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 , 2022

OR

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

For the transition period from ___________ to ___________

Commission file number 1-4797

ILLINOIS TOOL WORKS INC .

(Exact Name of Registrant as Specified in its Charter)

Delaware	**36-1258310**
(State or Other Jurisdiction of Incorporation or Organization)	(I.R.S. Employer Identification No.)
155 Harlem Avenue Glenview Illinois	**60025**
(Address of Principal Executive Offices)	(Zip Code)

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

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

Title of Each Class	Trading Symbol(s)	Name of Each Exchange on Which Registered
Common Stock	ITW	New York Stock Exchange
1.25% Euro Notes due 2023	ITW23	New York Stock Exchange
0.250% Euro Notes due 2024	ITW24A	New York Stock Exchange
0.625% Euro Notes due 2027	ITW27	New York Stock Exchange
2.125% Euro Notes due 2030	ITW30	New York Stock Exchange
1.00% Euro Notes due 2031	ITW31	New York Stock Exchange
3.00% Euro Notes due 2034	ITW34	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 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	☒	Accelerated filer	☐
Non-accelerated filer	☐	Smaller reporting company	☐
Emerging growth company	☐		

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

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

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant’s executive officers during the relevant recovery period pursuant to §240.10D-1(b). ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act).
Yes ☐ No ☒

The aggregate market value of the voting stock held by non-affiliates of the registrant as of June 30, 2022 was approximately $ 56.3 billion based on the New York Stock Exchange closing sales price as of June 30, 2022.

Shares of common stock outstanding at January 31, 2023: 305,068,141 .

Documents Incorporated by Reference

Portions of the 2023 Proxy Statement for Annual Meeting of Stockholders to be held on May 5, 2023. Part III

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<u>**PART I**</u>

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 84 divisions in 51 countries. As of December 31, 2022, the Company employed approximately 46,000 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 retail and food institutional/restaurant 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, automotive original equipment manufacturers and tiers, energy, consumer durables and industrial capital goods markets. Products in this segment include:

- equipment, consumables, and related software for testing and measuring of materials, structures, gases and fluids;
- electronic assembly equipment;
- 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 construction, energy, MRO, industrial capital goods and automotive original equipment manufacturers and tiers markets. Products in this segment include:

- arc welding equipment; and
- metal arc welding consumables and related accessories.

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 and MRO 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, industrial capital goods and printing and publishing markets. Products in this segment include:

- 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. It is the Company's competitive advantage and defines how ITW creates value for its shareholders. The ITW Business Model is comprised of 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 creating unique solutions to address those needs. These customer insights and learnings drive innovation at ITW and have contributed to a portfolio of approximately 19,200 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. 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, and developing a strategy to replicate that performance across its operations.

ITW determined that solid and consistent above-market organic growth is 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 improve global reach and competitiveness, all of which were critical to driving accelerated organic growth. ITW now has 84 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, delivering an average of one percent reduction in spend each year from 2013 through 2022 and continues to be a key contributor to the Company's ongoing enterprise strategy.

- With the initial portfolio realignment and scale-up work largely complete, the Company 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

Since the launch of the enterprise strategy, the Company has made considerable progress on our path to 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, every one of its divisions must also be operating at its full potential. To do so, the Company remains focused on its core principles:

- 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 highly diverse end markets and geographies which makes the Company more resilient in the face of uncertain or volatile market environments.

The Company routinely evaluates its portfolio to ensure it delivers sustainable differentiation and drives consistent long-term performance. This includes both implementing portfolio refinements and assessing selective high-quality acquisitions to supplement ITW's long-term growth potential.

The Company previously communicated its intent to explore options, including potential divestitures, for certain businesses with annual revenues totaling up to $1.0 billion. In the fourth quarter of 2019, the Company completed the divestitures of three businesses. Due to the COVID-19 pandemic, the Company chose to defer any significant divestiture activity in 2020 and 2021. The Company reinitiated the divestiture process in 2022 for certain businesses with combined annual revenues of approximately $0.5 billion, subject to approval by the Company's Board of Directors. In the second quarter of 2022, plans were approved to divest two businesses, including one business in the Polymers & Fluids segment and one business in the Food Equipment segment. In the fourth quarter of 2022, both of these businesses were divested. The business in the Polymers & Fluids segment was sold for $220 million, subject to certain closing adjustments, resulting in a pre-tax gain of $156 million. The business in the Food Equipment segment was sold for $59 million, subject to certain closing adjustments, resulting in a pre-tax gain of $41 million. Operating revenue related to these divested businesses that was included in the Company's results of operations for the twelve months ended December 31, 2022, 2021 and 2020 was $106 million, $115 million and $113 million, respectively. Refer to Note 4. Divestitures in Item 8. Financial Statements and Supplementary Data for further information regarding the Company's divestitures.

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 to drive 80/20 Front-to-Back practice excellence in every division in the Company, every day. Driving strong operational excellence in the quality of 80/20 Front-to-Back practice across the Company, division by division, will produce further customer-facing performance improvement in a number of divisions and additional structural margin expansion at the enterprise level.

Pandemic Priorities and "Win the Recovery"

While it was the challenges brought about by the COVID-19 pandemic that dominated the Company's attention starting in 2020, it was the collection of capabilities and competitive advantages that have been built and honed since 2012 through the execution of ITW's enterprise strategy that provided the Company with the options to respond. This, coupled with the proprietary and powerful ITW Business Model, diversified high-quality business portfolio and diligent execution put the Company in a position of strength in dealing with the global pandemic.

Throughout the global pandemic, the Company has focused its efforts on (1) protecting the health and supporting the well-being of ITW's colleagues; (2) serving the Company's customers with excellence; (3) maintaining financial strength, liquidity and strategic optionality; and (4) leveraging the Company's strengths to position it to fully participate in the recovery.

"Win the Recovery" is an execution component of the Company's enterprise strategy, not a separate initiative, with every one of the Company's divisions identifying specific opportunities presented by the pandemic to capture sustainable share gains that are aligned with the ITW long-term enterprise strategy. The Company expects these efforts to contribute meaningfully to accelerate its progress toward full-potential organic growth. The Company continues to focus on delivering strong results in any environment while executing its long-term strategy to achieve and sustain ITW's full potential performance.

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, with specific focus on:

- "80" focused Market Penetration - fully leveraging the considerable growth potential that resides in the Company's largest and most differentiated product offerings and customer relationships
- Customer-back Innovation - strengthening the Company's commitment to serial innovation and delivering a continuous flow of differentiated new products to its key customers
- Strategic Sales Excellence - deploying a high-performance sales function in every division

As the Company continues to make progress toward its full potential, the Company will explore opportunities to reinforce or further expand the long-term organic growth potential of ITW through the addition of selective high-quality acquisitions, such as the acquisition of the Test & Simulation business of MTS Systems Corporation ("MTS") from Amphenol Corporation on December 1, 2021. The operating results of the MTS Test & Simulation business were reported within the Company's Test & Measurement and Electronics segment. Refer to Note 3. Acquisitions in Item 8. Financial Statements and Supplementary Data for further information regarding this acquisition.

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. Total backlog was $2.7 billion and $2.9 billion as of December 31, 2022 and 2021, respectively. Due to the predominately short-term nature of the Company's arrangements with its customers, backlog orders expected to be completed beyond calendar year 2023 are not significant and represent approximately 10% of total backlog as of December 31, 2022.

Competition

With operations in 51 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 ITW 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 3,900 unexpired U.S. patents and 9,600 foreign patents covering articles, methods and machines. In addition, the Company has approximately 1,400 applications for patents pending in the U.S. Patent Office and 4,300 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 and MTS 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.

Government Regulations

The Company believes that its businesses and operations, including its manufacturing plants and equipment, are in substantial compliance with all applicable government laws and regulations, including those related to environmental, consumer protection, international trade, labor and employment, human rights, tax, anti-bribery and competition matters. Any additional measures to maintain compliance are not expected to materially affect the Company's capital expenditures (including expenditures for environmental control facilities), competitive position, financial position or results of operations.

Various legislative and administrative regulations applicable to the Company in the matters noted above have become effective or are under consideration in many parts of the world. To date, such developments have not had a substantial adverse impact on the Company's revenues, earnings or cash flows. However, if new or amended laws or regulations impose significant operational restrictions and compliance requirements upon the Company or its products, the Company's business, capital expenditures, results of operations, financial condition and competitive position could be negatively impacted. Refer to Item 1A. Risk Factors for further information.

Human Capital Management

As of December 31, 2022, the Company employed approximately 46,000 people, with approximately 18,000 people located in the United States and the remainder in multiple other countries where the Company's businesses operate. The Company strives to be a great employer through its demonstrated commitment to talent development, employee safety, workplace culture, compensation and benefits, and diversity and inclusion.

Talent Development. The Company's Great ITW Leader Framework defines the leadership capabilities and attributes that guide all leadership talent assessment, development and selection decisions. Great ITW Leaders are expected to be experts in the practice of the ITW Business Model, make great strategic choices, deliver great results, be great talent managers and provide strong leadership. Great ITW Leaders who have expertise in the ITW Business Model are the critical factor in translating the potential of the ITW Business Model into full performance. Because this expertise develops over time and through specific experiences, the Company focuses on developing and promoting its own talent to ensure the Company's sustained business success over the long term.

Employee Safety. The safety and well-being of ITW's colleagues around the world has been, and always will be, its top priority. Guided by the Company's Enterprise Safety Strategy and the philosophy that every accident is preventable, ITW strives every day to foster a proactive safety culture. ITW's Enterprise Safety Strategy is based on the following core principles: (i) a goal of zero accidents; (ii) shared ownership for safety (business and individual); (iii) proactive approach focused on accident prevention; and (iv) continuous improvement philosophy.

Consistent with these commitments, employee health and safety has been a top priority during the COVID-19 pandemic. Moreover, the Company's commitment to its employees was reinforced when the Company decided not to initiate any enterprise-wide employment reduction mandates or programs at any point during the pandemic.

Workplace Culture. The Company operates under a decentralized, entrepreneurial culture that is crucial to the Company's performance and is one of the three unique elements of the ITW Business Model. ITW believes its colleagues around the world thrive in this culture, as it allows them to experience significant autonomy, a sense of shared ownership with their colleagues, and a work atmosphere deeply rooted in the Company's core values of Integrity, Respect, Trust, Shared Risk and Simplicity.

Compensation and Benefits. As a global employer, the Company is committed to providing market-competitive compensation and benefits to attract and retain great talent across its global divisions. Specific compensation and benefits vary worldwide and are based on regional practices. In the U.S., the Company focuses on providing a comprehensive, competitive benefits package that supports the health and wellness, educational endeavors, community involvement and financial stability of its colleagues.

Diversity and Inclusion. ITW believes it is at its best when it brings together unique perspectives, experiences and ideas. Rooted in ITW's core values of Respect and Integrity, the Company is committed to equal employment opportunity, fair treatment and creating diverse and inclusive workplaces where all ITW colleagues can perform to their full potential. ITW remains committed to achieving its diversity and inclusion goals and enhancing the diversity of its global leadership teams. ITW drives progress through a comprehensive enterprise Diversity and Inclusion Framework, which focuses on (i) leadership commitment and accountability; (ii) attracting and retaining global, diverse talent; (iii) creating inclusive workplaces; and (iv) striving to be a great employer.

Labor Relations. Less than three percent of the Company's U.S. employees are represented by a labor union. Outside the U.S., employees in certain countries are represented by an employee representative organization, such as a union, works council or employee association. The Company considers its employee relations to be excellent.

The Company's Sustainability Report, published annually and available on the Company's website (www.itw.com), contains more information about the Company's human capital and its programs, goals and progress. Information in the Sustainability Report or on the Company's website is not incorporated herein by reference.

Information About Our 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 10, 2023 were as follows:

Name	Age	Present Position	Year Elected to Present Position	Other Positions Held During 2018-2022
E. Scott Santi	61	Chairman & Chief Executive Officer	2015	President & Chief Executive Officer, 2012-2015.
Axel Beck	57	Executive Vice President	2020	Group President, food equipment businesses, 2016-2020.
Kenneth Escoe	47	Executive Vice President	2020	Vice President/General Manager, specialty products businesses, 2016-2019; Group President, specialty products businesses, 2019-2020.
Javier Gracia Carbonell	50	Executive Vice President	2022	Vice President/General Manager, construction businesses, 2017-2020; Group President, construction businesses, 2020-2021.
Patricia A. Hartzell	46	Executive Vice President	2022	Vice President/General Manager, test and measurement & electronics businesses, 2017-2020; Group President, test and measurement & electronics businesses, 2020-2021.
Michael M. Larsen	54	Senior Vice President & Chief Financial Officer	2013	
Mary K. Lawler	57	Senior Vice President & Chief Human Resources Officer	2014	
Christopher O'Herlihy	59	Vice Chairman	2015	
Randall J. Scheuneman	55	Vice President & Chief Accounting Officer	2009	
Jennifer K. Schott	49	Senior Vice President, General Counsel & Secretary	2021	Vice President, Assistant General Counsel & Assistant Secretary, Discover Financial Services, 2016-2019; Deputy General Counsel & Assistant Secretary, Caterpillar, Inc., 2019-2021.
Sharon Szafranski	56	Executive Vice President	2020	Vice President/General Manager, test & measurement and electronics businesses, 2016-2019; Group President, test & measurement and electronics businesses, 2019-2020.
Michael R. Zimmerman	62	Executive Vice President	2015	

Available Information

The Company electronically files reports with the Securities and Exchange Commission (the "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. The Company's Code of Ethics for the CEO and key financial and accounting personnel is also posted on the Company's website.

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.

Economic Risks

The COVID-19 pandemic has adversely affected the Company's business, financial condition and results of operations and could affect the Company's liquidity. The full and long-term extent of the effects of the COVID-19 pandemic or other outbreaks, pandemics, or public health crises on our business depend on future events that continue to be highly uncertain and cannot be predicted.

The COVID-19 pandemic and the measures taken globally to reduce its spread have negatively impacted the global economy, disrupted consumer/customer demand and global supply chains, and created significant volatility and disruption of financial markets. The COVID-19 pandemic continues to have the potential to alter demand for our products and to disrupt our supply chain as a result of shifts in demand, illness, travel restrictions, transportation disruptions, increased border controls or closures, or financial hardship. We have been able to procure the critical raw materials and components necessary to continue production, but prices for some raw materials have increased significantly and there is no guarantee that we will be able to procure critical raw materials in the future without materially adversely impacting our operating margins. A prolonged extension of the conditions resulting from the pandemic could force both customer and supplier bankruptcies, which we expect would adversely impact our results; however, given the uncertainty around the continued duration and breadth of the COVID-19 pandemic, we cannot reasonably estimate the extent of these adverse effects on our operations.

The ultimate significance of the COVID-19 pandemic or other outbreaks, pandemics or public health crises on our business will depend on events that are beyond our control and that we cannot predict. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also affect our business, financial condition or results of operations.

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, inflation, natural disasters, public health crises (such as the COVID-19 pandemic), labor market challenges, supply chain disruptions, armed conflicts (such as the Russia and Ukraine conflict), 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.

Rising interest rates could have a dampening effect on overall economic activity and/or the financial condition of the Company's customers, either or both of which could negatively affect customer demand for the Company's products and customers' ability to repay obligations to the Company. Rising interest rates could have an impact on the Company and its customers' cost of capital.

