations
We are a diversified manufacturer of highly engineered industrial products comprised of four reporting segments: Fluid Handling, Payment & Merchandising Technologies, Aerospace & Electronics and Engineered Materials. The primary markets are chemicals, oil & gas, power, non-residential construction, automated payment solutions, banknote design and production and aerospace & defense, along with a wide range of general industrial and certain consumer related end markets.
See Note 3, "Segment Information" for the relative size of these segments in relation to the total company (both net sales and total assets).
Due to rounding, numbers presented throughout this report may not add up precisely to totals we provide, and percentages may not precisely reflect the absolute figures.
Significant Accounting Policies
Accounting Principles. Our consolidated financial statements are prepared in conformity with accounting principles generally accepted in the United States of America ("U.S. GAAP"). The consolidated financial statements include the accounts of Crane Co. and our subsidiaries. All intercompany balances and transactions have been eliminated upon consolidation. As used in these notes, the terms "we," "us," "our," "Crane" and the "Company" mean Crane Co. and our subsidiaries unless the context specifically states or implies otherwise.
Use of Estimates. These accounting principles require management to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenue and expense during the reporting period. Actual results may differ from those estimated. Estimates and assumptions are reviewed periodically, and the effects of revisions are reflected in the financial statements in the period in which they are determined to be necessary. Estimates are used when accounting for such items as asset valuations, allowance for doubtful accounts, depreciation and amortization, impairment assessments, reserve for excess and obsolete inventory, reserve for warranty provision, restructuring provisions, employee benefits, taxes, asbestos liability and related insurance receivable, environmental liability and contingencies.
Currency Translation. Assets and liabilities of subsidiaries that prepare financial statements in currencies other than the U.S. dollar are translated at the rate of exchange in effect on the balance sheet date; results of operations are translated at the monthly average rates of exchange prevailing during the year. The related translation adjustments are included in accumulated other comprehensive income (loss) in a separate component of equity.
Revenue Recognition. In accordance with Accounting Standards Codification ("ASC") Topic 606 "Revenue from Contracts with Customers", we recognize revenue when control of the promised goods or services in a contract transfers to the customer, in an amount that reflects the consideration we expect to be entitled to in exchange for those goods or services. We account for a contract when both parties have approved and committed to the terms, each party's rights and payment obligations under the contract are identifiable, the contract has commercial substance, and it is probable that we will collect substantially all of the consideration. When shipping and handling activities are performed after the customer obtains control of product, we elect to account for shipping and handling as activities to fulfill the promise to transfer the product. In determining the transaction price of a contract, we exercise judgment to determine the total transaction price when it includes estimates of variable consideration, such as rebates and milestone payments. We generally estimate variable consideration using the expected value method and consider all available information (historical, current, and forecasted) in estimating these amounts. Variable consideration is only included in the transaction price to the extent that it is probable that a significant reversal of cumulative revenue recognized will not occur when the uncertainty associated with the variable consideration is resolved. We elect to exclude from the transaction price all taxes assessed by a governmental authority that are both imposed on and concurrent with a specific revenue-producing transaction and collected by us from a customer.
We primarily generate revenue through the manufacture and sale of engineered industrial products. Each product within a contract generally represents a separate performance obligation, as we do not provide a significant service of integrating or installing the products, the products do not customize each other, and the products can function

independently of each other. Control of products generally transfers to the customer at a point in time, as the customer does not control the products as they are manufactured. We exercise judgment and consider the timing of right to payment, transfer of risk and rewards, transfer of title, transfer of physical possession, and customer acceptance when determining when control transfers to the customer. As a result, revenue from the sale of products is generally recognized at a point in time - either upon shipment or delivery - based on the specific shipping terms in the contract.

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When products are customized or products are sold directly to the U.S. government or indirectly to the U.S. government through subcontracts, revenue is recognized over time because control is transferred continuously to customers, as the contract progresses. We exercise judgment to determine whether the products have an alternative use to us. When an alternative use does not exist for these products and we are entitled to payment for performance completed to date which includes a reasonable profit margin, revenue is recognized over time. When a contract with the U.S. government or subcontract for the U.S. government contains clauses indicating that the U.S. government owns any work-in-progress as the contracted product is being built, revenue is recognized over time. The measure of progress applied by us is the cost-to-cost method as this provides the most faithful depiction of the pattern of transfer of control. Under this method, we measure progress by comparing costs incurred to date to the total estimated costs to provide the performance obligation. This method effectively reflects our progress toward completion, as this methodology includes any work-in-process amounts as part of the measure of progress. Costs incurred represent work performed, which corresponds with, and thereby depicts, the transfer of control to the customer. Total revenue recognized and cost estimates are updated on a monthly basis.

