

Section 1: 10-K (10-K)

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2018

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from _____ to _____

Commission file number 1-4797

ILLINOIS TOOL WORKS INC.

(Exact Name of Registrant as Specified in its Charter)

Delaware

(State or Other Jurisdiction of
Incorporation or Organization)

155 Harlem Avenue, Glenview, Illinois

(Address of Principal Executive Offices)

36-1258310

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

60025

(Zip Code)

Registrant's telephone number, including area code: (847) 724-7500

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

<u>Title of Each Class</u>	<u>Name of Each Exchange on Which Registered</u>
Common Stock	New York Stock Exchange
1.75% Euro Notes due 2022	New York Stock Exchange
1.25% Euro Notes due 2023	New York Stock Exchange
2.125% Euro Notes due 2030	New York Stock Exchange
3.00% Euro Notes due 2034	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.

Yes No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).

Yes No

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

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

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

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

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes No

The aggregate market value of the voting stock held by non-affiliates of the registrant as of June 30, 2018 was approximately \$43.5 billion based on the New York Stock Exchange closing sales price as of June 30, 2018.

Shares of Common Stock outstanding at January 31, 2019: 328,108,383.

Documents Incorporated by Reference

Portions of the 2019 Proxy Statement for Annual Meeting of Stockholders to be held on May 3, 2019.

Part III

Table of Contents

	<u>PART I</u>	
<u>Item 1.</u>	<u>Business</u>	<u>3</u>
<u>Item 1A.</u>	<u>Risk Factors</u>	<u>10</u>
<u>Item 1B.</u>	<u>Unresolved Staff Comments</u>	<u>14</u>
<u>Item 2.</u>	<u>Properties</u>	<u>14</u>
<u>Item 3.</u>	<u>Legal Proceedings</u>	<u>15</u>
<u>Item 4.</u>	<u>Mine Safety Disclosures</u>	<u>15</u>
	<u>PART II</u>	
<u>Item 5.</u>	<u>Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities</u>	<u>16</u>
<u>Item 6.</u>	<u>Selected Financial Data</u>	<u>17</u>
<u>Item 7.</u>	<u>Management's Discussion and Analysis of Financial Condition and Results of Operations</u>	<u>19</u>
<u>Item 7A.</u>	<u>Quantitative and Qualitative Disclosures About Market Risk</u>	<u>40</u>
<u>Item 8.</u>	<u>Financial Statements and Supplementary Data</u>	<u>42</u>
<u>Item 9.</u>	<u>Changes in and Disagreements With Accountants on Accounting and Financial Disclosure</u>	<u>76</u>
<u>Item 9A.</u>	<u>Controls and Procedures</u>	<u>76</u>
<u>Item 9B.</u>	<u>Other Information</u>	<u>76</u>
	<u>PART III</u>	
<u>Item 10.</u>	<u>Directors, Executive Officers and Corporate Governance</u>	<u>77</u>
<u>Item 11.</u>	<u>Executive Compensation</u>	<u>77</u>
<u>Item 12.</u>	<u>Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters</u>	<u>77</u>
<u>Item 13.</u>	<u>Certain Relationships and Related Transactions, and Director Independence</u>	<u>77</u>
<u>Item 14.</u>	<u>Principal Accounting Fees and Services</u>	<u>77</u>
	<u>PART IV</u>	
<u>Item 15.</u>	<u>Exhibits and Financial Statement Schedules</u>	<u>78</u>
<u>Item 16.</u>	<u>Form 10-K Summary</u>	<u>81</u>
	<u>Signatures</u>	<u>82</u>

PART I

ITEM 1. Business

General

Illinois Tool Works Inc. (the "Company" or "ITW") was founded in 1912 and incorporated in 1915. The Company's ticker symbol is ITW. The Company is a global manufacturer of a diversified range of industrial products and equipment with 87 divisions in 55 countries. As of December 31, 2018, the Company employed approximately 48,000 people.

The Company's operations are organized and managed based on similar product offerings and end markets, and are reported to senior management as the following seven segments: Automotive OEM; Food Equipment; Test & Measurement and Electronics; Welding; Polymers & Fluids; Construction Products; and Specialty Products. The following is a description of the Company's seven segments:

Automotive OEM— This segment is a global, niche supplier to top tier OEMs, providing unique innovation to address pain points for sophisticated customers with complex problems. Businesses in this segment produce components and fasteners for automotive-related applications. This segment primarily serves the automotive original equipment manufacturers and tiers market. Products in this segment include:

- plastic and metal components, fasteners and assemblies for automobiles, light trucks and other industrial uses.

Food Equipment— This segment is a highly focused and branded industry leader in commercial food equipment differentiated by innovation and integrated service offerings. This segment primarily serves the food service, food institutional/restaurant and food retail markets. Products in this segment include:

- warewashing equipment;
- cooking equipment, including ovens, ranges and broilers;
- refrigeration equipment, including refrigerators, freezers and prep tables;
- food processing equipment, including slicers, mixers and scales;
- kitchen exhaust, ventilation and pollution control systems; and
- food equipment service, maintenance and repair.

Test & Measurement and Electronics— This segment is a branded and innovative producer of test and measurement and electronic manufacturing and maintenance, repair, and operations, or "MRO" solutions that improve efficiency and quality for customers in diverse end markets. Businesses in this segment produce equipment, consumables, and related software for testing and measuring of materials and structures, as well as equipment and consumables used in the production of electronic subassemblies and microelectronics. This segment primarily serves the electronics, general industrial, industrial capital goods, automotive original equipment manufacturers and tiers, and consumer durables markets. Products in this segment include:

- equipment, consumables, and related software for testing and measuring of materials, structures, gases and fluids;
- electronic assembly equipment and related consumable solder materials;
- electronic components and component packaging;
- static control equipment and consumables used for contamination control in clean room environments; and
- pressure sensitive adhesives and components for electronics, medical, transportation and telecommunications applications.

Welding— This segment is a branded value-added equipment and specialty consumable manufacturer with innovative and leading technology. Businesses in this segment produce arc welding equipment, consumables and accessories for a wide array of industrial and commercial applications. This segment primarily serves the general industrial market, which includes fabrication, shipbuilding and other general industrial markets, and energy, construction, MRO, automotive original equipment manufacturers and tiers, and industrial capital goods markets. Products in this segment include:

- arc welding equipment;
- metal arc welding consumables and related accessories; and
- metal jacketing and other insulation products.

Polymers & Fluids— This segment is a branded supplier to niche markets that require value-added, differentiated products. Businesses in this segment produce engineered adhesives, sealants, lubrication and cutting fluids, and fluids and polymers for auto aftermarket maintenance and appearance. This segment primarily serves the automotive aftermarket, general industrial, MRO and construction markets. Products in this segment include:

- adhesives for industrial, construction and consumer purposes;
- chemical fluids which clean or add lubrication to machines;
- epoxy and resin-based coating products for industrial applications;
- hand wipes and cleaners for industrial applications;
- fluids, polymers and other supplies for auto aftermarket maintenance and appearance;
- fillers and putties for auto body repair; and
- polyester coatings and patch and repair products for the marine industry.

Construction Products— This segment is a branded supplier of innovative engineered fastening systems and solutions. This segment primarily serves the residential construction, renovation/remodel and commercial construction markets. Products in this segment include:

- fasteners and related fastening tools for wood and metal applications;
- anchors, fasteners and related tools for concrete applications;
- metal plate truss components and related equipment and software; and
- packaged hardware, fasteners, anchors and other products for retail.

Specialty Products— This segment is focused on diversified niche market opportunities with substantial patent protection producing beverage packaging equipment and consumables, product coding and marking equipment and consumables, and appliance components and fasteners. This segment primarily serves the food and beverage, consumer durables, general industrial, printing and publishing and industrial capital goods markets. Products in this segment include:

- line integration, conveyor systems and line automation for the food and beverage industries;
- plastic consumables that multi-pack cans and bottles and related equipment;
- foil, film and related equipment used to decorate consumer products;
- product coding and marking equipment and related consumables;
- plastic and metal closures and components for appliances;
- airport ground support equipment; and
- components for medical devices.

The information set forth below is applicable to all segments of the Company unless otherwise noted.

The ITW Business Model

The powerful and highly differentiated ITW Business Model is the Company's core source of value creation. This business model is the Company's competitive advantage and defines how ITW creates value for its shareholders and comprises three unique elements:

- **ITW's 80/20 Front-to-Back** process is the operating system that is applied in every ITW business. Initially introduced as a manufacturing efficiency tool in the 1980s, ITW has continually refined, improved and expanded 80/20 into a proprietary, holistic business management process that generates significant value for the Company and its customers. Through the application of data driven insights generated by 80/20 practice, ITW focuses on its largest and best opportunities (the "80") and eliminates cost, complexity and distractions associated with the less profitable opportunities (the "20"). 80/20 enables ITW businesses to consistently achieve world-class operational excellence in product availability, quality, and innovation, while generating superior financial performance;
- **Customer-back Innovation** has fueled decades of profitable growth at ITW. The Company's unique innovation approach is built on insight gathered from the 80/20 Front-to-Back process. Working from the customer back, ITW businesses position themselves as the go-to problem solver for their "80" customers. ITW's innovation efforts are focused on understanding customer needs, particularly those in "80" markets with solid long-term growth fundamentals, and subsequently creating unique solutions to address those needs. These customer insights and learnings drive innovation at ITW and have contributed to a portfolio of approximately 18,000 granted and pending patents;

- ITW's **Decentralized, Entrepreneurial Culture** enables ITW businesses to be fast, focused, and responsive. ITW businesses have significant flexibility within the framework of the ITW Business Model to customize their approach in order to best serve their specific customers' needs. ITW colleagues recognize their unique responsibilities to execute the Company's strategy and values. As a result, the Company maintains a focused and simple organizational structure that, combined with outstanding execution, delivers best-in-class services and solutions adapted to each business' customers and end markets.

Enterprise Strategy

In late 2012, ITW began its strategic framework transitioning the Company on its current path to fully leverage the compelling performance potential of the ITW Business Model. Since then, ITW has made considerable progress in its path to full potential.

The roots of ITW's Enterprise Strategy began in late 2011 / early 2012, when the Company undertook a complete review of its performance. Focusing on its businesses delivering consistent above-market growth with best-in-class margins and returns, ITW developed a strategy to replicate that performance across its operations.

Based on this rigorous evaluation, ITW determined that solid and consistent above-market organic growth must be the core growth engine to deliver world-class financial performance and compelling long-term returns for its shareholders. To shift its primary growth engine to organic, the Company began executing a multi-step approach.

- The first step was to narrow the focus and improve the quality of ITW's business portfolio. As part of the Portfolio Management initiative, ITW exited businesses that were operating in commoditized market spaces and prioritized sustainable differentiation as a must-have requirement for all ITW businesses. This process included both divesting entire businesses and exiting commoditized product lines and customers inside otherwise highly differentiated ITW divisions.

As a result of this work, ITW's business portfolio now has significantly higher organic growth potential. ITW segments and divisions now possess attractive and differentiated product lines and end markets as they continue to improve operating margins and generate price/cost increases. The Company achieved this through product line simplification, or eliminating the complexity and overhead costs associated with smaller product lines and customers, while supporting and growing the businesses' largest / most profitable customers and product lines.

- Step two, Business Structure Simplification, was implemented to simplify and scale-up ITW's operating structure to support increased engineering, marketing, and sales resources, and, at the same time, improve global reach and competitiveness, all of which were critical to driving accelerated organic growth. ITW now has 87 scaled-up divisions with significantly enhanced focus on growth investments, core customers and products, and customer-back innovation.
- The Strategic Sourcing initiative established sourcing as a core strategic and operational capability at ITW. The Company's 80/20-enabled sourcing organization has delivered an average of one percent reduction in spend each year from 2013 through 2018 and is on track to do the same in 2019.
- With the initial portfolio realignment and scale-up work largely complete, the Company has shifted its focus to preparing for and accelerating organic growth, reapplying the 80/20 Front-to-Back process to optimize its newly scaled-up divisions for growth, first, to build a foundation of operational excellence, and second, to identify the best opportunities to drive organic growth.

ITW has clearly demonstrated superior 80/20 management, resulting in meaningful incremental improvement in margins and returns as evidenced by the Company's operating margin and after-tax return on invested capital. At the same time, these 80/20 initiatives can also result in restructuring initiatives that reduce costs and improve profitability and returns.

Path to Full Potential - Finishing the Job

Since the launch of the enterprise strategy, the Company has made considerable progress to position itself to reach full potential. The ITW Business Model and unique set of capabilities are a source of strong and enduring competitive advantage, but for the Company to truly reach its full potential over the next five years, every one of its divisions must also be operating at its full potential. To do so, the Company remains focused on three key areas to finish the job of positioning ITW to perform to its full potential:

- Portfolio discipline
- 80/20 Front-to-Back practice excellence
- Full-potential organic growth

Portfolio Discipline

The Company only operates in industries where it can generate significant, long-term competitive advantage from the ITW Business Model. ITW businesses have the right “raw material” in terms of market and business attributes that best fit the ITW Business Model and have significant potential to drive above-market organic growth over the long-term.

The Company focuses on high-quality businesses, ensuring it operates in markets with positive long-term macro fundamentals and with customers that have critical needs and value ITW's differentiated products, services and solutions. ITW's portfolio operates in diverse end markets and geographies which makes the Company more resilient in the face of uncertain or volatile market environments.

80/20 Front-to-Back Practice Excellence

The 80/20 Front-to-Back process is a rigorous, iterative and highly data-driven approach to identify where the Company has true differentiation and the ability to drive sustainable, high-quality organic growth. The Company simplifies and eliminates complexity and redesigns every aspect of its business to ensure focused execution on key opportunities, markets, customers, and products. ITW will continue its efforts to drive 80/20 Front-to-Back practice excellence in every division in the Company, every day.

Full-potential Organic Growth

Reaching full potential means that every division is positioned for sustainable, high-quality organic growth. The Company has clearly defined action plans aimed at leveraging the performance power of the ITW Business Model to achieve full-potential organic growth in every division. At the same time, the Company consistently reviews its portfolio, assesses businesses that are growth-challenged and evaluates if further portfolio refinements may be needed. The Company is currently exploring options, including potential divestitures, for certain businesses with revenues totaling up to \$1 billion. If a decision is made to divest any of these businesses, the Company expects that earnings per share dilution would be offset by incremental share repurchases.

Divestiture Activity

Divestiture of the Industrial Packaging Segment— In February 2013, the Company announced that it was initiating a review process to explore strategic alternatives for the Industrial Packaging segment. In September 2013, the Company's Board of Directors authorized a plan to commence a sale process for the Industrial Packaging segment. The Company classified the Industrial Packaging segment as held for sale beginning in the third quarter of 2013 and no longer presented this segment as part of its continuing operations.

On February 6, 2014, the Company announced that it had signed a definitive agreement to sell the Industrial Packaging business to The Carlyle Group for \$3.2 billion. The transaction was completed on May 1, 2014, resulting in a pre-tax gain of \$1.7 billion (\$1.1 billion after-tax) in the second quarter of 2014 which was included in Income from discontinued operations.

Current Year Developments

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

Distribution Methods

The Company's businesses primarily distribute their products directly to industrial manufacturers and through independent distributors.

Backlog

Backlog generally is not considered a significant factor in the Company's businesses as relatively short delivery periods and rapid inventory turnover are characteristic of most of their products. Backlog by segment as of December 31, 2018 and 2017 was as follows:

In millions	2018	2017
Automotive OEM	\$ 500	\$ 462
Food & Equipment	215	204
Test & Measurement and Electronics	378	342
Welding	93	90
Polymers & Fluids	67	57
Construction Products	30	39
Specialty Products	280	243
Total	\$ 1,563	\$ 1,437

Due to the predominately short term nature of the Company's arrangements with its customers, backlog orders scheduled for shipment beyond calendar year 2019 were not material as of December 31, 2018.

Competition

With operations in 55 countries, the Company offers a wide range of products in a myriad of markets, many of which are fragmented, and the Company encounters a variety of competitors that vary by product line, end market and geographic area. The Company's competitors include many regional or specialized companies, as well as large U.S. and non-U.S. companies or divisions of large companies. Each of the Company's segments generally has several main competitors and numerous smaller ones in most of their end markets and geographic areas. In addition to numerous smaller regional competitors, the Welding segment competes globally with Lincoln Electric and ESAB.

In virtually all segments, the Company differentiates its businesses from its competitors based on product innovation, product quality, brand preference and service delivery. Technical capability is also a competitive factor in most segments. The Company believes that each segment's primary competitive advantages derive from the Company's business model and decentralized operating structure, which creates a strong focus on end markets and customers at the local level, enabling its businesses to respond rapidly to market dynamics. This structure enables the Company's businesses to drive operational excellence utilizing the Company's 80/20 Front-to-Back process and leveraging its product innovation capabilities. The Company also believes that its global footprint is a competitive advantage in many of its markets, especially in its Automotive OEM segment.

Raw Materials

The Company uses raw materials of various types, primarily steel, resins and chemicals, that are available from numerous commercial sources. The availability of materials and energy has not resulted in any significant business interruptions or other major problems, and no such problems are currently anticipated.

Intellectual Property

The Company owns approximately 3,500 unexpired U.S. patents and 8,400 foreign patents covering articles, methods and machines. In addition, the Company has approximately 1,500 applications for patents pending in the U.S. Patent Office and 4,200 applications pending in foreign patent offices. There is no assurance that any of these patents will be issued. The Company maintains a patent group for the administration of patents and processing of patent applications.

The Company believes that many of its patents are valuable and important; however, the expiration of any one of the Company's patents would not have a material effect on the Company's results of operations or financial position. The Company also credits its success in the markets it serves to engineering capability; manufacturing techniques; skills and efficiency; marketing and sales promotion; and service and delivery of quality products to its customers.

In addition to patents, many of the Company's products and services are sold under various owned or licensed trademarks, which are important to the Company in the aggregate. Some of the Company's more significant trademarks include ITW, which is also used in conjunction with the trademarks of many of the Company's businesses; Deltar and Shakeproof in the Automotive OEM segment; Hobart in the Food Equipment segment; Instron in the Test & Measurement and Electronics segment; Miller in the Welding segment; Rain-X and Permatex in the Polymers & Fluids segment; Paslode in the Construction Products segment; and Hi-Cone in the Specialty Products segment.

Environmental

The Company believes that its manufacturing plants and equipment are in substantial compliance with all applicable environmental regulations. Additional measures to maintain compliance are not expected to materially affect the Company's capital expenditures, competitive position, financial position or results of operations.

Various legislative and administrative regulations concerning environmental issues have become effective or are under consideration in many parts of the world relating to manufacturing processes and the sale or use of certain products. To date, such developments have not had a substantial adverse impact on the Company's revenues, earnings or cash flows.

Employees

The Company employed approximately 48,000 people as of December 31, 2018 and considers its employee relations to be excellent.

Executive Officers

The executive officers of the Company serve at the discretion of the Board of Directors. Set forth below is information regarding the principal occupations and employment and business experience over the past five years for each executive officer. Unless otherwise stated, employment is by the Company.

Executive Officers of the Company as of February 15, 2019 were as follows:

Name	Age	Present Position	Year Elected to Present Position	Other Positions Held During 2014-2018
E. Scott Santi	57	Chairman & Chief Executive Officer	2015	President and Chief Executive Officer, 2012-2015
Norman D. Finch Jr.	54	Senior Vice President, General Counsel & Secretary	2017	Vice President, General Counsel and Secretary, Sealed Air Corporation, a global manufacturer of products related to food safety and security, facility hygiene and product protection, 2013-2017
John R. Hartnett	58	Executive Vice President	2012	
Michael M. Larsen	50	Senior Vice President & Chief Financial Officer	2013	
Mary K. Lawler	53	Senior Vice President & Chief Human Resources Officer	2014	Executive Vice President, Human Resources, GATX Corporation, a rail car leasing company, 2013-2014
Steven L. Martindale	62	Executive Vice President	2008	
Andrew Mines	47	Executive Vice President	2018	Group President, construction businesses 2013-2018
Sundaram Nagarajan	56	Executive Vice President	2010	
Christopher O'Herlihy	55	Vice Chairman	2015	Executive Vice President, 2010-2015
Randall J. Scheuneman	51	Vice President & Chief Accounting Officer	2009	
Lei Schlitz	52	Executive Vice President	2015	Group President, food equipment businesses, 2011-2015
Juan Valls	57	Executive Vice President	2007	
Michael R. Zimmerman	58	Executive Vice President	2015	Group President, welding businesses, 2010-2015

Available Information

The Company electronically files reports with the Securities and Exchange Commission ("SEC"). The SEC maintains a website (www.sec.gov) that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC. Copies of the Company's Annual Report on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 are also available free of charge through the Company's website (www.itw.com), as soon as reasonably practicable after electronically filing with or otherwise furnishing such information to the SEC, and are available in print to any shareholder who requests them. The Company will furnish any exhibit not contained herein upon the payment of a fee representing the reasonable cost to the Company of furnishing the exhibit. Requests for exhibits may be sent to Illinois Tool Works Inc., 155 Harlem Avenue, Glenview, IL 60025, Attention: Secretary. Also posted on the Company's website are the following:

- Statement of Principles of Conduct;
- Code of Ethics for CEO and key financial and accounting personnel;
- Charters of the Audit, Corporate Governance and Nominating, and Compensation Committees of the Board of Directors;
- Corporate Governance Guidelines;
- Global Anti-Corruption Policy;

- Corporate Social Responsibility Report;
- Anti-Human Trafficking Disclosure;
- Conflict Minerals Policy Statement;
- Supplier Code of Conduct; and
- Government Affairs Information.

ITEM 1A. Risk Factors

The Company's business, financial condition, results of operations and cash flows are subject to various risks, including, but not limited to, those set forth below, which could cause actual results to vary materially from recent results or from anticipated future results. These risk factors should be considered together with information included elsewhere in this Annual Report on Form 10-K.

The Company's results are impacted by global economic conditions. Downturns in the markets served by the Company could adversely affect its businesses, results of operations or financial condition.

The Company's businesses are impacted by economic conditions around the globe. Slower economic growth, financial market instability, natural disasters, public health crises, high unemployment, government deficit reduction, sequestration and other austerity measures impacting the markets the Company serves can adversely affect the Company's businesses by reducing demand for the Company's products and services, limiting financing available to the Company's customers, causing production delays, increasing order cancellations and the difficulty in collecting accounts receivable, increasing price competition, or increasing the risk that counterparties to the Company's contractual arrangements will become insolvent or otherwise unable to fulfill their obligations.

The global nature of the Company's operations subjects it to political and economic risks that could adversely affect its business, results of operations or financial condition.

Over 50% of the Company's net sales are derived from customers outside the United States, and the Company currently operates in 55 countries. The risks inherent in the Company's global operations include:

- fluctuation in currency exchange rates;
- limitations on ownership or participation in local enterprises;
- price controls, exchange controls and limitations on repatriation of earnings;
- transportation delays and interruptions;
- political, social and economic instability and disruptions;
- acts of terrorism;
- government embargoes or foreign trade restrictions;
- the imposition of duties and tariffs and other trade barriers and retaliatory countermeasures;
- government actions impacting international trade agreements;
- import and export controls;
- labor unrest and current and changing regulatory environments;
- the potential for expropriation or nationalization of enterprises;
- difficulties in staffing and managing multi-national operations;
- limitations on its ability to enforce legal rights and remedies; and
- potentially adverse tax consequences.

If the Company is unable to successfully manage these and other risks associated with managing and expanding its international businesses, the risks could have a material adverse effect on the Company's business, results of operations or financial condition. In addition, the current global geopolitical and trade environment has resulted in raw material inflation and potential for increased escalation of domestic and international tariffs and retaliatory trade policies. Further changes in U.S. trade policy (including new or additional increases in duties or tariffs), additional retaliatory actions by U.S. trade partners, or worsening of economic conditions could have a material adverse effect on the Company's business, results of operations or financial condition.

The benefits from the Company's Enterprise Strategy may not be as expected and the Company's financial results could be adversely impacted.

With the initial Enterprise Strategy initiatives of portfolio management and business structure simplification largely complete, the Company's focus has pivoted to organic revenue growth and continued margin improvement. Product line and

customer base simplification activities, which are core elements of the Company's 80/20 Front-to-Back process, continue to be applied to the Company's scaled up operating divisions and remain active elements of the Enterprise Strategy. Although these activities are expected to improve future operating margins and organic revenue growth, they are also expected to have a negative impact on the Company's overall organic revenue growth in the short term. If the Company is unable to realize the expected benefits from its Enterprise Strategy initiatives, the Company's financial results could be adversely impacted.

The timing and amount of the Company's share repurchases are subject to a number of uncertainties.

Share repurchases constitute a significant component of the Company's capital allocation strategy. The Company funds its share repurchases with free cash flow and short-term borrowings. The amount and timing of share repurchases will be based on a variety of factors. Important factors that could cause the Company to limit, suspend or delay its share repurchases include unfavorable trading market conditions, the price of the Company's common stock, the nature of other investment opportunities presented to us from time to time, the ability to obtain financing at attractive rates and the availability of U.S. cash.

The Company may incur fines or penalties, damage to its reputation or other adverse consequences if its employees, agents or business partners violate anti-bribery, competition, export and import, environmental or other laws.

The Company has a decentralized operating structure under which its individual businesses are allowed significant decision-making autonomy within the Company's strategic framework and internal financial and compliance controls. The Company cannot ensure that its internal controls will always protect against reckless or criminal acts committed by its employees, agents or business partners that might violate U.S. and/or non-U.S. laws, including anti-bribery, competition, export and import, and environmental laws. Any such improper actions could subject the Company to civil or criminal investigations, could lead to substantial civil or criminal monetary and non-monetary penalties against the Company or its subsidiaries, or could damage its reputation.

A significant fluctuation between the U.S. Dollar and other currencies could adversely impact the Company's operating income.

Although the Company's financial results are reported in U.S. Dollars, a significant portion of its sales and operating costs are realized in other currencies, with the largest concentration of foreign sales occurring in Europe. The Company's profitability is affected by movements of the U.S. Dollar against the Euro and other foreign currencies in which it generates revenues and incurs expenses. Significant long-term fluctuations in relative currency values, and in particular, an increase in the value of the U.S. Dollar against foreign currencies, has had and could have an adverse effect on profitability and financial condition.

If the Company is unable to successfully introduce new products, its future growth may be adversely affected.

The Company's ability to develop new products based on innovation can affect its competitive position and sometimes requires the investment of significant time and resources. Difficulties or delays in research, development, production or commercialization of new products and services may reduce future revenues and adversely affect the Company's competitive position. If the Company is unable to create sustainable product differentiation, its organic growth may be adversely affected.

If the Company is unable to adequately protect its intellectual property, its competitive position and results of operations may be adversely impacted.

Protecting the Company's intellectual property is critical to its innovation efforts. The Company owns patents, trade secrets, copyrights, trademarks and/or other intellectual property rights related to many of its products, and also has exclusive and non-exclusive license rights under intellectual property owned by others. The Company's intellectual property rights may be challenged or infringed upon by third parties, particularly in countries where property rights are not highly developed or protected, or the Company may be unable to maintain, renew or enter into new license agreements with third-party owners of intellectual property on reasonable terms. Unauthorized use of the Company's intellectual property rights or inability to preserve existing intellectual property rights could adversely impact the Company's competitive position and results of operations.

The Company's acquisition of businesses could negatively impact its profitability and returns.

The Company has engaged in various acquisitions in the past, and could choose to acquire additional businesses in the future. Acquisitions involve a number of risks and financial, accounting, managerial and operational challenges, including the following, any of which could adversely affect the Company's profitability and returns:

- The acquired business could under-perform relative to the Company's expectations and the price paid for it, or not perform in accordance with the Company's anticipated timetable.
- The acquired business could cause the Company's financial results to differ from expectations in any given fiscal period, or over the long term.
- Acquisition-related earnings charges could adversely impact operating results.
- The acquired business could place unanticipated demands on the Company's management, operational resources and financial and internal control systems.
- The Company may assume unknown liabilities, known contingent liabilities that become realized or known liabilities that prove greater than anticipated, internal control deficiencies or exposure to regulatory sanctions resulting from the activities of the acquired business. The realization of any of these liabilities or deficiencies may increase the Company's expenses, adversely affect its financial position or cause noncompliance with its financial reporting obligations.
- As a result of acquisitions, the Company has in the past recorded significant goodwill and other identifiable intangible assets on its balance sheet. If the Company is not able to realize the value of these assets, it may recognize charges relating to the impairment of these assets.

Past divestitures pose the risk of retained liabilities that could adversely affect the Company's financial results.

The Company's divestiture activity increased in 2012, 2013 and 2014 in accordance with its portfolio management initiative, and the Company has retained certain liabilities directly or through indemnifications made to the buyers against known and unknown contingent liabilities such as lawsuits, tax liabilities, product liability claims and environmental matters, which could adversely affect the Company's financial results.

The Company has significant goodwill and other intangible assets, and future impairment of these assets could have a material adverse impact on the Company's financial results.

The Company has recorded significant goodwill and other identifiable intangible assets on its balance sheet as a result of acquisitions. A number of factors may result in impairments to goodwill and other intangible assets, including significant negative industry or economic trends, disruptions to our business, increased competition and significant changes in the use of the assets. Impairment charges could adversely affect the Company's financial condition or results of operations in the periods recognized.

Disruptions or volatility in global financial markets or changes in the Company's credit ratings could increase the Company's funding costs or reduce the availability of credit.

Global economic conditions may cause volatility and disruptions in the financial markets. The Company's continued ability to meet its cash requirements requires substantial liquidity and access to the financial markets. In addition, the Company's borrowing costs can be affected by short and long-term ratings assigned by independent rating agencies. If conditions in the financial markets decline or the Company's credit ratings are negatively impacted, its funding costs could be increased or the availability of credit could be diminished.

Raw material price increases and supply shortages could adversely affect results.

The supply of raw materials to the Company and to its component parts suppliers could be interrupted for a variety of reasons, including availability and pricing. Prices for raw materials necessary for production have fluctuated significantly in the past and significant increases could adversely affect the Company's results of operations and profit margins. In particular, changes in trade policies, the imposition of duties and tariffs and potential retaliatory countermeasures could adversely impact the price or availability of raw materials. Due to pricing pressure or other factors, the Company may not be able to pass along increased raw material and components parts prices to its customers in the form of price increases or its ability to do so could be delayed. Consequently, its results of operations and financial condition may be adversely affected.

Unfavorable tax law changes and tax authority rulings may adversely affect results.