The global nature of the Company's operations subjects it to political, economic and social 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 51 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 disruptions;
- political, social and economic instability and disruptions, including political unrest and armed conflicts;
- acts of terrorism;
- the impact of widespread public health crises (such as the COVID-19 pandemic);
- government embargoes, sanctions or foreign trade restrictions;
- the imposition of duties and tariffs and other trade barriers and retaliatory countermeasures;

- government actions impacting international trade agreements, including the EU-UK Trade and Cooperation Agreement;
- import and export controls;
- social and labor unrest and current and changing regulatory environments;
- the potential for expropriation or nationalization of enterprises;
- difficulties in staffing and managing multi-national operations;
- multiple and potentially conflicting laws, regulations and policies that are subject to change;
- limitations on its ability to enforce legal rights and remedies; and
- potentially adverse tax consequences.

The 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) and retaliatory actions by U.S. trade partners, including sanctions against Russia and developments in U.S.-China trade relations, could result in a worsening of economic conditions. If the Company is unable to successfully manage the risks associated with managing and expanding its international businesses, the Company's business, results of operations or financial condition may be adversely impacted.

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.

Business and Operational Risks

The benefits from the Company's enterprise strategy may not be as expected and the Company's financial results could be adversely impacted, or the Company may not meet its long-term financial performance targets.

As the Company continues to execute on its enterprise strategy initiatives, it remains focused on the core principles of portfolio discipline, 80/20 Front-to-Back practice excellence, and organic growth. 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 by the Company's operating divisions and are 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. Additionally, other core activities of the enterprise strategy related to portfolio discipline and organic growth, including customer-back innovation and strategic sales excellence, may not have the desired impact on future operating results. If the Company is unable to realize the expected benefits from its enterprise strategy initiatives, the Company's financial results could be adversely impacted, or the Company may not meet its long-term financial performance targets.

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 has historically funded 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 the Company from time to time, regulatory developments relating to share repurchase programs, the ability to obtain financing at attractive rates and the availability of U.S. cash.

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 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 by third parties, particularly in countries where property rights are not highly developed or protected, or inability to preserve existing intellectual property rights could adversely impact the Company's competitive position and results of operations.

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, including the acquisition of the MTS Test & Simulation business in December 2021. 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.

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. The Company and its customers have experienced supply chain disruptions related to the COVID-19 pandemic and the global reaction to Russia's ongoing invasion of Ukraine, and continued disruptions to the supply chain could adversely affect the Company's ability to meet commitments to customers. Prices for raw materials necessary for production have fluctuated significantly in the past and the Company has experienced upward pricing pressure on raw materials such as steel, resins and chemicals. Significant price increases could adversely affect the Company's results of operations and operating margins. In particular, inflation, changes in trade policies, the imposition of duties and tariffs, potential retaliatory countermeasures, public health crises (such as the COVID-19 pandemic), threatened or actual military conflicts and severe weather events could adversely impact the price or availability of raw materials. 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.

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.

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; computer viruses; employee error or malfeasance; and attacks by computer hackers, which have continued to increase on a global scale in both magnitude and frequency, taken on novel and unprecedented forms and become more difficult to detect. Minor security breaches have occurred from time to time and are expected to occur in the future. Although the cyber-attacks experienced to date have not had a material impact, future security breaches of our technology networks and systems or those of our vendors and third-party service providers could result in unauthorized disclosure of confidential information or personal data belonging to our employees, partners, customers or suppliers, which could cause reputational and legal harm as we are 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.

Strategic Transaction Risks

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

The Company has engaged in various acquisitions in the past, such as the acquisition of the MTS Test & Simulation business in December 2021, 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' inability to adapt to the ITW Business Model or otherwise perform in accordance with the Company's anticipated results or timetable, could cause it to under-perform relative to the Company's expectations and the price paid for it.
- 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.

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

The Company has had significant divestiture activity in the past in accordance with its portfolio management initiative, and it divested two businesses in the fourth quarter of 2022 as it continues portfolio refinements to maintain portfolio discipline. 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.

Tax, Legal and Regulatory Risks

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.

Adverse outcomes in legal proceedings or enforcement actions may adversely affect results.

The Company's businesses expose it to potential costs and adverse rulings associated with commercial, intellectual property, employment, toxic tort and other product liability claims and lawsuits. The Company's global operations also subject it to government investigations in numerous countries. We cannot predict the outcome of claims, investigations and lawsuits and we may incur costs, judgments or fines or enter into settlements that could adversely impact our businesses, reputation or future financial results. 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, judgments or settlements

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 environmental regulation and industry standards, as well as physical risks of climate change, could impact the Company's results of operations and financial position.

Increased public awareness and concern regarding environmental risks, including global climate change, may result in more international, regional and/or federal requirements or industry standards to reduce or mitigate global warming and other environmental risks. These regulations or standards could mandate even more restrictive requirements, such as stricter limits on greenhouse gas emissions and production of single use plastics, 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. In addition, the physical risks of climate change may impact the availability and cost of materials and natural resources, sources and supply of energy, product demand and manufacturing and could increase insurance and other operating costs, including, potentially, to repair damage incurred as a result of extreme weather events or to renovate or retrofit facilities to better withstand extreme weather events. If environmental laws or regulations or industry standards are either changed or adopted and impose significant operational restrictions and compliance requirements upon the Company or its products, or the Company's operations are disrupted due to physical impacts of climate change, the Company's business, capital expenditures, results of operations, financial condition and competitive position could be negatively impacted.

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, trade sanctions, data privacy, environmental, human rights 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, trade sanctions, data privacy, environmental and human rights laws. As recent years have seen a substantial increase in the global enforcement of anti-corruption laws and adoption of new trade sanctions and human rights 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.

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," "intend," "may," "strategy," "prospects," "estimate," "will," "should," "could," "project," "target," "anticipate," "guidance," "forecast," and other similar words, and may include, without limitation, statements regarding the duration and potential effects of the COVID-19 pandemic and global supply chain challenges, related government actions and the Company's strategy in response thereto on the Company's business, future financial and operating performance, free cash flow, economic and regulatory conditions in various geographic regions, the impact of foreign currency fluctuations, the timing and amount of benefits from the Company's enterprise strategy initiatives, the timing and amount of dividends and share repurchases, the protection of the Company's intellectual property, the likelihood of future goodwill or intangible asset impairment charges, the impact of adopting new accounting pronouncements, 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 cost and availability of additional financing, the availability of raw materials and energy and the impact of raw material cost inflation, enterprise initiatives, the Company's portion of future benefit payments related to pension and postretirement benefits, the Company's information technology infrastructure, potential acquisitions and divestitures and the expected performance of acquired businesses and impact of divested businesses, the impact of U.S. and global tax legislation and the estimated timing and amount related to the resolution of tax matters, the cost of compliance with environmental regulations, the impact of failure of the Company's employees to comply with applicable laws and regulations, and the outcome of outstanding legal proceedings. 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 and global operations, the Company operates out of a large number of facilities worldwide, none of which are individually significant to the Company or its segments. As of December 31, 2022, the Company operated approximately 440 plants and office facilities, excluding regional sales offices and warehouse facilities. Approximately 290 of the facilities were located outside of the United States. Principal foreign countries include Germany, China, France, and the United Kingdom.

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.

ITEM 3. *Legal Proceedings*

None. The Company's threshold for disclosing environmental legal proceedings involving a governmental authority where potential monetary sanctions are involved is $1 million.

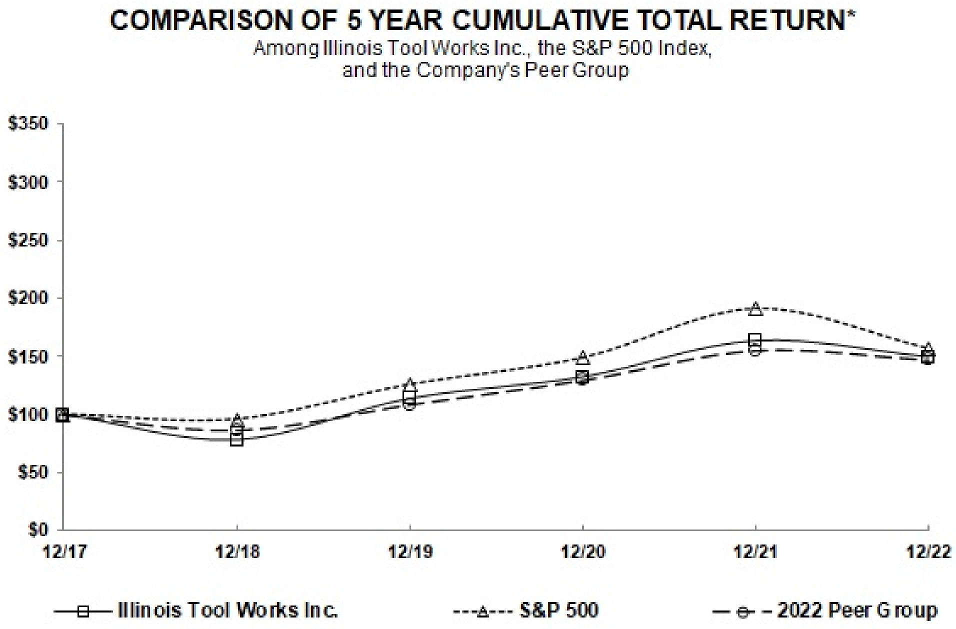
ITEM 4. *Mine Safety Disclosures*

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 4,748 holders of record of common stock as of January 31, 2023. This number does not include beneficial owners of the Company's securities held in the name of nominees.



*Assumes $100 invested on December 31, 2017, including reinvestment of dividends. Fiscal years ended December 31.

The 2022 Peer Group consists of the following 17 public companies:

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

The Compensation Committee of the Board of Directors of the Company reviews the peer group annually and from time to time changes the composition of the peer group where changes are appropriate. There were no changes in the Company's peer group in 2022.

Repurchases of Common Stock— On August 3, 2018, the Company's Board of Directors authorized a stock repurchase program which provided for the repurchase of up to $3.0 billion of the Company's common stock over an open-ended period of time (the "2018 Program"). The 2018 program was completed in the first quarter of 2022.

On May 7, 2021, the Company's Board of Directors authorized a new stock repurchase program which provides for the repurchase of up to an additional $3.0 billion of the Company's common stock over an open-ended period of time (the "2021 Program"). As of December 31, 2022, there were approximately $1.5 billion of authorized repurchases remaining under the 2021 Program.

Share repurchase activity under the Company's share repurchase programs for the fourth quarter of 2022 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 Programs	Maximum Value of Shares That May Yet Be Purchased Under Programs
October 2022	—	$ —	—	$ 1,990
November 2022	0.5	$ 222.66	0.5	$ 1,869
December 2022	1.8	$ 221.25	1.8	$ 1,490
Total	2.3		2.3	

ITEM 6. ***[Reserved]***

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 84 divisions in 51 countries. As of December 31, 2022, the Company employed approximately 46,000 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. It is the Company's competitive advantage and defines how ITW creates value for its shareholders. The ITW Business Model is comprised of 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 creating unique solutions to address those needs. These customer insights and learnings drive innovation at ITW and have contributed to a portfolio of approximately 19,200 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. 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, and developing a strategy to replicate that performance across its operations.

ITW determined that solid and consistent above-market organic growth is 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 improve global reach and competitiveness, all of which were critical to driving accelerated organic growth. ITW now has 84 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, delivering an average of one percent reduction in spend each year from 2013 through 2022 and continues to be a key contributor to the Company's ongoing enterprise strategy.

- With the initial portfolio realignment and scale-up work largely complete, the Company 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

Since the launch of the enterprise strategy, the Company has made considerable progress on our path to 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, every one of its divisions must also be operating at its full potential. To do so, the Company remains focused on its core principles:

- 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 highly diverse end markets and geographies which makes the Company more resilient in the face of uncertain or volatile market environments.

The Company routinely evaluates its portfolio to ensure it delivers sustainable differentiation and drives consistent long-term performance. This includes both implementing portfolio refinements and assessing selective high-quality acquisitions to supplement ITW's long-term growth potential.

The Company previously communicated its intent to explore options, including potential divestitures, for certain businesses with annual revenues totaling up to $1.0 billion. In the fourth quarter of 2019, the Company completed the divestitures of three businesses. Due to the COVID-19 pandemic, the Company chose to defer any significant divestiture activity in 2020 and 2021. The Company reinitiated the divestiture process in 2022 for certain businesses with combined annual revenues of approximately $0.5 billion, subject to approval by the Company's Board of Directors. In the second quarter of 2022, plans were approved to divest two businesses, including one business in the Polymers & Fluids segment and one business in the Food Equipment segment. In the fourth quarter of 2022, both of these businesses were divested. The business in the Polymers & Fluids segment was sold for $220 million, subject to certain closing adjustments, resulting in a pre-tax gain of $156 million. The business in the Food Equipment segment was sold for $59 million, subject to certain closing adjustments, resulting in a pre-tax gain of $41 million. Operating revenue related to these divested businesses that was included in the Company's results of operations for the twelve months ended December 31, 2022, 2021 and 2020 was $106 million, $115 million and $113 million, respectively. Refer to Note 4. Divestitures in Item 8. Financial Statements and Supplementary Data for further information regarding the Company's divestitures.

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 to drive 80/20 Front-to-Back practice excellence in every division in the Company, every day. Driving strong operational excellence in the quality of 80/20 Front-to-Back practice across the Company, division by division, will produce further customer-facing performance improvement in a number of divisions and additional structural margin expansion at the enterprise level.

Pandemic Priorities and "Win the Recovery"

While it was the challenges brought about by the COVID-19 pandemic that dominated the Company's attention starting in 2020, it was the collection of capabilities and competitive advantages that have been built and honed since 2012 through the execution of ITW's enterprise strategy that provided the Company with the options to respond. This, coupled with the proprietary and powerful ITW Business Model, diversified high-quality business portfolio and diligent execution put the Company in a position of strength in dealing with the global pandemic.

Throughout the global pandemic, the Company has focused its efforts on (1) protecting the health and supporting the well-being of ITW's colleagues; (2) serving the Company's customers with excellence; (3) maintaining financial strength, liquidity and strategic optionality; and (4) leveraging the Company's strengths to position it to fully participate in the recovery.

"Win the Recovery" is an execution component of the Company's enterprise strategy, not a separate initiative, with every one of the Company's divisions identifying specific opportunities presented by the pandemic to capture sustainable share gains that are aligned with the ITW long-term enterprise strategy. The Company expects these efforts to contribute meaningfully to accelerate its progress toward full-potential organic growth. The Company continues to focus on delivering strong results in any environment while executing its long-term strategy to achieve and sustain ITW's full potential performance.

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, with specific focus on:

- "80" focused Market Penetration - fully leveraging the considerable growth potential that resides in the Company's largest and most differentiated product offerings and customer relationships
- Customer-back Innovation - strengthening the Company's commitment to serial innovation and delivering a continuous flow of differentiated new products to its key customers
- Strategic Sales Excellence - deploying a high-performance sales function in every division

As the Company continues to make progress toward its full potential, the Company will explore opportunities to reinforce or further expand the long-term organic growth potential of ITW through the addition of selective high-quality acquisitions, such as the acquisition of the Test & Simulation business of MTS Systems Corporation ("MTS") from Amphenol Corporation on December 1, 2021. The operating results of the MTS Test & Simulation business were reported within the Company's Test & Measurement and Electronics segment. Refer to Note 3. Acquisitions in Item 8. Financial Statements and Supplementary Data for further information regarding this acquisition.

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

In early 2020, an outbreak of a novel strain of coronavirus (COVID-19) occurred in China and other jurisdictions. The COVID-19 outbreak was subsequently declared a global pandemic by the World Health Organization on March 11, 2020. In response to the outbreak, governments around the globe took various actions to reduce its spread, including travel restrictions, shutdowns of businesses deemed nonessential, and stay-at-home or similar orders. The COVID-19 pandemic and the measures taken globally to reduce its spread have negatively impacted the global economy, causing significant disruptions in the Company's global operations starting primarily in the latter part of the first quarter of 2020 as COVID-19 spread and impacted the countries in which the Company operates and the markets the Company serves.