When there are multiple performance obligations in a single contract, the total transaction price is allocated to each performance obligation based on their relative standalone selling prices. We maximize the use of observable data inputs and consider all information (including market conditions, segment-specific factors, and information about the customer or class of customer) that is reasonably available. The standalone selling price for our products and services is generally determined using an observable list price, which differs by class of customer.

The transaction price allocated to remaining performance obligations represents the transaction price of firm orders which have not yet been fulfilled, which we also refer to as total backlog. As of December 31, 2018, backlog was $1,073 million. We expect to recognize approximately 93% of our remaining performance obligations as revenue in 2019, an additional 4% by 2020 and the balance thereafter.

Revenue recognized from performance obligations satisfied in previous periods (for example, due to changes in the transaction price or estimates), was not material in any period.

Payment for products is due within a limited time period after shipment or delivery, and we do not offer extended payment terms. Payment is typically due within 30-90 calendar days of the respective invoice dates. Customers generally do not make large upfront payments. Any advanced payments received do not provide us with a significant benefit of financing, as the payments are meant to secure materials used to fulfill the contract, as opposed to providing us with a significant financing benefit.

When an unconditional right to consideration exists, we record these amounts as receivables. When amounts are dependent on factors other than the passage of time in order for payment from a customer to become due, we record a contract asset. Contract assets represent unbilled amounts that typically arise from contracts for customized products or contracts for products sold directly to the U.S. government or indirectly to the U.S. government through subcontracts, where revenue recognized using the cost-to-cost method exceeds the amount billed to the customer. Contract assets are assessed for impairment and recorded at their net realizable value. Contract liabilities represent advance payments from customers. Revenue related to contract liabilities is recognized when control is transferred to the customer. See Note 8, “Contract Assets and Contract Liabilities” for further details.

We pay sales commissions related to certain contracts, which qualify as incremental costs of obtaining a contract. However, the sales commissions generally relate to contracts for products or services satisfied at a point in time or over a period of time less than one year. As a result, we apply the practical expedient that allows an entity to recognize incremental costs of obtaining a contract as an expense when incurred if the amortization period of the asset that would have been recognized is one year or less.

See Note 3, “Segment Results” for disclosures related to disaggregation of revenue.

Cost of Goods Sold. Cost of goods sold includes the costs of inventory sold and the related purchase and distribution costs. In addition to material, labor and direct overhead and inventoried cost, cost of goods sold include allocations of other expenses that are part of the production process, such as inbound freight charges, purchasing and receiving costs, inspection costs, warehousing costs, amortization of production related intangible assets and depreciation expense. We also include costs directly associated with products sold, such as warranty provisions.

Selling, General and Administrative Expenses. Selling, general and administrative expenses are charged to income as incurred. Such expenses include the costs of promoting and selling products and include such items as compensation, advertising, sales commissions and travel. Also included are costs related to compensation for other operating activities such as executive office administrative and engineering functions, as well as general operating expenses such as office supplies, non-income taxes, insurance and office equipment rentals.

Income Taxes. We account for income taxes in accordance with ASC Topic 740 “Income Taxes” (“ASC 740”) which requires an asset and liability approach for the financial accounting and reporting of income taxes. Under this method, deferred income