The Company is subject to income taxes in the U.S. and in various foreign jurisdictions. Domestic and international tax liabilities are based on the income and expenses in various tax jurisdictions. The Company's effective tax rate could be adversely affected by changes in the mix of earnings among countries with differing statutory tax rates, changes in the valuation allowance of deferred tax assets or changes in tax laws. The amount of income taxes is subject to ongoing audits by U.S. federal, state and local tax authorities and by non-U.S. authorities. If these audits result in assessments different from amounts recorded, future financial results may include unfavorable tax adjustments.

In December 2017, the U.S. government enacted comprehensive tax legislation that included significant changes to the taxation of business entities. The Company's accounting for the tax effects of the Act may be subject to change due to subsequent clarification of the tax law which could adversely affect the Company's operating results or financial condition.

The Company's defined benefit pension plans are subject to financial market risks that could adversely affect its results of operations and cash flows.

The performance of financial markets and interest rates impact the Company's funding obligations under its defined benefit pension plans. Significant changes in market interest rates, decreases in the fair value of plan assets and investment losses on plan assets may increase the Company's funding obligations and adversely impact its results of operations and cash flows.

Potential adverse outcomes in legal proceedings may adversely affect results.

The Company's businesses expose it to potential toxic tort and other types of product liability claims that are inherent in the design, manufacture and sale of its products and the products of third-party vendors. The Company currently maintains insurance programs consisting of self-insurance up to certain limits and excess insurance coverage for claims over established limits. There can be no assurance that the Company will be able to obtain insurance on acceptable terms or that its insurance programs will provide adequate protection against actual losses. In addition, the Company is subject to the risk that one or more of its insurers may become insolvent and become unable to pay claims that may be made in the future. Even if it maintains adequate insurance programs, claims could have a material adverse effect on the Company's financial condition, liquidity and results of operations and on its ability to obtain suitable, adequate or cost-effective insurance in the future.

Uncertainty related to climate change regulation and industry standards could impact the Company's results of operations and financial position.

Increased public awareness and concern regarding global climate change may result in more international, regional and/or federal requirements to reduce or mitigate global warming and these regulations could mandate even more restrictive standards, such as stricter limits on greenhouse gas emissions, than the voluntary commitments that the Company has made or require such changes on a more accelerated time frame. There continues to be a lack of consistent climate legislation, which creates economic and regulatory uncertainty. If environmental laws or regulations are either changed or adopted and impose significant operational restrictions and compliance requirements upon the Company or its products, they could negatively impact the Company's business, capital expenditures, results of operations, financial condition and competitive position.

If the Company is unable to protect its information technology infrastructure against service interruptions, data corruption, cyber-based attacks or network security breaches, or if there is a violation of data privacy laws, there could be a negative impact on operating results or the Company may suffer financial or reputational damage.

The Company relies on information technology networks and systems, including the Internet, to process, transmit and store electronic information, and to manage or support a variety of business processes and activities, including procurement, manufacturing, distribution, invoicing and collection. These technology networks and systems may be susceptible to damage, disruptions or shutdowns due to failures during the process of upgrading or replacing software, databases or components; power outages; hardware failures; attacks by computer hackers; computer viruses; employee error or malfeasance. In addition, security breaches could result in unauthorized disclosure of confidential information or personal data belonging to our employees, partners, customers or suppliers. We are also subject to data privacy laws, including the EU General Data Protection Regulation, in the various countries in which we operate. If our information technology systems suffer severe damage, disruption, or shutdown, and business continuity plans do not effectively resolve the issues in a timely manner, or if we violate data privacy laws, there could be a negative impact on operating results or the Company may suffer financial or reputational damage.

Forward-Looking Statements

This Annual Report on Form 10-K contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements may be identified by the use of words such as "believe," "expect," "plans," "intends," "may," "strategy," "prospects," "estimate," "project," "target," "anticipate," "guidance," "forecast," and other similar words, including, without limitation, statements regarding the expected performance of acquired businesses and impact of divested businesses, the impact of tariffs and raw material cost inflation, economic and regulatory conditions in various geographic regions, the timing and amount of share repurchases, the timing and amount of benefits from the Company's enterprise initiatives, the adequacy of internally generated funds and credit facilities to service debt and finance the Company's capital allocation priorities, the sufficiency of U.S. generated cash to fund cash requirements in the U.S., the impact of the recently enacted U.S. tax legislation, the cost and availability of additional financing, the Company's portion of future benefit payments related to pension and postretirement benefits, the availability of raw materials and energy, the expiration of any one of the Company's patents, the cost of compliance with environmental regulations, the likelihood of future goodwill or intangible asset impairment charges, the impact of failure of the Company's employees to comply with applicable laws and regulations, the impact of foreign currency fluctuations, the outcome of outstanding legal proceedings, the impact of adopting new accounting pronouncements, and the estimated timing and amount related to the resolution of tax matters. These statements are subject to certain risks, uncertainties, and other factors, which could cause actual results to differ materially from those anticipated. Important risks that may influence future results include those risks described above. These risks are not all inclusive and given these and other possible risks and uncertainties, investors should not place undue reliance on forward-looking statements as a prediction of actual results.

Any forward-looking statements made by ITW speak only as of the date on which they are made. ITW is under no obligation to, and expressly disclaims any obligation to, update or alter its forward-looking statements, whether as a result of new information, subsequent events or otherwise.

ITW practices fair disclosure for all interested parties. Investors should be aware that while ITW regularly communicates with securities analysts and other investment professionals, it is against ITW's policy to disclose to them any material non-public information or other confidential commercial information. Investors should not assume that ITW agrees with any statement or report issued by any analyst irrespective of the content of the statement or report.

ITEM 1B. Unresolved Staff Comments

None.

ITEM 2. Properties

Due to the Company's decentralized operating structure, the Company operates out of a number of facilities worldwide, none of which are individually significant to the Company or its segments. As of December 31, 2018, the Company operated the following plants and office facilities, excluding regional sales offices and warehouse facilities:

	Number Of Properties		
	Owned	Leased	Total
Automotive OEM	66	25	91
Food Equipment	26	19	45
Test & Measurement and Electronics	27	57	84
Welding	27	12	39
Polymers & Fluids	34	29	63
Construction Products	25	24	49
Specialty Products	49	29	78
Corporate	1	9	10
Total	255	204	459

The Company's properties are well suited for the purposes for which they were designed and are maintained in good operating condition. Production capacity, in general, currently exceeds operating levels. Capacity levels are somewhat flexible based on the number of shifts operated and on the number of overtime hours worked. The Company adds production

capacity from time to time as required by increased demand. Additions to capacity can be made within a reasonable period of time due to the nature of the Company's businesses.

The Company operated 288 plants and office facilities outside of the U.S. Principal countries include China, Germany, France and the United Kingdom.

ITEM 3. *Legal Proceedings*

None.

ITEM 4. *Mine Safety Disclosures*

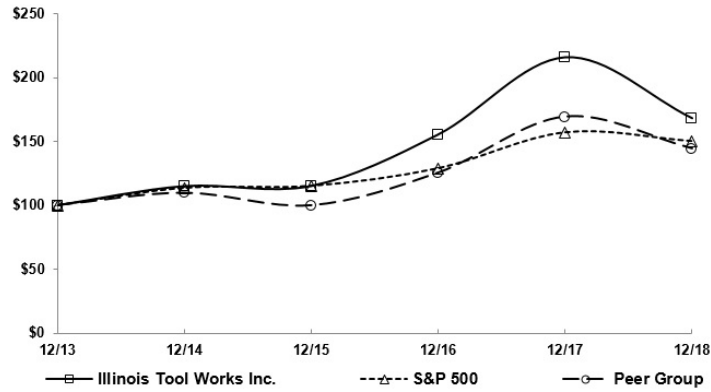
None.

PART II

ITEM 5. Market For Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Common Stock Data— The Company's common stock is listed on the New York Stock Exchange. There were approximately 5,834 holders of record of common stock as of January 31, 2019. This number does not include beneficial owners of the Company's securities held in the name of nominees.

COMPARISON OF 5 YEAR CUMULATIVE TOTAL RETURN*
Among Illinois Tool Works Inc., the S&P 500 Index,
and the Company's Peer Group



*Assumes \$100 invested on 12/31/13 in stock or index, including reinvestment of dividends. Fiscal years ended December 31.
Copyright© 2019 S&P, a division of McGraw Hill Financial. All rights reserved.

The 2018 peer group consists of the following 17 public companies, consistent with the peer group included in the Company's Proxy statement:

- | | | |
|-----------------------|------------------------------|------------------------------|
| 3M Company | Emerson Electric Co. | Parker-Hannifin Corporation |
| Caterpillar Inc. | Fortive Corporation | PPG Industries, Inc. |
| Cummins Inc. | General Dynamics Corporation | Raytheon Company |
| Deere & Company | Honeywell International Inc. | Rockwell Automation, Inc. |
| Dover Corporation | Ingersoll-Rand plc | Stanley Black & Decker, Inc. |
| Eaton Corporation plc | Johnson Controls, Inc. | |

The Compensation Committee of the Board of Directors of the Company reviews the peer group annually and from time to time it changes the composition of the Company's peer group where changes are appropriate. Although Fortive Corporation was added to the Company's peer group in 2017, it was excluded from the five year cumulative total return as there was insufficient historical data due to its spin-off from Danaher Corporation in 2016.

Repurchases of Common Stock— On February 13, 2015, the Company's Board of Directors authorized a stock repurchase program which provides for the repurchase of up to \$6.0 billion of the Company's common stock over an open-ended period of time (the "2015 Program"). As of December 31, 2018, there were approximately \$446 million of authorized repurchases remaining under the 2015 Program.

On August 3, 2018, the Company's Board of Directors authorized a new stock repurchase program which provides for the buyback of up to an additional \$3.0 billion of the Company's common stock over an open-ended period of time (the "2018 Program"). As of December 31, 2018, there were \$3.0 billion of authorized repurchases remaining under the 2018 program.

Share repurchase activity under the Company's share repurchase programs for the fourth quarter of 2018 was as follows:

In millions except per share amounts

Period	Total Number of Shares Purchased	Average Price Paid Per Share	Total Number of Shares Purchased as Part of Publicly Announced Program	Maximum Value of Shares That May Yet Be Purchased Under Programs
October 2018	2.0	\$ 126.43	2.0	\$ 3,690
November 2018	0.7	\$ 131.50	0.7	\$ 3,595
December 2018	1.2	\$ 131.92	1.2	\$ 3,446
Total	3.9		3.9	

ITEM 6. Selected Financial Data

In millions except per share amounts

	2018	2017	2016	2015	2014
Operating revenue	\$ 14,768	\$ 14,314	\$ 13,599	\$ 13,405	\$ 14,484
Income from continuing operations	2,563	1,687	2,035	1,899	1,890
Income per share from continuing operations:					
Basic	7.65	4.90	5.73	5.16	4.70
Diluted	7.60	4.86	5.70	5.13	4.67
Total assets at year-end	14,870	16,780	15,201	15,729	17,465
Long-term debt at year-end	6,029	7,478	7,177	6,896	5,943
Cash dividends declared per common share	3.56	2.86	2.40	2.07	1.81

In 2017, the Company recorded a one-time additional income tax expense of \$658 million, or \$1.90 per diluted share, related to the enactment of the United States "Tax Cuts and Jobs Act." Refer to Note 6. Income Taxes in Item 8. Financial Statements and Supplementary Data for further information.

Certain reclassifications of prior year data have been made to conform to current year reporting, including the adoption of new accounting guidance as discussed below.

In April 2014, the Financial Accounting Standards Board (the "FASB") issued authoritative guidance to change the criteria for reporting discontinued operations. Under the new guidance, only disposals representing a strategic shift in a company's operations and financial results should be reported as discontinued operations. The Company adopted this new guidance effective January 1, 2015. The new guidance applies prospectively to new disposals and new classifications of disposal groups held for sale after such date. There were no discontinued operations subsequent to 2014 under this new accounting guidance. Income from discontinued operations was \$1.1 billion in 2014.

In November 2015, the FASB issued authoritative guidance to simplify the presentation of deferred taxes. Under the new guidance, all deferred tax assets and liabilities are presented as noncurrent in the statement of financial position. Early adoption of this guidance in the fourth quarter of 2015 decreased total assets by \$175 million in 2014.

In March 2016, the FASB issued authoritative guidance that included several changes to simplify the accounting for stock-based compensation, including the accounting for income taxes, forfeitures, statutory tax withholding requirements and classification of tax benefits in the statement of cash flows. Among the more significant changes, the new guidance requires that the income tax effects associated with the settlement of stock-based awards after adoption of the guidance be recognized through income tax expense rather than directly in equity. Additionally, the income tax effects related to excess tax benefits

should be presented within operating cash flows in the statement of cash flows rather than as a financing activity. Excess tax benefits recognized in equity under the prior guidance were \$29 million, \$20 million and \$33 million for the years ended December 31, 2016, 2015, 2014, respectively. The Company adopted the new guidance effective January 1, 2017 and applied the new guidance prospectively. Excess tax benefits of \$10 million and \$50 million were included in Income taxes in the statement of income for the years ended December 31, 2018 and 2017, respectively. The expected effect on income tax expense or net cash provided from operating activities related to future stock-based award settlements will vary each period and will depend on inputs such as the stock price at the time of settlement and the number of awards settled in the period presented.

Additional information on the comparability of results is included in Item 7. 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

INTRODUCTION

Illinois Tool Works Inc. (the "Company" or "ITW") is a global manufacturer of a diversified range of industrial products and equipment with 87 divisions in 55 countries. As of December 31, 2018, the Company employed approximately 48,000 people.

The Company's operations are organized and managed based on similar product offerings and end markets, and are reported to senior management as the following seven segments: Automotive OEM; Food Equipment; Test & Measurement and Electronics; Welding; Polymers & Fluids; Construction Products; and Specialty Products.

Due to the large number of diverse businesses and the Company's decentralized operating structure, the Company does not require its businesses to provide detailed information on operating results. Instead, the Company's corporate management collects data on several key measurements: operating revenue, operating income, operating margin, overhead costs, number of months on hand in inventory, days sales outstanding in accounts receivable, past due receivables and return on invested capital. These key measures are monitored by management and significant changes in operating results versus current trends in end markets and variances from forecasts are discussed with operating unit management.

THE ITW BUSINESS MODEL

The powerful and highly differentiated ITW Business Model is the Company's core source of value creation. This business model is the Company's competitive advantage and defines how ITW creates value for its shareholders and comprises three unique elements:

- **ITW's 80/20 Front-to-Back** process is the operating system that is applied in every ITW business. Initially introduced as a manufacturing efficiency tool in the 1980s, ITW has continually refined, improved and expanded 80/20 into a proprietary, holistic business management process that generates significant value for the Company and its customers. Through the application of data driven insights generated by 80/20 practice, ITW focuses on its largest and best opportunities (the "80") and eliminates cost, complexity and distractions associated with the less profitable opportunities (the "20"). 80/20 enables ITW businesses to consistently achieve world-class operational excellence in product availability, quality, and innovation, while generating superior financial performance;
- **Customer-back Innovation** has fueled decades of profitable growth at ITW. The Company's unique innovation approach is built on insight gathered from the 80/20 Front-to-Back process. Working from the customer back, ITW businesses position themselves as the go-to problem solver for their "80" customers. ITW's innovation efforts are focused on understanding customer needs, particularly those in "80" markets with solid long-term growth fundamentals, and subsequently creating unique solutions to address those needs. These customer insights and learnings drive innovation at ITW and have contributed to a portfolio of approximately 18,000 granted and pending patents;
- **ITW's Decentralized, Entrepreneurial Culture** enables ITW businesses to be fast, focused, and responsive. ITW businesses have significant flexibility within the framework of the ITW Business Model to customize their approach in order to best serve their specific customers' needs. ITW colleagues recognize their unique responsibilities to execute the Company's strategy and values. As a result, the Company maintains a focused and simple organizational structure that, combined with outstanding execution, delivers best-in-class services and solutions adapted to each business' customers and end markets.

ENTERPRISE STRATEGY

In late 2012, ITW began its strategic framework transitioning the Company on its current path to fully leverage the compelling performance potential of the ITW Business Model. Since then, ITW has made considerable progress in its path to full potential.

The roots of ITW's Enterprise Strategy began in late 2011 / early 2012, when the Company undertook a complete review of its performance. Focusing on its businesses delivering consistent above-market growth with best-in-class margins and returns, ITW developed a strategy to replicate that performance across its operations.

Based on this rigorous evaluation, ITW determined that solid and consistent above-market organic growth must be the core growth engine to deliver world-class financial performance and compelling long-term returns for its shareholders. To shift its primary growth engine to organic, the Company began executing a multi-step approach.

- The first step was to narrow the focus and improve the quality of ITW's business portfolio. As part of the Portfolio Management initiative, ITW exited businesses that were operating in commoditized market spaces and prioritized sustainable differentiation as a must-have requirement for all ITW businesses. This process included both divesting entire businesses and exiting commoditized product lines and customers inside otherwise highly differentiated ITW divisions.

As a result of this work, ITW's business portfolio now has significantly higher organic growth potential. ITW segments and divisions now possess attractive and differentiated product lines and end markets as they continue to improve operating margins and generate price/cost increases. The Company achieved this through product line simplification, or eliminating the complexity and overhead costs associated with smaller product lines and customers, while supporting and growing the businesses' largest / most profitable customers and product lines.

- Step two, Business Structure Simplification, was implemented to simplify and scale-up ITW's operating structure to support increased engineering, marketing, and sales resources, and, at the same time, improve global reach and competitiveness, all of which were critical to driving accelerated organic growth. ITW now has 87 scaled-up divisions with significantly enhanced focus on growth investments, core customers and products, and customer-back innovation.
- The Strategic Sourcing initiative established sourcing as a core strategic and operational capability at ITW. The Company's 80/20-enabled sourcing organization has delivered an average of one percent reduction in spend each year from 2013 through 2018 and is on track to do the same in 2019.
- With the initial portfolio realignment and scale-up work largely complete, the Company has shifted its focus to preparing for and accelerating organic growth, reapplying the 80/20 Front-to-Back process to optimize its newly scaled-up divisions for growth, first, to build a foundation of operational excellence, and second, to identify the best opportunities to drive organic growth.

ITW has clearly demonstrated superior 80/20 management, resulting in meaningful incremental improvement in margins and returns as evidenced by the Company's operating margin and after-tax return on invested capital. At the same time, these 80/20 initiatives can also result in restructuring initiatives that reduce costs and improve profitability and returns.

PATH TO FULL POTENTIAL - FINISHING THE JOB

Since the launch of the enterprise strategy, the Company has made considerable progress to position itself to reach full potential. The ITW Business Model and unique set of capabilities are a source of strong and enduring competitive advantage, but for the Company to truly reach its full potential over the next five years, every one of its divisions must also be operating at its full potential. To do so, the Company remains focused on three key areas to finish the job of positioning ITW to perform to its full potential:

- Portfolio discipline
- 80/20 Front-to-Back practice excellence
- Full-potential organic growth

Portfolio Discipline

The Company only operates in industries where it can generate significant, long-term competitive advantage from the ITW Business Model. ITW businesses have the right "raw material" in terms of market and business attributes that best fit the ITW Business Model and have significant potential to drive above-market organic growth over the long-term.

The Company focuses on high-quality businesses, ensuring it operates in markets with positive long-term macro fundamentals and with customers that have critical needs and value ITW's differentiated products, services and solutions. ITW's portfolio operates in diverse end markets and geographies which makes the Company more resilient in the face of uncertain or volatile market environments.

80/20 Front-to-Back Practice Excellence

The 80/20 Front-to-Back process is a rigorous, iterative and highly data-driven approach to identify where the Company has true differentiation and the ability to drive sustainable, high-quality organic growth. The Company simplifies and eliminates complexity and redesigns every aspect of its business to ensure focused execution on key opportunities, markets, customers, and products. ITW will continue its efforts to drive 80/20 Front-to-Back practice excellence in every division in the Company, every day.

Full-potential Organic Growth

Reaching full potential means that every division is positioned for sustainable, high-quality organic growth. The Company has clearly defined action plans aimed at leveraging the performance power of the ITW Business Model to achieve full-potential organic growth in every division. At the same time, the Company consistently reviews its portfolio, assesses businesses that are growth-challenged and evaluates if further portfolio refinements may be needed. The Company is currently exploring options, including potential divestitures, for certain businesses with revenues totaling up to \$1 billion. If a decision is made to divest any of these businesses, the Company expects that earnings per share dilution would be offset by incremental share repurchases.

TERMS USED BY ITW

Management uses the following terms to describe the financial results of operations of the Company:

- **Organic business** - acquired businesses that have been included in the Company's results of operations for more than 12 months on a constant currency basis.
- **Operating leverage** - the estimated effect of the organic revenue volume changes on organic operating income, assuming variable margins remain the same as the prior period.
- **Price/cost** - represents the estimated net impact of increases or decreases in the cost of materials used in the Company's products versus changes in the selling price to the Company's customers.
- **Product line simplification (PLS)** - focuses businesses on eliminating the complexity and overhead costs associated with smaller product lines and customers, and focuses businesses on supporting and growing their largest customers and product lines; in the short-term, PLS may result in a decrease in revenue and overhead costs while improving operating margin. In the long-term, PLS is expected to result in growth in revenue, profitability, and returns.

Unless otherwise stated, the changes in financial results in the consolidated results of operations and the results of operations by segment represent the current year period versus the comparable period in the prior year.

CONSOLIDATED RESULTS OF OPERATIONS

The Company delivered solid financial results in 2018 despite some near-term market challenges in the second half of the year. While overall market conditions in North America were solid, auto production in Europe and China and demand levels in various international end markets served by the Specialty Products segment softened during the second half of the year. The primary driver of the Company's financial performance is the continued successful execution of enterprise initiatives and continued focus on the highly differentiated ITW Business Model. In 2018, five of seven segments achieved worldwide organic revenue growth while two segments were flat. All segments had operating margin above 21% for 2018.

The Company does not believe that recently imposed tariffs in 2018 have had a material impact on its operating results. However, the impact of tariffs and global trade policies could increase in the future. The Company will continue to evaluate the impact of enacted and proposed tariffs on its businesses, as well as pricing actions to mitigate the impact of raw material cost increases resulting from these tariffs.

The Company presents certain financial measures in fiscal year 2017 excluding the \$658 million tax charge related to the "Tax Cuts and Jobs Act" and the benefit of a favorable \$95 million legal settlement. These non-GAAP measures are consistent with the way management analyzes and assesses the Company's operating performance. The Company believes these non-GAAP measures enhance investors' understanding of the Company's underlying financial performance, as well as their ability to compare the Company's financial results and overall performance to that of its peers.

The Company's consolidated results of operations for 2018, 2017 and 2016 are summarized as follows:

2018 compared to 2017

Dollars in millions	For the Years Ended			Components of Increase (Decrease)					
	December 31,			Organic	Acq/Div	Restructuring	Impairment	Foreign Currency	Total
	2018	2017	Inc (Dec)						
Operating revenue	\$ 14,768	\$ 14,314	3.2%	2.2%	(0.1)%	—%	—%	1.1%	3.2%
Operating income	3,584	3,485	2.8%	1.2%	—%	0.5%	—%	1.1%	2.8%
Operating margin %	24.3%	24.3%	—	(20) bps	—	10 bps	—	10 bps	—

- Operating revenue increased due to an increase in organic revenue and the favorable effect of foreign currency translation.
- Organic revenue grew 2.2% primarily due to penetration gains, higher end market demand and product innovation. Product line simplification activities reduced organic revenue growth by 70 basis points.
 - North American organic revenue increased 4.0% as all seven segments had revenue growth.
 - Asia Pacific organic revenue grew 0.4% primarily driven by growth in the Welding, Test & Measurement and Electronics, Food Equipment and Polymers & Fluids segments, partially offset by a decline in the Specialty Products, Automotive OEM and Construction Products segments.
 - Europe, Middle East and Africa organic revenue decreased 0.2% primarily driven by the Automotive OEM, Specialty Products and Polymers & Fluids segments.
- In the second quarter of 2017, the Company entered into a \$95 million confidential settlement agreement to resolve a litigation matter. Based on the terms of the agreement, the Company received the settlement within 120 days of the execution of the agreement. The receipt of the settlement resulted in a favorable pre-tax impact of \$15 million in the second quarter of 2017 and \$80 million in the third quarter of 2017, which was included in operating income.
- Operating income of \$3.6 billion increased 2.8%. Excluding the favorable impact of the 2017 confidential legal settlement, operating income would have increased 5.7%.
- Operating margin of 24.3% was flat with the prior year. Excluding the 60 basis points of favorability from the 2017 confidential legal settlement, operating margin increased 60 basis points primarily due to the benefits of the Company's enterprise initiatives that contributed 110 basis points and positive operating leverage of 50 basis points, partially offset by unfavorable price/cost of 50 basis points and higher freight and employee-related expenses.
- The effective tax rate was 24.5% and 48.4% for 2018 and 2017, respectively. Included in the effective tax rate for 2017 was a one-time additional income tax expense of \$658 million related to the enactment of the "Tax Cuts and Jobs Act" in the United States. Excluding the tax charge of \$658 million, the 2017 effective tax rate would have been 28.3%. Refer to Note 6. Income Taxes in Item 8. Financial Statements and Supplementary Data for further information.
- Diluted earnings per share (EPS) of \$7.60 increased 56.4%. Excluding the 2017 unfavorable impact of \$1.90 for the previously discussed one-time tax charge and the favorable impact of \$0.17 for the confidential legal settlement, EPS increased 15.3%.
- Free cash flow was \$2.4 billion for 2018. Refer to the Cash Flow section of Liquidity and Capital Resources for a reconciliation of this non-GAAP measure.
- The Company repurchased approximately 13.9 million shares of its common stock in 2018 for approximately \$2.0 billion.
- The Company increased the quarterly dividend by 28.2% in 2018. Total cash dividends of approximately \$1.1 billion were paid in 2018.
- Adjusted after-tax return on average invested capital was 28.2%, an increase of 390 basis points, primarily due to the new U.S. tax rules and regulations. Refer to the Adjusted After-Tax Return on Average Invested Capital section of Liquidity and Capital Resources for a reconciliation of this non-GAAP measure.

2017 compared to 2016

Dollars in millions	For the Years Ended			Components of Increase (Decrease)					
	December 31,			Organic	Acq/Div	Restructuring	Impairment	Foreign Currency	Total
	2017	2016	Inc (Dec)						
Operating revenue	\$ 14,314	\$ 13,599	5.3%	2.9%	1.8%	—%	—%	0.6%	5.3%
Operating income	\$ 3,485	\$ 3,056	14.1%	12.6%	0.7%	0.1%	0.1%	0.6%	14.1%
Operating margin %	24.3%	22.5%	180 bps	200 bps	(30) bps	10 bps	—	—	180 bps

- Operating revenue increased due to growth in organic and acquisition revenues and the favorable effect of foreign currency translation.
- On July 1, 2016, the Company completed the acquisition of the Engineered Fasteners and Components business ("EF&C") from ZF TRW for a purchase price of approximately \$450 million. EF&C had operating revenue of \$517 million in 2017 and \$245 million for the last six months of 2016. EF&C diluted the Company's operating margin in 2017 and 2016 due to lower operating margin and acquisition related expenses. The Company expects EF&C's operating margin to improve in later years through the application of the Company's 80/20 Front-to-Back process. The operating results of EF&C are reported within the Company's Automotive OEM segment. The acquisition of EF&C did not materially affect the Company's results of operations or financial position for any period presented. Refer to Note 2. Acquisitions in Item 8. Financial Statements and Supplementary Data for further information.
- Organic revenue grew 2.9% as all seven segments achieved growth.
 - North American organic revenue grew 1.6%. Growth in five segments was partially offset by a decline in the Automotive OEM and Food Equipment segments.
 - Europe, Middle East and Africa organic revenue increased 3.5% as growth in five segments was partially offset by a decline in the Welding and Polymers & Fluids segments.
 - Asia Pacific organic revenue increased 6.8% as growth in five segments was partially offset by a decline in the Welding and Food Equipment segments.
- In the second quarter of 2017, the Company entered into a \$95 million confidential settlement agreement to resolve a litigation matter. Based on the terms of the agreement, the Company received the settlement within 120 days of the execution of the agreement. The receipt of the settlement resulted in a favorable pre-tax impact of \$15 million in the second quarter of 2017 and \$80 million in the third quarter of 2017, which was included in operating income. Refer to Note 4. Legal Settlement in Item 8. Financial Statements and Supplementary Data for further information on the confidential legal settlement.
- Operating income of \$3.5 billion increased 14.1%. Excluding the favorable impact of the confidential legal settlement, operating income would have increased 11.0%.
- Operating margin of 24.3% increased 180 basis points. Excluding the 60 basis points of favorability from the confidential legal settlement, operating margin of 23.7% increased 120 basis points primarily driven by the benefits of the Company's enterprise initiatives of 120 basis points. In addition, positive operating leverage of 70 basis points was offset by unfavorable price/cost of 40 basis points and the dilutive impact of 30 basis points from the EF&C acquisition.
- On December 22, 2017, the "Tax Cuts and Jobs Act" (the "Act") was enacted in the United States. The provisions of the Act significantly revised the U.S. corporate income tax rules. As a result, the Company recorded a one-time income tax charge of \$658 million during the fourth quarter of 2017. Refer to Note 6. Income Taxes in Item 8. Financial Statements and Supplementary Data for further information.
- Diluted earnings per share (EPS) of \$4.86 included the unfavorable impact of \$1.90 for the previously discussed one-time tax charge and the favorable impact of \$0.17 for the confidential legal settlement. Excluding these two items, EPS of \$6.59 increased 15.6%.
- Free cash flow was \$2.1 billion for 2017 and included the impact from an additional discretionary pension contribution of \$115 million in the second quarter of 2017. Refer to the Cash Flow section of Liquidity and Capital Resources for a reconciliation of this non-GAAP measure.
- The Company repurchased approximately 7.1 million shares of its common stock in 2017 for approximately \$1.0 billion.
- The Company increased the quarterly dividend by 20.0% in 2017. Total cash dividends of \$941 million were paid in 2017.
- Adjusted after-tax return on average invested capital was 24.3%, an increase of 220 basis points. Refer to the Adjusted After-Tax Return on Average Invested Capital section of Liquidity and Capital Resources for a reconciliation of this non-GAAP measure.