Throughout the global pandemic, the Company has focused on the following priorities: (1) protecting the health and supporting the well-being of ITW's colleagues; (2) continuing to serve the Company's customers with excellence to the best of its ability; (3) maintaining financial strength, liquidity and strategic optionality; and (4) leveraging the Company's strengths to position it to fully participate in the recovery. To support ITW's colleagues, among its many actions and initiatives, the Company redesigned production processes to ensure proper social distancing practices, adjusted shift schedules and assignments to help colleagues who have child and elder care needs, and implemented aggressive new workplace sanitation practices and a coordinated response to ensure access to personal protective equipment to minimize infection risk. To support its customers, the Company worked diligently to keep its facilities open and operating safely. The Company also adapted customer service systems and practices to seamlessly serve its customers under "work from home" requirements in many parts of the world.

In areas around the world where governments issued stay-at-home or similar orders, the vast majority of ITW's businesses were designated as critical or essential businesses and, as such, they remained open and operational. In some cases, this was because the Company's products directly impacted the COVID-19 response effort. In other cases, the Company's businesses were designated as critical because they played a vital role in serving and supporting industries that were deemed essential to the physical and economic health of our communities.

While the vast majority of the Company's facilities remained open and operational during the pandemic, many of these facilities were operating at a reduced capacity at various times since the outset of the pandemic. Despite the ongoing disruptions caused by the COVID-19 pandemic, the Company experienced solid recovery progress in many of its end markets during 2021 and, to a greater extent, in 2022 as vaccines became widely available and many governments reduced restrictions related to COVID-19. The full extent of the COVID-19 outbreak and its impact on the markets served by the Company and on the Company's operations and financial position continues to be highly uncertain as conditions continue to fluctuate around the world, with vaccine administration rising in certain regions, spikes in infections (including the spread of variants) continuing to be experienced and certain jurisdictions continuing to impose stay-at-home orders. The pandemic and resurgence of outbreaks could continue to adversely impact the operations of the Company and its customers and suppliers. A description of the risks relating to the impact of the COVID-19 outbreak on the Company's business, operations and financial condition is contained in Part I, Item 1A. Risk Factors.

During the first quarter of 2022, Russian military forces invaded Ukraine. In response, the United States and several other countries imposed economic and other sanctions on Russia. The Company has four immaterial Russian subsidiaries with total assets of approximately $25 million as of December 31, 2022. The revenue for these four subsidiaries for the year ended December 31, 2022 was approximately $38 million. Sales to customers in Russia represented less than one percent of ITW's total consolidated revenue and were not material to the Company's results of operations or financial position.

On December 1, 2021, the Company completed the acquisition of the MTS Test & Simulation business for a purchase price of $750 million, subject to certain closing adjustments. The MTS Test & Simulation business had operating revenue of $46 million for the one month ended December 31, 2021 and $422 million for the twelve months ended December 31, 2022. The Company expects the MTS Test & Simulation business to improve operating margin performance in later years through the application of the Company's 80/20 Front-to-Back process. The operating results of the MTS Test & Simulation business were reported within the Test & Measurement and Electronics segment. Refer to Note 3. Acquisitions in Item 8. Financial Statements and Supplementary Data for further information.

In the second quarter of 2022, plans were approved to divest two businesses, including one business in the Polymers & Fluids segment and one business in the Food Equipment segment. These two businesses were classified as held for sale beginning in the second quarter of 2022. In the fourth quarter of 2022, both of these businesses were divested. On October 3, 2022, the business in the Polymers & Fluids segment was sold for $220 million, subject to certain closing adjustments, resulting in a pre-tax gain of $156 million. On December 1, 2022, the business in the Food Equipment segment was sold for $59 million, subject to certain closing adjustments, resulting in a pre-tax gain of $41 million. The pre-tax gains were included in Other income (expense) in the Statement of Income. Income taxes on the gains were mostly offset by the utilization of capital loss carryforwards of $32 million. Operating revenue related to these divested businesses that was included in the Company's results of operations for the twelve months ended December 31, 2022, 2021 and 2020 was $106 million, $115 million and $113 million, respectively.

In the fourth quarter of 2022, plans were approved to divest one business in the Specialty Products segment. This business was presented as held for sale in the Statement of Financial Position as of December 31, 2022 and had assets and liabilities held for sale of $8 million and $1 million, respectively. Operating revenue for this business was approximately $37 million for the twelve months ended December 31, 2022. The Company expects to sell this business within one year.

In a challenging and dynamic environment, the Company delivered strong financial results in 2022 primarily due to the continued successful execution of enterprise initiatives, including the "Win the Recovery" actions initiated over the course of the past year, and continued focus on the highly differentiated ITW Business Model. Despite rising costs and a challenging global supply chain environment, the Company generated operating revenue growth of 10.2 percent and organic revenue growth of 12.1 percent, as all seven segments achieved worldwide organic revenue growth in 2022. Operating income was $3.8 billion in 2022, an increase of 9.0 percent. Operating margin was 23.8 percent in 2022.

The Company's consolidated results of operations for 2022, 2021 and 2020 were as follows:

2022 compared to 2021

Dollars in millions	For the Years Ended December 31,			Components of Increase (Decrease)				
	2022	2021	Inc (Dec)	Organic	Acquisition/ Divestiture	Restructuring	Foreign Currency	Total
Operating revenue	$ 15,932	$ 14,455	10.2 %	12.1 %	2.4 %	— %	(4.3)%	10.2 %
Operating income	$ 3,790	$ 3,477	9.0 %	14.3 %	(0.1)%	(0.7)%	(4.5)%	9.0 %
Operating margin %	23.8 %	24.1 %	(30) bps	40 bps	(60) bps	(10) bps	—	(30) bps

- Operating revenue increased due to higher organic revenue and the MTS Test & Simulation acquisition, which was completed on December 1, 2021, partially offset by the unfavorable effect of foreign currency translation and the impact of divestiture activity in the fourth quarter of 2022.
- Organic revenue grew 12.1% with growth in all seven segments. Product line simplification activities reduced organic revenue by 40 basis points.
    - North American organic revenue increased 14.3% with growth in all seven segments primarily driven by the Food Equipment, Welding and Construction Products segments.
    - Europe, Middle East and Africa organic revenue increased 9.7% with growth in all seven segments primarily driven by the Food Equipment and Automotive OEM segments.
    - Asia Pacific revenue increased 8.3% due to growth in six segments, partially offset by a decline in the Specialty Products segment. China organic revenue increased 5.6% as growth in the Automotive OEM, Test & Measurement and Electronics, Welding and Polymers & Fluids segments was partially offset by a decline in the Specialty Products, Food Equipment and Construction Products segments. The results in 2022 were negatively impacted by the COVID-19 outbreak and government stay-at-home orders in China.
- Operating income of $3.8 billion increased 9.0% primarily due to higher organic revenue, partially offset by unfavorable foreign currency translation.
- Operating margin of 23.8% decreased 30 basis points primarily driven by higher operating expenses, including employee-related expenses and freight costs, unfavorable price/cost of 90 basis points and the dilutive impact of 60 basis points from the MTS Test & Simulation acquisition, partially offset by positive operating leverage of 220 basis points and benefits from the Company's enterprise initiatives of 90 basis points.
- The Company's effective tax rate for 2022 and 2021 was 21.0% and 19.0%, respectively. The 2022 effective tax rate benefited from discrete income tax benefits of $32 million in the fourth quarter of 2022 related to the utilization of capital loss carryforwards and $51 million in the second quarter of 2022 related to a decrease in unrecognized tax benefits resulting from the resolution of a U.S. tax audit. The 2021 effective tax rate benefited from discrete income tax benefits of $21 million in the third quarter of 2021 related to the utilization of capital loss carryforwards and $112 million in the second quarter of 2021 related to the remeasurement of net deferred tax assets due to the enactment of the U.K. Finance Bill 2021, which increases the U.K. income tax rate from 19% to 25% effective April 1, 2023. Additionally, the effective tax rates for 2022 and 2021 included discrete income tax benefits of $12 million and $17 million, respectively, related to excess tax benefits from stock-based compensation.
- Diluted earnings per share (EPS) of $9.77 in 2022 increased 14.8%. Excluding the favorable impact of $0.60 per diluted share related to the pre-tax divestiture gains of $197 million in the fourth quarter of 2022, or $188 million after-tax including the impact of the $32 million discrete tax benefit noted above, EPS increased 7.8%.
- Operating cash flow was $2.3 billion and free cash flow was $1.9 billion for 2022. Refer to the Cash Flow section of Liquidity and Capital Resources for a reconciliation of free cash flow, which is a non-GAAP measure.
- The Company repurchased approximately 8.3 million shares of its common stock in 2022 for approximately $1.75 billion.
- The Company increased the quarterly dividend on common stock from $1.22 to $1.31 per share in 2022, or from $4.88 to $5.24 per share on an annualized basis. Total cash dividends of approximately $1.5 billion were paid in 2022.

2021 compared to 2020

Dollars in millions	For the Years Ended December 31, 2021	2020	Inc (Dec)	Components of Increase (Decrease) Organic	Acquisition/ Divestiture	Restructuring	Foreign Currency	Total
Operating revenue	$ 14,455	$ 12,574	15.0 %	12.3 %	0.4 %	— %	2.3 %	15.0 %
Operating income	$ 3,477	$ 2,882	20.6 %	17.0 %	0.2 %	0.8 %	2.6 %	20.6 %
Operating margin %	24.1 %	22.9 %	120 bps	100 bps	—	20 bps	—	120 bps

- Operating revenue increased due to higher organic and acquisition revenue and the favorable effect of foreign currency translation.
- Organic revenue increased 12.3% as the Company saw continued improvement in both the breadth and pace of the recovery. Product line simplification activities reduced organic revenue by 20 basis points.
    - North American organic revenue increased 13.5% due to growth in all segments, primarily driven by the Welding, Test & Measurement and Electronics and Food Equipment segments.
    - Europe, Middle East and Africa organic revenue increased 8.7% due to growth in six segments, primarily driven by the Food Equipment and Construction Products segments. The Automotive OEM segment was essentially flat.
    - Asia Pacific organic revenue increased 13.5% due to growth in all segments. China organic revenue grew 15.1% with growth in six segments, partially offset by a decline in the Construction Products segment.
- Operating income of $3.5 billion increased 20.6% primarily due to higher organic revenue.
- Operating margin of 24.1% increased 120 basis points primarily due to positive operating leverage of 250 basis points and benefits from the Company's enterprise initiatives of 110 basis points, partially offset by unfavorable price/cost of 150 basis points and higher operating expenses, including employee-related expenses.
- The Company's effective tax rate was 19.0% in 2021 compared to 22.0% in 2020. The 2021 effective tax rate benefited from a discrete income tax benefit of $21 million in the third quarter related to the utilization of capital loss carryforwards and a discrete income tax benefit of $112 million in the second quarter of 2021 related to the remeasurement of net deferred tax assets due to the enactment of the U.K. Finance Bill 2021, which increases the U.K. income tax rate from 19% to 25% effective April 1, 2023. Additionally, the effective tax rate included discrete income tax benefits related to excess tax benefits from stock-based compensation of $17 million and $27 million for 2021 and 2020, respectively.
- Diluted earnings per share (EPS) of $8.51 increased 28.4%. Excluding the favorable impact of the $21 million discrete income tax benefit in the third quarter of 2021 and the $112 million discrete income tax benefit in the second quarter of 2021, EPS increased 22.0%.
- Operating cash flow was $2.6 billion and free cash flow was $2.3 billion for 2021. Refer to the Cash Flow section of Liquidity and Capital Resources for a reconciliation of free cash flow, which is a non-GAAP measure.
- The Company repurchased approximately 4.4 million shares of its common stock in 2021 for approximately $1.0 billion.
- The Company increased the quarterly dividend on common stock from $1.14 to $1.22 per share in 2021, or from $4.56 to $4.88 per share on an annualized basis. Total cash dividends of approximately $1.5 billion were paid in 2021.

RESULTS OF OPERATIONS BY SEGMENT

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

	Operating Revenue		
In millions	**2022**	**2021**	**2020**
Automotive OEM	$ 2,969	$ 2,800	$ 2,571
Food Equipment	2,444	2,078	1,739
Test & Measurement and Electronics	2,828	2,346	1,963
Welding	1,894	1,650	1,384
Polymers & Fluids	1,905	1,804	1,622
Construction Products	2,113	1,945	1,652
Specialty Products	1,799	1,854	1,660
Intersegment revenue	(20)	(22)	(17)
Total	$ 15,932	$ 14,455	$ 12,574

	Operating Income		
In millions	**2022**	**2021**	**2020**
Automotive OEM	$ 499	$ 545	$ 457
Food Equipment	618	469	342
Test & Measurement and Electronics	684	643	507
Welding	583	490	376
Polymers & Fluids	479	457	402
Construction Products	548	530	421
Specialty Products	481	504	432
Total Segments	3,892	3,638	2,937
Unallocated	(102)	(161)	(55)
Total	$ 3,790	$ 3,477	$ 2,882

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 expenses in 2021 were higher as compared to 2020 primarily due to higher employee-related expenses and transaction costs related to the previously discussed acquisition of the MTS Test & Simulation business.

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 2022, 2021 and 2020 were as follows:

2022 compared to 2021

Dollars in millions	For the Years Ended December 31,			Components of Increase (Decrease)				
	2022	2021	Inc (Dec)	Organic	Acquisition/Divestiture	Restructuring	Foreign Currency	Total
Operating revenue	$ 2,969	$ 2,800	6.0 %	11.7 %	— %	— %	(5.7)%	6.0 %
Operating income	$ 499	$ 545	(8.6)%	1.5 %	— %	(4.8)%	(5.3)%	(8.6)%
Operating margin %	16.8 %	19.5 %	(270) bps	(180) bps	—	(90) bps	—	(270) bps

- Operating revenue grew due to higher organic revenue, partially offset by the unfavorable effect of foreign currency translation.
- Organic revenue increased 11.7% compared to worldwide auto builds which grew 6%. The impact of Automotive OEM customers adjusting production schedules to account for the shortage of semiconductor chips and other components continued to negatively impact operating results in 2022. Auto builds for North America, Europe and China, where the Company has a higher concentration of revenue as compared to the other geographic regions, grew 5%.
    - North American organic revenue increased 14.1% compared to North American auto builds which grew 10%.
    - European organic revenue grew 7.1% compared to European auto builds which decreased 1%.
    - Asia Pacific organic revenue increased 14.7%. China organic revenue grew 12.2%, including growth in the electric vehicles market, versus China auto builds which increased 6%. Auto builds of foreign automotive manufacturers in China, where the Company has higher content, increased 1%.
- Operating margin of 16.8% decreased 270 basis points primarily driven by unfavorable price/cost of 200 basis points, higher restructuring expenses, higher operating expenses and continued investment in the business, including the electric vehicles market, partially offset by positive operating leverage of 190 basis points and benefits from the Company's enterprise initiatives.

2021 compared to 2020

Dollars in millions	For the Years Ended December 31,			Components of Increase (Decrease)				
	2021	2020	Inc (Dec)	Organic	Acquisition/Divestiture	Restructuring	Foreign Currency	Total
Operating revenue	$ 2,800	$ 2,571	8.9 %	5.8 %	— %	— %	3.1 %	8.9 %
Operating income	$ 545	$ 457	19.3 %	13.0 %	— %	3.0 %	3.3 %	19.3 %
Operating margin %	19.5 %	17.8 %	170 bps	120 bps	—	50 bps	—	170 bps

- Operating revenue increased due to higher organic revenue and the favorable effect of foreign currency translation.
- Organic revenue increased 5.8%. The impact of Automotive OEM customers adjusting production schedules to account for the shortage of semiconductor chips and other components negatively impacted organic revenue in 2021, especially during the second half of the year. Worldwide auto builds increased 2%. Auto builds for North America, Europe and China, where the Company has a higher concentration of revenue as compared to the other geographic regions, were flat.