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taxes are recognized for the expected future tax consequences of differences between the tax bases of assets and liabilities and their reported amounts in the financial statements. These balances are measured using the enacted tax rates expected to apply in the year(s) in which these temporary differences are expected to reverse. The effect of a change in tax rates on deferred income taxes is recognized in income in the period when the change is enacted.
Based on consideration of all available evidence regarding their utilization, we record net deferred tax assets to the extent that it is more likely than not that they will be realized. Where, based on the weight of all available evidence, it is more likely than not that some amount of a deferred tax asset will not be realized, we establish a valuation allowance for the amount that, in management's judgment, is sufficient to reduce the deferred tax asset to an amount that is more likely than not to be realized. The evidence we consider in reaching such conclusions includes, but is not limited to, (1) future reversals of existing taxable temporary differences, (2) future taxable income exclusive of reversing taxable temporary differences, (3) taxable income in prior carryback year(s) if carryback is permitted under the tax law, (4) cumulative losses in recent years, (5) a history of tax losses or credit carryforwards expiring unused, (6) a carryback or carryforward period that is so brief it limits realization of tax benefits, and (7) a strong earnings history exclusive of the loss that created the carryforward and support showing that the loss is an aberration rather than a continuing condition.
We account for unrecognized tax benefits in accordance with ASC 740, which prescribes a minimum probability threshold that a tax position must meet before a financial statement benefit is recognized. The minimum threshold is defined as a tax position that is more likely than not to be sustained upon examination by the applicable taxing authority, including resolution of any related appeals or litigation, based solely on the technical merits of the position. The tax benefit recognized is the largest amount of benefit that is greater than 50% likely of being realized upon ultimate settlement.
We recognize interest and penalties related to unrecognized tax benefits within the income tax expense line of our Consolidated Statement of Operations, while accrued interest and penalties are included within the related tax liability line of our Consolidated Balance Sheets.
Earnings Per Share. Our basic earnings per share calculations are based on the weighted average number of common shares outstanding during the year. Shares of restricted stock are included in the computation of both basic and diluted earnings per share. Potentially dilutive securities include outstanding stock options, restricted share units, deferred stock units and performance-based restricted share units. The dilutive effect of potentially dilutive securities is reflected in diluted earnings per common share by application of the treasury method. Diluted earnings per share gives effect to all potential dilutive common shares outstanding during the year.

(in millions, except per share data) For the year ended December 31,	2018	2017	2016
Net income attributable to common shareholders	$335.6	$171.8	$122.8
Weighted average basic shares outstanding	59.6	59.4	58.5
Effect of dilutive stock options	1.4	1.0	0.8
Weighted average diluted shares outstanding	61.0	60.4	59.3
Basic earnings per share	$5.63	$2.89	$2.10
Diluted earnings per share	$5.50	$2.84	$2.07

The computation of diluted earnings per share excludes the effect of the potential exercise of stock options when the average market price of the common stock is lower than the exercise price of the related stock options. During 2018, 2017 and 2016, the number of stock options excluded from the computation was 0.4 million, 0.4 million and 0.9 million, respectively.
Cash and Cash Equivalents. Cash and cash equivalents include highly liquid investments with original maturities of three months or less that are readily convertible to cash and are not subject to significant risk from fluctuations in interest rates. As a result, the carrying amount of cash and cash equivalents approximates fair value.

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Accounts Receivable. Receivables are carried at net realizable value.
A summary of allowance for doubtful accounts activity follows:

(in millions) December 31,	2018	2017	2016
Balance at beginning of year	$7.2	$7.3	$4.7
Provisions	1.1	2.2	6.1
Deductions	(0.7)	(2.3)	(3.5)
Balance at end of year	$7.6	$7.2	$7.3

Concentrations of credit risk with respect to accounts receivable are limited due to the large number of customers and relatively small account balances within the majority of our customer base and their dispersion across different businesses. We periodically evaluate the financial strength of our customers and believe that our credit risk exposure is limited.

Inventories. Inventories consist of the following:

(in millions) December 31,	2018	2017
Finished goods	$116.2	$101.1
Finished parts and subassemblies	45.9	46.1
Work in process	55.4	51.6
Raw materials	194.0	150.5
Total inventories	$411.5	$349.3

Inventories include the costs of material, labor and overhead and are stated at the lower of cost or market. Domestic inventories are stated at either the lower of cost or net realizable value using the last-in, first-out ("LIFO") method or the lower of cost or net realizable value using the first-in, first-out ("FIFO") method. Inventories held in foreign locations are primarily stated at the lower of cost or market using the FIFO method. The LIFO method is not being used at our foreign locations as such a method is not allowable for tax purposes. Changes in the levels of LIFO inventories have reduced cost of sales by $2.5 million, increased cost of sales by $0.4 million and reduced cost of sales by $1.8 million for the years ended December 31, 2018, 2017 and 2016, respectively. The portion of inventories costed using the LIFO method was 28% and 32% of consolidated inventories as of December 31, 2018 and 2017, respectively. If inventories that were valued using the LIFO method had been valued under the FIFO method, they would have been higher by $9.9 million and $13.6 million as of December 31, 2018 and 2017, respectively. The reserve for excess and obsolete inventory was $67.1 million and $57.9 million as of December 31, 2018 and 2017, respectively.