RESULTS OF OPERATIONS BY SEGMENT

The reconciliation of segment operating revenue and operating income to total operating revenue and operating income is as follows:

In millions	Operating Revenue		
	2018	2017	2016
Automotive OEM	\$ 3,338	\$ 3,271	\$ 2,864
Food Equipment	2,214	2,123	2,110
Test & Measurement and Electronics	2,171	2,069	1,974
Welding	1,691	1,538	1,486
Polymers & Fluids	1,724	1,724	1,691
Construction Products	1,700	1,672	1,609
Specialty Products	1,951	1,938	1,885
Intersegment revenue	(21)	(21)	(20)
Total	\$ 14,768	\$ 14,314	\$ 13,599

In millions	Operating Income		
	2018	2017	2016
Automotive OEM	\$ 751	\$ 747	\$ 690
Food Equipment	572	556	537
Test & Measurement and Electronics	523	464	372
Welding	474	415	370
Polymers & Fluids	369	357	343
Construction Products	414	399	361
Specialty Products	522	527	482
Total Segments	3,625	3,465	3,155
Unallocated	(41)	20	(99)
Total	\$ 3,584	\$ 3,485	\$ 3,056

Segments are allocated a fixed overhead charge based on the segment's revenue. Expenses not charged to the segments are reported separately as Unallocated. Because the Unallocated category includes a variety of items, it is subject to fluctuations on a quarterly and annual basis. Unallocated in 2017 includes the favorable impact from the previously discussed confidential legal settlement.

AUTOMOTIVE OEM

This segment is a global, niche supplier to top tier OEMs, providing unique innovation to address pain points for sophisticated customers with complex problems. Businesses in this segment produce components and fasteners for automotive-related applications. This segment primarily serves the automotive original equipment manufacturers and tiers market. Products in this segment include:

- plastic and metal components, fasteners and assemblies for automobiles, light trucks and other industrial uses.

The results of operations for the Automotive OEM segment for 2018, 2017 and 2016 were as follows:

2018 compared to 2017

Dollars in millions	For the Years Ended December 31,			Components of Increase (Decrease)				
	2018	2017	Inc (Dec)	Organic	Acquisition/Divestiture	Restructuring	Foreign Currency	Total
Operating revenue	\$ 3,338	\$ 3,271	2.0%	—%	—%	—%	2.0%	2.0%
Operating income	\$ 751	\$ 747	0.5%	(2.0)%	—%	0.6%	1.9%	0.5%
Operating margin %	22.5%	22.8%	(30) bps	(40) bps	—	10 bps	—	(30) bps

- Operating revenue increased due to the favorable effect of foreign currency translation.
- Organic revenue was flat compared to worldwide auto builds which declined 1%. Product line simplification activities reduced organic revenue growth by 120 basis points.
 - North American organic revenue increased 3.0% compared to North American auto builds which declined 1%. Auto builds for the Detroit 3, where the Company has higher content, were flat.
 - European organic revenue declined 2.7% compared to European auto builds which declined 1% due to customer mix. Organic revenue was negatively impacted by the new emissions testing requirements in Europe which disrupted auto production in the second half of 2018.
 - Asia Pacific organic revenue decreased 0.7%. China organic revenue grew 2.6% versus Chinese auto builds which declined 4%, as auto production in China softened during the second half of 2018.
- Operating margin was 22.5% in 2018. The decrease of 30 basis points was primarily due to unfavorable price/cost of 130 basis points, partially offset by benefits from the Company's enterprise initiatives.

2017 compared to 2016

Dollars in millions	For the Years Ended December 31,			Components of Increase (Decrease)				
	2017	2016	Inc (Dec)	Organic	Acquisition/Divestiture	Restructuring	Foreign Currency	Total
Operating revenue	\$ 3,271	\$ 2,864	14.2%	4.1%	8.9%	—%	1.2%	14.2%
Operating income	\$ 747	\$ 690	8.2%	5.7%	3.2%	(1.6)%	0.9%	8.2%
Operating margin %	22.8%	24.1%	(130) bps	30 bps	(120) bps	(40) bps	—	(130) bps

- Operating revenue increased due to the EF&C acquisition, higher organic revenue and the favorable effect of foreign currency translation.
- Organic revenue grew 4.1% as a result of penetration gains, exceeding auto build growth of 2%.
 - European organic revenue growth of 8.3% exceeded European auto builds which grew 3%.
 - Asia Pacific organic revenue increased 9.5%. China organic revenue growth of 16.6% exceeded Chinese auto build growth of 2%. Auto builds of foreign automotive manufacturers in China, where the Company has higher content, grew 5%.
 - North American organic revenue decreased 1.1% versus total North American auto builds which declined 4%. Auto build growth for the Detroit 3, where the Company has higher content, declined 7%.
- Operating margin of 22.8% decreased 130 basis points primarily driven by the dilutive impact of 120 basis points from the EF&C acquisition, unfavorable price/cost of 120 basis points and higher restructuring expenses, partially offset by positive operating leverage of 60 basis points and the net benefits from the Company's enterprise initiatives and cost management of 90 basis points.

FOOD EQUIPMENT

This segment is a highly focused and branded industry leader in commercial food equipment differentiated by innovation and integrated service offerings. This segment primarily serves the food service, food institutional/restaurant and food retail markets. Products in this segment include:

- warewashing equipment;
- cooking equipment, including ovens, ranges and broilers;
- refrigeration equipment, including refrigerators, freezers and prep tables;
- food processing equipment, including slicers, mixers and scales;
- kitchen exhaust, ventilation and pollution control systems; and
- food equipment service, maintenance and repair.

The results of operations for the Food Equipment segment for 2018, 2017 and 2016 were as follows:

2018 compared to 2017

Dollars in millions	For the Years Ended			Components of Increase (Decrease)				
	December 31,			Organic	Acquisition/Divestiture	Restructuring	Foreign Currency	Total
	2018	2017	Inc (Dec)					
Operating revenue	\$ 2,214	\$ 2,123	4.3%	2.8%	—%	—%	1.5%	4.3%
Operating income	\$ 572	\$ 556	2.9%	1.0%	—%	0.3%	1.6%	2.9%
Operating margin %	25.8%	26.2%	(40) bps	(50) bps	—	10 bps	—	(40) bps

- Operating revenue increased due to higher organic revenue and the favorable effect of foreign currency translation.
- Organic revenue increased 2.8% as equipment and service organic revenue increased 3.2% and 2.1%, respectively.
 - North American organic revenue increased 3.5%. Equipment organic revenue grew 4.6% as higher end market demand in cooking, refrigeration and warewash was offset by lower end market demand in food retail. Service organic revenue grew 1.9%.
 - International organic revenue increased 1.9%. Equipment organic revenue grew 1.8% primarily due to higher demand in the European warewash and cooking end markets, partially offset by lower end market demand in refrigeration. Service organic revenue increased 2.4%.
- Operating margin of 25.8% in 2018 declined 40 basis points primarily due to the unfavorable impact of product mix and higher employee-related expenses, partially offset by benefits from the Company's enterprise initiatives and positive operating leverage of 60 basis points.

2017 compared to 2016

Dollars in millions	For the Years Ended			Components of Increase (Decrease)				
	December 31,			Organic	Acquisition/Divestiture	Restructuring	Foreign Currency	Total
	2017	2016	Inc (Dec)					
Operating revenue	\$ 2,123	\$ 2,110	0.6%	0.5%	—%	—%	0.1%	0.6%
Operating income	\$ 556	\$ 537	3.6%	2.2%	—%	1.2%	0.2%	3.6%
Operating margin %	26.2%	25.4%	80 bps	50 bps	—	30 bps	—	80 bps

- Operating revenue increased primarily due to organic revenue growth.
- Organic revenue increased 0.5% as equipment and service organic revenue grew 0.2% and 0.8%, respectively.
 - International organic revenue grew 2.3%. International equipment organic revenue increased 2.6% primarily due to higher demand in the European refrigeration and warewash end markets. International service organic revenue grew 1.7%.
 - North American organic revenue decreased 1.0%. Equipment organic revenue, which had a challenging comparable in the prior year period of 6.6% growth, decreased 1.8% primarily due to lower end market demand in the retail, restaurant and institutional end markets. Service revenue in North America increased 0.3%.

- Operating margin of 26.2% increased 80 basis points primarily driven by lower restructuring expenses, positive operating leverage and favorable price/cost of 20 basis points each, and the net benefits of the Company's enterprise initiatives and cost management.

TEST & MEASUREMENT AND ELECTRONICS

This segment is a branded and innovative producer of test and measurement and electronic manufacturing and maintenance, repair, and operations, or "MRO" solutions that improve efficiency and quality for customers in diverse end markets. Businesses in this segment produce equipment, consumables, and related software for testing and measuring of materials and structures, as well as equipment and consumables used in the production of electronic subassemblies and microelectronics. This segment primarily serves the electronics, general industrial, industrial capital goods, automotive original equipment manufacturers and tiers, and consumer durables markets. Products in this segment include:

- equipment, consumables, and related software for testing and measuring of materials, structures, gases and fluids;
- electronic assembly equipment and related consumable solder materials;
- electronic components and component packaging;
- static control equipment and consumables used for contamination control in clean room environments; and
- pressure sensitive adhesives and components for electronics, medical, transportation and telecommunications applications.

The results of operations for the Test & Measurement and Electronics segment for 2018, 2017 and 2016 were as follows:

2018 compared to 2017

Dollars in millions	For the Years Ended			Components of Increase (Decrease)				
	December 31,			Organic	Acquisition/Divestiture	Restructuring	Foreign Currency	Total
	2018	2017	Inc (Dec)					
Operating revenue	\$ 2,171	\$ 2,069	4.9%	3.5%	—%	—%	1.4%	4.9%
Operating income	\$ 523	\$ 464	12.7%	11.3%	—%	—%	1.4%	12.7%
Operating margin %	24.1%	22.4%	170 bps	170 bps	—	—	—	170 bps

- Operating revenue increased due to higher organic revenue and the favorable effect of foreign currency translation.
- Organic revenue increased 3.5% in 2018.
 - Organic revenue for the test and measurement businesses increased 5.5% with growth in all major regions primarily due to higher semi-conductor end market demand. Instron, where demand is more closely tied to the capital spending environment, had organic revenue growth of 7.1%.
 - Electronics organic revenue grew 1.2%. The electronics assembly businesses declined 4.3% due to lower demand across North America and Europe. The other electronics businesses, which include the contamination control, static control and pressure sensitive adhesives businesses, grew 5.0% primarily due to higher semi-conductor end market demand in North America.
- Operating margin was 24.1% in 2018. The increase of 170 basis points was primarily driven by positive operating leverage of 90 basis points and benefits from the Company's enterprise initiatives.

2017 compared to 2016

Dollars in millions	For the Years Ended			Components of Increase (Decrease)				
	December 31,			Organic	Acquisition/Divestiture	Restructuring	Foreign Currency	Total
	2017	2016	Inc (Dec)					
Operating revenue	\$ 2,069	\$ 1,974	4.8%	4.8%	—%	—%	—%	4.8%
Operating income	\$ 464	\$ 372	24.7%	24.0%	—%	0.7%	—%	24.7%
Operating margin %	22.4%	18.9%	350 bps	340 bps	—	10 bps	—	350 bps

- Operating revenue increased due to organic revenue growth.
- Organic revenue increased 4.8%.

- Organic revenue for the test and measurement businesses increased 7.2% primarily due to higher semi-conductor end market demand in North America and Asia. Instron, where demand is more closely tied to the capital spending environment, had organic revenue growth of 5.1%.
- Electronics organic revenue, which had a challenging comparable in the prior year period of 4.9% growth, increased 2.2%. The electronics assembly businesses declined 1.1% primarily due to a decrease in North America. The other electronics businesses, which include the contamination control, static control and pressure sensitive adhesives businesses, grew 4.7% primarily due to higher semi-conductor end market demand in North America.
- Operating margin of 22.4% increased 350 basis points primarily driven by the net benefits resulting from the Company's enterprise initiatives and cost management of 130 basis points, positive operating leverage of 130 basis points and favorable price/cost of 30 basis points.

WELDING

This segment is a branded value-added equipment and specialty consumable manufacturer with innovative and leading technology. Businesses in this segment produce arc welding equipment, consumables and accessories for a wide array of industrial and commercial applications. This segment primarily serves the general industrial market, which includes fabrication, shipbuilding and other general industrial markets, and energy, construction, MRO, automotive original equipment manufacturers and tiers, and industrial capital goods markets. Products in this segment include:

- arc welding equipment;
- metal arc welding consumables and related accessories; and
- metal jacketing and other insulation products.

The results of operations for the Welding segment for 2018, 2017 and 2016 were as follows:

2018 compared to 2017

Dollars in millions	For the Years Ended December 31,			Components of Increase (Decrease)				
	2018	2017	Inc (Dec)	Organic	Restructuring	Impairment	Foreign Currency	Total
Operating revenue	\$ 1,691	\$ 1,538	9.9%	9.7%	—%	—%	0.2%	9.9%
Operating income	\$ 474	\$ 415	14.3%	13.1%	1.0%	—%	0.2%	14.3%
Operating margin %	28.0%	27.0%	100 bps	80 bps	20 bps	—	—	100 bps

- Operating revenue increased primarily due to higher organic revenue.
- Organic revenue grew 9.7% driven by growth in equipment of 11.0% and consumables of 7.9%. Organic revenue grew primarily due to increased demand in the industrial end markets related to heavy equipment for agriculture, infrastructure and mining, in the commercial end markets related to construction, light fabrication and farm and ranch customers, and in the oil and gas end markets.
 - North American organic revenue increased 10.6% primarily due to 14.7% and 5.8% growth in the industrial and commercial end markets, respectively.
 - International organic revenue increased 5.7% primarily due to higher demand in the oil and gas end markets.
- Operating margin was 28.0% in 2018. The increase of 100 basis points was primarily due to positive operating leverage of 150 basis points and benefits from the Company's enterprise initiatives, partially offset by higher freight and employee-related expenses.

2017 compared to 2016

Dollars in millions	For the Years Ended December 31,			Components of Increase (Decrease)					
	2017	2016	Inc (Dec)	Organic	Restructuring	Impairment	Foreign Currency	Total	
Operating revenue	\$ 1,538	\$ 1,486	3.5%	3.2%	—%	—%	0.3%	3.5%	
Operating income	\$ 415	\$ 370	12.1%	9.6%	1.5%	0.8%	0.2%	12.1%	
Operating margin %	27.0%	24.9%	210 bps	160 bps	30 bps	20 bps	—	210 bps	

- Operating revenue increased due to higher organic revenue and the favorable effect of foreign currency translation.
- Organic revenue grew 3.2% as equipment grew 6.5%, partially offset by a decrease of 1.0% in consumables. Organic revenue grew primarily due to increased demand in the industrial end markets related to heavy equipment for agriculture, infrastructure and mining and in the commercial end markets related to construction, light fabrication and farm and ranch customers.
 - North American organic revenue grew 6.2% primarily driven by 7.2% growth in the industrial end markets and 4.8% growth in the commercial end markets.
 - International organic revenue decreased 8.0% primarily due to weaker end market demand in the European and Asian oil and gas end markets.
- Operating margin of 27.0% increased 210 basis points primarily due to the net benefits of the Company's enterprise initiatives and cost management of 150 basis points, positive operating leverage of 70 basis points and lower restructuring expenses of 30 basis points, partially offset by unfavorable price/cost of 60 basis points. In addition, the prior year period was negatively impacted by an intangible asset impairment charge of 20 basis points.

POLYMERS & FLUIDS

This segment is a branded supplier to niche markets that require value-added, differentiated products. Businesses in this segment produce engineered adhesives, sealants, lubrication and cutting fluids, and fluids and polymers for auto aftermarket maintenance and appearance. This segment primarily serves the automotive aftermarket, general industrial, MRO and construction markets. Products in this segment include:

- adhesives for industrial, construction and consumer purposes;
- chemical fluids which clean or add lubrication to machines;
- epoxy and resin-based coating products for industrial applications;
- hand wipes and cleaners for industrial applications;
- fluids, polymers and other supplies for auto aftermarket maintenance and appearance;
- fillers and putties for auto body repair; and
- polyester coatings and patch and repair products for the marine industry.

The results of operations for the Polymers & Fluids segment for 2018, 2017 and 2016 were as follows:

2018 compared to 2017

Dollars in millions	For the Years Ended December 31,			Components of Increase (Decrease)					
	2018	2017	Inc (Dec)	Organic	Acquisition/Divestiture	Restructuring	Foreign Currency	Total	
Operating revenue	\$ 1,724	\$ 1,724	-	1.0%	(0.4)%	—%	(0.6)%	-	
Operating income	\$ 369	\$ 357	3.3%	2.1%	(0.2)%	1.7%	(0.3)%	3.3%	
Operating margin %	21.4%	20.7%	70 bps	20 bps	—	40 bps	10 bps	70 bps	

- Operating revenue was flat as an increase in organic revenue was offset by the unfavorable effect of foreign currency translation and a divestiture.
- Organic revenue increased 1.0% as higher demand in North America was partially offset by lower demand in Europe.

- Organic revenue for the automotive aftermarket businesses grew 2.3% as stronger demand in the car care and tire repair businesses in North America was partially offset by a decline in the engine and body repair businesses.
- Organic revenue for the polymers businesses increased 0.9% primarily driven by an increase in North America and South America, partially offset by a decline in Europe.
- Organic revenue for the fluids businesses declined 1.1% primarily due to decreased demand in Europe and South America, partially offset by growth in the industrial maintenance, repair, and operations end markets in North America.
- Operating margin of 21.4% increased 70 basis points primarily driven by benefits from the Company's enterprise initiatives, lower restructuring expenses and positive operating leverage of 30 basis points, partially offset by unfavorable price/cost of 100 basis points.

2017 compared to 2016

Dollars in millions	For the Years Ended				Components of Increase (Decrease)				
	December 31,		Inc (Dec)		Organic	Acquisition/Divestiture	Restructuring	Foreign Currency	Total
	2017	2016							
Operating revenue	\$ 1,724	\$ 1,691	2.0%	1.0%	—%	—%	1.0%	2.0%	
Operating income	\$ 357	\$ 343	4.1%	4.7%	—%	(1.1)%	0.5%	4.1%	
Operating margin %	20.7%	20.3%	40 bps	80 bps	—	(30) bps	(10) bps	40 bps	

- Operating revenue increased due to higher organic revenue and the favorable effect of foreign currency translation.
- Organic revenue grew 1.0% primarily due to higher demand in North American end markets.
 - Organic revenue for the automotive aftermarket businesses increased 0.6% primarily driven by stronger demand in the car care and tire repair businesses in North America.
 - Organic revenue for the fluids businesses grew 2.9% primarily due to an increase in the industrial maintenance, repair, and operations end markets in North America and Europe.
 - Organic revenue for the polymers businesses was flat as increases in Asia and South America were offset by a decline in Europe.
- Operating margin of 20.7% increased 40 basis points primarily driven by the net benefits of the Company's enterprise initiatives and cost management of 80 basis points and favorable operating leverage of 30 basis points, partially offset by unfavorable price/cost of 30 basis points and higher restructuring expenses.

CONSTRUCTION PRODUCTS

This segment is a branded supplier of innovative engineered fastening systems and solutions. This segment primarily serves the residential construction, renovation/remodel and commercial construction markets. Products in this segment include:

- fasteners and related fastening tools for wood and metal applications;
- anchors, fasteners and related tools for concrete applications;
- metal plate truss components and related equipment and software; and
- packaged hardware, fasteners, anchors and other products for retail.

The results of operations for the Construction Products segment for 2018, 2017 and 2016 were as follows:

2018 compared to 2017

Dollars in millions	For the Years Ended December 31,			Components of Increase (Decrease)				
	2018	2017	Inc (Dec)	Organic	Acquisition/Divestiture	Restructuring	Foreign Currency	Total
Operating revenue	\$ 1,700	\$ 1,672	1.6%	1.2%	—%	—%	0.4%	1.6%
Operating income	\$ 414	\$ 399	3.6%	3.1%	—%	0.3%	0.2%	3.6%
Operating margin %	24.3%	23.9%	40 bps	40 bps	—	10 bps	(10) bps	40 bps

- Operating revenue increased due to higher organic revenue and the favorable effect of foreign currency translation.
- Organic revenue increased 1.2% in 2018.
 - North American organic revenue grew 1.6% as growth in the residential end markets of 3.2% was partially offset by a decline in the commercial end markets of 5.7%.
 - International organic revenue increased 0.9%. European organic revenue increased 2.7% primarily due to growth in continental Europe and the Nordic countries. Asia Pacific organic revenue declined 0.8% primarily due to a decrease in the Australia and New Zealand retail end markets in the second half of the year.
- Operating margin was 24.3% in 2018. The increase of 40 basis points was primarily driven by the net benefits of the Company's enterprise initiatives and cost management of 110 basis points and positive operating leverage of 20 basis points, partially offset by unfavorable price/cost of 90 basis points.

2017 compared to 2016

Dollars in millions	For the Years Ended December 31,			Components of Increase (Decrease)				
	2017	2016	Inc (Dec)	Organic	Acquisition/Divestiture	Restructuring	Foreign Currency	Total
Operating revenue	\$ 1,672	\$ 1,609	3.9%	2.9%	—%	—%	1.0%	3.9%
Operating income	\$ 399	\$ 361	10.7%	7.5%	—%	2.0%	1.2%	10.7%
Operating margin %	23.9%	22.4%	150 bps	100 bps	—	50 bps	—	150 bps

- Operating revenue increased due to organic revenue growth and the favorable effect of foreign currency translation.
- Organic revenue increased 2.9%.
 - International organic revenue increased 3.6%. European organic revenue grew 4.0% primarily due to growth in the United Kingdom and the Nordic countries. Asia Pacific organic revenue increased 3.1% primarily due to growth in the Australia and New Zealand retail end markets.
 - North American organic revenue increased 1.9% primarily due to 2.1% growth in the residential end markets, partially offset by a decline of 0.5% in the commercial end markets.
- Operating margin of 23.9% increased 150 basis points driven by the net benefits of the Company's enterprise initiatives and cost management of 110 basis points, positive operating leverage of 70 basis points and lower restructuring expenses of 50 basis points, partially offset by unfavorable price/cost of 80 basis points.

SPECIALTY PRODUCTS

This segment is focused on diversified niche market opportunities with substantial patent protection producing beverage packaging equipment and consumables, product coding and marking equipment and consumables, and appliance components and fasteners. This segment primarily serves the food and beverage, consumer durables, general industrial, printing and publishing and industrial capital goods markets. Products in this segment include:

- line integration, conveyor systems and line automation for the food and beverage industries;
- plastic consumables that multi-pack cans and bottles and related equipment;
- foil, film and related equipment used to decorate consumer products;
- product coding and marking equipment and related consumables;

- plastic and metal closures and components for appliances;
- airport ground support equipment; and
- components for medical devices.

The results of operations for the Specialty Products segment for 2018, 2017 and 2016 were as follows:

2018 compared to 2017

Dollars in millions	For the Years Ended December 31,			Components of Increase (Decrease)				
	2018	2017	Inc (Dec)	Organic	Acquisition/Divestiture	Restructuring	Foreign Currency	Total
Operating revenue	\$ 1,951	\$ 1,938	0.7 %	(0.4)%	(0.1)%	—%	1.2%	0.7 %
Operating income	\$ 522	\$ 527	(0.8)%	(2.5)%	(0.1)%	0.6%	1.2%	(0.8)%
Operating margin %	26.8%	27.2%	(40) bps	(60) bps	—	20 bps	—	(40) bps

- Operating revenue increased due to the favorable effect of foreign currency translation.
- Organic revenue decreased 0.4% as consumables declined 2.9%, partially offset by growth in equipment sales of 9.9%. Product line simplification activities reduced organic revenue growth by 130 basis points.
 - North American organic revenue grew 1.8% primarily due to increased demand in the consumer packaging and ground support businesses, partially offset by a decline in the labels, appliance and plastic films businesses.
 - International organic revenue decreased 3.8% primarily due to a decline in the graphics, appliance and plastic films businesses in Europe and Asia Pacific.
- Operating margin of 26.8% in 2018 decreased 40 basis points primarily driven by the unfavorable impact of product mix, higher freight and employee-related expenses, and unfavorable price/cost of 20 basis points, partially offset by benefits from the Company's enterprise initiatives and lower restructuring expenses.

2017 compared to 2016

Dollars in millions	For the Years Ended December 31,			Components of Increase (Decrease)				
	2017	2016	Inc (Dec)	Organic	Acquisition/Divestiture	Restructuring	Foreign Currency	Total
Operating revenue	\$ 1,938	\$ 1,885	2.8%	3.5%	(1.1)%	—%	0.4%	2.8%
Operating income	\$ 527	\$ 482	9.4%	10.0%	(0.1)%	(1.0)%	0.5%	9.4%
Operating margin %	27.2%	25.6%	160 bps	160 bps	30 bps	(30) bps	—	160 bps

- Operating revenue increased due to organic revenue growth and the favorable effect of foreign currency translation, partially offset by a divestiture.
- Organic revenue increased 3.5% primarily driven by growth of 4.2% in the consumer packaging businesses.
 - International organic revenue increased 7.3% driven by growth in the appliance and consumer packaging businesses across all major regions.
 - North American organic revenue increased 1.3% driven by growth in the consumer packaging, medical and appliance businesses, partially offset by a decline in the ground support equipment and gluing system businesses.
- Operating margin of 27.2% increased 160 basis points primarily driven by the net benefits of the Company's enterprise initiatives and cost management of 110 basis points and positive operating leverage of 70 basis points, partially offset by unfavorable price/cost of 30 basis points and higher restructuring expenses.

OTHER FINANCIAL HIGHLIGHTS

- Interest expense was \$257 million in 2018, \$260 million in 2017 and \$237 million in 2016. Interest expense in 2018 was \$3 million lower than the previous year primarily due to lower outstanding commercial paper in 2018. The increased expense in 2017 compared to 2016 was primarily due to the November 2016 debt issuance.
- Other income (expense) was income of \$67 million in 2018, \$45 million in 2017 and \$89 million in 2016. The income in 2018 increased \$22 million compared to 2017 primarily due to other net periodic benefit income related

to defined benefit pension and other postretirement plans and lower foreign currency translation losses. The income in 2017 is lower than 2016 primarily due to foreign currency translation losses and a \$54 million pre-tax gain recorded in 2016 resulting from a \$167 million dividend distribution from Wilsonart that exceeded the equity investment balance, partially offset by \$30 million of pre-tax losses in 2016 related to the disposals of businesses and the disposal of a partnership investment.

- The effective tax rate was 24.5% in 2018, 48.4% in 2017, and 30.0% in 2016. The effective tax rate for 2018 and 2017 included discrete tax benefits of \$10 million and \$50 million, respectively, related to excess tax benefits from stock-based compensation guidance effective January 1, 2017. Additionally, included in the effective tax rate for 2017 was a one-time additional income tax expense of \$658 million related to the United States "Tax Cuts and Jobs Act". Refer to Note 1. Description of Business and Summary of Significant Accounting Policies and Note 6. Income Taxes in Item 8. Financial Statements and Supplementary Data for further information.
- The impact of the Euro and other foreign currencies against the U.S. Dollar increased operating revenue and income before taxes by approximately \$150 million and \$37 million in 2018 versus 2017, respectively. The impact of the Euro and other foreign currencies against the U.S. Dollar increased operating revenue and income before taxes by approximately \$77 million and \$13 million in 2017 versus 2016, respectively.

NEW ACCOUNTING PRONOUNCEMENTS

Effective January 1, 2017

In March 2016, the Financial Accounting Standards Board (the "FASB") issued authoritative guidance that includes several changes to simplify the accounting for stock-based compensation, including the accounting for income taxes, forfeitures, statutory tax withholding requirements and classification of tax benefits in the statement of cash flows. Among the more significant changes, the new guidance requires that the income tax effects associated with the settlement of stock-based awards after adoption of the guidance be recognized through income tax expense rather than directly in equity. Additionally, the income tax effects related to excess tax benefits should be presented within operating cash flows in the statement of cash flows rather than as a financing activity. Excess tax benefits recognized in equity under the prior guidance was \$29 million for the year ended December 31, 2016. The Company adopted the new guidance effective January 1, 2017 and applied the new guidance prospectively. Excess tax benefits of \$10 million and \$50 million were included in Income taxes in the statement of income for the years ended December 31, 2018 and December 31, 2017, respectively. The expected effect on income tax expense or net cash provided from operating activities related to future stock-based award settlements will vary each period and will depend on inputs such as the stock price at the time of settlement and the number of awards settled in the period presented.

Effective January 1, 2018

In May 2014, the FASB issued authoritative guidance to change the criteria for revenue recognition. The core principle of the new guidance is that revenue should be recognized to depict the transfer of control of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. In addition, expanded revenue disclosures are required. The Company's sales arrangements with customers are predominantly short-term in nature and generally provide for transfer of control and risks and rewards of ownership at the time of product shipment or delivery of service. As such, the timing of revenue recognition under both the prior and new guidance is the same for the majority of the Company's transactions. Effective January 1, 2018, the Company adopted the new revenue recognition guidance under the modified retrospective method and recorded a cumulative-effect adjustment reducing retained earnings by \$9 million as of January 1, 2018. Under the modified retrospective method of adoption, prior periods are not restated and the new guidance is applied prospectively to revenue transactions completed on or after January 1, 2018. Given the nature of the Company's revenue transactions, the new guidance had an immaterial impact on the Company's operating revenue, results of operations, and financial position for the year ended December 31, 2018. The Company updated its revenue recognition accounting policy to reflect the requirements of the new guidance and included additional disclosures regarding the Company's revenue transactions. Refer to Note 1. Description of Business and Summary of Significant Accounting Policies and Note 3. Operating Revenue in Item 8. Financial Statements and Supplementary Data for further information.

In October 2016, the FASB issued authoritative guidance requiring the recognition of the income tax consequences of an intra-entity transfer of an asset, other than inventory, when the transfer occurs rather than when transferred to a third party as required under the prior guidance. The provisions of the new guidance are being applied prospectively to intra-entity asset transfers on or after January 1, 2018 and may result in future tax rate volatility. Upon adoption of the new guidance on January 1, 2018, the Company recorded a cumulative-effect adjustment reducing deferred tax assets and retained earnings by

\$406 million. For the year ended December 31, 2018, the impact of the new guidance on the Company's effective income tax rate was not material.

In March 2017, the FASB issued authoritative guidance which changes the income statement presentation of net periodic benefit cost related to defined benefit pension and other postretirement plans. The primary change under the new guidance is that only the service cost component of net periodic benefit cost should be included in operating income and is eligible for capitalization as an asset. The other components of net periodic benefit cost ("other net periodic benefit cost"), including interest cost, expected return on assets, settlements, curtailments, and amortization of actuarial gains and losses and prior service cost, should be presented below operating income. Effective January 1, 2018, the Company adopted the new presentation of other net periodic benefit cost and restated the prior year statements of income and related disclosures for comparability, as required under the new guidance. For the years ended December 31, 2018, 2017 and 2016, other net periodic benefit cost included in Other income (expense) was income of \$20 million, \$9 million and \$8 million, respectively. Refer to Note 10. Pension and Other Postretirement Benefits in Item 8. Financial Statements and Supplementary Data for further information.