    - North American organic revenue increased 5.3% compared to North American auto builds which were flat. Auto builds for the Detroit 3, where the Company has higher content, decreased 5%.
    - European organic revenue was essentially flat compared to European auto builds which declined 5%.
    - Asia Pacific organic revenue increased 17.2%. China organic revenue grew 13.9% versus China auto builds which increased 4%. Auto builds of foreign automotive manufacturers in China, where the Company has higher content, declined 8%.
- Operating margin was 19.5%. The increase of 170 basis points was primarily driven by positive operating leverage of 120 basis points, the net benefits from the Company's enterprise initiatives and cost management, and lower restructuring expenses, partially offset by unfavorable price/cost of 250 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 retail and food institutional/restaurant 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 2022, 2021 and 2020 were as follows:

2022 compared to 2021

Dollars in millions	For the Years Ended December 31,			Components of Increase (Decrease)				
	2022	2021	Inc (Dec)	Organic	Acquisition/Divestiture	Restructuring	Foreign Currency	Total
Operating revenue	$ 2,444	$ 2,078	17.6 %	22.9 %	(0.1)%	— %	(5.2)%	17.6 %
Operating income	$ 618	$ 469	31.7 %	38.1 %	(0.1)%	(0.4)%	(5.9)%	31.7 %
Operating margin %	25.3 %	22.6 %	270 bps	280 bps	—	(10) bps	—	270 bps

- Operating revenue grew due to higher organic revenue, partially offset by the unfavorable effect of foreign currency translation and the impact of a divestiture in the fourth quarter of 2022.
- On December 1, 2022, the Company completed the sale of a business. Operating revenue for this business that was included in the Company's results of operations for the year ended December 31, 2022 and 2021 was $30 million and $28 million, respectively. Refer to Note 4. Divestitures in Item 8. Financial Statements and Supplementary Data for further information.
- Organic revenue increased 22.9% as equipment and service organic revenue grew 25.2% and 18.5%, respectively.
    - North American organic revenue increased 26.1%. Equipment organic revenue grew 31.5% primarily due to growth in the restaurant, institutional and food retail end markets. Service organic revenue increased 17.2%.
    - International organic revenue increased 18.8%. Equipment organic revenue grew 17.8% primarily due to higher demand in the European warewash, refrigeration and cooking end markets. Service organic revenue increased 20.8%.
- Operating margin of 25.3% increased 270 basis points primarily due to positive operating leverage of 430 basis points, benefits from the Company's enterprise initiatives and favorable price/cost of 90 basis points, partially offset by higher operating expenses, including employee-related expenses.

2021 compared to 2020

Dollars in millions	For the Years Ended December 31, 2021	2020	Inc (Dec)	Components of Increase (Decrease) Organic	Acquisition/Divestiture	Restructuring	Foreign Currency	Total
Operating revenue	$ 2,078	$ 1,739	19.5 %	16.7 %	— %	— %	2.8 %	19.5 %
Operating income	$ 469	$ 342	37.4 %	31.7 %	— %	2.4 %	3.3 %	37.4 %
Operating margin %	22.6 %	19.6 %	300 bps	260 bps	—	40 bps	—	300 bps

- Operating revenue grew due to higher organic revenue and the favorable effect of foreign currency translation.
- Organic revenue increased 16.7% as equipment and service organic revenue grew 21.4% and 8.5%, respectively.
  - North American organic revenue increased 16.2%. Equipment organic revenue grew 20.1% primarily due to growth in the restaurant and institutional end markets, partially offset by a decline in the food retail end markets. Service organic revenue increased 10.3%.
  - International organic revenue increased 17.4%. Equipment organic revenue grew 22.9% primarily due to higher demand in the European warewash, refrigeration and cooking end markets. Service organic revenue increased 5.5%.
- Operating margin was 22.6%. The increase of 300 basis points was primarily driven by positive operating leverage of 370 basis points, benefits from the Company's enterprise initiatives and lower restructuring expenses, partially offset by unfavorable price/cost of 90 basis points and higher overhead expenses.

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, automotive original equipment manufacturers and tiers, energy, consumer durables and industrial capital goods markets. Products in this segment include:

- equipment, consumables, and related software for testing and measuring of materials, structures, gases and fluids;
- electronic assembly equipment;
- 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 2022, 2021 and 2020 were as follows:

2022 compared to 2021

Dollars in millions	For the Years Ended December 31, 2022	2021	Inc (Dec)	Components of Increase (Decrease) Organic	Acquisition/Divestiture	Restructuring	Foreign Currency	Total
Operating revenue	$ 2,828	$ 2,346	20.6 %	9.0 %	15.9 %	— %	(4.3)%	20.6 %
Operating income	$ 684	$ 643	6.3 %	10.1 %	— %	0.1 %	(3.9)%	6.3 %
Operating margin %	24.2 %	27.4 %	(320) bps	30 bps	(350) bps	—	—	(320) bps

- Operating revenue grew due to the MTS Test & Simulation acquisition, which was completed on December 1, 2021, and higher organic revenue, partially offset by the unfavorable effect of foreign currency translation.

- Organic revenue increased 9.0%.
    - Organic revenue for the test and measurement businesses increased 12.7% primarily driven by higher semiconductor demand in North America and Asia Pacific and the impact of a stronger capital spending

environment. Instron, where demand is more closely tied to the capital spending environment, had organic revenue growth of 12.8%.
    - Electronics organic revenue increased 4.6% primarily due to higher demand in the semiconductor end market, partially offset by a decline in the consumer electronics end market. The electronics assembly businesses increased 1.3% primarily due to growth in Asia Pacific, partially offset by lower demand in North America in the first half of 2022. The other electronics businesses, which include the contamination control, static control and pressure sensitive adhesives businesses, increased 6.3% with growth across all major regions.
- Operating margin of 24.2% decreased 320 basis points primarily driven by the dilutive impact of 350 basis points from the MTS Test & Simulation acquisition, unfavorable price/cost of 120 basis points, and higher operating expenses, including employee-related expenses, partially offset by positive operating leverage of 190 basis points and benefits from the Company's enterprise initiatives.

2021 compared to 2020

Dollars in millions	For the Years Ended December 31,			Components of Increase (Decrease)				
	2021	2020	Inc (Dec)	Organic	Acquisition/Divestiture	Restructuring	Foreign Currency	Total
Operating revenue	$ 2,346	$ 1,963	19.5 %	15.3 %	2.3 %	— %	1.9 %	19.5 %
Operating income	$ 643	$ 507	26.9 %	23.1 %	0.9 %	0.8 %	2.1 %	26.9 %
Operating margin %	27.4 %	25.8 %	160 bps	180 bps	(40) bps	20 bps	—	160 bps

- Operating revenue grew due to higher organic revenue, the MTS Test & Simulation acquisition and the favorable effect of foreign currency translation.
- Organic revenue increased 15.3%.
    - Organic revenue for the test and measurement businesses increased 14.8% primarily driven by higher semiconductor demand in North America, the impact of a stronger capital spending environment, and higher demand in the oil and gas end markets in North America. Instron, where demand is more closely tied to the capital spending environment, had organic revenue growth of 14.0%.
    - Electronics organic revenue increased 15.9% driven by higher demand in consumer electronics, automotive applications and semiconductor end markets. The electronics assembly businesses grew 26.6% primarily due to higher demand in North America and Asia Pacific. The other electronics businesses, which include the contamination control, static control and pressure sensitive adhesives businesses, increased 10.8% with growth in all major regions.
- On December 1, 2021, the Company completed the acquisition of the MTS Test & Simulation business, which had operating revenue of $46 million for the one month ended December 31, 2021 and increased Test & Measurement and Electronics operating revenue by 2.3%.
- Operating margin was 27.4%. The increase of 160 basis points was primarily driven by positive operating leverage of 340 basis points and benefits from the Company's enterprise initiatives, partially offset by unfavorable price/cost of 40 basis points, the dilutive impact from the MTS acquisition, higher overhead expenses and higher freight costs. Additionally, the prior year included the recapture of amortization and depreciation expense related to a business previously classified as held for sale.

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 construction, energy, MRO, industrial capital goods and automotive original equipment manufacturers and tiers markets. Products in this segment include:

- arc welding equipment; and
- metal arc welding consumables and related accessories.

The results of operations for the Welding segment for 2022, 2021 and 2020 were as follows:

2022 compared to 2021

Dollars in millions	For the Years Ended December 31,			Components of Increase (Decrease)				
	2022	2021	Inc (Dec)	Organic	Acquisition/ Divestiture	Restructuring	Foreign Currency	Total
Operating revenue	$ 1,894	$ 1,650	14.7 %	16.0 %	— %	— %	(1.3)%	14.7 %
Operating income	$ 583	$ 490	19.0 %	19.1 %	— %	0.6 %	(0.7)%	19.0 %
Operating margin %	30.8 %	29.7 %	110 bps	80 bps	—	10 bps	20 bps	110 bps

- Operating revenue grew due to higher organic revenue, partially offset by the unfavorable effect of foreign currency translation.
- Organic revenue grew 16.0% as equipment increased 16.2% and consumables increased 15.8% primarily due to higher 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 16.6% due to growth in the industrial and commercial end markets of 25.6% and 3.9%, respectively.
  - International organic revenue grew 13.3% primarily due to higher equipment demand in the oil and gas end markets in Europe and Asia.
- Operating margin of 30.8% increased 110 basis points primarily driven by positive operating leverage of 220 basis points and benefits from the Company's enterprise initiatives, partially offset by higher operating expenses, including employee-related expenses and freight costs, and unfavorable price/cost of 80 basis points.

2021 compared to 2020

Dollars in millions	For the Years Ended December 31,			Components of Increase (Decrease)				
	2021	2020	Inc (Dec)	Organic	Acquisition/Divestiture	Restructuring	Foreign Currency	Total
Operating revenue	$ 1,650	$ 1,384	19.2 %	18.1 %	— %	— %	1.1 %	19.2 %
Operating income	$ 490	$ 376	30.5 %	29.8 %	— %	(0.2)%	0.9 %	30.5 %
Operating margin %	29.7 %	27.1 %	260 bps	270 bps	—	—	(10) bps	260 bps

- Operating revenue grew due to higher organic revenue and the favorable effect of foreign currency translation.
- Organic revenue grew 18.1% as equipment increased 20.5% and consumables increased 14.3% primarily due to higher 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 increased 19.6% primarily driven by growth in the industrial and commercial end markets of 22.6% and 17.0%, respectively.
  - International organic revenue grew 10.7% primarily due to higher equipment demand in the oil and gas end markets in Europe and Asia.
- Operating margin was 29.7%. The increase of 260 basis points was primarily driven by positive operating leverage of 260 basis points and benefits from the Company's enterprise initiatives, partially offset by higher overhead expenses.

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 and MRO 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 2022, 2021 and 2020 were as follows:

2022 compared to 2021

Dollars in millions	For the Years Ended December 31, 2022	For the Years Ended December 31, 2021	Inc (Dec)	Components of Increase (Decrease) Organic	Acquisition/Divestiture	Restructuring	Foreign Currency	Total
Operating revenue	$ 1,905	$ 1,804	5.6 %	10.5 %	(1.2)%	— %	(3.7)%	5.6 %
Operating income	$ 479	$ 457	4.8 %	9.6 %	(0.7)%	— %	(4.1)%	4.8 %
Operating margin %	25.2 %	25.4 %	(20) bps	(30) bps	20 bps	—	(10) bps	(20) bps

- Operating revenue grew due to higher organic revenue, partially offset by the unfavorable effect of foreign currency translation and the impact of a divestiture in the fourth quarter of 2022.
- On October 3, 2022, the Company completed the sale of a business. Operating revenue for this business that was included in the Company's results of operations for the year ended December 31, 2022 and 2021, was $76 million and $87 million, respectively. Refer to Note 4. Divestitures in Item 8. Financial Statements and Supplementary Data for further information.
- Organic revenue increased 10.5% with growth across all major regions. Product line simplification activities reduced organic revenue by 50 basis points.
  - Organic revenue for the polymers businesses increased 17.2% with growth across all major regions, primarily in the heavy industrial and wind end markets.
  - Organic revenue for the automotive aftermarket businesses increased 8.5% with growth in the car care, body repair, engine repair and tire repair businesses in North America and growth in the European additives and tire repair businesses.
  - Organic revenue for the fluids businesses grew 4.6% primarily due to growth in the hygiene and industrial maintenance, repair and operations end markets in North America and Europe.
- Operating margin of 25.2% decreased 20 basis points primarily driven by higher operating expenses, including employee-related expenses and freight costs, and unfavorable price/cost of 50 basis points, partially offset by positive operating leverage of 170 basis points, benefits from the Company's enterprise initiatives, lower intangible asset amortization expense and the impact of a divestiture.

2021 compared to 2020

Dollars in millions	For the Years Ended December 31, 2021	For the Years Ended December 31, 2020	Inc (Dec)	Components of Increase (Decrease) Organic	Acquisition/Divestiture	Restructuring	Foreign Currency	Total
Operating revenue	$ 1,804	$ 1,622	11.2 %	10.0 %	— %	— %	1.2 %	11.2 %
Operating income	$ 457	$ 402	13.7 %	12.2 %	— %	0.3 %	1.2 %	13.7 %
Operating margin %	25.4 %	24.8 %	60 bps	50 bps	—	10 bps	—	60 bps

- Operating revenue grew due to higher organic revenue and the favorable effect of foreign currency translation.
- Organic revenue increased 10.0% driven by higher demand across all major regions. Product line simplification activities reduced organic revenue by 80 basis points.
  - Organic revenue for the automotive aftermarket businesses increased 11.4% primarily driven by growth in the car care, body repair and tire repair businesses in North America and growth in the European additives and tire repair businesses.
  - Organic revenue for the polymers businesses increased 15.5% with growth across all major regions and end markets.
  - Organic revenue for the fluids businesses decreased 1.0% primarily due to a decline in the industrial maintenance, repair and operations end markets in North America.

- Operating margin was 25.4%. The increase of 60 basis points was primarily due to positive operating leverage of 200 basis points, benefits from the Company's enterprise initiatives and lower intangible asset amortization expense, partially offset by unfavorable price/cost of 200 basis points, higher overhead expenses and higher freight costs.

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 2022, 2021 and 2020 were as follows:

2022 compared to 2021

Dollars in millions	For the Years Ended December 31,			Components of Increase (Decrease)				
	2022	2021	Inc (Dec)	Organic	Acquisition/Divestiture	Restructuring	Foreign Currency	Total
Operating revenue	$ 2,113	$ 1,945	8.6 %	14.4 %	— %	— %	(5.8)%	8.6 %
Operating income	$ 548	$ 530	3.5 %	8.8 %	— %	(0.2)%	(5.1)%	3.5 %
Operating margin %	25.9 %	27.2 %	(130) bps	(130) bps	—	—	—	(130) bps

- Operating revenue grew due to higher organic revenue, partially offset by the unfavorable effect of foreign currency translation.
- Organic revenue grew 14.4% with growth across all major regions. Product line simplification activities reduced organic revenue by 40 basis points.
  - North American organic revenue increased 26.0% driven by higher demand in the United States residential and commercial end markets of 30.4% and 11.5%, respectively.
  - International organic revenue increased 5.1%. European organic revenue increased 6.2% primarily driven by higher demand in the commercial and residential end markets in the first half of 2022. Asia Pacific organic revenue increased 3.8% primarily due to higher demand in the Australia and New Zealand residential end markets.
- Operating margin of 25.9% decreased 130 basis points primarily driven by unfavorable price/cost of 260 basis points and higher operating expenses, including employee-related expenses, partially offset by positive operating leverage of 220 basis points and benefits from the Company's enterprise initiatives.