Valuation of Long-Lived Assets. We review our long-lived assets for impairment whenever events or changes in circumstances indicate the carrying amount of an asset may not be recoverable. Examples of events or changes in circumstances could include, but are not limited to, a prolonged economic downturn, current period operating or cash flow losses combined with a history of losses or a forecast of continuing losses associated with the use of an asset or asset group, or a current expectation that an asset or asset group will be sold or disposed of before the end of its previously estimated useful life. Recoverability is based upon projections of anticipated future undiscounted cash flows associated with the use and eventual disposal of the long-lived asset (or asset group), as well as specific appraisal in certain instances. Reviews occur at the lowest level for which identifiable cash flows are largely independent of cash flows associated with other long-lived assets or asset groups. If the future undiscounted cash flows are less than the carrying value, then the long-lived asset is considered impaired and a loss is recognized based on the amount by which the carrying amount exceeds the estimated fair value. Judgments which impact these assessments relate to the expected useful lives of long-lived assets and our ability to realize any undiscounted cash flows in excess of the carrying amounts of such assets, and are affected primarily by changes in the expected use of the assets, changes in technology or development of alternative assets, changes in economic conditions, changes in operating performance and changes in expected future cash flows. Since judgment is involved in determining the recoverable amount of long-lived assets, there is risk that the carrying value of our long-lived assets may require adjustment in future periods.

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Property, Plant and Equipment, net. Property, plant and equipment, net consist of the following:

(in millions) December 31,	2018	2017
Land	$77.5	$62.7
Buildings and improvements	259.6	183.4
Machinery and equipment	848.5	593.3
Gross property, plant and equipment	1,185.6	839.4
Less: accumulated depreciation	586.5	557.0
Property, plant and equipment, net	$599.1	$282.4

Property, plant and equipment are stated at cost and depreciation is calculated by the straight-line method over the estimated useful lives of the respective assets, which range from ten to 25 years for buildings and improvements and three to ten years for machinery and equipment. Depreciation expense was $72.7 million, $41.0 million and $40.2 million for the years ended December 31, 2018, 2017 and 2016, respectively.

The increase in Property, plant and equipment, net and depreciation expense was driven by the acquisition of Crane Currency.

Goodwill and Other Intangible Assets. Our business acquisitions have typically resulted in the recognition of goodwill and other intangible assets. We follow the provisions under ASC Topic 350, "Intangibles – Goodwill and Other" ("ASC 350") as it relates to the accounting for goodwill in the Consolidated Financial Statements. These provisions require that we, on at least an annual basis, evaluate the fair value of the reporting units to which goodwill is assigned and attributed and compare that fair value to the carrying value of the reporting unit to determine if an impairment has occurred. We perform our annual impairment testing during the fourth quarter. Impairment testing takes place more often than annually if events or circumstances indicate a change in status that would indicate a potential impairment. We believe that there have been no events or circumstances which would more likely than not reduce the fair value for our reporting units below our carrying value. A reporting unit is an operating segment unless discrete financial information is prepared and reviewed by segment management for businesses one level below that operating segment (a "component"), in which case the component would be the reporting unit. As of December 31, 2018, we had eight reporting units.

When performing our annual impairment assessment, we compare the fair value of each of our reporting units to our respective carrying value. Goodwill is considered to be potentially impaired when the net book value of the reporting unit exceeds its estimated fair value. Fair values are established primarily by discounting estimated future cash flows at an estimated cost of capital which varies for each reporting unit and which, as of our most recent annual impairment assessment, ranged between 10.0% and 13.0% (a weighted average of 10.9%), reflecting the respective inherent business risk of each of the reporting units tested. This methodology for valuing our reporting units (commonly referred to as the Income Method) has not changed since the adoption of the provisions under ASC 350. The determination of discounted cash flows is based on the businesses' strategic plans and long-range planning forecasts, which change from year to year. The revenue growth rates included in the forecasts represent best estimates based on current and forecasted market conditions. Profit margin assumptions are projected by each reporting unit based on the current cost structure and anticipated net cost increases/reductions. There are inherent uncertainties related to these assumptions, including changes in market conditions, and management judgment is necessary in applying them to the analysis of goodwill impairment. In addition to the foregoing, for each reporting unit, market multiples are used to corroborate discounted cash flow results where fair value is estimated based on earnings multiples determined by available public information of comparable businesses. While we believe we have made reasonable estimates and assumptions to calculate the fair value of our reporting units, it is possible a material change could occur. If actual results are not consistent with management's estimates and assumptions, goodwill and other intangible assets may then be determined to be overstated and a charge would need to be taken against net earnings. Furthermore, in order to evaluate the sensitivity of the fair value calculations on the goodwill impairment test performed during the fourth quarter of 2018, we applied a hypothetical, reasonably possible 10% decrease to the fair values of each reporting unit. The effects of this hypothetical 10% decrease would still result in the fair value calculation exceeding the carrying value for each reporting unit. No impairment charges have been required during 2018, 2017 or 2016.