In February 2018, the FASB issued authoritative guidance which allows for an optional one-time reclassification of the stranded tax effects resulting from the change in the U.S. federal corporate income tax rate under the "Tax Cuts and Jobs Act" (the "Act") from accumulated other comprehensive income ("AOCI") to retained earnings. The guidance is effective January 1, 2019, with early adoption permitted. The Company elected to early adopt this guidance as of January 1, 2018 and to reclassify the stranded tax effects related to the Act, which resulted in an increase of \$45 million to both retained earnings and accumulated other comprehensive loss. Refer to Note 12. Stockholders' Equity in Item 8. Financial Statements and Supplementary Data for further information.

Effective January 1, 2019

In February 2016, the FASB issued authoritative guidance to change the criteria for recognizing leasing transactions. Under the new guidance, a lessee will be required to recognize a lease liability and a right-of-use asset for all leases with a lease term greater than twelve months, including operating leases, in the statement of financial position. This guidance was effective January 1, 2019 and the Company will apply the guidance prospectively to lease transactions as of and after the effective date. Although the Company is currently finalizing its review of operating leases as of the adoption date, the Company expects to record a right of use asset and lease liability for its operating leases of less than two percent of total assets. Additionally, the Company expects to provide additional disclosures in periods subsequent to adoption. The new guidance is not expected to have a material impact on the results of operations or cash flows of the Company.

LIQUIDITY AND CAPITAL RESOURCES

The Company's primary sources of liquidity are free cash flow and short-term credit facilities. In addition, the Company had \$1.5 billion of cash and equivalents on hand at December 31, 2018 and also maintains strong access to public debt markets. Management believes that these sources are sufficient to service debt and to finance the Company's capital allocation priorities, which include:

- internal investments to support organic growth and sustain core businesses;
- payment of an attractive dividend to shareholders; and
- external investments in selective strategic acquisitions that support the Company's organic growth focus and an active share repurchase program.

The Company believes that, based on its operating revenue, operating margin, free cash flow, and credit ratings, it could readily obtain additional financing if necessary.

Cash Flow

The Company uses free cash flow to measure cash flow generated by operations that is available for dividends, share repurchases, acquisitions and debt repayment. The Company believes this non-GAAP financial measure is useful to investors in evaluating the Company's financial performance and measures the Company's ability to generate cash internally to fund Company initiatives. Free cash flow represents net cash provided by operating activities less additions to plant and equipment. Free cash flow is a measurement that is not the same as net cash flow from operating activities per the statement of cash flows and may not be consistent with similarly titled measures used by other companies. Summarized cash flow information for the years ended December 31, 2018, 2017 and 2016 was as follows:

In millions	2018	2017	2016
Net cash provided by operating activities	\$ 2,811	\$ 2,402	\$ 2,302
Additions to plant and equipment	(364)	(297)	(273)
Free cash flow	\$ 2,447	\$ 2,105	\$ 2,029
Cash dividends paid	\$ (1,124)	\$ (941)	\$ (821)
Repurchases of common stock	(2,000)	(1,000)	(2,000)
Acquisition of businesses (excluding cash and equivalents) and additional interest in affiliates	—	(3)	(453)
Dividend distribution from equity investment in Wilsonart	—	—	167
Net proceeds (repayments) of debt	(851)	197	465
Other	50	119	128
Effect of exchange rate changes on cash and equivalents	(112)	145	(133)
Net increase (decrease) in cash and equivalents	\$ (1,590)	\$ 622	\$ (618)

Free cash flow for the year ended December 31, 2017 included the impact of an additional \$115 million discretionary pension contribution related to the U.S. primary pension plan.

Stock Repurchase Programs

On February 13, 2015, the Company's Board of Directors authorized a stock repurchase program which provides for the repurchase of up to \$6.0 billion of the Company's common stock over an open-ended period of time (the "2015 Program"). Under the 2015 Program, the Company repurchased approximately 6.1 million shares of its common stock at an average price of \$91.78 per share during 2015, 18.7 million shares of its common stock at an average price of \$107.17 per share during 2016, approximately 7.1 million shares of its common stock at an average price of \$140.56 per share during 2017 and approximately 13.9 million shares of its common stock at an average price of \$143.66 per share during 2018. As of December 31, 2018, there were approximately \$446 million of authorized repurchases remaining under the 2015 Program.

On August 3, 2018, the Company's Board of Directors authorized a new stock repurchase program which provides for the buyback of up to an additional \$3.0 billion of the Company's common stock over an open-ended period of time (the "2018 Program"). As of December 31, 2018, there were \$3.0 billion of authorized repurchases remaining under the 2018 program.

Adjusted After-Tax Return on Average Invested Capital

The Company uses adjusted after-tax return on average invested capital ("ROIC") to measure the effectiveness of its operations' use of invested capital to generate profits. ROIC is a non-GAAP financial measure that the Company believes is a meaningful metric to investors in evaluating the Company's financial performance and may be different than the method used by other companies to calculate ROIC. For comparability, the Company excluded the third quarter net discrete tax benefit of \$15 million from the effective tax rate for the year ended December 31, 2018. The Company also excluded the \$658 million income tax charge from the effective tax rate and the \$95 million confidential legal settlement from the calculation of ROIC for the year ended December 31, 2017. Adjusted average invested capital represents the net assets of the Company, excluding cash and equivalents and outstanding debt, which are excluded as they do not represent capital investment in the Company's operations, as well as the Company's equity investment in the Wilsonart business (formerly the Decorative Surfaces segment). Average invested capital is calculated using balances at the start of the period and at the end of each quarter. ROIC for the years ended December 31, 2018, 2017, and 2016 was as follows:

Dollars in millions	2018	2017	2016
Operating income	\$ 3,584	\$ 3,485	\$ 3,056
Less: Legal settlement income	—	(95)	—
Adjusted operating income	3,584	3,390	3,056
Adjusted tax rate	24.9%	28.3%	30.0%
Income taxes	(893)	(958)	(917)
Operating income after taxes	\$ 2,691	\$ 2,432	\$ 2,139
Invested capital:			
Trade receivables	\$ 2,622	\$ 2,628	\$ 2,357
Inventories	1,318	1,220	1,076
Net plant and equipment	1,791	1,778	1,652
Goodwill and intangible assets	5,717	6,024	6,021
Accounts payable and accrued expenses	(1,795)	(1,848)	(1,713)
Other, net	(519)	21	223
Total invested capital	\$ 9,134	\$ 9,823	\$ 9,616
Average invested capital	\$ 9,533	\$ 10,005	\$ 9,780
Adjustment for Wilsonart (formerly the Decorative Surfaces segment)	—	—	(91)
Adjusted average invested capital	\$ 9,533	\$ 10,005	\$ 9,689
Adjusted return on average invested capital	28.2%	24.3%	22.1%

ROIC for the twelve months ended December 31, 2018 was 28.2%, an improvement of 390 basis points primarily related to the new U.S. tax rules and regulations. ROIC increased 220 basis points in 2017 versus 2016 as a result of a 13.7% improvement in after-tax operating income versus a 3.3% increase in adjusted average invested capital. The discrete tax benefits related to share-based compensation improved after-tax ROIC by 50 basis points in 2017.

A reconciliation of the 2018 effective tax rate excluding the third quarter net discrete tax benefit is as follows:

	Twelve Months Ended	
	December 31, 2018	
	Income Taxes	Tax Rate
As reported	\$ 831	24.5%
Net discrete tax benefit related to third quarter	15	0.4%
As adjusted	\$ 846	24.9%

A reconciliation of the 2017 effective tax rate excluding the discrete tax charge related to the 2017 U.S. tax legislation is as follows:

	Twelve Months Ended December 31, 2017	
	Income Taxes	Tax Rate
As reported	\$ 1,583	48.4 %
Discrete tax charge related to 2017 U.S. tax legislation	(658)	(20.1)%
As adjusted	\$ 925	28.3 %

Refer to Note 6. Income Taxes in Item 8. Financial Statements and Supplementary Data for further information regarding the third quarter 2018 net discrete tax benefit and the 2017 discrete tax charge related to the 2017 U.S. tax legislation.

Working Capital

Management uses working capital as a measurement of the short-term liquidity of the Company. Net working capital at December 31, 2018 and 2017 is summarized as follows:

Dollars in millions	2018	2017	Increase (Decrease)
Current Assets:			
Cash and equivalents	\$ 1,504	\$ 3,094	\$ (1,590)
Trade receivables	2,622	2,628	(6)
Inventories	1,318	1,220	98
Other	334	336	(2)
	5,778	7,278	(1,500)
Current Liabilities:			
Short-term debt	1,351	850	501
Accounts payable and accrued expenses	1,795	1,848	(53)
Other	396	355	41
	3,542	3,053	489
Net Working Capital	\$ 2,236	\$ 4,225	\$ (1,989)

The decrease in net working capital at December 31, 2018 was primarily driven by lower cash and equivalents and higher short-term debt due to current maturities of long-term debt.

As of December 31, 2018, a majority of the Company's cash and equivalents was held by international subsidiaries. Cash and equivalents held internationally may be subject to foreign withholding taxes if repatriated to the U.S. A portion of the cash and equivalents balances held internationally is typically used for international operating needs, reinvested to fund expansion of existing international businesses, used to fund new international acquisitions, or used to repay debt held internationally. In the U.S., the Company utilizes cash flows from domestic operations to fund domestic cash needs, which primarily consist of dividend payments, share repurchases, acquisitions, servicing of domestic debt obligations, reinvesting to fund expansion of existing U.S. businesses and general corporate needs. The Company also uses its commercial paper program, which is backed by long-term credit facilities, for short-term liquidity needs. The Company believes cash generated domestically and liquidity provided by the Company's commercial paper program will continue to be sufficient to fund cash requirements in the U.S. On December 22, 2017, the "Tax Cuts and Jobs Act" (the "Act") was enacted in the United States. The provisions of the Act significantly revised the U.S. corporate income tax rules, including a one-time repatriation tax on the deemed repatriation of post-1986 undistributed earnings of foreign subsidiaries. As a result of the one-time repatriation provisions of the Act, the Company provided for substantially all U.S. taxes on the undistributed earnings of its foreign subsidiaries as of December 31, 2017. During 2018, the Company repatriated approximately \$3.0 billion of cash and equivalents held by its international subsidiaries, a portion of which was used to repay outstanding commercial paper and to fund additional share repurchases. Refer to Note 6. Income Taxes in Item 8. Financial Statements and Supplementary Data for further information.

Debt

Total debt at December 31, 2018 and 2017 was as follows:

In millions	2018	2017	Increase (Decrease)
Short-term debt	\$ 1,351	\$ 850	\$ 501
Long-term debt	6,029	7,478	(1,449)
Total debt	\$ 7,380	\$ 8,328	\$ (948)

As of December 31, 2018, Short-term debt included \$650 million related to the 1.95% notes due March 1, 2019 and \$700 million related to the 6.25% notes due April 1, 2019, which were reclassified from Long-term debt to Short-term debt in the first and second quarters of 2018, respectively. There was no commercial paper outstanding as of December 31, 2018. Short-term debt as of December 31, 2017 included commercial paper of \$849 million.

The Company may issue commercial paper to fund general corporate needs, share repurchases, and small and medium-sized acquisitions. During the second quarter of 2016, the Company entered into a \$2.5 billion, five-year line of credit agreement with a termination date of May 9, 2021 to support the potential issuances of commercial paper. No amounts were outstanding under the line of credit agreement at December 31, 2018. The maximum outstanding commercial paper balance during 2018 was \$1.2 billion, while the average daily balance was \$210 million. As of December 31, 2018, the Company's foreign operations had authorized credit facilities with unused capacity of \$227 million.

Total Debt to EBITDA

The Company uses the ratio of total debt to EBITDA as a measure of its ability to repay its outstanding debt obligations. The Company believes that total debt to EBITDA is a meaningful metric to investors in evaluating the Company's long term financial liquidity and may be different than the method used by other companies to calculate total debt to EBITDA. EBITDA and the ratio of total debt to EBITDA are non-GAAP financial measures. The ratio of total debt to EBITDA represents total debt divided by net income before interest expense, other income (expense), income taxes, depreciation, and amortization and impairment of intangible assets on a trailing twelve month basis. Total debt to EBITDA for the years ended December 31, 2018, 2017 and 2016 was as follows:

Dollars in millions	2018	2017	2016
Total debt	\$ 7,380	\$ 8,328	\$ 7,829
Net income	\$ 2,563	\$ 1,687	\$ 2,035
Add:			
Interest expense	257	260	237
Other income	(67)	(45)	(89)
Income taxes	831	1,583	873
Depreciation	272	256	246
Amortization and impairment of intangible assets	189	206	224
EBITDA	\$ 4,045	\$ 3,947	\$ 3,526
Total debt to EBITDA ratio	1.8	2.1	2.2

Stockholders' Equity

The changes to stockholders' equity during 2018 and 2017 were as follows:

In millions	2018	2017
Beginning balance	\$ 4,589	\$ 4,259
Net income	2,563	1,687
Adoption of new accounting guidance	(415)	—
Cash dividends declared	(1,186)	(982)
Repurchases of common stock	(2,000)	(1,000)
Foreign currency translation adjustments	(328)	406
Other	35	219
Ending balance	\$ 3,258	\$ 4,589

CONTRACTUAL OBLIGATIONS AND OFF-BALANCE SHEET ARRANGEMENTS

The Company's significant contractual obligations as of December 31, 2018 were as follows:

In millions	2019	2020	2021	2022	2023	2024 and Future Years
Principal payments on long-term debt	\$ 1,350	\$ 4	\$ 350	\$ 573	\$ 573	\$ 4,597
Interest payments on debt	212	184	183	172	162	1,745
Noncurrent income taxes payable	—	33	49	49	91	273
Operating leases	67	48	32	24	18	34
	\$ 1,629	\$ 269	\$ 614	\$ 818	\$ 844	\$ 6,649

As of December 31, 2018, the Company had recorded noncurrent liabilities for unrecognized tax benefits of \$155 million. The Company is not able to reasonably estimate the timing of payments related to the liabilities for unrecognized tax benefits. The Company did not have any significant off-balance sheet commitments at December 31, 2018.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

The Company has three accounting policies that it believes are most important to the Company's financial condition and results of operations, and which require the Company to make estimates about matters that are inherently uncertain. Management bases its estimates on historical experience, and in some cases on observable market information. Various assumptions are also used that are believed to be reasonable under the circumstances and form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates.

The Company's critical accounting policies are as follows:

Income Taxes— The Company provides deferred income tax assets and liabilities based on the estimated future tax effects of differences between the financial and tax bases of assets and liabilities based on currently enacted tax laws. The Company's deferred and other tax balances are based on management's interpretation of the tax regulations and rulings in numerous taxing jurisdictions. Income tax expense, assets and liabilities recognized by the Company also reflect its best estimates and assumptions regarding, among other things, the level of future taxable income, the effect of the Company's various tax planning strategies and uncertain tax positions. Future tax authority rulings and changes in tax laws, changes in projected levels of taxable income and future tax planning strategies could affect the actual effective tax rate and tax balances recorded by the Company.

Goodwill and Intangible Assets— The Company's business acquisitions typically result in recording goodwill and other intangible assets, which are a significant portion of the Company's total assets and affect the amount of amortization expense and impairment charges that the Company could incur in future periods. The Company follows the guidance prescribed in the accounting standards to test goodwill and intangible assets for impairment. On an annual basis, or more frequently if

triggering events occur, the Company compares the estimated fair value of its reporting units to the carrying value of each reporting unit to determine if a potential goodwill impairment exists. If the fair value of a reporting unit is less than its carrying value, an impairment loss, if any, is recorded for the difference between the implied fair value and the carrying value of the reporting unit's goodwill. In calculating the fair value of the reporting units or specific intangible assets, management relies on a number of factors, including business plans, economic projections, anticipated future cash flows, comparable transactions and other market data. There are inherent uncertainties related to these factors and management's judgment in applying them in the impairment tests of goodwill and other intangible assets.

As of December 31, 2018, the Company had total goodwill and intangible assets of approximately \$5.7 billion allocated to its reporting units. Although there can be no assurance that the Company will not incur additional impairment charges related to its goodwill and other intangible assets, the Company generally believes the risk of significant impairment charges is lessened by the number of diversified businesses and end markets represented by its reporting units that have goodwill and other intangible assets. In addition, the individual businesses in many of the reporting units have been acquired over a long period of time, and in many cases have been able to improve their performance, primarily as a result of the application of the Company's 80/20 Front-to-Back process. The amount of goodwill and other intangible assets allocated to individual reporting units ranges from approximately \$43 million to \$1.3 billion, with the average amount equal to \$518 million. Fair value determinations require considerable judgment and are sensitive to changes in the factors described above. Due to the inherent uncertainties associated with these factors and economic conditions in the Company's global end markets, impairment charges related to one or more reporting units could occur in future periods.

Pension and Other Postretirement Benefits—The Company has various company-sponsored defined benefit retirement plans covering a number of U.S. employees and many employees outside the U.S. Pension and other postretirement benefit expense and obligations are determined based on actuarial valuations. Pension benefit obligations are generally based on each participant's years of service, future compensation, and age at retirement or termination. Important assumptions in determining pension and postretirement expense and obligations are the discount rate, the expected long-term return on plan assets, life expectancy, and health care cost trend rates. Future changes in any of these assumptions could materially affect the amounts recorded related to the Company's pension and other postretirement benefit plans. See Note 10. Pension and Other Postretirement Benefits in Item 8. Financial Statements and Supplementary Data for additional discussion of actuarial assumptions used in determining pension and postretirement health care liabilities and expenses.

The Company determines the discount rate used to measure plan liabilities as of the year-end measurement date for the U.S. primary pension plan. The discount rate reflects the current rate at which the associated liabilities could theoretically be effectively settled at the end of the year. In estimating this rate, the Company looks at rates of return on high-quality fixed income investments, with similar duration to the liabilities in the plan. A 25 basis point decrease in the discount rate would increase the present value of the U.S. primary pension plan obligation by approximately \$41 million. Beginning in 2017, the Company changed the method used to estimate the service and interest cost components of net periodic pension and other postretirement benefit costs. The new method provides a more precise measure of the service and interest cost components of net periodic benefit cost by applying specific spot rates along the yield curve to the projected cash flows rather than a single weighted-average rate. See Note 10. Pension and Other Postretirement Benefits in Item 8. Financial Statements and Supplementary Data for information on the Company's pension and other postretirement benefit plans and related assumptions.

The expected long-term return on plan assets is based on historical and expected long-term returns for similar investment allocations among asset classes. For the U.S. primary pension plan, a 25 basis point decrease in the expected return on plan assets would increase the annual pension expense by approximately \$4 million.

ITEM 7A. Quantitative and Qualitative Disclosures About Market Risk

MARKET RISK

The Company is exposed to certain market risks that exist as part of its ongoing business operations, including fluctuations in currency exchange rates, price volatility for certain commodities and changes in interest rates. The Company does not engage in speculative or leveraged transactions and does not hold or issue financial instruments for trading purposes.

Interest Rate Risk

The Company's exposure to market risk for changes in interest rates relates primarily to the fair value of the Company's fixed rate debt. Refer to Note 9. Debt in Item 8. Financial Statements and Supplemental Data for details related to the fair value of Company's debt instruments.

Foreign Currency Risk

The Company operates in the U.S. and 54 foreign countries. The funding for the foreign manufacturing operations is provided primarily through the permanent investment of equity capital. The Company's products are typically manufactured and sold within the same country or economic union. Therefore, the Company's manufacturing operations generally do not have significant assets or liabilities denominated in currencies other than their functional currencies.

The Company designated €1.0 billion of Euro notes issued in May 2014 and €1.0 billion of Euro notes issued in May 2015 as hedges of a portion of its net investment in Euro-denominated foreign operations to reduce foreign currency risk associated with the investment in these operations. Changes in the value of this debt resulting from fluctuations in the Euro to U.S. Dollar exchange rate have been recorded as foreign currency translation adjustments within Accumulated other comprehensive income (loss). The cumulative unrealized pre-tax gain recorded in Accumulated other comprehensive income (loss) related to the net investment hedge was \$187 million and \$81 million as of December 31, 2018 and 2017, respectively.

ITEM 8. Financial Statements and Supplementary Data

MANAGEMENT REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

The management of Illinois Tool Works Inc. (the "Company" or "ITW") is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rule 13a-15(f). ITW'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.

ITW management assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2018. In making this assessment, it used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control—Integrated Framework (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.

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

/s/ E. Scott Santi
E. Scott Santi
Chairman & Chief Executive Officer
February 15, 2019

/s/ Michael M. Larsen
Michael M. Larsen
Senior Vice President & Chief Financial Officer
February 15, 2019

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of Illinois Tool Works Inc.
Glenview, Illinois

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated statements of financial position of Illinois Tool Works Inc. and subsidiaries (the "Company") as of December 31, 2018 and 2017, the related consolidated statements of income, comprehensive income, changes in stockholders' equity, and cash flows, for each of the three years in the period ended December 31, 2018, and the related notes (collectively referred to as the "financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018, in conformity with accounting principles generally accepted in the United States of America. Also, in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by COSO.

Basis for Opinions

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

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the financial statements included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures to 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. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

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

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

/s/ DELOITTE & TOUCHE LLP
Chicago, Illinois
February 15, 2019

We have served as the Company's auditor since 2002.

Statement of Income
Illinois Tool Works Inc. and Subsidiaries

In millions except per share amounts	For the Years Ended December 31					
	2018		2017		2016	
Operating Revenue	\$	14,768	\$	14,314	\$	13,599
Cost of revenue		8,604		8,306		7,908
Selling, administrative, and research and development expenses		2,391		2,412		2,411
Legal settlement (income)		—		(95)		—
Amortization and impairment of intangible assets		189		206		224
Operating Income		3,584		3,485		3,056
Interest expense		(257)		(260)		(237)
Other income (expense)		67		45		89
Income Before Taxes		3,394		3,270		2,908
Income taxes		831		1,583		873
Net Income	\$	2,563	\$	1,687	\$	2,035
Net Income Per Share:						
Basic	\$	7.65	\$	4.90	\$	5.73
Diluted	\$	7.60	\$	4.86	\$	5.70

The Notes to Financial Statements are an integral part of this statement.

Statement of Comprehensive Income
Illinois Tool Works Inc. and Subsidiaries

In millions	For the Years Ended December 31					
	2018		2017		2016	
Net Income	\$	2,563	\$	1,687	\$	2,035
Other Comprehensive Income (Loss):						
Foreign currency translation adjustments, net of tax		(328)		406		(277)
Pension and other postretirement benefit adjustments, net of tax		(17)		114		(26)
Comprehensive Income	\$	2,218	\$	2,207	\$	1,732

The Notes to Financial Statements are an integral part of this statement.

Statement of Financial Position
Illinois Tool Works Inc. and Subsidiaries

In millions except per share amounts	December 31	
	2018	2017
Assets		
Current Assets:		
Cash and equivalents	\$ 1,504	\$ 3,094
Trade receivables	2,622	2,628
Inventories	1,318	1,220
Prepaid expenses and other current assets	334	336
Total current assets	5,778	7,278
Net plant and equipment	1,791	1,778
Goodwill	4,633	4,752
Intangible assets	1,084	1,272
Deferred income taxes	554	505
Other assets	1,030	1,195
Total assets	\$ 14,870	\$ 16,780
Liabilities and Stockholders' Equity		
Current Liabilities:		
Short-term debt	\$ 1,351	\$ 850
Accounts payable	524	590
Accrued expenses	1,271	1,258
Cash dividends payable	328	266
Income taxes payable	68	89
Total current liabilities	3,542	3,053
Noncurrent Liabilities:		
Long-term debt	6,029	7,478
Deferred income taxes	707	164
Noncurrent income taxes payable	495	614
Other liabilities	839	882
Total noncurrent liabilities	8,070	9,138
Stockholders' Equity:		
Common stock (par value of \$0.01 per share):		
Issued- 550.0 shares in 2018 and 2017	6	6
Outstanding- 328.1 shares in 2018 and 341.5 shares in 2017	6	6
Additional paid-in-capital	1,253	1,218
Retained earnings	21,217	20,210
Common stock held in treasury	(17,545)	(15,562)
Accumulated other comprehensive income (loss)	(1,677)	(1,287)
Noncontrolling interest	4	4
Total stockholders' equity	3,258	4,589
Total liabilities and stockholders' equity	\$ 14,870	\$ 16,780

The Notes to Financial Statements are an integral part of this statement.

Statement of Changes in Stockholders' Equity
Illinois Tool Works Inc. and Subsidiaries

In millions except per share amounts	Common Stock	Additional Paid-in Capital	Retained Earnings	Common Stock Held in Treasury	Accumulated Other Comprehensive Income (Loss)	Noncontrolling Interest	Total
Balance at December 31, 2015	\$ 6	\$ 1,135	\$ 18,316	\$ (12,729)	\$ (1,504)	\$ 4	\$ 5,228
Net income	—	—	2,035	—	—	—	2,035
Common stock issued for share-based compensation	—	(18)	—	91	—	—	73
Stock-based compensation expense	—	39	—	—	—	—	39
Tax benefits related to stock options	—	29	—	—	—	—	29
Tax benefits related to defined contribution plans	—	3	—	—	—	—	3
Repurchases of common stock	—	—	—	(2,000)	—	—	(2,000)
Dividends declared (\$2.40 per share)	—	—	(846)	—	—	—	(846)
Pension and other postretirement benefit adjustments	—	—	—	—	(26)	—	(26)
Currency translation adjustments	—	—	—	—	(277)	—	(277)
Noncontrolling interest	—	—	—	—	—	1	1
Balance at December 31, 2016	6	1,188	19,505	(14,638)	(1,807)	5	4,259
Net income	—	—	1,687	—	—	—	1,687
Common stock issued for share-based compensation	—	(4)	—	76	—	—	72
Stock-based compensation expense	—	36	—	—	—	—	36
Repurchases of common stock	—	—	—	(1,000)	—	—	(1,000)
Dividends declared (\$2.86 per share)	—	—	(982)	—	—	—	(982)
Pension and other postretirement benefit adjustments	—	—	—	—	114	—	114
Currency translation adjustments	—	—	—	—	406	—	406
Noncontrolling interest	—	(2)	—	—	—	(1)	(3)
Balance at December 31, 2017	6	1,218	20,210	(15,562)	(1,287)	4	4,589
Net income	—	—	2,563	—	—	—	2,563
Adoption of new accounting guidance	—	—	(370)	—	(45)	—	(415)
Common stock issued for share-based compensation	—	(5)	—	17	—	—	12
Stock-based compensation expense	—	40	—	—	—	—	40
Repurchases of common stock	—	—	—	(2,000)	—	—	(2,000)
Dividends declared (\$3.56 per share)	—	—	(1,186)	—	—	—	(1,186)
Pension and other postretirement benefit adjustments	—	—	—	—	(17)	—	(17)
Currency translation adjustments	—	—	—	—	(328)	—	(328)
Balance at December 31, 2018	\$ 6	\$ 1,253	\$ 21,217	\$ (17,545)	\$ (1,677)	\$ 4	\$ 3,258

The Notes to Financial Statements are an integral part of this statement.

Statement of Cash Flows
Illinois Tool Works Inc. and Subsidiaries

In millions	For the Years Ended December 31		
	2018	2017	2016
Cash Provided by (Used for) Operating Activities:			
Net income	\$ 2,563	\$ 1,687	\$ 2,035
Adjustments to reconcile net income to cash provided by operating activities:			
Depreciation	272	256	246
Amortization and impairment of intangible assets	189	206	224
Change in deferred income taxes	34	64	(263)
Provision for uncollectible accounts	5	3	7
(Income) loss from investments	(9)	(16)	13
(Gain) loss on sale of plant and equipment	(7)	(1)	1
(Gain) loss on sale of operations and affiliates	2	(1)	12
Stock-based compensation expense	40	36	39
Gain on dividend distribution from equity investment in Wilsonart	—	—	(54)
Other non-cash items, net	10	10	5
Change in assets and liabilities, net of acquisitions and divestitures:			
(Increase) decrease in—			
Trade receivables	(60)	(138)	(132)
Inventories	(108)	(81)	9
Prepaid expenses and other assets	3	(121)	(63)
Increase (decrease) in—			
Accounts payable	(46)	39	(3)
Accrued expenses and other liabilities	(36)	(42)	40
Income taxes	(41)	501	187
Other, net	—	—	(1)
Net cash provided by operating activities	2,811	2,402	2,302
Cash Provided by (Used for) Investing Activities:			
Acquisition of businesses (excluding cash and equivalents) and additional interest in affiliates	—	(3)	(453)
Additions to plant and equipment	(364)	(297)	(273)
Proceeds from investments	16	43	21
Dividend distribution from equity investment in Wilsonart	—	—	167
Proceeds from sale of plant and equipment	26	14	16
Proceeds from sale of operations and affiliates	1	2	3
Other, net	(4)	(10)	(13)
Net cash provided by (used for) investing activities	(325)	(251)	(532)
Cash Provided by (Used for) Financing Activities:			
Cash dividends paid	(1,124)	(941)	(821)
Issuance of common stock	22	84	84
Repurchases of common stock	(2,000)	(1,000)	(2,000)
Net proceeds from (repayments of) debt with original maturities of three months or less	(850)	849	(526)
Proceeds from debt with original maturities of more than three months	—	—	992
Repayments of debt with original maturities of more than three months	(1)	(652)	(1)
Excess tax benefits from stock-based compensation	—	—	29
Other, net	(11)	(14)	(12)
Net cash provided by (used for) financing activities	(3,964)	(1,674)	(2,255)
Effect of Exchange Rate Changes on Cash and Equivalents	(112)	145	(133)
Cash and Equivalents:			
Increase (decrease) during the year	(1,590)	622	(618)
Beginning of year	3,094	2,472	3,090
End of year	\$ 1,504	\$ 3,094	\$ 2,472
Supplementary Cash Flow Information:			
Cash Paid During the Year for Interest	\$ 247	\$ 240	\$ 212
Cash Paid During the Year for Income Taxes, Net of Refunds	\$ 838	\$ 1,018	\$ 920
Liabilities Assumed from Acquisitions	\$ —	\$ 5	\$ 150

The Notes to Financial Statements are an integral part of this statement.

Notes to Financial Statements

(1) Description of Business and Summary of Significant Accounting Policies

Description of business— Illinois Tool Works Inc. (the "Company" or "ITW") is a global manufacturer of a diversified range of industrial products and equipment with approximately 87 divisions in 55 countries. The Company primarily serves the automotive OEM/tiers, commercial food equipment, construction, general industrial, and automotive aftermarket end markets.