2021 compared to 2020

Dollars in millions	For the Years Ended December 31,			Components of Increase (Decrease)				
	2021	2020	Inc (Dec)	Organic	Acquisition/Divestiture	Restructuring	Foreign Currency	Total
Operating revenue	$ 1,945	$ 1,652	17.7 %	13.6 %	(0.1)%	— %	4.2 %	17.7 %
Operating income	$ 530	$ 421	25.7 %	20.9 %	— %	0.2 %	4.6 %	25.7 %
Operating margin %	27.2 %	25.5 %	170 bps	160 bps	—	10 bps	—	170 bps

- Operating revenue grew primarily due to higher organic revenue and the favorable effect of foreign currency translation.
- Organic revenue increased 13.6% with growth across all major regions. Product line simplification activities reduced organic revenue by 40 basis points.
  - North American organic revenue grew 13.6% due to higher demand in the United States residential and commercial end markets of 12.7% and 14.7%, respectively, and growth in Canada.

    - International organic revenue increased 13.6%. European organic revenue grew 19.4% primarily driven by higher demand in the commercial and residential end markets. Asia Pacific organic revenue increased 7.3% primarily due to higher demand in the Australia and New Zealand residential end markets.
- Operating margin was 27.2%. The increase of 170 basis points was primarily due to positive operating leverage of 240 basis points and the net benefits from the Company's enterprise initiatives and cost management, partially offset by unfavorable price/cost of 250 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, industrial capital goods and printing and publishing markets. Products in this segment include:

- 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 2022, 2021 and 2020 were as follows:

2022 compared to 2021

Dollars in millions	For the Years Ended December 31, 2022	2021	Inc (Dec)	Components of Increase (Decrease): Organic	Acquisition/Divestiture	Restructuring	Foreign Currency	Total
Operating revenue	$ 1,799	$ 1,854	(2.9)%	0.4 %	— %	— %	(3.3)%	(2.9)%
Operating income	$ 481	$ 504	(4.5)%	(1.8)%	— %	0.1 %	(2.8)%	(4.5)%
Operating margin %	26.7 %	27.2 %	(50) bps	(60) bps	—	—	10 bps	(50) bps

- Operating revenue declined due to the unfavorable effect of foreign currency translation, partially offset by higher organic revenue.
- Organic revenue increased 0.4% as consumable sales increased 3.0% and equipment sales declined 9.5%. Product line simplification activities reduced organic revenue by 170 basis points.
    - North American organic revenue increased 2.5% primarily due to growth in the foils and thermal films, consumer packaging, specialty films, filter medical and ground support businesses, partially offset by a decline in the appliance and strength films businesses.
    - International organic revenue declined 3.2% primarily due to a decline in Asia Pacific of 22.8% primarily driven by decreases in the strength films, appliance, foils and thermal films, and graphics businesses. The results in 2022 were negatively impacted by the COVID-19 outbreak and government stay-at-home orders in China. Europe organic revenue grew 2.8% primarily due to an increase in the consumer packaging, specialty films and filter medical businesses, partially offset by a decline in the appliance business.
- Operating margin of 26.7% decreased 50 basis points primarily driven by higher operating expenses, including employee-related expenses, partially offset by benefits from the Company's enterprise initiatives and favorable price/cost of 10 basis points.

2021 compared to 2020

Dollars in millions	For the Years Ended December 31, 2021	2020	Inc (Dec)	Components of Increase (Decrease) Organic	Acquisition/Divestiture	Restructuring	Foreign Currency	Total
Operating revenue	$ 1,854	$ 1,660	11.7 %	9.8 %	— %	— %	1.9 %	11.7 %
Operating income	$ 504	$ 432	16.6 %	15.6 %	— %	(1.0)%	2.0 %	16.6 %
Operating margin %	27.2 %	26.0 %	120 bps	140 bps	—	(20) bps	—	120 bps

- Operating revenue grew due to higher organic revenue and the favorable effect of foreign currency translation.
- Organic revenue increased 9.8% as consumables increased 10.8% and equipment increased 6.4% primarily due to higher demand in North America. Product line simplification activities reduced organic revenue by 20 basis points.
    - North American organic revenue increased 11.2% primarily driven by growth in the consumer packaging, strength films, appliance, filter medical, and product coding and marking businesses.
    - International organic revenue increased 6.8% primarily due to growth in the appliance businesses in Europe and Asia Pacific and the ground support equipment businesses in Europe, partially offset by a decline in the consumer packaging businesses in Europe and the strength films businesses in Asia Pacific.
- Operating margin was 27.2%. The increase of 120 basis points was primarily due to positive operating leverage of 190 basis points and benefits from the Company's enterprise initiatives, partially offset by unfavorable price/cost of 200 basis points, higher overhead expenses and higher freight costs. Additionally, the prior year included an unfavorable impact of a one-time customer cost-sharing settlement.

OTHER FINANCIAL HIGHLIGHTS

- Interest expense was $203 million in 2022, $202 million in 2021 and $206 million in 2020. Interest expense in 2022 was $1 million higher than 2021 primarily due to higher average outstanding commercial paper and higher interest rates, partially offset by the repayment of notes due September 15, 2021 and May 20, 2022. Refer to Note 11. Debt in Item 8. Financial Statements and Supplementary Data for further information regarding the repayment of notes.
- Other income (expense) was income of $255 million in 2022, $51 million in 2021 and $28 million in 2020. The income in 2022 increased $204 million compared to 2021 primarily due to net pre-tax gains of $191 million related to the sale of operations in 2022. The income in 2021 increased $23 million compared to 2020 primarily due to higher investment income and higher other net periodic benefit income in 2021.
- The Company's effective tax rate for 2022, 2021 and 2020 was 21.0%, 19.0% and 22.0%, respectively. The 2022 effective tax rate benefited from discrete income tax benefits of $32 million in the fourth quarter of 2022 related to the utilization of capital loss carryforwards and $51 million in the second quarter of 2022 related to a decrease in unrecognized tax benefits resulting from the resolution of a U.S. tax audit. The 2021 effective tax rate benefited from discrete income tax benefits of $21 million in the third quarter of 2021 related to the utilization of capital loss carryforwards and $112 million in the second quarter of 2021 related to the remeasurement of net deferred tax assets due to the enactment of the U.K. Finance Bill 2021, which increases the U.K. income tax rate from 19% to 25% effective April 1, 2023. Additionally, the effective tax rates for 2022, 2021 and 2020 included discrete income tax benefits of $12 million, $17 million and $27 million, respectively, related to excess tax benefits from stock-based compensation. Refer to Note 7. 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 in 2022 versus 2021 decreased operating revenue and income before taxes by approximately $628 million and $157 million, respectively. The impact of the Euro and other foreign currencies against the U.S. Dollar in 2021 versus 2020 increased operating revenue and income before taxes by approximately $301 million and $77 million, respectively.

NEW ACCOUNTING PRONOUNCEMENTS

Information regarding new accounting pronouncements is included in Note 1. Description of Business and Summary of Significant Accounting Policies in Item 8. Financial Statements and Supplementary Data.

LIQUIDITY AND CAPITAL RESOURCES

The Company's primary sources of liquidity are free cash flow and short-term credit facilities. As of December 31, 2022, the Company had $708 million of cash and equivalents on hand and no outstanding borrowings under its

$3.0 billion revolving

credit facility. The Company also has maintained 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, such as the acquisition of the MTS Test & Simulation business on December 1, 2021, and an active share repurchase program. Refer to Note 3. Acquisitions in Item 8. Financial Statements and Supplementary Data for further information regarding this acquisition.

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. A description of the potential risks to the Company related to the COVID-19 pandemic is contained in Part I, Item 1A. Risk Factors.

The Company has certain contractual obligations, primarily noncurrent income taxes payable, operating leases and long-term debt. Refer to Note 7. Income Taxes, Note 10. Leases and Note 11. Debt in Item 8. Financial Statements and Supplementary Data for details related to the Company's contractual obligations. The Company did not have any significant off-balance sheet commitments as of December 31, 2022.

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, 2022, 2021 and 2020 was as follows:

In millions	**2022**	**2021**	**2020**
Net cash provided by operating activities	$ 2,348	$ 2,557	$ 2,807
Additions to plant and equipment	(412)	(296)	(236)
Free cash flow	$ 1,936	$ 2,261	$ 2,571
Cash dividends paid	$ (1,542)	$ (1,463)	$ (1,379)
Repurchases of common stock	(1,750)	(1,000)	(706)
Acquisition of businesses (excluding cash and equivalents)	(2)	(731)	—
Proceeds from sale of operations and affiliates	278	—	1
Net proceeds from (repayments of) debt	276	(141)	(4)
Other	42	83	61
Effect of exchange rate changes on cash and equivalents	(57)	(46)	39
Net increase (decrease) in cash and equivalents	$ (819)	$ (1,037)	$ 583

Free cash flow decreased in 2022 and 2021 primarily due to higher working capital investments to support revenue growth, including increased inventory levels to help mitigate supply chain risk and sustain customer service levels.

Stock Repurchase Programs

On August 3, 2018, the Company's Board of Directors authorized a stock repurchase program which provided for the repurchase of up to $3.0 billion of the Company's common stock over an open-ended period of time (the "2018 Program"). Under the 2018 Program, the Company repurchased approximately 6.7 million shares of its common stock at an average price of $158.11 per share during 2019, approximately 4.2 million shares of its common stock at an average price of $167.69 per share during 2020, approximately 4.4 million shares of its common stock at an average price of $227.29 per share during 2021 and approximately 1.2 million shares of its common stock at an average price of $216.62 per share during 2022. The 2018 Program was completed in the first quarter of 2022.

On May 7, 2021, the Company's Board of Directors authorized a new stock repurchase program which provides for the repurchase of up to an additional $3.0 billion of the Company's common stock over an open-ended period of time (the "2021 Program"). Under the 2021 program, the Company repurchased approximately 7.1 million shares of its common stock at an average price of $210.46 per share during 2022. As of December 31, 2022, there were approximately $1.5 billion of authorized repurchases remaining under the 2021 Program.

After-tax Return on Average Invested Capital

The Company uses after-tax return on average invested capital ("After-tax ROIC") to measure the effectiveness of its operations' use of invested capital to generate profits. After-tax ROIC is not defined under U.S. generally accepted accounting principles ("GAAP"). After-tax ROIC is a non-GAAP financial measure that the Company believes is a meaningful metric to investors in evaluating the Company's ability to generate returns from cash invested in its operations and may be different than the method used by other companies to calculate After-tax ROIC. The Company defines After-tax ROIC as operating income after taxes divided by average invested capital, which is annualized when presented in interim periods. Operating income after taxes is a non-GAAP measure consisting of net income before interest expense and other income (expense), on an after-tax basis, which are excluded as they do not represent returns generated by the Company's operations. For comparability, the Company also excluded the discrete tax benefits of $32 million in the fourth quarter of 2022 and $51 million in the second quarter of 2022 from net income and the effective tax rate for the year ended December 31, 2022. Additionally, for comparability, the Company excluded the discrete tax benefits of $21 million in the third quarter of 2021 and $112 million in the second quarter of 2021 from net income and the effective tax rate for the year ended December 31, 2021. Total invested capital represents the net assets of the Company, other than cash and equivalents and outstanding debt which do not represent capital investment in the Company's operations. The most comparable GAAP measure to operating income after taxes is net income. Net income to average invested capital and After-tax ROIC for the years ended December 31, 2022, 2021, and 2020 were as follows:

Dollars in millions	**2022**	**2021**	**2020**
Numerator:			
Net income	$ 3,034	$ 2,694	$ 2,109
Discrete tax benefit related to the fourth quarter 2022	(32)	—	—
Discrete tax benefit related to the second quarter 2022	(51)	—	—
Discrete tax benefit related to the third quarter 2021	—	(21)	—
Discrete tax benefit related to the second quarter 2021	—	(112)	—
Interest expense, net of tax (1)	156	157	162
Other (income) expense, net of tax (1)	(196)	(40)	(22)
Operating income after taxes	$ 2,911	$ 2,678	$ 2,249
Denominator:			
Invested capital:			
Cash and equivalents	$ 708	$ 1,527	$ 2,564
Trade receivables	3,171	2,840	2,506
Inventories	2,054	1,694	1,189
Net assets held for sale	7	—	—
Net plant and equipment	1,848	1,809	1,777
Goodwill and intangible assets	5,632	5,937	5,471
Accounts payable and accrued expenses	(2,322)	(2,233)	(1,818)
Debt	(7,763)	(7,687)	(8,122)
Other, net	(246)	(261)	(385)
Total net assets (stockholders' equity)	3,089	3,626	3,182
Cash and equivalents	(708)	(1,527)	(2,564)
Debt	7,763	7,687	8,122
Total invested capital	$ 10,144	$ 9,786	$ 8,740
Average invested capital (2)	$ 10,017	$ 9,087	$ 8,576
Net income to average invested capital	30.3 %	29.6 %	24.6 %
After-tax return on average invested capital	29.1 %	29.5 %	26.2 %

(1) Effective tax rate used for interest expense and other (income) expense for the years ended December 31, 2022, 2021, and 2020 was 23.2%, 23.0% and 22.0%, respectively.

(2) Average invested capital is calculated using the total invested capital balances at the start of the period and at the end of each quarter within each of the periods presented.

After-tax ROIC decreased 40 basis points for the twelve month period ended December 31, 2022 compared to the prior year period as a result of a 10.2% increase in average invested capital versus an 8.7% increase in after-tax operating income.

After-tax ROIC increased 330 basis points for the twelve month period ended December 31, 2021 compared to the prior year period as a result of a 19.1% increase in after-tax operating income versus a 5.9% increase in average invested capital.

A reconciliation of the 2022 effective tax rate excluding the fourth quarter 2022 discrete tax benefit of $32 million related to the utilization of capital loss carryforwards and the second quarter 2022 discrete tax benefit of $51 million related to the resolution of a U.S. tax audit is as follows:

	Twelve Months Ended December 31, 2022	
Dollars in millions	**Income Taxes**	**Tax Rate**
As reported	$ 808	21.0 %
Discrete tax benefit related to the fourth quarter 2022	32	0.8 %
Discrete tax benefit related to the second quarter 2022	51	1.4 %
As adjusted	$ 891	23.2 %

A reconciliation of the 2021 effective tax rate excluding the third quarter 2021 discrete tax benefit of $21 million related to the utilization of capital loss carryforwards and the second quarter 2021 discrete tax benefit of $112 million related to a change in the U.K. income tax rate is as follows:

	Twelve Months Ended December 31, 2021	
Dollars in millions	**Income Taxes**	**Tax Rate**
As reported	$ 632	19.0 %
Discrete tax benefit related to the third quarter 2021	21	0.6 %
Discrete tax benefit related to the second quarter 2021	112	3.4 %
As adjusted	$ 765	23.0 %

Refer to Note 7. Income Taxes in Item 8. Financial Statements and Supplementary Data for further information regarding the discrete tax items noted above.