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Changes to goodwill are as follows:

(in millions)	Fluid Handling	Payment & Merchandising Technologies	Aerospace & Electronics	Engineered Materials	Total
Balance at December 31, 2016	$ 212.3	$ 563.3	$ 202.3	$ 171.3	$ 1,149.2
Additions	22.6	8.9	—	—	31.5
Currency translation	10.5	15.5	0.1	0.1	26.2
Balance as of December 31, 2017	245.4	587.7	202.4	171.4	$ 1,206.9
Additions	—	208.4	—	—	208.4
Currency translation	(4.6)	(6.9)	—	(0.1)	(11.6)
Balance as of December 31, 2018	$ 240.8	789.2	$ 202.4	$ 171.3	$ 1,403.7

For the year ended December 31, 2018, additions to goodwill represent the purchase price allocation related to the January 2018 acquisition of Crane Currency. For the year ended December 31, 2017, additions to goodwill represent the purchase price allocation related to the April 2017 acquisition of Westlock and the June 2017 acquisition of Microtronic. See discussion in Note 2, "Acquisitions and Divestitures" for further details.

As of December 31, 2018, we had $481.8 million of net intangible assets, of which $69.9 million were intangibles with indefinite useful lives, consisting of trade names. As of December 31, 2017, the Company had $276.8 million of net intangible assets, of which $28.7 million were intangibles with indefinite useful lives, consisting of trade names. Intangibles with indefinite useful lives are tested annually for impairment, or when events or changes in circumstances indicate the potential for impairment. If the carrying amount of an indefinite lived intangible asset exceeds its fair value, the intangible asset is written down to its fair value. Fair value is calculated using relief from royalty method. We amortize the cost of definite-lived intangibles over their estimated useful lives.

In addition to annual testing for impairment of indefinite-lived intangible assets, we review all of our definite-lived intangible assets for impairment whenever events or changes in circumstances indicate the carrying amount of an asset may not be recoverable. Examples of events or changes in circumstances could include, but are not limited to, a prolonged economic downturn, current period operating or cash flow losses combined with a history of losses or a forecast of continuing losses associated with the use of an asset or asset group, or a current expectation that an asset or asset group will be sold or disposed of before the end of its previously estimated useful life. Recoverability is based upon projections of anticipated future undiscounted cash flows associated with the use and eventual disposal of the definite-lived intangible asset (or asset group), as well as specific appraisal in certain instances. Reviews occur at the lowest level for which identifiable cash flows are largely independent of cash flows associated with other long-lived assets or asset groups and include estimated future revenues, gross profit margins, operating profit margins and capital expenditures which are based on the businesses' strategic plans and long-range planning forecasts, which change from year to year. The revenue growth rates included in the forecasts represent our best estimates based on current and forecasted market conditions, and the profit margin assumptions are based on the current cost structure and anticipated net cost increases/reductions. There are inherent uncertainties related to these assumptions, including changes in market conditions, and management's judgment in applying them to the analysis. If the future undiscounted cash flows are less than the carrying value, then the definite-lived intangible asset is considered impaired and a charge would be taken against net earnings based on the amount by which the carrying amount exceeds the estimated fair value. Judgments that we make which impact these assessments relate to the expected useful lives of definite-lived assets and its ability to realize any undiscounted cash flows in excess of the carrying amounts of such assets, and are affected primarily by changes in the expected use of the assets, changes in technology or development of alternative assets, changes in economic conditions, changes in operating performance and changes in expected future cash flows. Since judgment is involved in determining the recoverable amount of definite-lived intangible assets, there is risk that the carrying value of our definite-lived intangible assets may require adjustment in future periods. Historical results to date have generally approximated expected cash flows for the identifiable cash flow generating level. We believe there have been no events or circumstances which would more likely than not reduce the fair value of our indefinite-lived or definite-lived intangible assets below their carrying value.

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Changes to intangible assets are as follows:

(in millions) December 31,	2018	2017	2016
Balance at beginning of period, net of accumulated amortization	$276.8	$282.2	$317.1
Additions	252.8	18.2	—
Amortization expense	(44.5)	(30.9)	(30.7)
Currency translation and other	(3.3)		