Consolidation and translation— The financial statements include the Company and its majority-owned subsidiaries. The Company follows the equity method of accounting for investments where the Company has a significant influence but not a controlling interest. Intercompany transactions are eliminated from the financial statements. Foreign subsidiaries' assets and liabilities are translated to U.S. dollars at end-of-period exchange rates. Revenues and expenses are translated at average rates for the period. Translation adjustments are reported as a component of accumulated other comprehensive income (loss) in stockholders' equity.

Reclassifications— Certain reclassifications of prior year data have been made to conform to current year reporting.

Use of estimates— The preparation of the Company's financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the amounts reported in the financial statements and the notes to financial statements. Actual results could differ from those estimates.

Acquisitions— The Company accounts for acquisitions under the acquisition method, in which assets acquired and liabilities assumed are recorded at fair value as of the date of acquisition. The operating results of the acquired companies are included in the Company's consolidated financial statements from the date of acquisition.

Operating revenue— Prior to 2018, the Company recognized revenue when persuasive evidence of an arrangement existed, product had shipped and the risks and rewards of ownership had transferred or services had been rendered, the price to the customer was fixed or determinable, and collectability was reasonably assured, which generally occurred at the time of product shipment. Effective January 1, 2018, the Company adopted new revenue recognition guidance. Under this new guidance, operating revenue is recognized at the time a good or service is transferred to a customer and the customer obtains control of that good or receives the service performed. The Company's sales arrangements with customers are predominantly short-term in nature involving a single performance obligation related to the delivery of products and generally provide for transfer of control at the time of shipment. In limited circumstances, arrangements may include service performed over time, or there may be significant obligations to the customer that are unfulfilled at the time of shipment, typically involving installation of equipment and customer acceptance. In these circumstances, operating revenue may be recognized over time as the service is provided to the customer or deferred until all significant obligations have been completed. The amount of operating revenue recorded reflects the consideration to which the Company expects to be entitled in exchange for goods or services and may include adjustments for customer allowances and rebates. Customer allowances and rebates consist primarily of volume discounts and other short-term incentive programs, which are estimated at the time of sale based on historical experience and anticipated trends. Shipping and handling charges billed to customers are included in revenue and are recognized along with the related product revenue as they are considered a fulfillment cost. Sales commissions are expensed when incurred, which is generally at the time of revenue recognition. Contract liabilities associated with sales arrangements primarily relate to deferred revenue on equipment sales and prepaid service contracts. Total deferred revenue and customer deposits were \$215 million and \$205 million for the years ended December 31, 2018 and 2017, respectively, and are short-term in nature. For additional information regarding the Company's operating revenue, see New Accounting Pronouncements below and Note 3. Operating Revenue.

Research and development expenses— Research and development expenses are recorded as expense in the year incurred. These costs were \$233 million, \$225 million and \$223 million for the years ended December 31, 2018, 2017 and 2016, respectively.

Advertising expenses— Advertising expenses are recorded as expense in the year incurred. These costs were \$50 million, \$53 million and \$58 million for the years ended December 31, 2018, 2017 and 2016, respectively.

Income taxes— The Company utilizes the asset and liability method of accounting for income taxes. Deferred income taxes are determined based on the estimated future tax effects of differences between the financial and tax bases of assets and

liabilities given the provisions of the enacted tax laws. Valuation allowances are established when it is estimated that it is more likely than not that the tax benefit of the deferred tax asset will not be realized.

Cash and equivalents— Cash and equivalents include cash on hand and instruments having original maturities of three months or less. Cash and equivalents are stated at cost, which approximates fair value.

Trade receivables— Trade receivables are net of allowances for doubtful accounts. Prior to 2018, the allowance for doubtful accounts included reserves for uncollectible accounts and customer credits. Under the new revenue guidance adopted on January 1, 2018, the reserve for customer credits is reported as a liability and included in "Other accrued expenses" in Note 14. Other Balance Sheet Information. Accordingly, after January 1, 2018, the allowance for doubtful accounts comprises of reserves for uncollectible accounts. The changes in the allowance for doubtful accounts for the years ended December 31, 2018, 2017 and 2016 were as follows:

In millions	2018		2017		2016	
Beginning balance	\$	43	\$	43	\$	42
Adoption of new revenue recognition guidance		(23)		—		—
Provision charged to expense		5		3		7
Write-offs, net of recoveries		(3)		(6)		(6)
Acquisitions and divestitures		—		—		1
Foreign currency translation		(1)		3		(1)
Ending balance	\$	21	\$	43	\$	43

Inventories— Inventories are stated at the lower of cost or net realizable value and include material, labor and factory overhead. The last-in, first-out ("LIFO") method is used to determine the cost of inventories at certain U.S. businesses. The first-in, first-out ("FIFO") method, which approximates current cost, is used for all other inventories. Inventories priced at LIFO were approximately 23% and 21% of total inventories as of December 31, 2018 and 2017, respectively. If the FIFO method was used for all inventories, total inventories would have been approximately \$97 million and \$89 million higher than reported at December 31, 2018 and 2017, respectively. The major classes of inventory at December 31, 2018 and 2017 were as follows:

In millions	2018		2017	
Raw material	\$	523	\$	465
Work-in-process		161		141
Finished goods		731		703
LIFO reserve		(97)		(89)
Total inventories	\$	1,318	\$	1,220

Net plant and equipment— Net plant and equipment are stated at cost, less accumulated depreciation. Renewals and improvements that increase the useful life of plant and equipment are capitalized. Maintenance and repairs are charged to expense as incurred. Net plant and equipment consisted of the following at December 31, 2018 and 2017:

In millions	2018		2017	
Land	\$	194	\$	203
Buildings and improvements		1,368		1,370
Machinery and equipment		3,352		3,301
Equipment leased to others		165		164
Construction in progress		154		123
Gross plant and equipment		5,233		5,161
Accumulated depreciation		(3,442)		(3,383)
Net plant and equipment	\$	1,791	\$	1,778

The Company's U.S. businesses primarily compute depreciation on an accelerated basis. The majority of the Company's international businesses compute depreciation on a straight-line basis. The ranges of useful lives used to depreciate plant and equipment are as follows:

Buildings and improvements	5—50 years
Machinery and equipment	3—12 years
Equipment leased to others	Term of lease

Depreciation was \$272 million, \$256 million and \$246 million for the years ended December 31, 2018, 2017 and 2016, respectively.

Goodwill and intangible assets— Goodwill represents the excess cost over fair value of the net assets of acquired businesses. The Company does not amortize goodwill and intangible assets that have indefinite lives. Amortizable intangible assets are being amortized on a straight-line basis over their estimated useful lives of 3 to 20 years.

The Company performs an impairment assessment of goodwill and intangible assets with indefinite lives annually, or more frequently if triggering events occur, based on the estimated fair value of the related reporting unit or intangible asset. Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants.

When performing its annual impairment assessment, the Company evaluates the goodwill assigned to each of its reporting units for potential impairment by comparing the estimated fair value of the relevant reporting unit to the carrying value. The Company uses various Level 2 and Level 3 valuation techniques to determine the fair value of its reporting units, including discounting estimated future cash flows based on a detailed cash flow forecast prepared by the relevant reporting unit and market multiples of relevant public companies. If the fair value of a reporting unit is less than its carrying value, an impairment loss, if any, is recorded for the difference between the implied fair value and the carrying value of the reporting unit's goodwill.

The Company's indefinite-lived intangible assets consist of trademarks and brands. The estimated fair values of these intangible assets are determined based on a Level 3 valuation method using a relief-from-royalty income approach derived from internally forecasted revenues of the related products. If the fair value of the trademark or brand is less than its carrying value, an impairment loss is recorded for the difference between the estimated fair value and carrying value of the intangible asset.

Accrued warranties— The Company accrues for product warranties based on historical experience. The changes in accrued warranties for the years ended December 31, 2018, 2017 and 2016 were as follows:

In millions	2018		2017		2016	
Beginning balance	\$	45	\$	45	\$	46
Charges		(49)		(45)		(41)
Provision charged to expense		50		43		42
Acquisitions and divestitures		—		—		1
Foreign currency translation		(1)		2		(3)
Ending balance	\$	45	\$	45	\$	45

New Accounting Pronouncements

Effective January 1, 2017

In March 2016, the Financial Accounting Standards Board (the "FASB") issued authoritative guidance that includes several changes to simplify the accounting for stock-based compensation, including the accounting for income taxes, forfeitures, statutory tax withholding requirements and classification of tax benefits in the statement of cash flows. Among the more significant changes, the new guidance requires that the income tax effects associated with the settlement of stock-based awards after adoption of the guidance be recognized through income tax expense rather than directly in equity. Additionally, the income tax effects related to excess tax benefits should be presented within operating cash flows in the statement of cash

flows rather than as a financing activity. Excess tax benefits recognized in equity under the prior guidance was \$29 million for the year ended December 31, 2016. The Company adopted the new guidance effective January 1, 2017 and applied the new guidance prospectively. Excess tax benefits of \$10 million and \$50 million were included in Income taxes in the statement of income for the years ended December 31, 2018 and December 31, 2017, respectively. The expected effect on income tax expense or net cash provided from operating activities related to future stock-based award settlements will vary each period and will depend on inputs such as the stock price at the time of settlement and the number of awards settled in the period presented.

Effective January 1, 2018

In May 2014, the FASB issued authoritative guidance to change the criteria for revenue recognition. The core principle of the new guidance is that revenue should be recognized to depict the transfer of control of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. In addition, expanded revenue disclosures are required. The Company's sales arrangements with customers are predominantly short-term in nature and generally provide for transfer of control and risks and rewards of ownership at the time of product shipment or delivery of service. As such, the timing of revenue recognition under both the prior and new guidance is the same for the majority of the Company's transactions. Effective January 1, 2018, the Company adopted the new revenue recognition guidance under the modified retrospective method and recorded a cumulative-effect adjustment reducing retained earnings by \$9 million as of January 1, 2018. Under the modified retrospective method of adoption, prior periods are not restated and the new guidance is applied prospectively to revenue transactions completed on or after January 1, 2018. Given the nature of the Company's revenue transactions, the new guidance had an immaterial impact on the Company's operating revenue, results of operations, and financial position for the year ended December 31, 2018. The Company updated its revenue recognition accounting policy to reflect the requirements of the new guidance and included additional disclosures regarding the Company's revenue transactions. Refer to the Company's operating revenue accounting policy above and Note 3. Operating Revenue for additional information.

In October 2016, the FASB issued authoritative guidance requiring the recognition of the income tax consequences of an intra-entity transfer of an asset, other than inventory, when the transfer occurs rather than when transferred to a third party as required under the prior guidance. The provisions of the new guidance are being applied prospectively to intra-entity asset transfers on or after January 1, 2018 and may result in future tax rate volatility. Upon adoption of the new guidance on January 1, 2018, the Company recorded a cumulative-effect adjustment reducing deferred tax assets and retained earnings by \$406 million. For the year ended December 31, 2018, the impact of the new guidance on the Company's effective income tax rate was not material.

In March 2017, the FASB issued authoritative guidance which changes the income statement presentation of net periodic benefit cost related to defined benefit pension and other postretirement plans. The primary change under the new guidance is that only the service cost component of net periodic benefit cost should be included in operating income and is eligible for capitalization as an asset. The other components of net periodic benefit cost ("other net periodic benefit cost"), including interest cost, expected return on assets, settlements, curtailments, and amortization of actuarial gains and losses and prior service cost, should be presented below operating income. Effective January 1, 2018, the Company adopted the new presentation of other net periodic benefit cost and restated the prior year statements of income and related disclosures for comparability, as required under the new guidance. For the years ended December 31, 2018, 2017 and 2016, other net periodic benefit cost included in Other income (expense) was income of \$20 million, \$9 million and \$8 million, respectively. Refer to Note 10. Pension and Other Postretirement Benefits for additional information.

In February 2018, the FASB issued authoritative guidance which allows for an optional one-time reclassification of the stranded tax effects resulting from the change in the U.S. federal corporate income tax rate under the "Tax Cuts and Jobs Act" (the "Act") from accumulated other comprehensive income ("AOCI") to retained earnings. The guidance is effective January 1, 2019, with early adoption permitted. The Company elected to early adopt this guidance as of January 1, 2018 and to reclassify the stranded tax effects related to the Act, which resulted in an increase of \$45 million to both retained earnings and accumulated other comprehensive loss. Refer to Note 12. Stockholders' Equity for additional information.

Effective January 1, 2019

In February 2016, the FASB issued authoritative guidance to change the criteria for recognizing leasing transactions. Under the new guidance, a lessee will be required to recognize a lease liability and a right-of-use asset for all leases with a lease term greater than twelve months, including operating leases, in the statement of financial position. This guidance was effective January 1, 2019 and the Company will apply the guidance prospectively to lease transactions as of and after the

effective date. Although the Company is currently finalizing its review of operating leases as of the adoption date, the Company expects to record a right of use asset and lease liability for its operating leases of less than two percent of total assets. Additionally, the Company expects to provide additional disclosures in periods subsequent to adoption. The new guidance is not expected to have a material impact on the results of operations or cash flows of the Company.

(2) Acquisitions

There were no acquisitions during 2018. Net cash paid for acquisitions during 2017 and 2016 was \$3 million and \$453 million, respectively. Acquisitions, individually and in the aggregate, did not materially affect the Company's results of operations or financial position for any period presented.

The net cash paid for acquisitions in 2016 primarily related to the acquisition of the Engineered Fasteners and Components ("EF&C") business from ZF TRW on July 1, 2016 for a purchase price of approximately \$450 million. As a result of the EF&C transaction, which was reported in the Company's Automotive OEM segment, the Company recorded \$187 million of goodwill and \$134 million of amortizable intangible assets primarily related to customer relationships and technology. Approximately \$104 million of the acquired goodwill balance is tax deductible. The fair values of the intangible assets were estimated based on discounted cash flow and market-based valuation models using Level 2 and Level 3 inputs and assumptions. The intangible assets are amortized on a straight-line basis over their estimated useful lives ranging from 4 to 17 years, with a weighted average amortization period of 16 years.

(3) Operating Revenue

The Company's 87 diversified operating divisions are organized and managed based on similar product categories and end markets, and are reported to senior management as the following seven segments: Automotive OEM; Food Equipment; Test & Measurement and Electronics; Welding; Polymers & Fluids; Construction Products; and Specialty Products. Operating revenue by product category, which is consistent with the Company's segment presentation, for the twelve months ended December 31, 2018, 2017 and 2016 was as follows:

In millions	2018	2017	2016
Automotive OEM	\$ 3,338	\$ 3,271	\$ 2,864
Food Equipment	2,214	2,123	2,110
Test & Measurement and Electronics	2,171	2,069	1,974
Welding	1,691	1,538	1,486
Polymers & Fluids	1,724	1,724	1,691
Construction Products	1,700	1,672	1,609
Specialty Products	1,951	1,938	1,885
Intersegment revenue	(21)	(21)	(20)
Total	\$ 14,768	\$ 14,314	\$ 13,599

Prior to 2018, the Company recognized revenue when persuasive evidence of an arrangement existed, product had shipped and the risks and rewards of ownership had transferred or services had been rendered, the price to the customer was fixed or determinable, and collectability was reasonably assured, which generally occurred at the time of product shipment. Effective January 1, 2018, the Company adopted new revenue recognition guidance. Under this new guidance, operating revenue is recognized at the time a good or service is transferred to a customer and the customer obtains control of that good or receives the service performed. Given the nature of the Company's revenue transactions, the new guidance had an immaterial impact on the Company's operating revenue, results of operations, and financial position for the twelve months ended December 31, 2018. See Note 1. Description of Business and Summary of Significant Accounting Policies for additional information. The following is a description of the product offerings, end markets and typical revenue transactions for each of the Company's seven segments:

Automotive OEM— This segment is a global, niche supplier to top tier OEMs, providing unique innovation to address pain points for sophisticated customers with complex problems. Businesses in this segment produce components and fasteners for automotive-related applications. This segment primarily serves the automotive original equipment manufacturers and tiers market. Products in this segment include:

- plastic and metal components, fasteners and assemblies for automobiles, light trucks and other industrial uses.

Products sold in this segment are primarily manufactured to the customer's specifications and are sold under long-term supply agreements with OEM auto manufacturers and other top tier auto parts suppliers. The Company typically recognizes revenue for products in this segment at the time of shipment. Certain products may be produced utilizing tooling that is owned by the customer that the Company developed and is reimbursed by the customer for the associated cost. In these arrangements, the Company typically retains a contractual right to use the customer-owned tooling for the purpose of fulfilling its obligations under the supply agreement. The Company records reimbursements for the cost of customer-owned tooling as a cost offset rather than operating revenue as tooling is not considered a product offering central to the Company's operations.

Food Equipment— This segment is a highly focused and branded industry leader in commercial food equipment differentiated by innovation and integrated service offerings. This segment primarily serves the food service, food institutional/restaurant and food retail markets. Products in this segment include:

- warewashing equipment;
- cooking equipment, including ovens, ranges and broilers;
- refrigeration equipment, including refrigerators, freezers and prep tables;
- food processing equipment, including slicers, mixers and scales;
- kitchen exhaust, ventilation and pollution control systems; and
- food equipment service, maintenance and repair.

Revenue for equipment sold in this segment is typically recognized at the time of product shipment. In limited circumstances involving installation of equipment and customer acceptance, the Company may recognize revenue upon completion of installation and acceptance by the customer. Annual service contracts are typically sold separate from equipment and the related revenue is recognized on a straight-line basis over the annual service period. Operating revenue for on-demand service repairs and parts is recorded upon completion and customer acceptance of the work performed.

Test & Measurement and Electronics— This segment is a branded and innovative producer of test and measurement and electronic manufacturing and maintenance, repair, and operations, or "MRO" solutions that improve efficiency and quality for customers in diverse end markets. Businesses in this segment produce equipment, consumables, and related software for testing and measuring of materials and structures, as well as equipment and consumables used in the production of electronic subassemblies and microelectronics. This segment primarily serves the electronics, general industrial, industrial capital goods, automotive original equipment manufacturers and tiers, and consumer durables markets. Products in this segment include:

- equipment, consumables, and related software for testing and measuring of materials, structures, gases and fluids;
- electronic assembly equipment and related consumable solder materials;
- electronic components and component packaging;
- static control equipment and consumables used for contamination control in clean room environments; and
- pressure sensitive adhesives and components for electronics, medical, transportation and telecommunications applications.

Revenue for products sold in this segment is typically recognized at the time of shipment. In limited circumstances where significant obligations to the customer are unfulfilled at the time of shipment, typically involving installation of equipment and customer acceptance, revenue recognition is deferred until such obligations have been completed.

Welding— This segment is a branded value-added equipment and specialty consumable manufacturer with innovative and leading technology. Businesses in this segment produce arc welding equipment, consumables and accessories for a wide array of industrial and commercial applications. This segment primarily serves the general industrial market, which includes fabrication, shipbuilding and other general industrial markets, and energy, construction, MRO, automotive original equipment manufacturers and tiers, and industrial capital goods markets. Products in this segment include:

- arc welding equipment;
- metal arc welding consumables and related accessories; and
- metal jacketing and other insulation products.

Products in this segment are primarily manufactured to meet anticipated customer demand. The Company typically recognizes revenue for these products at the time of product shipment.

Polymers & Fluids— This segment is a branded supplier to niche markets that require value-added, differentiated products. Businesses in this segment produce engineered adhesives, sealants, lubrication and cutting fluids, and fluids and polymers for auto aftermarket maintenance and appearance. This segment primarily serves the automotive aftermarket, general industrial, MRO and construction markets. Products in this segment include:

- adhesives for industrial, construction and consumer purposes;
- chemical fluids which clean or add lubrication to machines;
- epoxy and resin-based coating products for industrial applications;
- hand wipes and cleaners for industrial applications;
- fluids, polymers and other supplies for auto aftermarket maintenance and appearance;
- fillers and putties for auto body repair; and
- polyester coatings and patch and repair products for the marine industry.

Products in this segment are primarily manufactured to meet anticipated customer demand. The Company typically recognizes revenue for these products at the time of product shipment.

Construction Products— This segment is a branded supplier of innovative engineered fastening systems and solutions. This segment primarily serves the residential construction, renovation/remodel and commercial construction markets. Products in this segment include:

- fasteners and related fastening tools for wood and metal applications;
- anchors, fasteners and related tools for concrete applications;
- metal plate truss components and related equipment and software; and
- packaged hardware, fasteners, anchors and other products for retail.

Products in this segment are primarily manufactured to meet anticipated customer demand. The Company typically recognizes revenue for these products at the time of product shipment.

Specialty Products— This segment is focused on diversified niche market opportunities with substantial patent protection producing beverage packaging equipment and consumables, product coding and marking equipment and consumables, and appliance components and fasteners. This segment primarily serves the food and beverage, consumer durables, general industrial, printing and publishing and industrial capital goods markets. Products in this segment include:

- line integration, conveyor systems and line automation for the food and beverage industries;
- plastic consumables that multi-pack cans and bottles and related equipment;
- foil, film and related equipment used to decorate consumer products;
- product coding and marking equipment and related consumables;
- plastic and metal closures and components for appliances;
- airport ground support equipment; and
- components for medical devices.

Products in this segment are primarily manufactured to meet anticipated customer demand. The Company typically recognizes revenue for these products at the time of product shipment. In limited circumstances where significant obligations to the customer are unfulfilled at the time of shipment, typically involving installation of equipment and customer acceptance, revenue is recognized when such obligations have been completed.

(4) Legal Settlement

In the second quarter of 2017, the Company entered into a \$95 million confidential settlement agreement to resolve a litigation matter. Based on the terms of the agreement, the Company received the settlement within 120 days of the execution of the agreement. The receipt of the settlement resulted in a favorable pre-tax impact of \$15 million in the second quarter of 2017 and \$80 million in the third quarter of 2017, which were included in operating income.

(5) Other Income (Expense)

Other income (expense) consisted of the following:

In millions	2018	2017	2016
Interest income	\$ 35	\$ 45	\$ 38
Other net periodic benefit income	20	9	8
Income (loss) from investments	9	16	(13)
Equity income in Wilsonart	—	—	61
Gain (loss) on disposal of operations and affiliates	(2)	1	(12)
Gain (loss) on foreign currency transactions, net	(1)	(25)	9
Other, net	6	(1)	(2)
Total other income (expense)	<u>\$ 67</u>	<u>\$ 45</u>	<u>\$ 89</u>

In the fourth quarter of 2012, the Company divested a 51% majority interest in its former Decorative Surfaces segment to certain funds managed by Clayton, Dubilier & Rice, LLC ("CD&R"). As a result of the transaction, the Company owns common units (the "Common Units") of Wilsonart International Holdings LLC ("Wilsonart") initially representing approximately 49% (on an as-converted basis) of the total outstanding equity. CD&R owns cumulative convertible participating preferred units (the "Preferred Units") of Wilsonart representing approximately 51% (on an as-converted basis) of the total outstanding equity. The Preferred Units rank senior to the Common Units as to dividends and liquidation preference, and accrue dividends at a rate of 10% per annum. The ownership interest in Wilsonart is reported using the equity method of accounting. The Company's proportionate share in income (loss) of Wilsonart is reported in Other income (expense) in the consolidated statement of income. As the Company's investment in Wilsonart is structured as a partnership for U.S. tax purposes, U.S. taxes are recorded separately from the equity investment. Equity income (loss) in Wilsonart for the year ended December 31, 2016 included a \$54 million pre-tax gain resulting from a \$167 million cash dividend distribution from Wilsonart which exceeded the Company's equity investment balance. As a result of the dividend distribution, the equity investment balance in Wilsonart was reduced to zero and any subsequent equity investment income will not be recognized until the gain is recaptured.

(6) Income Taxes

On December 22, 2017, the "Tax Cuts and Jobs Act" (the "Act") was enacted in the United States. The provisions of the Act significantly revised the U.S. corporate income tax rules. In the fourth quarter of 2017, the Company recorded a one-time additional income tax expense of \$658 million related to the enactment of the Act. The more significant tax law changes resulting from the Act and related impacts to the Company are as follows:

- **A one-time repatriation tax on the deemed repatriation of post-1986 undistributed earnings of foreign subsidiaries.** As a result of this one-time deemed repatriation, the Company recorded a one-time additional income tax expense of \$676 million during the fourth quarter of 2017. A portion of the resulting income taxes payable can be paid in installments over eight years. The noncurrent income taxes payable related to the one-time repatriation tax was \$495 million and \$614 million at December 31, 2018 and 2017, respectively. Additionally, as a result of the one-time repatriation provisions of the Act, the Company recorded additional foreign withholding taxes of \$53 million in the fourth quarter of 2017 related to the expected repatriation of foreign held cash and equivalents.

- **A reduction in the U.S. corporate federal tax rate from a maximum of 35% to a flat rate of 21% beginning in 2018.** Although the lower tax rate took effect in 2018, deferred tax assets and liabilities should be measured using the enacted tax rate expected to apply in the years in which they are expected to be settled. In the fourth quarter of 2017, the Company recorded a one-time net income tax benefit of \$82 million as a result of the revaluation of the Company's deferred tax assets and liabilities to reflect the impact of lower future U.S. corporate tax rates.
- **Deductibility of certain executive compensation.** In the fourth quarter of 2017, the Company recorded a one-time write-off of deferred tax assets of \$11 million related to the non-deductibility of certain performance-based compensation.

At December 31, 2017, the Company had not completed the accounting for the tax effects of enactment of the Act; however, the Company made a reasonable estimate which was recorded in the fourth quarter of 2017. During 2018, the Company revised its initial estimates which did not result in material changes to the provisional amounts recorded at December 31, 2017, or the effective tax rate for 2018. As of December 31, 2018, the Company has completed its accounting related to the tax effects of enactment of the Act. The Company's accounting for the tax effects of the Act are subject to future changes due to subsequent clarification of the tax law. On January 15, 2019, the U.S. Department of Treasury released final regulations related to the one-time transition tax. Although the Company's assessment of these final rules is not complete, they are not expected to materially impact the Company's financial statements.

Provision for income taxes—The components of the provision for income taxes were as follows:

In millions	2018	2017	2016
U.S. federal income taxes:			
Current	\$ 373	\$ 1,117	\$ 756
Deferred	(15)	(10)	(224)
Total U.S. federal income taxes	358	1,107	532
Foreign income taxes:			
Current	358	296	290
Deferred	49	102	(5)
Total foreign income taxes	407	398	285
State income taxes:			
Current	66	106	90
Deferred	—	(28)	(34)
Total state income taxes	66	78	56
Total provision for income taxes	\$ 831	\$ 1,583	\$ 873

Income before taxes for domestic and foreign operations was as follows:

In millions	2018	2017	2016
Domestic	\$ 1,774	\$ 1,806	\$ 1,653
Foreign	1,620	1,464	1,255
Total income before taxes	\$ 3,394	\$ 3,270	\$ 2,908

The reconciliation between the U.S. federal statutory tax rate and the effective tax rate was as follows:

	2018	2017	2016
U.S. federal statutory tax rate	21.0 %	35.0 %	35.0 %
U.S. tax effect of foreign earnings	1.5	0.5	0.7
Tax effect of U.S. federal tax law change	(0.1)	20.1	—
State income taxes, net of U.S. federal tax benefit	1.6	1.2	1.3
Differences between U.S. federal statutory and foreign tax rates	2.1	(3.5)	(3.6)
Nontaxable foreign interest income	(1.7)	(1.7)	(2.1)
Tax effect of foreign dividends	1.0	0.4	0.8
Tax relief for U.S. manufacturers	—	(1.4)	(1.4)
Excess tax benefits from stock-based compensation	(0.3)	(1.5)	—
Other, net	(0.6)	(0.7)	(0.7)
Effective tax rate	<u>24.5 %</u>	<u>48.4 %</u>	<u>30.0 %</u>

The Company's effective tax rate for the twelve months ended December 31, 2018, 2017 and 2016 was 24.5%, 48.4% and 30.0%, respectively. The 2018 effective tax rate benefited from the lower U.S. corporate federal tax rate and discrete items, primarily related to a discrete tax benefit of \$37 million in the third quarter of 2018 related to the release of a valuation allowance against the deferred tax assets of a non-U.S. subsidiary, which was partially offset by a discrete tax charge in the third quarter of 2018 of \$22 million related to foreign tax credits. Included in the effective tax rate for 2017 was a one-time additional income tax expense of \$658 million related to the enactment of the Act.

Additionally, the effective tax rate for 2018 and 2017 included \$10 million and \$50 million, respectively, related to excess tax benefits from stock-based compensation guidance effective January 1, 2017. Refer to Note 1, Description of Business and Summary of Significant Accounting Policies for additional information.

Prior to the Act, deferred U.S. federal and state income taxes and foreign withholding taxes had not been provided on substantially all undistributed earnings of international subsidiaries as these earnings were considered permanently invested. As part of the one-time deemed repatriation provisions of the Act, the Company provided for U.S. tax on substantially all undistributed earnings of its foreign subsidiaries as of December 31, 2017. Upon repatriation of these earnings to the U.S., the Company may be subject to foreign withholding taxes. The accrual for foreign withholding taxes related to the expected repatriation of foreign held cash and equivalents as of December 31, 2018 and December 31, 2017 was \$71 million and \$75 million, respectively.

Deferred foreign withholding taxes have not been provided on undistributed earnings considered permanently invested. As of December 31, 2018, undistributed earnings of certain international subsidiaries that are considered permanently invested were approximately \$6 billion. Determination of the related deferred tax liability is not practicable because of the complexities associated with the hypothetical calculation.

Deferred tax assets and liabilities— The components of deferred income tax assets and liabilities at December 31, 2018 and 2017 were as follows:

In millions	2018		2017	
	Asset	Liability	Asset	Liability
Goodwill and intangible assets	\$ 194	\$ (484)	\$ 195	\$ (506)
Inventory reserves, capitalized tax cost and LIFO inventory	30	(3)	31	(3)
Investments	19	(171)	15	(180)
Plant and equipment	17	(72)	18	(64)
Accrued expenses and reserves	36	—	45	—
Employee benefit accruals	186	—	177	—
Foreign tax credit carryforwards	8	—	13	—
Net operating loss carryforwards	451	—	507	—
Capital loss carryforwards	89	—	98	—
Allowances for uncollectible accounts	10	—	9	—
Pension liabilities	—	(19)	—	(25)
Deferred intercompany deductions	—	—	405	—
Unrealized loss (gain) on foreign debt instruments	—	(45)	—	(19)
Other	32	(13)	99	(15)
Gross deferred income tax assets (liabilities)	1,072	(807)	1,612	(812)
Valuation allowances	(418)	—	(459)	—
Total deferred income tax assets (liabilities)	\$ 654	\$ (807)	\$ 1,153	\$ (812)

The valuation allowances recorded at December 31, 2018 and 2017 related primarily to certain net operating loss carryforwards, capital loss carryforwards and foreign tax credit carryforwards. As of December 31, 2018, the Company has utilized all realizable foreign tax credit carryforwards.