Working Capital

Management uses working capital as a measurement of the short-term liquidity of the Company. Net working capital as of December 31, 2022 and 2021 is summarized as follows:

In millions	**2022**	**2021**	**Increase (Decrease)**
Current Assets:			
Cash and equivalents	$ 708	$ 1,527	$ (819)
Trade receivables	3,171	2,840	331
Inventories	2,054	1,694	360
Prepaid expenses and other current assets	329	313	16
Assets held for sale	8	—	8
	6,270	6,374	(104)
Current Liabilities:			
Short-term debt	1,590	778	812
Accounts payable and accrued expenses	2,322	2,233	89
Liabilities held for sale	1	—	1
Other	547	459	88
	4,460	3,470	990
Net Working Capital	$ 1,810	$ 2,904	$ (1,094)

As of December 31, 2022, a significant portion 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. Cash and equivalents held internationally are typically used for international operating needs or reinvested to fund expansion of existing international businesses. International funds may also be used to fund international acquisitions or, if not considered permanently invested, may be repatriated to the U.S. The Company has accrued for foreign withholding taxes related to foreign held cash and equivalents that are not permanently invested.

In the U.S., the Company utilizes cash flows from operations to fund domestic cash needs and the Company's capital allocation priorities. This includes operating needs of the U.S. businesses, 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 may also use its commercial paper program, which is backed by a long-term credit facility, for short-term liquidity needs. The Company believes cash generated by operations and liquidity provided by the Company's commercial paper program will continue to be sufficient to fund cash requirements in the U.S.

Debt

Total debt as of December 31, 2022 and 2021 was as follows:

In millions	**2022**	**2021**	**Increase (Decrease)**
Short-term debt	$ 1,590	$ 778	$ 812
Long-term debt	6,173	6,909	(736)
Total debt	$ 7,763	$ 7,687	$ 76

As of December 31, 2022, short-term debt included $535 million related to the 1.25% Euro notes due May 22, 2023, which were reclassified from Long-term debt to Short-term debt in the second quarter of 2022, and commercial paper of $1.1 billion. As of December 31, 2021, short-term debt included $568 million related to the 1.75% Euro notes due May 20, 2022, which were redeemed in full at face value on February 22, 2022, and commercial paper of $210 million.

The Company may issue commercial paper to fund general corporate needs, share repurchases, and small and medium-sized acquisitions. During the fourth quarter of 2022, the Company entered into a $3.0 billion, five-year revolving credit facility with a termination date of October 21, 2027, which is available to provide additional liquidity, including to support the potential issuances of commercial paper. This agreement replaced the existing $2.5 billion, five-year revolving credit facility

with a termination date of September 27, 2024. No amounts were outstanding under the revolving credit facility as of December 31, 2022. The maximum outstanding commercial paper balance during 2022 was $2.1 billion, while the average daily balance was $1.1 billion.

As of December 31, 2022, the Company had unused capacity of approximately $184 million under international debt facilities. In the ordinary course of business, the Company also had approximately $182 million outstanding in guarantees, letters of credit and other similar arrangements with financial institutions as of December 31, 2022. Refer to Note 11. Debt in Item 8. Financial Statements and Supplementary Data for additional details regarding the Company's outstanding debt obligations.

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. EBITDA and the ratio of total debt to EBITDA are non-GAAP financial measures. 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. 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, 2022, 2021 and 2020 was as follows:

Dollars in millions	**2022**	**2021**	**2020**
Total debt	$ 7,763	$ 7,687	$ 8,122
Net income	$ 3,034	$ 2,694	$ 2,109
Add:			
Interest expense	203	202	206
Other (income) expense	(255)	(51)	(28)
Income taxes	808	632	595
Depreciation	276	277	273
Amortization and impairment of intangible assets	134	133	154
EBITDA	$ 4,200	$ 3,887	$ 3,309
Total debt to EBITDA ratio	1.8	2.0	2.5

Stockholders' Equity

The changes to stockholders' equity during 2022 and 2021 were as follows:

In millions	**2022**	**2021**
Beginning balance	$ 3,626	$ 3,182
Net income	3,034	2,694
Cash dividends declared	(1,560)	(1,483)
Repurchases of common stock	(1,750)	(1,000)
Other comprehensive income (loss)	(339)	140
Other	78	93
Ending balance	$ 3,089	$ 3,626

CRITICAL ACCOUNTING ESTIMATES

The Company has three accounting estimates that it believes are most important to the Company's financial condition and results of operations, and which require the Company to make judgments 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 estimates 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, a goodwill impairment loss is recorded for the difference. 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, 2022, the Company had total goodwill and intangible assets of approximately $5.6 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 $212 million to $1.4 billion, with the average amount equal to $562 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 12. 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 $27 million. The Company estimates 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 12. 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 11. Debt in Item 8. Financial Statements and Supplemental Data for details related to the fair value of the Company's debt instruments. Additionally, rising interest rates would negatively impact the amount of interest expense related to new issuances of commercial paper.

Foreign Currency Risk

The Company operates in the U.S. and 50 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 the €1.0 billion of Euro notes issued in May 2014, the €1.0 billion of Euro notes issued in May 2015 and the €1.6 billion of Euro notes issued in June 2019 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). On February 22, 2022, €500 million of the Euro notes issued in May 2014 were redeemed in full. Refer to Note 11. Debt in Item 8. Financial Statements and Supplemental Data for additional information regarding the redemption of these notes. The amount of pre-tax gain (loss) related to these notes recorded in Other comprehensive income (loss) for the twelve months ended December 31, 2022, 2021 and 2020 was $205 million, $303 million and $(359) million, 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, 2022. 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, 2022, 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, 2022 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 10, 2023

/s/ Michael M. Larsen
Michael M. Larsen
Senior Vice President & Chief Financial Officer
February 10, 2023

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the stockholders and the Board of Directors of Illinois Tool Works Inc.

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, 2022 and 2021, 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, 2022, 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, 2022, 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, 2022 and 2021, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2022, 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, 2022, 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.

Critical Audit Matter

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

Income Taxes — Refer to Note 7 to the financial statements

Critical Audit Matter Description

The Company's income tax expense is recognized and measured based on management's interpretation of the tax regulations and rulings in numerous taxing jurisdictions, which requires significant judgment. When calculating income tax expense management makes estimates and assumptions, including determination of the completeness of book income in each jurisdiction, calculation of taxable income through identification and classification of book to tax differences (either temporary or permanent items), consideration of applicable tax deductions or credits, and the identification of uncertain tax positions.

The evaluation of each uncertain tax position requires management to apply specialized skill and knowledge related to the identified position. Management evaluates uncertain tax positions identified and a liability is established for unrecognized tax benefits when there is a more than 50% likelihood that its tax position will not be sustained upon examination by taxing authorities. There is additional judgment to determine the amount of the liability for the underlying tax position. The Company's income tax expense for 2022 was $808 million and the liability recorded for unrecognized tax benefits as of December 31, 2022, was $314 million.

Given the number of taxing jurisdictions and the complex and subjective nature of the associated tax regulations and rulings, certain audit matters required a high degree of auditor judgment and increased extent of effort, including the need to involve our income tax specialists. These matters included the auditing of income tax expense, identification of uncertain tax positions, measurement of unrecognized tax benefits, and certain planning transactions with income tax expense implications.

How the Critical Audit Matter Was Addressed in the Audit

With the assistance of our income tax specialists, our principal audit procedures related to income tax expense included the following, among others:

- We tested the effectiveness of management's controls over income taxes, including those over income tax expense, unrecognized tax benefits, and certain planning transactions with income tax expense implications.
- We evaluated management's significant estimates and judgments incorporated into the calculation of income tax expense by:
  - Selecting a sample of book to tax differences (temporary and permanent) and testing the accuracy, completeness, and classification of the selections, including evaluating that all impacts of significant transactions with income tax expense implications are considered.
  - Developing an expectation over the foreign income tax expense by jurisdiction and comparing it to the recorded balance.
  - Testing the accuracy of the income tax expense calculation.
- We evaluated management's significant judgments regarding the identification of uncertain tax positions by:
  - Evaluating the reasonableness of a selection of certain planning transactions with income tax expense implications, including the completeness and accuracy of the underlying data supporting the transactions.
  - Assessing management's methods and assumptions used in identifying uncertain tax positions.
  - Comparing results of prior tax audits to ongoing and anticipated tax audits by tax authorities.
  - Evaluating external information including applicable tax law, new interpretations, and related changes to assess the completeness and reasonableness of management's considerations.
  - Determining if there was additional information not considered in management's assessment.
- We evaluated a sample of the liabilities recorded for unrecognized tax benefits to assess the establishment and amount of the liability for the specific underlying tax position.

/s/ DELOITTE & TOUCHE LLP
Chicago, Illinois
February 10, 2023

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 2022	2021	2020
Operating Revenue	$ 15,932	$ 14,455	$ 12,574
Cost of revenue	9,429	8,489	7,375
Selling, administrative, and research and development expenses	2,579	2,356	2,163
Amortization and impairment of intangible assets	134	133	154
Operating Income	3,790	3,477	2,882
Interest expense	(203)	(202)	(206)
Other income (expense)	255	51	28
Income Before Taxes	3,842	3,326	2,704
Income taxes	808	632	595
Net Income	$ 3,034	$ 2,694	$ 2,109
Net Income Per Share:			
Basic	$ 9.80	$ 8.55	$ 6.66
Diluted	$ 9.77	$ 8.51	$ 6.63

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 2022	2021	2020
Net Income	$ 3,034	$ 2,694	$ 2,109
Foreign currency translation adjustments, net of tax	(242)	5	4
Pension and other postretirement benefit adjustments, net of tax	(97)	135	59
Other comprehensive income (loss)	(339)	140	63
Comprehensive Income	$ 2,695	$ 2,834	$ 2,172

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** **2022**	**2021**
Assets		
Current Assets:		
Cash and equivalents	$ 708	$ 1,527
Trade receivables	3,171	2,840
Inventories	2,054	1,694
Prepaid expenses and other current assets	329	313
Assets held for sale	8	—
Total current assets	6,270	6,374
Net plant and equipment	1,848	1,809
Goodwill	4,864	4,965
Intangible assets	768	972
Deferred income taxes	494	552
Other assets	1,178	1,405
	$ 15,422	$ 16,077
Liabilities and Stockholders' Equity		
Current Liabilities:		
Short-term debt	$ 1,590	$ 778
Accounts payable	594	585
Accrued expenses	1,728	1,648
Cash dividends payable	400	382
Income taxes payable	147	77
Liabilities held for sale	1	—
Total current liabilities	4,460	3,470
Noncurrent Liabilities:		
Long-term debt	6,173	6,909
Deferred income taxes	484	654
Noncurrent income taxes payable	273	365
Other liabilities	943	1,053
Total noncurrent liabilities	7,873	8,981
Stockholders' Equity:		
Common stock (par value of $ 0.01 per share):		
Issued- 550.0 shares in 2022 and 2021 Outstanding- 305.0 shares in 2022 and 312.9 shares in 2021	6	6
Additional paid-in-capital	1,501	1,432
Retained earnings	25,799	24,325
Common stock held in treasury	(22,377)	(20,636)
Accumulated other comprehensive income (loss)	(1,841)	(1,502)
Noncontrolling interest	1	1
Total stockholders' equity	3,089	3,626
	$ 15,422	$ 16,077

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 as of December 31, 2019	$ 6	$ 1,304	$ 22,403	$ (18,982)	$ (1,705)	$ 4	$ 3,030
Net income	—	—	2,109	—	—	—	2,109
Common stock issued for stock-based compensation	—	17	—	29	—	—	46
Stock-based compensation expense	—	42	—	—	—	—	42
Repurchases of common stock	—	—	—	(706)	—	—	(706)
Dividends declared ($ 4.42 per share)	—	—	(1,398)	—	—	—	(1,398)
Other comprehensive income (loss)	—	—	—	—	63	—	63
Noncontrolling interest	—	(1)	—	—	—	(3)	(4)
Balance as of December 31, 2020	6	1,362	23,114	(19,659)	(1,642)	1	3,182
Net income	—	—	2,694	—	—	—	2,694
Common stock issued for stock-based compensation	—	17	—	23	—	—	40
Stock-based compensation expense	—	53	—	—	—	—	53
Repurchases of common stock	—	—	—	(1,000)	—	—	(1,000)
Dividends declared ($ 4.72 per share)	—	—	(1,483)	—	—	—	(1,483)
Other comprehensive income (loss)	—	—	—	—	140	—	140
Balance as of December 31, 2021	6	1,432	24,325	(20,636)	(1,502)	1	3,626
Net income	—	—	3,034	—	—	—	3,034
Common stock issued for stock-based compensation	—	6	—	9	—	—	15
Stock-based compensation expense	—	63	—	—	—	—	63
Repurchases of common stock	—	—	—	(1,750)	—	—	(1,750)
Dividends declared ($ 5.06 per share)	—	—	(1,560)	—	—	—	(1,560)
Other comprehensive income (loss)	—	—	—	—	(339)	—	(339)
Balance as of December 31, 2022	$ 6	$ 1,501	$ 25,799	$ (22,377)	$ (1,841)	$ 1	$ 3,089

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 2022	2021	2020
Cash Provided by (Used for) Operating Activities:			
Net income	$ 3,034	$ 2,694	$ 2,109
Adjustments to reconcile net income to cash provided by operating activities:			
Depreciation	276	277	273
Amortization and impairment of intangible assets	134	133	154
Change in deferred income taxes	(150)	(148)	(30)
Provision for uncollectible accounts	5	3	7
(Income) loss from investments	(9)	(29)	(8)
(Gain) loss on sale of plant and equipment	(1)	—	2
(Gain) loss on sale of operations and affiliates	(191)	—	—
Stock-based compensation expense	63	53	42
Other non-cash items, net	5	13	8
Change in assets and liabilities, net of acquisitions and divestitures:			
(Increase) decrease in—			
Trade receivables	(461)	(240)	95
Inventories	(455)	(450)	43
Prepaid expenses and other assets	(19)	(36)	41
Increase (decrease) in—			
Accounts payable	35	37	19
Accrued expenses and other liabilities	119	202	17
Income taxes	(35)	49	34
Other, net	(2)	(1)	1
Net cash provided by operating activities	2,348	2,557	2,807
Cash Provided by (Used for) Investing Activities:			
Acquisition of businesses (excluding cash and equivalents)	(2)	(731)	—
Additions to plant and equipment	(412)	(296)	(236)
Proceeds from investments	12	38	14
Proceeds from sale of plant and equipment	15	8	10
Proceeds from sale of operations and affiliates	278	—	1
Other, net	(1)	(3)	(3)
Net cash provided by (used for) investing activities	(110)	(984)	(214)
Cash Provided by (Used for) Financing Activities:			
Cash dividends paid	(1,542)	(1,463)	(1,379)
Issuance of common stock	29	50	66
Repurchases of common stock	(1,750)	(1,000)	(706)
Net proceeds from (repayments of) debt with original maturities of three months or less	796	120	—
Proceeds from debt with original maturities of more than three months	593	90	—
Repayments of debt with original maturities of more than three months	(1,113)	(351)	(4)
Other, net	(13)	(10)	(26)
Net cash provided by (used for) financing activities	(3,000)	(2,564)	(2,049)
Effect of Exchange Rate Changes on Cash and Equivalents	(57)	(46)	39
Cash and Equivalents:			
Increase (decrease) during the year	(819)	(1,037)	583
Beginning of year	1,527	2,564	1,981
End of year	$ 708	$ 1,527	$ 2,564
Supplementary Cash Flow Information:			
Cash Paid During the Year for Interest	$ 199	$ 197	$ 194
Cash Paid During the Year for Income Taxes, Net of Refunds	$ 993	$ 731	$ 591

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 84 divisions in 51 countries. 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.

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. Refer to Note 3. Acquisitions for additional information regarding the Company's acquisitions.

Operating revenue — 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, 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 deferred until all significant obligations have been completed. In other limited arrangements, the Company may recognize revenue over time. This may include arrangements for service performed over time where operating revenue is recognized over time as the service is provided to the customer. It may also include the sale of highly specialized systems that include a high degree of customization and installation at the customer site which are recognized over time if the product does not have an alternative use and the Company has an enforceable right to payment for work performed to date. Revenue for transactions meeting these criteria is recognized over time as work is performed based on the costs incurred to date relative to the total estimated costs at completion. 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 $ 427 million and $ 394 million as of December 31, 2022 and 2021, respectively, and are short-term in nature. Refer to Note 5. Operating Revenue for additional information regarding the Company's operating revenue.

Research and development expenses — Research and development expenses are recorded as expense in the year incurred. These costs were $ 269 million, $ 239 million and $ 214 million for the years ended December 31, 2022, 2021 and 2020, respectively.

Advertising expenses — Advertising expenses are recorded as expense in the year incurred. These costs were $ 57 million, $ 50 million and $ 43 million for the years ended December 31, 2022, 2021 and 2020, 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. The changes in the allowance for doubtful accounts for the years ended December 31, 2022, 2021 and 2020 were as follows:

In millions	**2022**	**2021**	**2020**
Beginning balance	$ 28	$ 29	$ 20
Provision charged to expense	5	3	7
Acquisitions and divestitures	2	2	—
Write-offs, net of recoveries	(8)	(5)	(4)
Transfer (to)/from assets held for sale	—	—	2
Foreign currency translation/other	(1)	(1)	4
Ending balance	$ 26	$ 28	$ 29

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 22 % of total inventories as of December 31, 2022 and 19 % of total inventories as of December 31, 2021. If the FIFO method was used for all inventories, total inventories would have been approximately $ 111 million and $ 118 million higher than reported at December 31, 2022 and 2021, respectively. The major classes of inventory at December 31, 2022 and 2021 were as follows:

In millions	**2022**	**2021**
Raw material	$ 887	$ 716
Work-in-process	228	208
Finished goods	1,050	888
LIFO reserve	(111)	(118)
Total inventories	$ 2,054	$ 1,694

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, 2022 and 2021:

In millions	**2022**	**2021**
Land	$ 188	$ 198
Buildings and improvements	1,414	1,462
Machinery and equipment	3,891	3,898
Construction in progress	259	142
Gross plant and equipment	5,752	5,700
Accumulated depreciation	(3,904)	(3,891)
Net plant and equipment	$ 1,848	$ 1,809

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

Depreciation was $ 276 million, $ 277 million and $ 273 million for the years ended December 31, 2022, 2021 and 2020, 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 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, a goodwill impairment loss is recorded for the difference.

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.

Refer to Note 9. Goodwill and Intangible Assets for additional information regarding the Company's recorded goodwill and intangible assets.

Leases — The Company recognizes a lease liability and corresponding right-of-use asset for all operating leases with a noncancellable lease term of greater than one year. Rental expense for operating leases is recognized on a straight-line basis over the noncancellable lease term based on the minimum lease payments at lease inception. Changes in rent subsequent to commencement that were not included in minimum lease payments at inception are recognized as variable rent in the period incurred. Refer to Note 10. Leases for additional information regarding the Company's operating leases.

Accrued warranties — The Company accrues for product warranties based on historical experience. The changes in accrued warranties for the years ended December 31, 2022, 2021 and 2020 were as follows:

In millions	**2022**	**2021**	**2020**
Beginning balance	$ 46	$ 45	$ 45
Charges	(41)	(34)	(34)
Provision charged to expense	40	34	33
Acquisitions and divestitures	(2)	5	—
Foreign currency translation/other	(1)	(4)	1
Ending balance	$ 42	$ 46	$ 45

New Accounting Pronouncements

In October 2021, the Financial Accounting Standards Board (the "FASB") issued authoritative guidance which improves the accounting for acquired revenue contracts with customers in a business combination. The new guidance provides an exception to measure contract assets and contract liabilities acquired in a business combination in accordance with existing

revenue recognition guidance rather than at fair value. The Company early adopted this new guidance in the fourth quarter of 2021. The new guidance is effective prospectively upon adoption and must also be applied retrospectively to all interim periods in the year of adoption. The adoption of this new accounting guidance did not have a material impact on the Company's results of operations or financial position. Refer to Note 3. Acquisitions for additional information regarding the Company's acquisitions.

(2) Novel Coronavirus (COVID-19)

In early 2020, an outbreak of a novel strain of coronavirus ("COVID-19") occurred in China and other jurisdictions. The COVID-19 outbreak was subsequently declared a global pandemic by the World Health Organization on March 11, 2020. In response to the outbreak, governments around the globe took various actions to reduce its spread, including travel restrictions, shutdowns of businesses deemed nonessential, and stay-at-home or similar orders. The COVID-19 pandemic and the measures taken globally to reduce its spread have negatively impacted the global economy, causing significant disruptions in the Company's global operations starting primarily in the latter part of the first quarter of 2020 as COVID-19 spread and impacted the countries in which the Company operates and the markets the Company serves. Despite the ongoing disruptions caused by the COVID-19 pandemic, the Company experienced solid recovery progress in many of its end markets during 2021 and, to a greater extent, in 2022 as vaccines became widely available and many governments reduced restrictions related to COVID-19.

(3) Acquisitions

Net cash paid for acquisitions during 2022 and 2021 was $ 2 million and $ 731 million, respectively, and related to the acquisition of the Test & Simulation business of MTS Systems Corporation ("MTS") from Amphenol Corporation ("Amphenol"), as discussed below. This acquisition did not materially affect the Company's results of operations or financial position for any period presented.

On December 1, 2021, the Company completed the acquisition of the MTS Test & Simulation business for a purchase price of $ 750 million, subject to certain closing adjustments. The MTS Test & Simulation business is a leading global supplier of high-performance testing and simulation systems and is highly complementary to the Company's existing Test & Measurement and Electronics segment. The operating results of the MTS Test & Simulation business were reported within the Test & Measurement and Electronics segment from the date of acquisition, with operating revenue of $ 422 million and $ 46 million for the twelve months ended December 31, 2022 and December 31, 2021, respectively. During 2022, the Company completed the allocation of the purchase price to the acquired assets and liabilities as of the acquisition date, including intangible assets and goodwill. Based on its final allocation, the Company recorded goodwill of $ 430 million and intangible assets of $ 259 million. The intangible assets included $ 93 million related to indefinite-lived trademarks and brands and $ 166 million related to amortizable intangible assets that are expected to be amortized on a straight-line basis over estimated useful lives ranging from 1 to 14 years, with a weighted-average life of 11 years. None of the goodwill related to this transaction 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.

(4) Divestitures

The Company routinely reviews its portfolio of businesses relative to its business portfolio criteria and evaluates if further portfolio refinements may be needed. The Company previously communicated its intent to explore options, including potential divestitures, for certain businesses with annual revenues totaling up to $ 1 billion. As such, the Company may commit to a plan to exit or dispose of certain businesses and present them as held for sale in periods prior to the sale of the business.

In the fourth quarter of 2019, the Company completed the divestitures of three businesses. Due to the COVID-19 pandemic, the Company chose to defer any significant divestiture activity in 2020 and 2021. The Company reinitiated the divestiture process in 2022 for certain businesses with combined annual revenues of approximately $ 0.5 billion, subject to approval by the Company's Board of Directors.

In the second quarter of 2022, plans were approved to divest two businesses, including one business in the Polymers & Fluids segment and one business in the Food Equipment segment. These two businesses were classified as held for sale beginning in the second quarter of 2022. In the fourth quarter of 2022, both of these businesses were divested. On October 3, 2022, the business in the Polymers & Fluids segment was sold for $ 220 million, subject to certain closing adjustments, resulting in a pre-tax gain of $ 156 million. On December 1, 2022, the business in the Food Equipment segment was sold for $ 59 million, subject to certain closing adjustments, resulting in a pre-tax gain of $ 41 million. The pre-tax gains were included in Other income (expense) in the Statement of Income. Income taxes on the gains were mostly offset by the utilization of capital loss carryforwards of $ 32 million. Operating revenue related to these divested businesses that was included in the Company's results of operations for the twelve months ended December 31, 2022, 2021 and 2020 was $ 106 million, $ 115 million and $ 113 million, respectively.

In the fourth quarter of 2022, plans were approved to divest one business in the Specialty Products segment. This business was presented as held for sale in the Statement of Financial Position as of December 31, 2022 and had assets and liabilities held for sale of $ 8 million and $ 1 million, respectively. Operating revenue for this business was approximately $ 37 million for the twelve months ended December 31, 2022. The Company expects to sell this business within one year .

(5) Operating Revenue

The Company's 84 diversified operating divisions 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. Operating revenue by product category, which is consistent with the Company's segment presentation, for the twelve months ended December 31, 2022, 2021 and 2020 was as follows:

In millions	**2022**	**2021**	**2020**
Automotive OEM	$ 2,969	$ 2,800	$ 2,571
Food Equipment	2,444	2,078	1,739
Test & Measurement and Electronics	2,828	2,346	1,963
Welding	1,894	1,650	1,384
Polymers & Fluids	1,905	1,804	1,622
Construction Products	2,113	1,945	1,652
Specialty Products	1,799	1,854	1,660
Intersegment revenue	(20)	(22)	(17)
Total	$ 15,932	$ 14,455	$ 12,574

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 retail and food institutional/restaurant 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, automotive original equipment manufacturers and tiers, energy, consumer durables and industrial capital goods markets. Products in this segment include:

- equipment, consumables, and related software for testing and measuring of materials, structures, gases and fluids;
- electronic assembly equipment;
- 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. In other limited arrangements involving the sale of highly specialized systems that include a high degree of customization and installation at the customer site, revenue is recognized over time if the product does not have an alternative use, and the Company has an enforceable right to payment for work performed to date. Revenue for transactions meeting these criteria is recognized over time as work is performed based on the costs incurred to date relative to the total estimated costs at completion.

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 construction, energy, MRO, industrial capital goods and automotive original equipment manufacturers and tiers markets. Products in this segment include:

- arc welding equipment; and
- metal arc welding consumables and related accessories.

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 and MRO 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, industrial capital goods and printing and publishing markets. Products in this segment include:

- 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.

(6) Other Income (Expense)

Other income (expense) for the twelve months ended December 31, 2022, 2021 and 2020 consisted of the following:

In millions	**2022**	**2021**	**2020**
Gain (loss) on sale of operations and affiliates	$ 191	$ —	$ —
Other net periodic benefit income	41	23	13
Interest income	22	12	17
Income (loss) from investments	9	29	8
Equity income in Wilsonart	—	—	—
Gain (loss) on foreign currency transactions, net	(7)	(9)	(5)
Other, net	(1)	(4)	(5)
Total other income (expense)	$ 255	$ 51	$ 28

Gain (loss) on sale of operations and affiliates for the twelve months ended December 31, 2022 primarily related to two businesses divested in the fourth quarter of 2022. Refer to Note 4. Divestitures for further information regarding the Company's divestitures.

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 the income (loss) of Wilsonart is reported in Other income (expense) in the 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. In 2016, the Company received a $ 167 million dividend distribution from Wilsonart which exceeded the Company's equity investment balance and resulted in a $ 54 million pre-tax gain in 2016. 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.

(7) Income Taxes

Noncurrent income taxes payable— 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 connection with the enactment of the Act, the Company recorded a one-time additional income tax expense of $ 676 million in the fourth quarter of 2017 related to a one-time repatriation tax on the deemed repatriation of post-1986 undistributed earnings of foreign subsidiaries. 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 $ 273 million and $ 365 million as of December 31, 2022 and 2021, respectively.

Provision for income taxes— The components of the provision for income taxes for the twelve months ended December 31, 2022, 2021 and 2020 were as follows:

In millions	**2022**	**2021**	**2020**
U.S. federal income taxes:			
Current	$ 478	$ 399	$ 301
Deferred	(143)	(95)	(54)
Total U.S. federal income taxes	335	304	247
Foreign income taxes:			
Current	387	302	276
Deferred	13	(57)	15
Total foreign income taxes	400	245	291
State income taxes:			
Current	93	79	48
Deferred	(20)	4	9
Total state income taxes	73	83	57
Total provision for income taxes	$ 808	$ 632	$ 595

Income before taxes for domestic and foreign operations for the twelve months ended December 31, 2022, 2021 and 2020 was as follows:

In millions	**2022**	**2021**	**2020**
Domestic	$ 2,128	$ 1,667	$ 1,419
Foreign	1,714	1,659	1,285
Total income before taxes	$ 3,842	$ 3,326	$ 2,704

The reconciliation between the U.S. federal statutory tax rate and the effective tax rate for the twelve months ended December 31, 2022, 2021 and 2020 was as follows:

	2022	2021	2020
U.S. federal statutory tax rate	21.0 %	21.0 %	21.0 %
U.S. tax effect of foreign earnings	1.0	1.2	1.0
Changes in tax law	—	(3.4)	(1.5)
State income taxes, net of U.S. federal tax benefit	1.6	2.1	1.9
Differences between U.S. federal statutory and foreign tax rates	0.6	0.3	—
Tax effect of foreign dividends	0.6	0.6	1.6
Foreign derived intangible income	(1.3)	(1.3)	(1.3)
Excess tax benefits from stock-based compensation	(0.3)	(0.5)	(1.0)
Audit resolution	(1.4)	(0.1)	(0.1)
Other, net	(0.8)	(0.9)	0.4
Effective tax rate	21.0 %	19.0 %	22.0 %

The Company's effective tax rate for the twelve months ended December 31, 2022, 2021 and 2020 was 21.0 %, 19.0 % and 22.0 %, respectively. The 2022 effective tax rate benefited from discrete income tax benefits of $ 32 million in the fourth quarter of 2022 related to the utilization of capital loss carryforwards and $ 51 million in the second quarter of 2022 related to a decrease in unrecognized tax benefits resulting from the resolution of a U.S. tax audit. The 2021 effective tax rate benefited from discrete income tax benefits of $ 21 million in the third quarter of 2021 related to the utilization of capital loss carryforwards and $ 112 million in the second quarter of 2021 related to the remeasurement of net deferred tax assets due to the enactment of the U.K. Finance Bill 2021, which increases the U.K. income tax rate from 19% to 25% effective April 1, 2023. Additionally, the effective tax rates for 2022, 2021 and 2020 included discrete income tax benefits of $ 12 million, $ 17 million and $ 27 million, respectively, related to excess tax benefits from stock-based compensation.

Upon repatriation of foreign 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, 2022 and 2021 was $ 50 million and $ 48 million, respectively.

Deferred foreign withholding taxes have not been provided on undistributed earnings considered permanently invested. As of December 31, 2022, 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 as of December 31, 2022 and 2021 were as follows:

In millions	2022		2021	
	Asset	Liability	Asset	Liability
Goodwill and intangible assets	$ 437	$ (505)	$ 431	$ (534)
Inventory reserves, capitalized tax cost and LIFO inventory	51	(3)	39	(3)
Investments	23	(141)	17	(146)
Plant and equipment	15	(106)	17	(103)
Accrued expenses and reserves	83	—	39	—
Employee benefit accruals	166	—	170	—
Foreign tax credit carryforwards	14	—	11	—
Net operating loss carryforwards	441	—	456	—
Capital loss carryforwards	194	—	236	—
Allowances for uncollectible accounts	11	—	11	—
Pension liabilities	—	(25)	—	(65)
Unrealized loss (gain) on foreign debt instruments	—	(65)	—	(44)
Operating leases	47	(47)	49	(49)
Other	45	(30)	52	(42)
Gross deferred income tax assets (liabilities)	1,527	(922)	1,528	(986)
Valuation allowances	(595)	—	(644)	—
Total deferred income tax assets (liabilities)	$ 932	$ (922)	$ 884	$ (986)

The valuation allowances recorded as of December 31, 2022 and 2021 related primarily to certain net operating loss carryforwards and capital loss carryforwards. As of December 31, 2022, the Company had utilized all realizable foreign tax credit carryforwards.