At December 31, 2018, the Company had net operating loss carryforwards available to offset future taxable income in the U.S. and certain foreign jurisdictions, which expire as follows:

In millions	Gross Carryforwards Related to Net Operating Losses
2019	\$ 25
2020	87
2021	81
2022	34
2023	7
2024	7
2025-2045	55
Do not expire	1,532
Total gross carryforwards related to net operating losses	\$ 1,828

Unrecognized tax benefits— The changes in the amount of unrecognized tax benefits for the years ended 2018, 2017 and 2016 were as follows:

In millions	2018	2017	2016
Beginning balance	\$ 285	\$ 210	\$ 259
Additions based on tax positions related to the current year	3	42	19
Additions for tax positions of prior years	49	100	126
Reductions for tax positions of prior years	(31)	(24)	(97)
Settlements	(5)	(53)	(96)
Foreign currency translation	(4)	10	(1)
Ending balance	\$ 297	\$ 285	\$ 210

Included in the balance at December 31, 2018 were approximately \$268 million of unrecognized tax benefits that, if recognized, would impact the Company's effective tax rate.

Settlements during 2017 primarily related to the Company effectively settling with the German Fiscal Authority on issues identified during its 2009-2011 audit, which primarily related to intercompany transactions. During the fourth quarter of 2016, the Company effectively settled with the Internal Revenue Service on issues identified during its 2012-2013 audit, which primarily related to deferred gain recognition and foreign tax credits. Based on this agreement, the Company decreased its unrecognized tax benefits by approximately \$96 million.

The Company and its subsidiaries file tax returns in the U.S. and various state, local and foreign jurisdictions. These tax returns are routinely audited by the tax authorities in these jurisdictions including the Internal Revenue Service, Her Majesty's Revenue and Customs, German Fiscal Authority, French Fiscal Authority, and Australian Tax Office, and a number of these audits are currently ongoing, which may increase the amount of the unrecognized tax benefits in future periods. Due to the ongoing audits, the Company believes it is reasonably possible that within the next twelve months the amount of the Company's unrecognized tax benefits may be decreased by approximately \$42 million related predominantly to various intercompany transactions. The Company has recorded its best estimate of the potential exposure for these issues. The following table summarizes the open tax years for the Company's major jurisdictions:

Jurisdiction	Open Tax Years
United States – Federal	2016-2018
United Kingdom	2017-2018
Germany	2012-2018
France	2014-2018
Australia	2013-2018

The Company recognizes interest and penalties related to income tax matters in income tax expense. The accrual for interest and penalties as of December 31, 2018 and 2017 was \$25 million for both periods.

On February 18, 2014, the Company received a Notice of Deficiency ("NOD") from the IRS asserting that a non-taxable return of capital received from a subsidiary was a taxable dividend distribution. The NOD assessed additional taxes of \$70 million for the 2006 tax year, plus interest and penalties. In May 2014, the Company petitioned the United States Tax Court to challenge the NOD. The Company's petition was subsequently denied and the case proceeded to court with the trial taking place in the third quarter of 2016. In August 2018, the court decided in favor of the Company. The Company did not have a reserve for this matter, which was fully resolved in 2018.

(7) Net Income Per Share

Net income per basic share is computed by dividing net income by the weighted-average number of shares outstanding for the period. Net income per diluted share is computed by dividing net income by the weighted-average number of shares assuming dilution for stock options and restricted stock units. Dilutive shares reflect the potential additional shares that would be outstanding if the dilutive stock options outstanding were exercised and the unvested restricted stock units vested during the period. The computation of net income per share was as follows:

In millions except per share amounts	2018		2017		2016	
Net Income	\$	2,563	\$	1,687	\$	2,035
Net income per share—Basic:						
Weighted-average common shares		335.0		344.1		355.0
Net income per share—Basic	\$	7.65	\$	4.90	\$	5.73
Net income per share—Diluted:						
Weighted-average common shares		335.0		344.1		355.0
Effect of dilutive stock options and restricted stock units		2.1		2.7		2.1
Weighted-average common shares assuming dilution		337.1		346.8		357.1
Net income per share—Diluted	\$	7.60	\$	4.86	\$	5.70

Options that were considered antidilutive were not included in the computation of diluted net income per share. There were 0.5 million antidilutive options outstanding as of December 31, 2018. There were no antidilutive options outstanding as of December 31, 2017 and 2016.

(8) Goodwill and Intangible Assets

The changes in the carrying amount of goodwill for the years ended December 31, 2018 and 2017 were as follows:

In millions	Automotive OEM	Test & Measurement and Electronics	Food Equipment	Polymers & Fluids	Welding	Construction Products	Specialty Products	Total
Balance, December 31, 2016	\$ 456	\$ 1,336	\$ 249	\$ 889	\$ 260	\$ 508	\$ 860	\$ 4,558
2017 activity:								
Acquisitions & divestitures	—	—	—	—	—	—	1	1
Foreign currency translation	32	36	20	30	12	22	41	193
Balance, December 31, 2017	488	1,372	269	919	272	530	902	4,752
2018 activity:								
Foreign currency translation	(12)	(20)	(10)	(30)	(9)	(17)	(21)	(119)
Balance, December 31, 2018	\$ 476	\$ 1,352	\$ 259	\$ 889	\$ 263	\$ 513	\$ 881	\$ 4,633
Cumulative goodwill impairment charges, December 31, 2018	\$ 24	\$ 83	\$ 60	\$ 15	\$ 5	\$ 7	\$ 46	\$ 240

Intangible assets as of December 31, 2018 and 2017 were as follows:

In millions	2018			2017		
	Cost	Accumulated Amortization	Net	Cost	Accumulated Amortization	Net
Amortizable intangible assets:						
Customer lists and relationships	\$ 1,747	\$ (1,282)	\$ 465	\$ 1,753	\$ (1,182)	\$ 571
Trademarks and brands	759	(435)	324	761	(391)	370
Patents and proprietary technology	621	(506)	115	623	(473)	150
Other	478	(458)	20	474	(453)	21
Total amortizable intangible assets	3,605	(2,681)	924	3,611	(2,499)	1,112
Indefinite-lived intangible assets:						
Trademarks and brands	160	—	160	160	—	160
Total intangible assets	\$ 3,765	\$ (2,681)	\$ 1,084	\$ 3,771	\$ (2,499)	\$ 1,272

The Company performed its annual impairment assessment of goodwill and indefinite-lived intangible assets in the third quarter of 2018, 2017 and 2016. There were no impairment charges as a result of these assessments.

For the years ended December 31, 2018, 2017 and 2016, amortization expense of intangible assets was \$189 million, \$206 million and \$224 million, respectively.

The estimated amortization expense of intangible assets for the future years ending December 31 is as follows:

In millions	
2019	\$ 163
2020	142
2021	124
2022	111
2023	92

(9) Debt

Short-term debt— Short-term debt represents obligations with a maturity date of one year or less and is stated at cost which approximates fair value. Short-term debt also includes current maturities of long-term debt. Short-term debt as of December 31, 2018 and 2017 consisted of the following:

In millions	2018	2017
Commercial paper	\$ —	\$ 849
Current maturities of long-term debt	1,350	1
Bank overdrafts	1	—
Total short-term debt	\$ 1,351	\$ 850

As of December 31, 2018, Short-term debt included \$650 million related to the 1.95% notes due March 1, 2019 and \$700 million related to the 6.25% notes due April 1, 2019. There was no commercial paper outstanding as of December 31, 2018. Short-term debt as of December 31, 2017 included commercial paper of \$849 million.

The Company may issue commercial paper to fund general corporate needs, share repurchases, and small and medium-sized acquisitions. During the second quarter of 2016, the Company entered into a \$2.5 billion, five-year line of credit agreement with a termination date of May 9, 2021 to support the potential issuances of commercial paper. No amounts were outstanding under the line of credit agreement at December 31, 2018. As of December 31, 2018, the Company was in compliance with the financial covenants of the line of credit agreement, which includes a minimum interest coverage ratio. The weighted-average interest rate on commercial paper was 1.7% and 1.0% for the years ended December 31, 2018 and 2017, respectively.

As of December 31, 2018, the Company had unused capacity of approximately \$227 million under international debt facilities.

Long-term debt— Long-term debt represents obligations with a maturity date greater than one year, and excludes current maturities that have been reclassified to short-term debt. Long-term debt at carrying value and fair value as of December 31, 2018 and 2017 consisted of the following:

In millions	Effective Interest Rate	2018		2017	
		Carrying Value	Fair Value	Carrying Value	Fair Value
1.95% notes due March 1, 2019	1.98%	650	649	649	649
6.25% notes due April 1, 2019	6.25%	700	706	699	736
4.88% notes due thru December 31, 2020	4.96%	4	4	4	4
3.375% notes due September 15, 2021	3.43%	349	354	348	361
1.75% Euro notes due May 20, 2022	1.86%	570	603	595	638
1.25% Euro notes due May 22, 2023	1.35%	569	596	595	624
3.50% notes due March 1, 2024	3.54%	696	712	696	734
2.65% notes due November 15, 2026	2.69%	993	933	992	980
2.125% Euro notes due May 22, 2030	2.18%	567	620	594	646
3.0% Euro notes due May 19, 2034	3.13%	560	678	586	702
4.875% notes due September 15, 2041	4.97%	636	719	636	791
3.9% notes due September 1, 2042	3.96%	1,081	1,087	1,081	1,183
Other borrowings		4	4	4	4
Total		\$ 7,379	\$ 7,665	\$ 7,479	\$ 8,052
Less: Current maturities of long-term debt		(1,350)		(1)	
Total long-term debt		\$ 6,029		\$ 7,478	

The approximate fair values of the Company's long-term debt, including current maturities, were based on a valuation model, using Level 2 observable inputs which included market rates for comparable instruments for the respective periods.

In 2005, the Company issued \$54 million of 4.88% notes due through December 31, 2020 at 100% of face value.

In 2009, the Company issued \$700 million of 6.25% redeemable notes due April 1, 2019 at 99.98% of face value.

In 2011, the Company issued \$350 million of 3.375% notes due September 15, 2021 at 99.552% of face value and \$650 million of 4.875% notes due September 15, 2041 at 98.539% of face value.

In 2012, the Company issued \$1.1 billion of 3.9% notes due September 1, 2042 at 99.038% of face value.

In February 2014, the Company issued \$650 million of 0.9% notes due February 25, 2017 at 99.861% of face value, \$650 million of 1.95% notes due March 1, 2019 at 99.871% of face value, and \$700 million of 3.5% notes due March 1, 2024 at 99.648% of face value. The \$650 million of 0.9% notes due February 25, 2017 were repaid on the due date.

In May 2014, the Company issued €500 million of 1.75% Euro notes due May 20, 2022 at 99.16% of face value and €500 million of 3.0% Euro notes due May 19, 2034 at 98.089% of face value.

In May 2015, the Company issued €500 million of 1.25% Euro notes due May 22, 2023 at 99.239% of face value and €500 million of 2.125% Euro notes due May 22, 2030 at 99.303% of face value. Net proceeds from the May 2015 debt issuances were used to repay commercial paper and for general corporate purposes.

In November 2016, the Company issued \$1.0 billion of 2.65% notes due November 15, 2026 at 99.685% of face value. Net proceeds from the November 2016 debt issuance were used to repay commercial paper and for general corporate purposes.

The Company designated the €1.0 billion of Euro notes issued in May 2014 and the €1.0 billion of Euro notes issued in May 2015 as hedges of a portion of its net investment in Euro-denominated foreign operations to reduce foreign currency

risk associated with the investment in these operations. Refer to Note 12. Stockholders' Equity for additional information regarding the net investment hedge.

All of the Company's notes listed above represent senior unsecured obligations ranking equal in right of payment. Scheduled maturities of long-term debt, including current maturities of long-term debt, for the future years ending December 31 are as follows:

In millions		
2019	\$	1,350
2020		4
2021		349
2022		570
2023		569
2024 and future years		4,537
Total	\$	<u>7,379</u>

(10) Pension and Other Postretirement Benefits

The Company has both funded and unfunded defined benefit pension and other postretirement benefit plans, predominately in the U.S. The U.S. primary pension plan provides benefits based on years of service and final average salary. The U.S. primary postretirement health care plan is contributory with the participants' contributions adjusted annually. The U.S. primary postretirement life insurance plan is noncontributory. Beginning January 1, 2007, the U.S. primary pension and other postretirement benefit plans were closed to new participants. Newly hired employees and employees from acquired businesses that are not participating in these plans are eligible for additional Company contributions under the existing U.S. primary defined contribution retirement plans. The Company's expense related to defined contribution plans was \$82 million in 2018, \$79 million in 2017, and \$77 million in 2016. In addition to the U.S. plans, the Company also has defined benefit pension plans in certain other countries, mainly the United Kingdom, Canada, Germany and Switzerland.

Summarized information regarding net periodic benefit cost included in the statement of income related to the Company's significant defined benefit pension and other postretirement benefit plans is as follows:

In millions	Pension			Other Postretirement Benefits		
	2018	2017	2016	2018	2017	2016
Components of net periodic benefit cost:						
Service cost	\$ 60	\$ 63	\$ 62	\$ 8	\$ 9	\$ 9
Interest cost	72	72	92	18	19	24
Expected return on plan assets	(126)	(133)	(144)	(25)	(23)	(23)
Amortization of actuarial (gain) loss	43	57	44	(2)	(1)	—
Amortization of prior service cost	—	—	—	—	—	(1)
Total net periodic benefit cost	<u>\$ 49</u>	<u>\$ 59</u>	<u>\$ 54</u>	<u>\$ (1)</u>	<u>\$ 4</u>	<u>\$ 9</u>

The service cost component of net periodic benefit cost is presented within Cost of revenue and Selling, administrative, and research and development expenses in the statement of income while the other components of net periodic benefit cost are presented within Other income (expense).

The Company used the updated mortality improvement scales from the Society of Actuaries, MP-2018 and MP-2017, to measure its U.S. pension and other postretirement obligations as of December 31, 2018 and 2017, respectively, which did not have a significant impact in either period.

The following tables provide a rollforward of the plan benefit obligations, plan assets and a reconciliation of funded status for the years ended December 31, 2018 and 2017:

In millions	Pension		Other Postretirement Benefits	
	2018	2017	2018	2017
Change in benefit obligation:				
Benefit obligation at January 1	\$ 2,661	\$ 2,562	\$ 546	\$ 551
Service cost	60	63	8	9
Interest cost	72	72	18	19
Plan participants' contributions	2	2	12	12
Amendments	9	—	—	—
Actuarial (gain) loss	(162)	26	(35)	(5)
Benefits paid	(165)	(152)	(40)	(41)
Medicare subsidy received	—	—	2	1
Liabilities from other immaterial plans	5	—	—	—
Foreign currency translation	(53)	88	—	—
Benefit obligation at December 31	\$ 2,429	\$ 2,661	\$ 511	\$ 546
Change in plan assets:				
Fair value of plan assets at January 1	\$ 2,832	\$ 2,487	\$ 373	\$ 351
Actual return on plan assets	(82)	227	(19)	45
Company contributions	23	178	7	6
Plan participants' contributions	2	2	12	12
Benefits paid	(165)	(152)	(40)	(41)
Foreign currency translation	(60)	90	—	—
Fair value of plan assets at December 31	\$ 2,550	\$ 2,832	\$ 333	\$ 373
Funded status	\$ 121	\$ 171	\$ (178)	\$ (173)
Other immaterial plans	(46)	(65)	(5)	(5)
Net asset (liability) at December 31	\$ 75	\$ 106	\$ (183)	\$ (178)
The amounts recognized in the statement of financial position as of December 31 consist of:				
Other assets	\$ 290	\$ 337	\$ —	\$ —
Accrued expenses	(12)	(12)	(4)	(4)
Other noncurrent liabilities	(203)	(219)	(179)	(174)
Net asset (liability) at end of year	\$ 75	\$ 106	\$ (183)	\$ (178)
The pre-tax amounts recognized in accumulated other comprehensive income consist of:				
Net actuarial (gain) loss	\$ 552	\$ 548	\$ (53)	\$ (64)
Prior service cost	8	—	—	—
	\$ 560	\$ 548	\$ (53)	\$ (64)
Accumulated benefit obligation	\$ 2,299	\$ 2,499		
Plans with accumulated benefit obligation in excess of plan assets as of December 31:				
Projected benefit obligation	\$ 176	\$ 184		
Accumulated benefit obligation	\$ 170	\$ 175		
Fair value of plan assets	\$ 28	\$ 27		

Company contributions in 2017 included an additional \$115 million discretionary pension contribution related to the U.S. primary pension plan.

Assumptions— The weighted-average assumptions used in the valuations of pension and other postretirement benefits were as follows:

	Pension			Other Postretirement Benefits		
	2018	2017	2016	2018	2017	2016
Assumptions used to determine benefit obligations at December 31:						
Discount rate	3.66%	3.12%	3.41%	4.40%	3.72%	4.30%
Rate of compensation increases	3.52%	3.54%	3.77%			
Assumptions used to determine net periodic benefit cost for years ended December 31:						
Discount rate	3.12%	3.41%	3.95%	3.72%	4.30%	4.55%
Expected return on plan assets	4.77%	5.53%	6.22%	6.80%	6.80%	7.00%
Rate of compensation increases	3.54%	3.77%	3.72%			

The expected long-term rates of return for pension and other postretirement benefit plans were developed using historical asset class returns while factoring in current market conditions such as inflation, interest rates and asset class performance.

The discount rate reflects the current rate at which the associated liabilities could theoretically be effectively settled at the end of the year. In estimating this rate, the Company looks at rates of return on high-quality fixed income investments, with similar duration to the liabilities in the plan. Beginning in 2017, the Company changed the method used to estimate the service and interest cost components of net periodic pension and other postretirement benefit costs. The new method provides a more precise measure of the service and interest cost components of net periodic benefit cost by applying specific spot rates along the yield curve to the projected cash flows rather than a single weighted-average rate.

Assumed health care cost trend rates have an effect on the amounts reported for the postretirement health care benefit plans. The assumed health care cost trend rates used to determine the postretirement benefit obligation at December 31 were as follows:

	2018	2017	2016
Health care cost trend rate assumed for the next year	7.00%	6.25%	6.00%
Ultimate trend rate	4.50%	4.50%	4.50%
Year the rate reaches the ultimate trend rate	2026	2025	2023

A one percentage-point change in assumed health care cost trend rates would have the following impact:

In millions	1 Percentage-Point Increase		1 Percentage-Point Decrease	
Change in service cost and interest cost for 2018	\$	—	\$	(1)
Change in postretirement benefit obligation at December 31, 2018	\$	5	\$	(8)

Plan assets— The Company's overall investment strategy for the assets in the pension funds is to achieve a balance between the goals of growing plan assets and keeping risk at a reasonable level over a long-term investment horizon. In order to reduce unnecessary risk, the pension funds are diversified across several asset classes, securities and investment managers. The target allocations for plan assets are 15% to 25% equity investments, 75% to 85% fixed income investments and 0% to 10% in other types of investments. The Company does not use derivatives for the purpose of speculation, leverage, circumventing investment guidelines or taking risks that are inconsistent with specified guidelines.

The assets in the Company's postretirement health care plan are primarily invested in life insurance policies. The Company's overall investment strategy for the assets in the postretirement health care fund is to invest in assets that provide a reasonable tax exempt rate of return while preserving capital.

The following tables present the fair value of the Company's pension and other postretirement benefit plan assets at December 31, 2018 and 2017, by asset category and valuation methodology. Level 1 assets are valued using unadjusted quoted

prices for identical assets in active markets. Level 2 assets are valued using quoted prices or other observable inputs for similar assets. Level 3 assets are valued using unobservable inputs, but reflect the assumptions market participants would be expected to use in pricing the assets. Each financial instrument's categorization is based on the lowest level of input that is significant to the fair value measurement.

In millions	2018			
	Total	Level 1	Level 2	Level 3
Pension Plan Assets:				
Cash and equivalents	\$ 28	\$ 27	\$ 1	\$ —
Fixed income securities:				
Government securities	371	—	371	—
Corporate debt securities	853	—	853	—
Investment contracts with insurance companies	1	—	—	1
Commingled funds:				
Collective trust funds	1,257	—	—	—
Partnerships/private equity interests	36	—	—	—
Other	4	—	4	—
Total fair value of pension plan assets	\$ 2,550	\$ 27	\$ 1,229	\$ 1
Other Postretirement Benefit Plan Assets:				
Life insurance policies	\$ 333	—	—	—
Total fair value of other postretirement benefit plan assets	\$ 333	\$ —	\$ —	\$ —

In millions	2017			
	Total	Level 1	Level 2	Level 3
Pension Plan Assets:				
Cash and equivalents	\$ 43	\$ 34	\$ 9	\$ —
Fixed income securities:				
Government securities	371	—	371	—
Corporate debt securities	943	—	943	—
Investment contracts with insurance companies	1	—	—	1
Commingled funds:				
Collective trust funds	1,424	—	—	—
Partnerships/private equity interests	41	—	—	—
Other	9	—	9	—
Total fair value of pension plan assets	\$ 2,832	\$ 34	\$ 1,332	\$ 1
Other Postretirement Benefit Plan Assets:				
Cash and equivalents	\$ 2	\$ 2	\$ —	\$ —
Life insurance policies	371	—	—	—
Total fair value of other postretirement benefit plan assets	\$ 373	\$ 2	\$ —	\$ —

Cash and equivalents include cash on hand and instruments with original maturities of three months or less and are valued at cost, which approximates fair value. Fixed income securities primarily consist of U.S. and foreign government bills, notes and bonds, corporate debt securities and investment contracts. The majority of the assets in this category are valued by evaluating bid prices provided by independent financial data services. For securities where market data is not readily available, unobservable market data is used to value the security. The underlying investments include small-cap equity, international equity and long- and short-term fixed income instruments.

Pension assets measured at net asset value include collective trust funds, partnerships/private equity interests and life insurance policies. Collective trust funds are private funds that are valued based on the value of the underlying investments which can be redeemed on a daily basis. The underlying investments include both passively and actively managed U.S. and foreign large- and mid-cap equity funds and short-term investment funds. Partnerships/private equity interests are investments in partnerships where the benefit plan is a limited partner. The investments are valued by the investment managers on a periodic basis using pricing models that use market, income and cost valuation methods. Distributions are received from these funds on a periodic basis through the liquidation of the underlying assets of the fund. Life insurance policies are used to fund other postretirement benefits in order to obtain favorable tax treatment and are valued based on the cash surrender value of the underlying policies. The Company has selected the funds in which these assets are invested and may elect to withdraw funds with proper notice to the insurance company or maintain the policies and receive death benefits as determined by the contracts.

Cash flows— The Company generally funds its pension and other postretirement benefit plans as required by law or to the extent such contributions are tax deductible. The Company expects to contribute approximately \$28 million to its pension plans and \$5 million to its other postretirement benefit plans in 2019. The Company's portion of the benefit payments that are expected to be paid during the years ending December 31 is as follows:

In millions	Pension	Other Postretirement Benefits
2019	\$ 162	\$ 35
2020	165	36
2021	169	36
2022	172	37
2023	180	37
Years 2024-2028	895	182

(11) Commitments and Contingencies

Litigation— The Company is subject to various legal proceedings and claims that arise in the ordinary course of business, including those involving environmental, product liability (including toxic tort) and general liability claims. The Company accrues for such liabilities when it is probable that future costs will be incurred and such costs can be reasonably estimated. Such accruals are based on developments to date, the Company's estimates of the outcomes of these matters and its experience in contesting, litigating and settling other similar matters. The Company believes resolution of these matters, individually and in the aggregate, will not have a material adverse effect on the Company's financial position, liquidity or future operations.

Lease Commitments— Rental expense was \$124 million, \$120 million and \$121 million for the years ended December 31 2018, 2017 and 2016, respectively. Minimum lease payments under operating leases with non-cancelable terms in excess of one year for the years ending December 31 are as follows:

In millions	
2019	\$ 67
2020	48
2021	32
2022	24
2023	18
2024 and future years	34
Total future minimum lease payments	\$ 223

(12) Stockholders' Equity

Preferred Stock— Preferred Stock, without par value, of which 0.3 million shares are authorized and unissued, is issuable in series. The Board of Directors is authorized to fix by resolution the designation and characteristics of each series of preferred stock. The Company has no present commitment to issue its preferred stock.

Share Repurchases— On February 13, 2015, the Company's Board of Directors authorized a stock repurchase program which provides for the repurchase of up to \$6.0 billion of the Company's common stock over an open-ended period of time (the "2015 Program"). Under the 2015 Program, the Company repurchased approximately 6.1 million shares of its common stock at an average price of \$91.78 per share during 2015, 18.7 million shares of its common stock at an average price of \$107.17 per share during 2016, approximately 7.1 million shares of its common stock at an average price of \$140.56 per share during 2017 and approximately 13.9 million shares of its common stock at an average price of \$143.66 per share during 2018. As of December 31, 2018, there were approximately \$446 million of authorized repurchases remaining under the 2015 Program.

On August 3, 2018, the Company's Board of Directors authorized a new stock repurchase program which provides for the buyback of up to an additional \$3.0 billion of the Company's common stock over an open-ended period of time (the "2018 Program"). As of December 31, 2018, there were \$3.0 billion of authorized repurchases remaining under the 2018 program.

Cash Dividends— Cash dividends declared were \$3.56 per share in 2018, \$2.86 per share in 2017 and \$2.40 per share in 2016. Cash dividends paid were \$3.34 per share in 2018, \$2.73 per share in 2017 and \$2.30 per share in 2016.

Accumulated Other Comprehensive Income (Loss)— The changes in accumulated other comprehensive income (loss) during 2018, 2017 and 2016 were as follows:

In millions	2018	2017	2016
Beginning balance	\$ (1,287)	\$ (1,807)	\$ (1,504)
Adoption of new accounting guidance related to reclassification of certain tax effects	(45)	—	—
Foreign currency translation adjustments during the period	(308)	294	(251)
Foreign currency translation adjustments reclassified to income	5	2	(1)
Income taxes	(25)	110	(25)
Total foreign currency translation adjustments, net of tax	(328)	406	(277)
Pension and other postretirement benefit adjustments during the period	(64)	96	(67)
Pension and other postretirement benefit adjustments reclassified to income	41	56	43
Income taxes	6	(38)	(2)
Total pension and other postretirement benefit adjustments, net of tax	(17)	114	(26)
Ending balance	<u>\$ (1,677)</u>	<u>\$ (1,287)</u>	<u>\$ (1,807)</u>

Effective January 1, 2018, the Company elected to early adopt new accounting guidance related to the stranded tax effects resulting from the change in the U.S. federal corporate income tax rate under the "Tax Cuts and Jobs Act" (the "Act") and reclassified \$45 million of stranded income tax effects from Accumulated other comprehensive income (loss) to Retained earnings. Refer to Note 1. Description of Business and Summary of Significant Accounting Policies for additional information.

Foreign currency translation adjustments reclassified to income primarily relate to the disposal of operations and were included in the related gain or loss upon disposal. Pension and other postretirement benefit adjustments reclassified to income represent the amortization of actuarial gains and losses and prior service cost. Refer to Note 10. Pension and Other Postretirement Benefits for the amounts included in net periodic benefit cost.

The Company designated €1.0 billion of Euro notes issued in May 2014 and €1.0 billion of Euro notes issued in May 2015 as hedges of a portion of its net investment in Euro-denominated foreign operations to reduce foreign currency risk associated with the investment in these operations. Changes in the value of this debt resulting from fluctuations in the Euro to U.S. Dollar exchange rate have been recorded as foreign currency translation adjustments within Accumulated other comprehensive income (loss). The cumulative unrealized pre-tax gain recorded in Accumulated other comprehensive income (loss) related to the net investment hedge was \$187 million and \$81 million as of December 31, 2018 and 2017, respectively.

As of December 31, 2018 and 2017, the ending balance of Accumulated other comprehensive income (loss) consisted of after-tax cumulative translation adjustment losses of \$1.3 billion and \$1.0 billion, respectively, and after-tax unrecognized pension and other postretirement benefits costs of \$364 million and \$291 million, respectively. The estimated pre-tax unrecognized net benefit cost that will be amortized from Accumulated other comprehensive income (loss) into income in 2019 is \$21 million for pension and other postretirement benefits.

(13) Stock-Based Compensation

On May 8, 2015 (the "Effective Date"), the 2015 Long-Term Incentive Plan (the "2015 Plan") was approved by shareholders. As of the Effective Date, no additional awards will be granted to employees under the 2011 Long-Term Incentive Plan (the "2011 Plan"). The significant terms of stock options and restricted stock units ("RSUs") were not changed under the 2015 Plan. Stock options and RSUs are issued to officers and/or other management employees under these plans. Stock options generally vest over a four-year period and have an expiration of ten years from the issuance date. RSUs generally "cliff" vest after a three-year period and include units with and without performance criteria. RSUs with performance criteria provide for full "cliff" vesting after three years if the Compensation Committee certifies that the performance goals have been met. Upon vesting, the holder will receive one share of common stock of the Company for each vested RSU.

Commencing in February 2013, the Company began issuing shares from treasury stock to cover the exercised options and vested RSUs. Prior to February 2013, the Company generally issued new shares from its authorized but unissued share pool. As of December 31, 2018, approximately 13 million shares of ITW common stock were reserved for issuance under these plans.

The Company records compensation expense for the grant date fair value of stock awards over the remaining service periods of those awards. The following table summarizes the Company's stock-based compensation expense:

In millions	2018		2017		2016	
Pre-tax compensation expense	\$	40	\$	36	\$	39
Tax benefit		(5)		(9)		(13)
Total stock-based compensation expense, net of tax	\$	35	\$	27	\$	26

The following table summarizes activity related to non-vested RSUs during 2018:

Shares in millions	Number of Shares	Weighted-Average Grant-Date Fair Value
Unvested, January 1, 2018	0.6	\$99.87
Granted	0.2	162.49
Vested	(0.3)	92.71
Unvested, December 31, 2018	0.5	121.24

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

In millions except exercise price and contractual terms	Number of Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term	Aggregate Intrinsic Value
Under option, January 1, 2018	4.5	\$80.88		
Granted	0.5	163.36		
Exercised	(0.4)	61.22		
Under option, December 31, 2018	4.6	90.56	5.6	\$165
Exercisable, December 31, 2018	3.2	74.08	4.6	\$168

Effective with the 2017 grant, issued RSUs provide for dividend equivalents payable in additional RSUs for dividends that would have been paid during the vesting period. Accordingly, the fair value of RSUs issued in 2018 and 2017 was equal to the common stock fair market value on the date of the grant. For grants prior to 2017, the fair value of RSUs was determined by reducing the closing market price on the date of the grant by the present value of projected dividends over the vesting period. Stock option exercise prices are equal to the common stock fair market value on the date of grant. The Company uses a binomial option pricing model to estimate the fair value of the stock options granted. The following summarizes the assumptions used in the models:

	2018	2017	2016
Risk-free interest rate	2.07-3.06%	0.91-2.61%	0.56-1.86%
Weighted-average volatility	22.0%	22.0%	24.0%
Dividend yield	2.10%	2.22%	2.12%
Expected years until exercise	7.5-8.4	7.2-7.9	6.9-7.7

Lattice-based option valuation models, such as the binomial option pricing model, incorporate ranges of assumptions for inputs. The risk-free rate of interest for periods within the contractual life of the option is based on a zero-coupon U.S. government instrument over the contractual term of the equity instrument. Expected volatility is based on implied volatility from traded options on the Company's stock and historical volatility of the Company's stock. The Company uses historical data to estimate option exercise timing and employee termination rates within the valuation model. The weighted-average dividend yield is based on historical information. The expected term of options granted is derived from the output of the option valuation model and represents the period of time that options granted are expected to be outstanding. The ranges presented result from separate groups of employees assumed to exhibit different exercise behavior.

The weighted-average grant-date fair value of stock options granted during 2018, 2017 and 2016 was \$38.34, \$26.83 and \$20.02 per share, respectively. The aggregate intrinsic value of stock options exercised during the years ended December 31, 2018, 2017 and 2016 was \$33 million, \$132 million and \$89 million, respectively. As of December 31, 2018, there was \$10 million of total unrecognized compensation cost related to unvested stock options. That cost is expected to be recognized over a weighted-average period of 2.1 years. Exercise of stock options during the years ended December 31, 2018, 2017 and 2016 resulted in cash receipts of \$22 million, \$84 million and \$84 million, respectively. The total fair value of vested stock option awards during the years ended December 31, 2018, 2017 and 2016 was \$15 million, \$13 million and \$12 million, respectively.

As of December 31, 2018, there was \$30 million of total unrecognized compensation cost related to unvested RSUs. That cost is expected to be recognized over a weighted-average remaining contractual life of 1.8 years. The total fair value of vested RSU awards during the years ended December 31, 2018, 2017 and 2016 was \$19 million, \$19 million and \$21 million, respectively.

(14) Other Balance Sheet Information

Other balance sheet information at December 31, 2018 and 2017 was as follows:

In millions	2018	2017
Prepaid expenses and other current assets:		
Income tax refunds receivable	\$ 98	\$ 121
Value-added-tax receivables	79	70
Vendor advances	30	26
Other	127	119
Total prepaid expenses and other current assets	\$ 334	\$ 336
Other assets:		
Cash surrender value of life insurance policies	\$ 429	\$ 442
Prepaid pension assets	290	337
Customer tooling	171	184
Investments	51	53
Other	89	179
Total other assets	\$ 1,030	\$ 1,195
Accrued expenses:		
Compensation and employee benefits	\$ 391	\$ 411
Deferred revenue and customer deposits	215	205
Rebates	172	147
Warranties	45	45
Current portion of pension and other postretirement benefit obligations	16	16
Other	432	434
Total accrued expenses	\$ 1,271	\$ 1,258
Other liabilities:		
Pension benefit obligation	\$ 203	\$ 219
Postretirement benefit obligation	179	174
Other	457	489
Total other liabilities	\$ 839	\$ 882

(15) Segment Information

The Company's operations are organized and managed based on similar product offerings and end markets, and are reported to senior management as the following seven segments: Automotive OEM; Food Equipment; Test & Measurement and Electronics; Welding; Polymers & Fluids; Construction Products; and Specialty Products. The following is a description of the Company's seven segments:

Automotive OEM— This segment is a global, niche supplier to top tier OEMs, providing unique innovation to address pain points for sophisticated customers with complex problems. Businesses in this segment produce components and fasteners for automotive-related applications.

Food Equipment— This segment is a highly focused and branded industry-leader in commercial food equipment differentiated by innovation and integrated service offerings.

Test & Measurement and Electronics— This segment is a branded and innovative producer of test and measurement and electronic manufacturing and MRO solutions that improve efficiency and quality for customers in diverse end markets. Businesses in this segment produce equipment, consumables, and related software for testing and measuring of materials and structures, as well as equipment and consumables used in the production of electronic subassemblies and microelectronics.

Welding— This segment is a branded value-added equipment and specialty consumable manufacturer with innovative and leading technology. Businesses in this segment produce arc welding equipment, consumables and accessories for a wide array of industrial and commercial applications.

Polymers & Fluids— This segment is a branded supplier to niche markets that require value-added, differentiated products. Businesses in this segment produce engineered adhesives, sealants, lubrication and cutting fluids, and fluids and polymers for auto aftermarket maintenance and appearance.

Construction Products— This segment is a branded supplier of innovative engineered fastening systems and solutions.

Specialty Products— This segment is focused on diversified niche market opportunities with substantial patent protection producing beverage packaging equipment and consumables, product coding and marking equipment and consumables, and appliance components and fasteners.

Segments are allocated a fixed overhead charge based on the segment's revenue. Expenses not charged to the segments are reported separately as Unallocated. Because the Unallocated category includes a variety of items, it is subject to fluctuations on a quarterly and annual basis. Unallocated in 2017 includes the favorable impact from the previously discussed confidential legal settlement.

Segment information for 2018, 2017 and 2016 was as follows:

In millions	2018	2017	2016
Operating revenue:			
Automotive OEM	\$ 3,338	\$ 3,271	\$ 2,864
Food Equipment	2,214	2,123	2,110
Test & Measurement and Electronics	2,171	2,069	1,974
Welding	1,691	1,538	1,486
Polymers & Fluids	1,724	1,724	1,691
Construction Products	1,700	1,672	1,609
Specialty Products	1,951	1,938	1,885
Intersegment revenue	(21)	(21)	(20)
Total	\$ 14,768	\$ 14,314	\$ 13,599
Operating income:			
Automotive OEM	\$ 751	\$ 747	\$ 690
Food Equipment	572	556	537
Test & Measurement and Electronics	523	464	372
Welding	474	415	370
Polymers & Fluids	369	357	343
Construction Products	414	399	361
Specialty Products	522	527	482
Total Segments	3,625	3,465	3,155
Unallocated	(41)	20	(99)
Total	\$ 3,584	\$ 3,485	\$ 3,056
Depreciation and amortization and impairment of intangible assets:			
Automotive OEM	\$ 123	\$ 111	\$ 90
Food Equipment	44	45	45
Test & Measurement and Electronics	88	92	104
Welding	27	28	36
Polymers & Fluids	83	89	92
Construction Products	32	33	34
Specialty Products	64	64	69
Total	\$ 461	\$ 462	\$ 470
Plant and equipment additions:			
Automotive OEM	\$ 184	\$ 147	\$ 116
Food Equipment	28	27	31
Test & Measurement and Electronics	31	23	25
Welding	23	17	16
Polymers & Fluids	15	16	18
Construction Products	25	22	20
Specialty Products	58	45	47
Total	\$ 364	\$ 297	\$ 273
Identifiable assets:			
Automotive OEM	\$ 2,388	\$ 2,402	\$ 2,051
Food Equipment	1,019	1,054	1,013
Test & Measurement and Electronics	2,343	2,449	2,362
Welding	789	756	701
Polymers & Fluids	1,942	2,067	2,019
Construction Products	1,167	1,196	1,099
Specialty Products	1,687	1,721	1,599
Total Segments	11,335	11,645	10,844
Corporate	3,535	5,135	4,357
Total	\$ 14,870	\$ 16,780	\$ 15,201

Identifiable assets by segment are those assets that are specifically used in that segment. Corporate assets are principally cash and equivalents, investments and other general corporate assets.

Enterprise-wide information for 2018, 2017 and 2016 was as follows:

In millions	2018		2017		2016	
Operating Revenue by Geographic Region:						
United States	\$	6,562	\$	6,243	\$	6,176
Canada/Mexico		1,050		996		923
Total North America		7,612		7,239		7,099
Europe, Middle East and Africa		4,241		4,102		3,787
Asia Pacific		2,573		2,577		2,361
South America		342		396		352
Total Operating Revenue	\$	14,768	\$	14,314	\$	13,599

Operating revenue by geographic region is based on the customers' locations. There was no single country outside the U.S. with long-lived assets exceeding 10% of the Company's total long-lived assets in 2018 and 2016. At December 31, 2017, the Company had approximately 10% of its total long-lived assets in Germany. No single customer accounted for more than 5% of consolidated revenues in 2018, 2017 or 2016. Additionally, the Company has thousands of product lines within its businesses; therefore, providing operating revenue by product line is not practicable.

SELECTED QUARTERLY FINANCIAL DATA (UNAUDITED)

The unaudited quarterly financial data included as supplementary data reflects all adjustments that are, in the opinion of management, necessary for a fair statement of the results for the interim periods presented.

In millions except per share amounts	Three Months Ended							
	March 31		June 30		September 30		December 31	
	2018	2017	2018	2017	2018	2017	2018	2017
Operating revenue	\$ 3,744	\$ 3,471	\$ 3,831	\$ 3,599	\$ 3,613	\$ 3,615	\$ 3,580	\$ 3,629
Cost of revenue	2,181	2,003	2,231	2,087	2,096	2,092	2,096	2,124
Operating income	903	807	932	872	889	960	860	846
Net income (loss)	652	536	666	587	638	640	607	(76)
Net income (loss) per share:								
Basic	1.92	1.55	1.98	1.70	1.91	1.86	1.84	(0.22)
Diluted	1.90	1.54	1.97	1.69	1.90	1.85	1.83	(0.22)

In the fourth quarter of 2017, the Company recorded a one-time additional income tax expense of \$658 million, or \$1.92 per diluted share, related to the enactment of the United States "Tax Cuts and Jobs Act." Refer to Note 6. Income Taxes for further information.

In the second quarter of 2017, the Company entered into a \$95 million confidential settlement agreement to resolve a litigation matter. Based on the terms of the agreement, the Company received the settlement within 120 days of the execution of the agreement. The receipt of the settlement resulted in a favorable pre-tax impact of \$15 million in the second quarter of 2017 and \$80 million in the third quarter of 2017, which was included in operating income.

ITEM 9. Changes in and Disagreements With Accountants on Accounting and Financial Disclosure

None.

ITEM 9A. Controls and Procedures

Controls and Procedures

The Company's management, with the participation of the Company's Chairman & Chief Executive Officer and Senior Vice President & Chief Financial Officer, has evaluated the effectiveness of the Company's disclosure controls and procedures (as defined in Exchange Act Rule 13a-15(e)) as of December 31, 2018. Based on such evaluation, the Company's Chairman & Chief Executive Officer and Senior Vice President & Chief Financial Officer have concluded that, as of December 31, 2018, the Company's disclosure controls and procedures were effective.

Management Report on Internal Control over Financial Reporting

The Management Report on Internal Control over Financial Reporting and the Report of Independent Registered Public Accounting Firm are found in Item 8. Financial Statements and Supplementary Data.

In connection with the evaluation by management, including the Company's Chairman & Chief Executive Officer and Senior Vice President & Chief Financial Officer, no changes in the Company's internal control over financial reporting (as defined in Exchange Act Rule 13a-15(f)) during the quarter ended December 31, 2018 were identified that have materially affected or are reasonably likely to materially affect the Company's internal control over financial reporting.

ITEM 9B. Other Information

None.

PART III

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

Information regarding the Directors of the Company is incorporated by reference from the information under the captions "Proposal 1 - Election of Directors" in the Company's Proxy Statement for the 2019 Annual Meeting of Stockholders.

Information regarding the Audit Committee and its Financial Experts is incorporated by reference from the information under the captions "Proposal 1 - Election of Directors - Board of Directors and Its Committees" and "Audit Committee Report" in the Company's Proxy Statement for the 2019 Annual Meeting of Stockholders.

Information regarding the Executive Officers of the Company can be found in Part I of this Annual Report on Form 10-K under the caption "Executive Officers."

Information regarding compliance with Section 16(a) of the Exchange Act is incorporated by reference from the information under the caption "Proposal 1 - Election of Directors - Section 16(a) Beneficial Ownership Reporting Compliance" in the Company's Proxy Statement for the 2019 Annual Meeting of Stockholders.

Information regarding the Company's code of ethics that applies to the Company's Chairman & Chief Executive Officer, Senior Vice President & Chief Financial Officer, and key financial and accounting personnel is incorporated by reference from the information under the caption "Proposal 1 - Election of Directors - Corporate Governance Policies and Practices" in the Company's Proxy Statement for the 2019 Annual Meeting of Stockholders.

ITEM 11. *Executive Compensation*

This information is incorporated by reference from the information under the captions "NEO Compensation," "Proposal 1 - Election of Directors - Director Compensation," and "Compensation Discussion and Analysis" in the Company's Proxy Statement for the 2019 Annual Meeting of Stockholders.

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

This information is incorporated by reference from the information under the captions "Proposal 1 - Election of Directors - Ownership of ITW Stock" and "NEO Compensation - Equity Compensation Plan Information" in the Company's Proxy Statement for the 2019 Annual Meeting of Stockholders.

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

Information regarding certain relationships and related transactions is incorporated by reference from the information under the captions "Proposal 1 - Election of Directors - Ownership of ITW Stock," "Certain Relationships and Related Party Transactions" and "Proposal 1 - Election of Directors - Corporate Governance Policies and Practices" in the Company's Proxy Statement for the 2019 Annual Meeting of Stockholders.

Information regarding director independence is incorporated by reference from the information under the captions "Proposal 1 - Election of Directors - Corporate Governance Policies and Practices" and "Appendix A - Categorical Standards for Director Independence" in the Company's Proxy Statement for the 2019 Annual Meeting of Stockholders.

ITEM 14. *Principal Accounting Fees and Services*

This information is incorporated by reference from the information under the caption "Proposal 2 - Ratification of the Appointment of Independent Registered Public Accounting Firm" in the Company's Proxy Statement for the 2019 Annual Meeting of Stockholders.

PART IV

ITEM 15. Exhibits and Financial Statement Schedules

(a) (1) *Financial Statements*

The following information is included as part of Item 8, Financial Statements and Supplementary Data:

Management Report on Internal Control over Financial Reporting
Report of Independent Registered Public Accounting Firm
Statement of Income
Statement of Comprehensive Income
Statement of Financial Position
Statement of Changes in Stockholders' Equity
Statement of Cash Flows
Notes to Financial Statements

(2) *Financial Statement Schedules*

None.

(3) *Exhibits*

Exhibit Number	Description
2.1(a)	Investment Agreement, dated as of August 15, 2012, among CD&R Wimbledon Holdings III, L.P., a Cayman Islands limited partnership; Illinois Tool Works Inc.; ITW DS Investments Inc., a Delaware corporation; and Wilsonart International Holdings LLC, a Delaware limited liability company, filed as Exhibit 2.1 to the Company's Current Report on Form 8-K filed on August 17, 2012 (Commission File No. 1-4797) and incorporated herein by reference. (Certain of the schedules and similar attachments have been omitted pursuant to Item 601(b)(2) of Regulation S-K, but the Company undertakes to furnish a copy of the schedules or similar attachments to the Securities and Exchange Committee upon request.)
2.1(b)	Stock Purchase Agreement, dated as of February 6, 2014, between Illinois Tool Works Inc. and certain of its subsidiaries and Vault Bermuda Holding Co. Ltd., filed as Exhibit 2.1 to the Company's Current Report on Form 8-K filed on February 12, 2014. (Commission File No. 1-4797) and incorporated herein by reference. (Certain of the schedules and similar attachments have been omitted pursuant to Item 601(b)(2) of Regulation S-K, but the Company undertakes to furnish a copy of the schedules or similar attachments to the Securities and Exchange Commission upon request.)
3(a)(i)	Amended and Restated Certificate of Incorporation of Illinois Tool Works Inc., filed as Exhibit 3.1 to the Company's Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2014 (Commission File No. 1-4797) and incorporated herein by reference.
3(a)(ii)	Certificate of Amendment to Amended and Restated Certificate of Incorporation of Illinois Tool Works Inc., filed as Exhibit 3(a)(ii) to the Company's Current Report on Form 8-K filed on May 12, 2016 (Commission File No. 1-4797) and incorporated herein by reference.
3(b)	By-laws of Illinois Tool Works Inc., as amended and restated as of May 6, 2016, filed as Exhibit 3(b)(i) to the Company's Current Report on Form 8-K filed on May 12, 2016 (Commission File No. 1-4797) and incorporated herein by reference.
4(a)	Indenture between Illinois Tool Works Inc. and The First National Bank of Chicago, as Trustee, dated as of November 1, 1986, filed as Exhibit 4.1 to the Company's Registration Statement on Form S-3 filed on January 15, 1999 (Commission File No. 333-70691) and incorporated herein by reference.
4(b)	First Supplemental Indenture between Illinois Tool Works Inc. and Harris Trust and Savings Bank, as Trustee, dated as of May 1, 1990, filed as Exhibit 4.2 to the Company's Registration Statement on Form S-3 filed on January 15, 1999 (Commission File No. 333-70691) and incorporated herein by reference.
4(c)	Officers' Certificate dated March 26, 2009 establishing the terms, and setting forth the forms, of the 5.15% Notes due 2014 and the 6.25% Notes due 2019, filed as Exhibit 4.3 to the Company's Current Report on Form 8-K filed on March 27, 2009 (Commission File No. 1-4797) and incorporated herein by reference.
4(d)	Officers' Certificate dated August 31, 2011, establishing the terms, and setting forth the forms, of the 3.375% Notes due 2021 and the 4.875% Notes due 2041, filed as Exhibit 4.3 to the Company's Current Report on Form 8-K filed on September 1, 2011 (Commission File No. 001-04797) and incorporated herein by reference.

Exhibit Number	Description
4(e)	Officers' Certificate dated August 28, 2012, establishing the terms, and setting forth the forms, of the 3.9% Notes due 2042, filed as Exhibit 4.1 to the Company's Current Report on Form 8-K filed on August 28, 2012 (Commission File No. 001-4797) and incorporated herein by reference.
4(f)	Officers' Certificate dated February 25, 2014, establishing the terms, and setting forth the forms, of the 0.9% Notes due 2017, the 1.95% Notes due 2019, and the 3.5% Notes due 2024, filed as Exhibit 4.1 to the Company's Current Report on Form 8-K filed on February 26, 2014 (Commission File No. 001-04797) and incorporated herein by reference.
4(g)	Officers' Certificate dated May 20, 2014, establishing the terms, and setting forth the forms, of the 1.75% Euro Notes due 2022 and the 3.0% Euro Notes due 2034, filed as Exhibit 4.1 to the Company's Current Report on Form 8-K filed on May 22, 2014 (Commission File No. 001-04797) and incorporated herein by reference.
4(h)	Officers' Certificate dated May 19, 2015, establishing the terms, and setting forth the forms, of the 1.25% Euro Notes due 2023 and the 2.125% Euro Notes due 2030, filed as Exhibit 4.1 to the Company's Current Report on Form 8-K filed on May 22, 2015 (Commission File No. 001-04797) and incorporated herein by reference.
4(i)	Officers' Certificate dated November 7, 2016, establishing the terms, and setting forth the forms, of the 2.65% Notes due 2026, filed as Exhibit 4.1 to the Company's Current Report on Form 8-K filed on November 10, 2016 (Commission File No. 001-04797) and incorporated herein by reference.
10(a)*	Illinois Tool Works Inc. 2006 Stock Incentive Plan dated February 10, 2006, as amended on May 5, 2006, filed as Exhibit 10(a) to the Company's Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2006 (Commission File No. 1-4797) and incorporated herein by reference.
10(b)*	Amendment to Illinois Tool Works Inc. 2006 Stock Incentive Plan dated February 8, 2008, filed as Exhibit 10(q) to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2007 (Commission File No. 1-4797) and incorporated herein by reference.
10(c)*	Second Amendment to Illinois Tool Works Inc. 2006 Stock Incentive Plan dated February 13, 2009, filed as Exhibit 10(d) to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2008 (Commission File No. 1-4797) and incorporated herein by reference.
10(d)*	Illinois Tool Works Inc. 2011 Long-Term Incentive Plan, filed as Exhibit 99.2 to the Company's Current Report on Form 8-K filed on December 16, 2010 (Commission File No. 1-4797) and incorporated herein by reference.
10(e)*	Illinois Tool Works Inc. 2015 Long-Term Incentive Plan effective May 8, 2015, filed as Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2015 (Commission File No. 1-4797) and incorporated herein by reference.
10(f)*	Form of stock option terms filed as Exhibit 99.1 to the Company's Current Report on Form 8-K filed on February 9, 2011 (Commission File No. 1-4797) and incorporated herein by reference.
10(g)*	Form of stock option terms filed as Exhibit 99.1 to the Company's Current Report on Form 8-K filed on February 7, 2012 (Commission File No. 1-4797) and incorporated herein by reference.
10(h)*	Form of stock option terms filed as Exhibit 99.1 to the Company's Current Report on Form 8-K filed on February 13, 2014 (Commission File No. 1-4797) and incorporated herein by reference.
10(i)*	Form of stock option terms filed as Exhibit 99.1 to the Company's Current Report on Form 8-K filed on February 9, 2016 (Commission File No. 1-4797) and incorporated herein by reference.
10(j)*	Form of restricted stock unit terms filed as Exhibit 99.2 to the Company's Current Report on Form 8-K filed on February 9, 2016 (Commission File No. 1-4797) and incorporated herein by reference.
10(k)*	Form of performance restricted stock unit terms filed as Exhibit 99.3 to the Company's Current Report on Form 8-K filed on February 9, 2016 (Commission File No. 1-4797) and incorporated herein by reference.
10(l)*	Form of Long-Term Incentive Cash Grant filed as Exhibit 99.4 to the Company's Current Report on Form 8-K filed on February 9, 2016 (Commission File No. 1-4797) and incorporated herein by reference.
10(m)*	Form of stock option terms filed as Exhibit 99.1 to the Company's Current Report on Form 8-K filed on February 9, 2017 (Commission File No. 1-4797) and incorporated herein by reference.
10(n)*	Form of restricted stock unit terms filed as Exhibit 99.2 to the Company's Current Report on Form 8-K filed on February 9, 2017 (Commission File No. 1-4797) and incorporated herein by reference.

Exhibit Number	Description
10(o)*	Form of performance share unit terms filed as Exhibit 99.3 to the Company's Current Report on Form 8-K filed on February 9, 2017 (Commission File No. 1-4797) and incorporated herein by reference.
10(p)*	Form of performance cash grant filed as Exhibit 99.4 to the Company's Current Report on Form 8-K filed on February 9, 2017 (Commission File No. 1-4797) and incorporated herein by reference.
10(q)*	Form of stock option terms filed as Exhibit 99.1 to the Company's Current Report on Form 8-K filed on February 14, 2019 (Commission File No. 1-4797) and incorporated herein by reference
10(r)*	Form of performance share unit terms filed as Exhibit 99.2 to the Company's Current Report on Form 8-K filed on February 14, 2019 (Commission File No. 1-4797) and incorporated herein by reference
10(s)*	Form of performance cash terms filed as Exhibit 99.3 to the Company's Current Report on Form 8-K filed on February 14, 2019 (Commission File No. 1-4797) and incorporated herein by reference
10(t)*	Illinois Tool Works Inc. 2011 Executive Incentive Plan, filed as Exhibit 99.1 to the Company's Current Report on Form 8-K filed on December 16, 2010 (Commission File No. 1-4797) and incorporated herein by reference.
10(u)*	Illinois Tool Works Inc. Executive Contributory Retirement Income Plan as amended and restated, effective January 1, 2010, filed as exhibit 10 to the Company's Current Report on Form 8-K filed on November 5, 2009 (Commission File No. 1-4797) and incorporated herein by reference.
10(v)*	Illinois Tool Works Inc. Nonqualified Pension Plan, effective January 1, 2008, as amended and approved by the Board of Directors on December 22, 2008, filed as Exhibit 10(p) to the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2008 (Commission File No. 1-4797) and incorporated herein by reference.
10(w)*	Illinois Tool Works Inc. 2011 Change-in-Control Severance Compensation Policy, filed as Exhibit 99.3 to the Company's Current Report on Form 8-K filed on December 16, 2010 (Commission File No. 1-4797) and incorporated herein by reference.
10(x)*	Illinois Tool Works Inc. Amended and Restated Directors' Deferred Fee Plan effective May 2, 2014, filed as Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2014 (Commission File No. 1-4797) and incorporated herein by reference.
10(y)*	Illinois Tool Works Inc. 2011 Cash Incentive Plan, filed as Exhibit 99.1 to the Company's Form 8-K filed on May 12, 2011 (Commission File No. 1-4797) and incorporated herein by reference.
10(z)*	First Amendment to the ITW Executive Contributory Retirement Income Plan dated February 15, 2013, filed as Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2013 (Commission File No. 1-4797) and incorporated herein by reference.
10(aa)	Five Year Credit Agreement dated as of May 9, 2016 among Illinois Tool Works Inc., the Lenders, JPMorgan Chase Bank, National Association, as Administrative Agent, and Citibank, N.A., as Syndication Agent filed as Exhibit 10(a) to the Company's Current Report on Form 8-K filed on May 12, 2016 (Commission File No. 1-4797) and incorporated herein by reference.
10(ab)*	Offer of Employment Letter from Illinois Tool Works Inc. to Norman D. Finch dated January 4, 2017, filed as exhibit 10 to the Company's Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2018 (Commission File No. 1-4797) and incorporated by reference.
21	Subsidiaries and Affiliates of the Company.
23	Consent of Independent Registered Public Accounting Firm.
24	Powers of Attorney.
31	Rule 13a-14(a) Certifications.
32	Section 1350 Certification.
99(a)	A description of the capital stock of Illinois Tool Works Inc. is included under Item 8.01 Other Events in the Company's Report on Form 8-K filed on February 9, 2017 (Commission File No. 1-4797) and incorporated herein by reference.
101.INS	XBRL Instance Document**
101.SCH	XBRL Taxonomy Extension Schema**
101.CAL	XBRL Taxonomy Extension Calculation Linkbase**

Exhibit Number	Description
101.DEF	XBRL Taxonomy Extension Definition Linkbase**
101.LAB	XBRL Taxonomy Extension Label Linkbase**
101.PRE	XBRL Taxonomy Extension Presentation Linkbase**

* Management contract or compensatory plan or arrangement.

** The following financial information from Illinois Tool Works Inc.'s Annual Report on Form 10-K for the year ended December 31, 2018, formatted in XBRL (Extensible Business Reporting Language): (i) Statement of Income, (ii) Statement of Comprehensive Income, (iii) Statement of Income Reinvested in the Business (iv) Statement of Financial Position, (v) Statement of Cash Flows and (vi) related Notes to Financial Statements.

Pursuant to Regulation S-K, Item 601(b)(4)(iii), the Company has not filed with Exhibit 4 any debt instruments for which the total amount of securities authorized thereunder is less than 10% of the total assets of the Company and its subsidiaries on a consolidated basis as of December 31, 2018, with the exception of the Officers' Certificates related to the 1.95% Notes due 2019, the 6.25% Notes due 2019, the 3.375% Notes due 2021, the 1.75% Euro Notes due 2022, the 1.25% Euro Notes due 2023, the 3.50% Notes due 2024, the 2.65% Notes due 2026, the 2.125% Euro Notes due 2030, the 3.00% Euro Notes due 2034, the 4.875% Notes due 2041, and the 3.90% Notes due 2042, which are described as Exhibit numbers 4 (c) through (i) in the Exhibit Index. The Company agrees to furnish a copy of the agreement related to the debt instruments which have not been filed with Exhibit 4 to the Securities and Exchange Commission upon request.

ITEM 16. Form 10-K Summary

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized on this 15th day of February 2019.

ILLINOIS TOOL WORKS INC.

By:

/s/ E. SCOTT SANTI

E. Scott Santi

Chairman & Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed by the following persons on behalf of the registrant and in the capacities indicated on this 15th day of February 2019.

<u>Signatures</u>	<u>Title</u>
<u>/s/ E. SCOTT SANTI</u> E. Scott Santi	Chairman & Chief Executive Officer, Director (Principal Executive Officer)
<u>/s/ MICHAEL M. LARSEN</u> Michael M. Larsen	Senior Vice President & Chief Financial Officer (Principal Financial Officer)
<u>/s/ RANDALL J. SCHEUNEMAN</u> Randall J. Scheuneman	Vice President & Chief Accounting Officer (Principal Accounting Officer)
DANIEL J. BRUTTO	Director
SUSAN CROWN	Director
JAMES W. GRIFFITH	Director
JAY L. HENDERSON	Director
RICHARD H. LENNY	Director
JAMES A. SKINNER	Director
DAVID B. SMITH, JR.	Director
PAMELA B. STROBEL	Director
KEVIN M. WARREN	Director
ANRÉ D. WILLIAMS	Director
<u>By: /s/ E. SCOTT SANTI</u> (E. Scott Santi, as Attorney-in-Fact)	

Original powers of attorney authorizing E. Scott Santi to sign the Company's Annual Report on Form 10-K and amendments thereto on behalf of the above-named directors of the registrant have been filed with the Securities and Exchange Commission as part of this Annual Report on Form 10-K (Exhibit 24).

[\(Back To Top\)](#)

82

Section 2: EX-21 (EXHIBIT 21)

Exhibit 21

<u>Subsidiary Name</u>	<u>Illinois Tool Works Inc. Subsidiaries</u>	<u>Primary Jurisdiction</u>
00792620		United Kingdom
A V Co 1 Limited		United Kingdom
A V Co 1 Limited		Delaware
A V Co 2 Limited		United Kingdom
A V Co 2 Limited		Nevada
A V Co 3 Limited		United Kingdom
A V Co 3 Limited		Nevada
Accessories Marketing Holding Corp.		Delaware
ACCULUBE Manufacturing GmbH - Schmiermittel und -geräte -		Germany
Advanced Molding Company, Inc.		Philippines
AIP/BI Holdings, Inc.		Delaware
Allen Coding GmbH		Germany
Allen France SAS		France
Alpine Automation Limited		United Kingdom
Alpine Holdings, Inc.		Delaware
Alpine Systems Corporation		Canada
Anaerobicos S.r.l.		Argentina
AppliChem GmbH		Germany
AppliChem, Inc.		Connecticut
Ark-Les Components, S.A. de C.V.		Mexico
Arylux Hungary Elektromechanikus Alkatrészgyártó Kft		Hungary
Avery Berkel France		France
Avery India Limited		India
Avery Malaysia Sdn Bhd		Malaysia
Avery Weigh-Tronix (Suzhou) Weighing Technology Co. Ltd.		China
Avery Weigh-Tronix Finance Limited		United Kingdom
Avery Weigh-Tronix Holdings Limited		Nevada
Avery Weigh-Tronix Holdings Limited		United Kingdom

Avery Weigh-Tronix International Limited
Avery Weigh-Tronix Limited
Avery Weigh-Tronix Properties Limited
Avery Weigh-Tronix, LLC
B.C. Immo
Bangalore Integrated System Solutions Private Ltd
Beijing Miller Electric Manufacturing Co. Ltd.
Berkel (Ireland) Limited
Berrington UK
Brapenta Eletronica Ltda.
Brooks Instrument (Shanghai) Co. Ltd
Brooks Instrument B.V.
Brooks Instrument GmbH
Brooks Instrument India Private Limited
Brooks Instrument KFT
Brooks Instrument Korea, Ltd.
Brooks Instrument LLC
Buell Industries, Inc.
Calvia sp. z.o.o.
Capital Ventures (Australasia) S.à r.l
CAPMAX Logística S.A. de C.V.
Capmax Logística, S.A. de C.V.
CCI Realty Company
Celeste Industries Corporation
Cetram Pty Limited
CFC Europe GmbH
Coeur (Shanghai) Medical Appliance Trading Co., Ltd

United Kingdom
United Kingdom
United Kingdom
Delaware
France
India
China
Ireland
United Kingdom
Brazil
China
Netherlands
Germany
India
Hungary
South Korea
Delaware
Delaware
Poland
Luxembourg
Mexico
Delaware
Delaware
Connecticut
Australia
Germany
China

Illinois Tool Works Inc.
Subsidiaries

<u>Subsidiary Name</u>	<u>Primary Jurisdiction</u>
Coeur Asia Limited	Hong Kong
Coeur Holding Company	Delaware
Coeur, Inc.	Indiana
Compagnie de Materiel et d'Equipements Techniques-Comet	France
Compagnie Hobart	France
Constructions Isothermiques Bontami C.I.B.	France
CS (Australasia)	Luxembourg
CS (Australia) Pty Limited	Australia
CS (Finance) Europe S.a.r.l.	Luxembourg
CS Mexico Holding Company S DE RL DE CV	Mexico
CSMTS LLC	Delaware
Densit Asia Pacific Sdn Bhd	Malaysia
Despatch Industries (Shanghai) Trading Co., Ltd.	China
Despatch Industries Limited Partnership	Minnesota
Diagraph Corporation Sdn. Bhd	Malaysia
Diagraph ITW Mexico, S. de R.L. De C.V.	Mexico
Diagraph México, S.A. DE C.V.	Mexico
Dongguan Ark-Les Electric Components Co., Ltd.	China
Dongguan CK Branding Co., Ltd.	China
Dorbyl U.K. (Holdings) Limited	United Kingdom
Duo Fast de Espana S.A.U.	Spain
Duo-Fast Korea Co. Ltd.	South Korea
Duo-Fast LLC	Illinois
E.C.S. d.o.o.	Croatia
ECS Cable Protection Sp. Zoo	Poland
Electric Light Development Ltd.	British Virgin Island
Elga Skandinavian AS	Norway
ELRO (Holding) AG	Switzerland
ELRO Grosskuchen GmbH	Austria
ELRO Grosskuchen GmbH	Germany
ELRO-WERKE AG	Switzerland
Eltex-Elektrostatik-Gesellschaft mit beschränkter Haftung	Germany
Envases Multipac, S.A. de C.V.	Mexico
Epirez Australia Pty Ltd	Australia
Eurotec Srl	Italy
Fasver	France
FEG Investments L.L.C.	Delaware
Filtertek	France
Filtertek De Mexico Holding Inc.	Delaware
Filtertek De Mexico, S.A. de C.V.	Mexico
Gamko B.V.	Netherlands
GC Financement SA	France
Gold Pattern Holdings Limited	British Virgin Island
GSE IP LLC	Delaware
Gun Hwa Platech (Taicang) Co. Ltd.	China
Hobart (Japan) K.K.	Japan
Hobart Andina S.A.S.	Colombia
Hobart Brothers International Chile Limitada	Chile
Hobart Brothers LLC	Ohio
Hobart Dayton Mexicana, S. de R.L. de C.V.	Mexico
Hobart Food Equipment Co., Ltd.	China
Hobart Foster Belgium B.V.B.A.	Belgium
HOBART Gesellschaft mit beschränkter Haftung	Germany
Hobart International (Singapore) Pte. Ltd.	Singapore
Hobart Korea LLC	South Korea

Illinois Tool Works Inc.
Subsidiaries

<u>Subsidiary Name</u>	<u>Primary Jurisdiction</u>
Hobart LLC	Delaware
Hobart Nederland B.V.	Netherlands
Hobart Sales & Service, Inc.	Ohio
Hobart Scandinavia ApS	Denmark
Hobart Technik B.V.	Netherlands
Horis	France
Ideal Molding Technologies LLC	Delaware
ILC Investments Holdings Inc.	Delaware
Illinois Tool Works (Chile) Limitada	Chile
Illinois Tool Works (ITW) Nederland B.V.	Netherlands
Illinois Tool Works Norway AS	Norway
Impar Comercio E Representacoes Ltda.	Brazil
Industrie Plastic Elsässer GmbH	Germany
Inmobiliaria Cit., S.A. de C.F.	Mexico
Innova Temperlite Servicios, S.A. de C.V.	Mexico
Innovación y Transformación Automotriz, S.A. de C.V.	Mexico
Instron (Shanghai) Co., Ltd.	China
Instron (Thailand) Limited	Thailand
Instron Brasil Equipamentos Científicos Ltda.	Brazil
Instron Foreign Sales Corp. Limited	Jamaica
Instron France	France
Instron GmbH	Germany
Instron Holdings Limited	United Kingdom
Instron International Limited	United Kingdom
Instron Japan Company, Ltd.	Massachusetts
Instron Korea LLC	South Korea
International Leasing Company LLC	Delaware
International Truss Systems Proprietary Limited	South Africa
Isolenge - ITW Sistemas de Isolamento Termico Ltda.	Brazil
ITW (China) Investment Company Limited	China
ITW (Deutschland) GmbH	Germany
ITW (EU) Holdings Ltd.	Luxembourg
ITW (Ningbo) Components & Fastenings Systems Co., Ltd.	China
ITW AAM Comércio e Distribuição de Produtos Automotivos Ltda.	Brazil
ITW AEP LLC	Delaware
ITW Aircraft Investments Inc.	Delaware
ITW Airport Ground Equipment (Beijing) Co. Ltd.	China
ITW Alpha SárI	Luxembourg
ITW Ampang Industries Philippines, Inc.	Philippines
ITW AOC, LLC	South Korea
ITW Appliance Components d.o.o.	Slovenia
ITW Appliance Components EOOD	Bulgaria
ITW Ark-Les LLC	Massachusetts
ITW Australia Holdings Pty Ltd	Australia
ITW Australia Property Holdings Pty Ltd.	Australia
ITW Australia Pty Ltd	Australia
ITW Austria Vertriebs GmbH	Austria
ITW Automotive Components (Chongqing) Co. Ltd.	China
ITW Automotive Components (Langfang) Co., Ltd.	China
ITW Automotive Japan K.K.	Japan
ITW Automotive Korea, LLC	South Korea
ITW Automotive Parts (Shanghai) Co. Ltd	China
ITW Automotive Products GmbH	Germany
ITW Automotive Products México, S. de R.L. de C.V.	Mexico
ITW Bailly Come	France

Illinois Tool Works Inc.
Subsidiaries

<u>Subsidiary Name</u>	<u>Primary Jurisdiction</u>
ITW Befestigungssysteme GmbH	Germany
ITW Belgium	Belgium
ITW Brazilian Nominee L.L.C.	Delaware
ITW Building Components Group Inc.	Delaware
ITW Business Development S.à r.l.	Luxembourg
ITW Canada Inc.	Canada
ITW Celeste Inc.	Delaware
ITW CER	France
ITW Chemical Products Ltda	Brazil
ITW Chemical Products Scandinavia ApS	Denmark
ITW Colombia S.A.S.	Colombia
ITW Construction Products (Shanghai) Co. Ltd.	China
ITW Construction Products (Singapore) Pte. Ltd.	Singapore
ITW Construction Products AB	Sweden
ITW Construction Products ApS	Denmark
ITW Construction Products AS	Norway
ITW Construction Products CZ s.r.o.	Czech Republic
ITW Construction Products Italy Srl	Italy
ITW Construction Products OU	Estonia
ITW Construction Products OY	Finland
ITW Contamination Control (Wujiang) Co., Ltd.	China
ITW Contamination Control B.V.	Netherlands
ITW Covid Security Group Inc.	Delaware
ITW CP Distribution Center Holland BV	Netherlands
ITW CS (UK) Ltd.	United Kingdom
ITW de France	France
ITW DelFast do Brasil Ltda.	Brazil
ITW Delta Sàrl	Luxembourg
ITW Denmark ApS	Denmark
ITW do Brasil Industrial e Comercial Ltda.	Brazil
ITW DS Investments Inc.	Delaware
ITW Dynatec	France
ITW Dynatec Adhesive Equipment (Suzhou) Co. Ltd.	China
ITW Dynatec GmbH	Germany
ITW Dynatec Kabushiki Kaisha	Japan
ITW EF&C France SAS	France
ITW EF&C Selb GmbH	Germany
ITW Electronic Business Asia Co., Limited	Taiwan
ITW Electronic Components/Products (Shanghai) Co., Ltd.	China
ITW Electronics (Suzhou) Co., Ltd.	China
ITW Epsilon Sàrl	Luxembourg
ITW Espana S.A.	Spain
ITW Fastener Products GmbH	Germany
ITW FEG do Brasil Industria e Comercio Ltda.	Brazil
ITW FEG Hong Kong Limited	Hong Kong
ITW Finance Designated Activity Company	Ireland
ITW Finance Europe S.A.	Luxembourg
ITW Finance Europe S.A.	Delaware
ITW Fluids and Hygiene Solutions Ltda.	Brazil
ITW Foils B.V.	Netherlands
ITW Food Equipment Group LLC	Delaware
ITW Gamma Sàrl	Luxembourg
ITW German Management LLC	Delaware
ITW GH LLC	South Korea
ITW Global Investments Holdings LLC	Delaware

Illinois Tool Works Inc.
Subsidiaries

<u>Subsidiary Name</u>	<u>Primary Jurisdiction</u>
ITW Global Investments Holdings Y Compañía, Sociedad en Comandita por Acciones	Guatemala
ITW Global Investments II Inc.	Delaware
ITW Global Investments LLC	Delaware
ITW Global Tire Repair Europe GmbH	Germany
ITW Global Tire Repair Inc.	California
ITW Global Tire Repair Japan K.K.	Japan
ITW Graphics (Thailand) Ltd.	Thailand
ITW Graphics Asia Limited	Hong Kong
ITW Graphics Italy S.R.L. in liquidazione	Italy
ITW Great Britain Investment & Licensing Holding Company	Delaware
ITW Group France (Luxembourg) S.à.r.l.	Luxembourg
ITW GSE ApS	Denmark
ITW GSE Inc.	Delaware
ITW haubold Paslode GmbH	Switzerland
ITW HLP Thailand Co. Ltd.	Thailand
ITW Holding Quimica B.C., S.L., Sole Shareholder Company	Spain
ITW Holdings Australia L.P.	Australia
ITW Holdings I Limited	United Kingdom
ITW Holdings II Limited	United Kingdom
ITW Holdings III Limited	United Kingdom
ITW Holdings Inc.	Delaware
ITW Holdings IV Limited	United Kingdom
ITW Holdings LP	United Kingdom
ITW Holdings UK	United Kingdom
ITW Holdings V Limited	United Kingdom
ITW Holdings VI Limited	United Kingdom
ITW Holdings VII Limited	United Kingdom
ITW Holdings VIII Limited	United Kingdom
ITW Hungary Finance Beta Kft	Hungary
ITW ILC Holdings I Inc.	Delaware
ITW Imaden Industria e Comercio Ltda.	Brazil
ITW India Private Limited	India
ITW Industrial Components Srl	Italy
ITW Industry B.V.	Netherlands
ITW Insulation Systems FZE	United Arab Emirates
ITW International Holdings LLC	Delaware
ITW International Intellectual Property LLC	Delaware
ITW Invest Holding GmbH	Germany
ITW IPG Investments LLC	Delaware
ITW Ireland Holdings	Ireland
ITW Ireland Unlimited Company	Ireland
ITW Italy Finance Srl	Italy
ITW Italy Holding Srl	Italy
ITW Japan Ltd.	Japan
ITW Korea LLC	South Korea
ITW Limited	United Kingdom
ITW LLC & Co. KG	Germany
ITW Lombard Holdings Inc.	Delaware
ITW Lys Fusion S.r.l.	Italy
ITW M FILMS II LLC	Delaware
ITW Marking & Coding (Shanghai) Co., Ltd.	China
ITW Medical Group de Mexico S. de R.L. de C.V.	Mexico
ITW Meritex Sdn. Bhd.	Malaysia
ITW Metal Fasteners, S.L.	Spain

Illinois Tool Works Inc.
Subsidiaries

<u>Subsidiary Name</u>	<u>Primary Jurisdiction</u>
ITW Mexico Holding Company S. De R.L. de C.V.	Mexico
ITW Mexico Holdings LLC	Delaware
ITW MH LLC	Delaware
ITW Morlock GmbH	Germany
ITW Mortgage Investments II, Inc.	Delaware
ITW Mortgage Investments III, Inc.	Delaware
ITW Mortgage Investments IV, Inc.	Delaware
ITW Netherlands Beta B.V.	Netherlands
ITW Netherlands Finance Alpha BV	Netherlands
ITW New Universal LLC	Delaware
ITW New Zealand	New Zealand
ITW Novadan Sp. Z.o.o.	Poland
ITW Packaging Technology (China) Co. Ltd.	China
ITW Participations S.à r.l.	Luxembourg
ITW Pension Funds Trustee Company	United Kingdom
ITW Performance Plastic (Shanghai) Co. Ltd.	China
ITW Performance Polymers & Fluids Japan Co. Ltd.	Japan
ITW Performance Polymers & Fluids Korea Limited	South Korea
ITW Performance Polymers & Fluids OOO	Russia
ITW Performance Polymers (Wujiang) Co., Ltd.	China
ITW Performance Polymers and Fluids Group FZE	United Arab Emirates
ITW Performance Polymers ApS	Denmark
ITW Peru S.A.C.	Peru
ITW Philippines Holdings LLC	Delaware
ITW Poly Mex., S. de R.L. de C.V.	Mexico
ITW Polymers Sealants North America Inc.	Texas
ITW PPF Brasil Adesivos Ltda.	Brazil
ITW Pronovia s.r.o.	Czech Republic
ITW Pte. Ltd.	Singapore
ITW Qufu Automotive Cooling Systems Co. Ltd.	China
ITW Quimica Sustentável Ltda.	Brazil
ITW Real Estate Germany GmbH	Germany
ITW Residuals III L.L.C.	Delaware
ITW Residuals IV L.L.C.	Delaware
ITW Rivex	France
ITW Simco-Ion (Shenzhen) Co. Ltd.	China
ITW Slovakia s.r.o.	Slovakia
ITW SMPI	France
ITW Spain Holdings, S.L.	Spain
ITW Specialty Film, LLC	South Korea
ITW Specialty Films France	France
ITW Specialty Materials (Suzhou) Co., Ltd.	China
ITW Speedline Equipment (Suzhou) Co. Ltd.	China
ITW SPG México, S. de R.L. de C.V.	Mexico
ITW Spraytec	France
ITW Sverige AB	Sweden
ITW Sweden Holding AB	Sweden
ITW Test & Measurement Equipment (Shanghai) Co., Ltd	China
ITW Test & Measurement GmbH	Germany
ITW Test and Measurement Italia Srl	Italy
ITW Test and Measurement Services Industry and Trade Ltd.	Turkey
ITW Texwipe Philippines, Inc.	Philippines
ITW Thermal Films (Shanghai) Co., Ltd.	China
ITW UK	United Kingdom
ITW UK Finance Beta Limited	United Kingdom

Illinois Tool Works Inc.
Subsidiaries

<u>Subsidiary Name</u>	<u>Primary Jurisdiction</u>
ITW UK Finance Delta Limited	United Kingdom
ITW UK Finance Gamma Limited	United Kingdom
ITW UK Finance Limited	United Kingdom
ITW UK II Limited	United Kingdom
ITW Universal II LLC	Delaware
ITW Welding	France
ITW Welding AB	Sweden
ITW Welding Colombia S.A.S.	Colombia
ITW Welding GmbH	Germany
ITW Welding Products B.V.	Netherlands
ITW Welding Products Group FZE	United Arab Emirates
ITW Welding Products Group, S. DE R.L. De C.V.	Mexico
ITW Welding Products Italy Srl	Italy
ITW Welding Products Limited Liability Company	Russia
ITW Welding Produtos Para Solgdagem Ltda.	Brazil
ITW Welding Servicios Mexico, S. de R.L. de C.V.	Mexico
ITW Welding Singapore Pte. Ltd.	Singapore
KCPL Mauritius Holdings	Mauritius
Kester Components (M) Sdn. Bhd.	Malaysia
Kester Components Private Limited	Singapore
Kester GmbH	Germany
Kester LLC	Delaware
Kleinmann GmbH	Germany
Krafft Argentina, S.A.	Argentina
Krafft, S.L.	Spain
Lock Inspection Systemes France Sarl	France
Loma Systems (Canada) Inc.	Canada
Loma Systems BV	Netherlands
Loma Systems sro	Czech Republic
Lombard Pressings Limited	United Kingdom
Lumex, Inc.	Illinois
Luvex - Industria De Equipamentos De Protecao Ltda.	Brazil
Lys Fusion Poland Sp. z.o.o.	Poland
M&C Specialties (Shenzhen) Co. Ltd.	China
M&C Specialties Co.	Pennsylvania
Magna Industrial Co. Limited	Hong Kong
MAGNAFLUX GmbH	Germany
Manufacturing Avancee S.A.	Morocco
MEHB Holdings Limited	United Kingdom
Meritex Technology (Suzhou) Co. Ltd.	China
Meurer Verpackungssysteme GmbH	Germany
MGHG Property LLC	Delaware
Miller Electric Mfg. LLC	Wisconsin
Miller Insurance Ltd.	Vermont
NDT Holding LLC	Delaware
Norden Olje AB	Sweden
North Star Imaging Europe	France
North Star Imaging, Inc.	Minnesota
Nova Chimica, S.r.l.	Italy
Novadan ApS	Denmark
NSC Europe Limited	United Kingdom
Odesign, Inc.	Illinois
Orbitalum Tools GmbH	Germany
Pacific Concept Industries Limited (Enping)	China
Packaging Leasing Systems Inc.	Delaware

Illinois Tool Works Inc.
Subsidiaries

<u>Subsidiary Name</u>	<u>Primary Jurisdiction</u>
Panreac Quimica, S.L.	Spain
Paslode Fasteners (Shanghai) Co., Ltd.	China
Penta Dnepr LLC	Ukraine
Penta Don OOO	Russia
Penta Sever OOO	Russia
Penta Ural OOO	Russia
Penta Volga OOO	Russia
PENTA-91 OOO	Russia
PR. A. I. Srl	Italy
Premark FEG L.L.C.	Delaware
Premark HII Holdings LLC	Ohio
Premark International, LLC	Delaware
Prolex, Sociedad Anónima	Costa Rica
Prolim Comercio de Higiene e Limpeza Ltda.	Brazil
PT ITW Construction Products Indonesia	Indonesia
QSA Global, Inc.	Delaware
Quimica Industrial Mediterranea, S.L.	Spain
Ramset Fasteners (Hong Kong) Ltd.	Hong Kong
Rapid Cook LLC	Delaware
Refrigeration France	France
S.E.E. Sistemas Industria E Comercio Ltda.	Brazil
Salter India Limited	India
Sealant Systems International, Inc.	California
Sentinel Asia Yuhan Hoesa	South Korea
Shanghai ITW Plastic & Metal Co. Ltd	China
Simco (Nederland) B.V.	Netherlands
Simco Japan, Inc.	Japan
Société de Prospection et d'Inventions Techniques – SPIT	France
Speedline Holdings I, Inc.	Delaware
Speedline Holdings I, LLC	Delaware
Speedline Technologies GmbH	Germany
Speedline Technologies Mexico Services, S. de R.L. de C.V.	Mexico
Speedline Technologies Mexico, S. de R.L. de C.V.	Mexico
ST Mexico Holdings LLC	Delaware
Stokvis Celix Portugal Unipessoal LDA	Portugal
Stokvis Danmark ApS	Denmark
Stokvis Promi Czech s.r.o.	Czech Republic
Stokvis Tape Group B.V.	Netherlands
Stokvis Tapes (HK) Co. Limited	Hong Kong
Stokvis Tapes (Shanghai) Co. Ltd.	China
Stokvis Tapes (Shenzhen) Co. Ltd.	China
Stokvis Tapes (Taiwan) Co. Ltd.	Taiwan
Stokvis Tapes (Tianjin) Co. Ltd.	China
Stokvis Tapes Benelux B.V.	Netherlands
Stokvis Tapes BVBA	Belgium
Stokvis Tapes Deutschland GmbH	Germany
Stokvis Tapes France	France
Stokvis Tapes Italia s.r.l.	Italy
Stokvis Tapes Limited Liability Company	Russia
Stokvis Tapes Norge AS	Norway
Stokvis Tapes Oy	Finland
Stokvis Tapes Polska Sp Z.O.O.	Poland
Stokvis Tapes Sverige AB	Sweden
Sweldx AB	Sweden
Tarutin Kester Co., Ltd.	Japan

Illinois Tool Works Inc.
Subsidiaries

<u>Subsidiary Name</u>	<u>Primary Jurisdiction</u>
Technopak Industria, Comercio, Consultoria e Representacoes Ltda.	Brazil
Teknek (China) Limited	Scotland
Teknek (Japan) Limited	Scotland
Teksaleco Ltd.	Scotland
The Three Russells, Sociedad Anónima	Costa Rica
Thirode Grandes Cuisines Poligny	France
Tien Tai Electrode (Kunshan) Co., Ltd.	China
Tien Tai Electrode (Qingdao) Co., Ltd.	China
Tien Tai Electrode Co., Ltd.	Taiwan
Unichemicals Industria e Comercio Ltda.	Brazil
US Finance Gamma LLC	Delaware
Valeron Strength Films B.V.B.A.	Belgium
Veneta Decalcogomme S.r.l.	Italy
Versachem Chile S.A.	Chile
Vesta (Guangzhou) Catering Equipment Co. Ltd	China
Vesta Global Limited	Hong Kong
Vitronics Soltec B.V.	Netherlands
VR-Leasing Sarita GmbH & Co. Immobilien KG	Germany
VS Acquisition Holding Co.	Delaware
VS European Holdco BV	Netherlands
VS Holding Co.	Delaware
Wachs Canada Ltd.	Canada
Wachs Subsea LLC	Illinois
Weigh-Tronix Canada, ULC	Canada
Weigh-Tronix UK Limited	United Kingdom
Wilsonart International Holdings LLC	Delaware
Wynn Oil (South Africa) (Pty) Ltd.	South Africa
Wynn's Automotive France	France
Wynn's Belgium BVBA	Belgium
Wynn's Italia Srl	Italy
Wynn's Mekuba India Pvt Ltd	India
Zip-Pak International B.V.	Netherlands

[\(Back To Top\)](#)

Section 3: EX-23 (EXHIBIT 23)

Exhibit 23

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statement No. 333-219695 on Form S-3; Registration Statement Nos. 333-105731, 333-69542, 333-145392, and 333-206206 on Form S-8; and Registration Statement No. 333-163547 on Form S-4 of our report dated February 15, 2019, relating to the consolidated financial statements of Illinois Tool Works Inc. and subsidiaries (the "Company"), and the effectiveness of the Company's internal control over financial reporting, appearing in this Annual Report on Form 10-K of the Company for the year ended December 31, 2018.

/s/ DELOITTE & TOUCHE LLP
Chicago, Illinois
February 15, 2019

[\(Back To Top\)](#)

Section 4: EX-24 (EXHIBIT 24)

Exhibit 24

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that the undersigned whose signature appears below constitutes and appoints E. Scott Santi and Michael M. Larsen, and each of them, his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution for her or him and in his or her name, place and stead, in any and all capacities, to sign the Company's Form 10-K Annual Report and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or their substitute or substitutes, may lawfully do or cause to be done by virtue thereof.

IN WITNESS WHEREOF, the undersigned has executed this power of attorney this 15th day of February, 2019.

/s/ Daniel J. Brutto
Daniel J. Brutto

ILLINOIS TOOL WORKS INC.

Form 10-K Annual Report

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that the undersigned whose signature appears below constitutes and appoints E. Scott Santi and Michael M. Larsen, and each of them, his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution for her or him and in his or her name, place and stead, in any and all capacities, to sign the Company's Form 10-K Annual Report and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or their substitute or substitutes, may lawfully do or cause to be done by virtue thereof.

IN WITNESS WHEREOF, the undersigned has executed this power of attorney this 15th day of February, 2019.

/s/ Susan Crown

Susan Crown

ILLINOIS TOOL WORKS INC.

Form 10-K Annual Report

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that the undersigned whose signature appears below constitutes and appoints E. Scott Santi and Michael M. Larsen, and each of them, his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution for her or him and in his or her name, place and stead, in any and all capacities, to sign the Company's Form 10-K Annual Report and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or their substitute or substitutes, may lawfully do or cause to be done by virtue thereof.

IN WITNESS WHEREOF, the undersigned has executed this power of attorney this 15th day of February, 2019.

/s/ James W. Griffith

James W. Griffith

ILLINOIS TOOL WORKS INC.

Form 10-K Annual Report

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that the undersigned whose signature appears below constitutes and appoints E. Scott Santi and Michael M. Larsen, and each of them, his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution for her or him and in his or her name, place and stead, in any and all capacities, to sign the Company's Form 10-K Annual Report and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or their substitute or substitutes, may lawfully do or cause to be done by virtue thereof.

IN WITNESS WHEREOF, the undersigned has executed this power of attorney this 15th day of February, 2019.

/s/ Jay L. Henderson
Jay L. Henderson

ILLINOIS TOOL WORKS INC.

Form 10-K Annual Report

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that the undersigned whose signature appears below constitutes and appoints E. Scott Santi and Michael M. Larsen, and each of them, his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution for her or him and in his or her name, place and stead, in any and all capacities, to sign the Company's Form 10-K Annual Report and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or their substitute or substitutes, may lawfully do or cause to be done by virtue thereof.

IN WITNESS WHEREOF, the undersigned has executed this power of attorney this 15th day of February, 2019.

/s/ Richard H. Lenny

Richard H. Lenny

ILLINOIS TOOL WORKS INC.

Form 10-K Annual Report

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that the undersigned whose signature appears below constitutes and appoints E. Scott Santi and Michael M. Larsen, and each of them, his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution for her or him and in his or her name, place and stead, in any and all capacities, to sign the Company's Form 10-K Annual Report and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or their substitute or substitutes, may lawfully do or cause to be done by virtue thereof.

IN WITNESS WHEREOF, the undersigned has executed this power of attorney this 15th day of February, 2019.

/s/ James A. Skinner

James A. Skinner

ILLINOIS TOOL WORKS INC.

Form 10-K Annual Report

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that the undersigned whose signature appears below constitutes and appoints E. Scott Santi and Michael M. Larsen, and each of them, his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution for her or him and in his or her name, place and stead, in any and all capacities, to sign the Company's Form 10-K Annual Report and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or their substitute or substitutes, may lawfully do or cause to be done by virtue thereof.

IN WITNESS WHEREOF, the undersigned has executed this power of attorney this 15th day of February, 2019.

/s/ David B. Smith, Jr.

David B. Smith, Jr.

ILLINOIS TOOL WORKS INC.

Form 10-K Annual Report

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that the undersigned whose signature appears below constitutes and appoints E. Scott Santi and Michael M. Larsen, and each of them, his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution for her or him and in his or her name, place and stead, in any and all capacities, to sign the Company's Form 10-K Annual Report and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or their substitute or substitutes, may lawfully do or cause to be done by virtue thereof.

IN WITNESS WHEREOF, the undersigned has executed this power of attorney this 15th day of February, 2019.

/s/ Pamela B. Strobel

Pamela B. Strobel

ILLINOIS TOOL WORKS INC.

Form 10-K Annual Report

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that the undersigned whose signature appears below constitutes and appoints E. Scott Santi and Michael M. Larsen, and each of them, his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution for her or him and in his or her name, place and stead, in any and all capacities, to sign the Company's Form 10-K Annual Report and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or their substitute or substitutes, may lawfully do or cause to be done by virtue thereof.

IN WITNESS WHEREOF, the undersigned has executed this power of attorney this 15th day of February, 2019.

/s/ Kevin M. Warren

Kevin M. Warren

ILLINOIS TOOL WORKS INC.

Form 10-K Annual Report

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that the undersigned whose signature appears below constitutes and appoints E. Scott Santi and Michael M. Larsen, and each of them, his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution for her or him and in his or her name, place and stead, in any and all capacities, to sign the Company's Form 10-K Annual Report and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or their substitute or substitutes, may lawfully do or cause to be done by virtue thereof.

IN WITNESS WHEREOF, the undersigned has executed this power of attorney this 15th day of February, 2019.

/s/ Anré D. Williams

Anré D. Williams

[\(Back To Top\)](#)

Section 5: EX-31 (EXHIBIT 31)

Exhibit 31

Rule 13a-14(a) Certification

I, E. Scott Santi, certify that:

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

Dated: February 15, 2019

/s/ E. Scott Santi

E. Scott Santi
Chairman & Chief Executive Officer

Rule 13a-14(a) Certification

I, Michael M. Larsen, certify that:

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

Dated: February 15, 2019

/s/ Michael M. Larsen
 Michael M. Larsen
 Senior Vice President & Chief Financial Officer

[\(Back To Top\)](#)

Section 6: EX-32 (EXHIBIT 32)

Section 1350 Certification

The following statement is being made to the Securities and Exchange Commission solely for purposes of Section 906 of the Sarbanes-Oxley Act of 2002 (18 U.S.C. 1350), which carries with it certain criminal penalties in the event of a knowing or willful misrepresentation.

Each of the undersigned hereby certifies that the Annual Report on Form 10-K for the period ended December 31, 2018 fully complies with the requirements of Section 13(a) of the Securities Exchange Act of 1934 and that the information contained in such report fairly presents, in all material respects, the financial condition and results of operations of the registrant.

Dated: February 15, 2019

/s/ E. Scott Santi
 E. Scott Santi
 Chairman & Chief Executive Officer

Dated: February 15, 2019

/s/ Michael M. Larsen
 Michael M. Larsen
 Senior Vice President & Chief Financial Officer

[\(Back To Top\)](#)