As of December 31, 2022, 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
2023	$ 3
2024	9
2025	2
2026	5
2027	3
2028-2048	624
Do not expire	985
Total gross carryforwards related to net operating losses	$ 1,631

Unrecognized tax benefits— The changes in the amount of unrecognized tax benefits for the twelve months ended December 31, 2022, 2021 and 2020 were as follows:

In millions	**2022**	**2021**	**2020**
Beginning balance	$ 360	$ 346	$ 296
Additions based on tax positions related to the current year	9	11	74
Additions for tax positions of prior years	9	23	39
Reductions for tax positions of prior years	(56)	(12)	(47)
Settlements	—	—	(23)
Foreign currency translation	(8)	(8)	7
Ending balance	$ 314	$ 360	$ 346

Included in the balance as of December 31, 2022 were approximately $ 280 million of unrecognized tax benefits that, if recognized, would impact the Company's effective tax rate.

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, His 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. 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 $ 28 million related predominantly to the potential resolution of federal, state and foreign examinations. 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	2019 - 2022
United Kingdom	2017 - 2022
Germany	2015 - 2022
France	2017 - 2022
Australia	2015 - 2022

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, 2022 and 2021 was $ 26 million and $ 40 million, respectively.

(8) 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 for the twelve months ended December 31, 2022, 2021 and 2020 was as follows:

In millions except per share amounts	**2022**	**2021**	**2020**
Net Income	$ 3,034	$ 2,694	$ 2,109
Net income per share—Basic:			
Weighted-average common shares	309.6	315.1	316.9
Net income per share—Basic	$ 9.80	$ 8.55	$ 6.66
Net income per share—Diluted:			
Weighted-average common shares	309.6	315.1	316.9
Effect of dilutive stock options and restricted stock units	1.1	1.3	1.4
Weighted-average common shares assuming dilution	310.7	316.4	318.3
Net income per share—Diluted	$ 9.77	$ 8.51	$ 6.63

Options that were considered antidilutive were not included in the computation of diluted net income per share. There were 0.9 million, 0.4 million and 0.5 million antidilutive options outstanding for the twelve months ended December 31, 2022, 2021 and 2020, respectively.

(9) Goodwill and Intangible Assets

The changes in the carrying amount of goodwill for the twelve months ended December 31, 2022 and 2021 were as follows:

In millions	Automotive OEM	Food Equipment	Test & Measurement and Electronics	Welding	Polymers & Fluids	Construction Products	Specialty Products	Total
Balance, December 31, 2020	$ 491	$ 271	$ 1,347	$ 267	$ 893	$ 531	$ 890	$ 4,690
Acquisitions / (divestitures)	—	—	371	—	—	—	—	371
Foreign currency translation	(16)	(6)	(11)	(9)	(20)	(13)	(21)	(96)
Balance, December 31, 2021	475	265	1,707	258	873	518	869	4,965
Acquisitions / (divestitures)	—	—	58	—	—	—	—	58
Transfers to assets held for sale	—	(2)	—	—	(33)	—	(2)	(37)
Foreign currency translation	(16)	(14)	(36)	(10)	(17)	(15)	(14)	(122)
Balance, December 31, 2022	$ 459	$ 249	$ 1,729	$ 248	$ 823	$ 503	$ 853	$ 4,864
Cumulative goodwill impairment charges, December 31, 2022	$ 24	$ 60	$ 83	$ 5	$ 15	$ 7	$ 46	$ 240

Intangible assets as of December 31, 2022 and 2021 were as follows:

	2022			2021		
In millions	Cost	Accumulated Amortization	Net	Cost	Accumulated Amortization	Net
Amortizable intangible assets:						
Customer lists and relationships	$ 1,746	$ (1,479)	$ 267	$ 1,849	$ (1,474)	$ 375
Trademarks and brands	713	(541)	172	732	(527)	205
Patents and proprietary technology	615	(565)	50	640	(563)	77
Other	509	(477)	32	533	(471)	62
Total amortizable intangible assets	3,583	(3,062)	521	3,754	(3,035)	719
Indefinite-lived intangible assets:						
Trademarks and brands	247	—	247	253	—	253
Total intangible assets	$ 3,830	$ (3,062)	$ 768	$ 4,007	$ (3,035)	$ 972

On December 1, 2021, the Company completed the acquisition of the MTS Test & Simulation business for a purchase price of $ 750 million, subject to certain closing adjustments, which was reported within the Test & Measurement and Electronics segment. During 2022, the Company completed the allocation of the purchase price to the acquired assets and liabilities as of the acquisition date, including intangible assets and goodwill. Based on its final allocation, the Company recorded goodwill of $ 430 million and intangible assets of $ 259 million. The intangible assets included $ 93 million related to indefinite-lived trademarks and brands and $ 166 million related to amortizable intangible assets. Refer to Note 3. Acquisitions for additional information regarding this acquisition.

The Company performed its annual impairment assessment of goodwill and indefinite-lived intangible assets in the third quarter of 2022, 2021 and 2020. There were no impairment charges as a result of these assessments.

As of December 31, 2022, the estimated future amortization expense of intangible assets for the twelve months ending December 31 was as follows:

In millions		
2023	$	113
2024		97
2025		76
2026		55
2027		44

(10) Leases

The Company's lease transactions are primarily for the use of facilities, vehicles and office equipment under operating lease arrangements. Total rental expense for operating leases for the twelve months ended December 31, 2022, 2021 and 2020 was $ 122 million, $ 118 million and $ 113 million, respectively. Total rental expense for the twelve months ended December 31, 2022, 2021 and 2020 included $ 56 million, $ 47 million and $ 48 million, respectively, related to short-term operating leases and variable lease payments. Short-term operating leases have original terms of one year or less, or can be terminated at the Company's option with a short notice period and without significant penalty, and are not capitalized.

The following table summarizes information related to the Company's capitalized operating leases for the twelve months ended December 31, 2022 and 2021:

Dollars in millions	2022	2021
Right-of-use assets	$ 212	$ 222
Current portion of operating lease liabilities	$ 55	$ 61
Long-term portion of operating lease liabilities	131	133
Operating lease liabilities	$ 186	$ 194
Rental expense related to capitalized operating leases	$ 66	$ 71
Cash paid related to maturities of operating lease liabilities	$ 67	$ 70
Operating lease right-of-use assets obtained in exchange for operating lease liabilities	$ 74	$ 71
Weighted-average remaining lease term	4.9 years	4.4 years
Weighted-average discount rate	2.25 %	1.98 %

The right-of-use assets related to operating leases and the current and long-term portions of operating lease liabilities were included in Other assets, Accrued expenses and Other liabilities, respectively, in the Statement of Financial Position. The weighted-average discount rate was based on the incremental borrowing rate of the Company and its subsidiaries. As of December 31, 2022, future maturities of operating lease liabilities for the twelve months ending December 31 were as follows:

In millions		
2023	$	58
2024		48
2025		30
2026		20
2027		13
2028 and future years		29
Total future minimum lease payments		198
Less: Imputed interest		(12)
Operating lease liabilities	$	186

(11) Debt

Total debt as of December 31, 2022 and 2021 was as follows:

In millions		**2022**		**2021**
Short-term debt	$	1,590	$	778
Long-term debt		6,173		6,909
Total debt	$	7,763	$	7,687

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 that have been reclassified to short-term. Short-term debt as of December 31, 2022 and 2021 consisted of the following:

In millions		**2022**		**2021**
Commercial paper	$	1,053	$	210
Current maturities of long-term debt		535		568
Other		2		—
Total short-term debt	$	1,590	$	778

As of December 31, 2022, short-term debt included $ 535 million related to the 1.25 % Euro notes due May 22, 2023, which were reclassified from Long-term debt to Short-term debt in the second quarter of 2022, and commercial paper of $ 1.1 billion. As of December 31, 2021, short-term debt included $ 568 million related to the 1.75 % Euro notes due May 20, 2022, which were redeemed in full at face value on February 22, 2022, and commercial paper of $ 210 million.

The Company may issue commercial paper to fund general corporate needs, share repurchases, and small and medium-sized acquisitions. During the fourth quarter of 2022, the Company entered into a $ 3.0 billion, five-year revolving credit facility with a termination date of October 21, 2027, which is available to provide additional liquidity, including to support the potential issuances of commercial paper. This agreement replaced the existing $ 2.5 billion, five-year revolving credit facility with a termination date of September 27, 2024. No amounts were outstanding under the revolving credit facility as of December 31, 2022. The Company was also in compliance with the financial covenants of the revolving credit facility as of December 31, 2022, which included a minimum interest coverage ratio. The weighted-average interest rate on commercial paper was 4.35 % and 0.14 % as of December 31, 2022 and 2021, respectively.

As of December 31, 2022, the Company had unused capacity of approximately $ 184 million under international debt facilities. In the ordinary course of business, the Company also had approximately $ 182 million outstanding in guarantees, letters of credit and other similar arrangements with financial institutions as of December 31, 2022.

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, 2022 and 2021 consisted of the following:

		2022		2021	
In millions	**Effective Interest Rate**	**Carrying Value**	**Fair Value**	**Carrying Value**	**Fair Value**
1.75 % Euro notes due May 20, 2022	1.86 %	$ —	$ —	$ 568	$ 570
1.25 % Euro notes due May 22, 2023	1.35 %	535	533	567	578
3.50 % notes due March 1, 2024	3.54 %	699	691	699	734
0.25 % Euro notes due December 5, 2024	0.31 %	641	606	679	688
2.65 % notes due November 15, 2026	2.69 %	996	932	995	1,053
0.625 % Euro notes due December 5, 2027	0.71 %	531	469	564	577
2.125 % Euro notes due May 22, 2030	2.18 %	531	484	564	641
1.00 % Euro notes due June 5, 2031	1.09 %	529	438	561	587
3.00 % Euro notes due May 19, 2034	3.13 %	525	492	557	711
4.875 % notes due September 15, 2041	4.97 %	638	638	637	863
3.90 % notes due September 1, 2042	3.96 %	1,083	945	1,083	1,291
Other borrowings		—	—	3	3
Total		$ 6,708	$ 6,228	$ 7,477	$ 8,296
Less: Current maturities of long-term debt		(535)		(568)	
Total long-term debt		$ 6,173		$ 6,909	

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, which were fully repaid by the due date.

In 2011, the Company issued $ 350 million of 3.375 % notes due September 15, 2021 at 99.552 % of face value, which were redeemed in full on June 15, 2021, 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 $ 700 million of 3.5 % notes due March 1, 2024 at 99.648 % of face value.

In May 2014, the Company issued € 500 million of 1.75 % Euro notes due May 20, 2022 at 99.16 % of face value, which were redeemed in full at face value on February 22, 2022, 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.

In November 2016, the Company issued $ 1.0 billion of 2.65 % notes due November 15, 2026 at 99.685 % of face value.

In June 2019, the Company issued € 600 million of 0.25 % Euro notes due December 5, 2024 at 99.662 % of face value, € 500 million of 0.625 % Euro notes due December 5, 2027 at 99.343 % of face value and € 500 million of 1.00 % Euro notes due June 5, 2031 at 98.982 % of face value.

The Company designated the € 1.0 billion of Euro notes issued in May 2014, the € 1.0 billion of Euro notes issued in May 2015 and the € 1.6 billion of Euro notes issued in June 2019 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. On February 22, 2022, € 500 million of the Euro notes issued in May 2014 were redeemed in full. Refer to Note 14. 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. As of December 31, 2022, scheduled future maturities of long-term debt, including current maturities of long-term debt, for the twelve months ending December 31 were as follows:

In millions		
2023	$	535
2024		1,340
2025		—
2026		996
2027		531
2028 and future years		3,306
Total	$	6,708

(12) 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 $ 111 million in 2022, $ 88 million in 2021, and $ 85 million in 2020. 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 for the twelve months ended December 31, 2022, 2021 and 2020 is as follows:

	Pension			**Other Postretirement Benefits**		
In millions	**2022**	**2021**	**2020**	**2022**	**2021**	**2020**
Components of net periodic benefit cost:						
Service cost	$ 47	$ 53	$ 55	$ 7	$ 7	$ 8
Interest cost	50	39	60	13	11	16
Expected return on plan assets	(100)	(101)	(113)	(26)	(25)	(24)
Amortization of actuarial (gain) loss	24	53	47	(3)	—	(1)
Amortization of prior service cost	1	1	2	—	—	—
Settlement loss	1	—	—	—	—	—
Total net periodic benefit cost (income)	$ 23	$ 45	$ 51	$ (9)	$ (7)	$ (1)

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 most recently published mortality improvement scale from the Society of Actuaries, MP-2021, to measure its U.S. pension and other postretirement benefit obligations as of December 31, 2022 and 2021, which did not have a significant impact.

The following table provides a rollforward of the plan benefit obligations for the twelve months ended December 31, 2022 and 2021:

	Pension		Other Postretirement Benefits	
In millions	**2022**	**2021**	**2022**	**2021**
Change in benefit obligation:				
Beginning balance	$ 2,765	$ 2,939	$ 580	$ 591
Service cost	47	53	7	7
Interest cost	50	39	13	11
Plan participants' contributions	1	2	10	10
Actuarial (gain) loss	(607)	(131)	(101)	2
Acquisitions	—	40	—	—
Benefits paid	(160)	(161)	(43)	(42)
Medicare subsidy received	—	—	2	1
Foreign currency translation	(103)	(16)	—	—
Ending balance	$ 1,993	$ 2,765	$ 468	$ 580
Accumulated benefit obligation as of December 31	$ 1,911	$ 2,642		

For the years ended December 31, 2022 and 2021, the actuarial (gain) loss related to the Company's pension and other postretirement benefit obligations was primarily related to changes in discount rates. Refer to the Assumptions section below for further details related to the discount rates used in the valuations of pension and other postretirement benefit obligations.

The following table provides a rollforward of the plan assets and a reconciliation of funded status for the twelve months ended December 31, 2022 and 2021:

	Pension		Other Postretirement Benefits	
In millions	**2022**	**2021**	**2022**	**2021**
Change in plan assets:				
Beginning balance	$ 3,041	$ 3,096	$ 434	$ 402
Actual return on plan assets	(662)	63	(69)	59
Company contributions	14	25	4	5
Plan participants' contributions	1	2	10	10
Acquisitions	—	28	—	—
Benefits paid	(160)	(161)	(43)	(42)
Foreign currency translation	(120)	(12)	—	—
Ending balance	$ 2,114	$ 3,041	$ 336	$ 434
Reconciliation of funded status:				
Funded status	$ 121	$ 276	$ (132)	$ (146)
Other immaterial plans	(55)	(57)	(4)	(5)
Net asset (liability) as of December 31	$ 66	$ 219	$ (136)	$ (151)
The amounts recognized in the Statement of Financial Position as of December 31 consist of:				
Other assets	$ 251	$ 465	$ —	$ —
Accrued expenses	(12)	(11)	(3)	(3)
Other noncurrent liabilities	(173)	(235)	(133)	(148)
Net asset (liability) as of December 31	$ 66	$ 219	$ (136)	$ (151)
The pre-tax amounts recognized in accumulated other comprehensive (income) loss consist of:				
Net actuarial (gain) loss	$ 479	$ 349	$ (74)	$ (71)
Prior service cost	4	5	—	—
Pre-tax accumulated other comprehensive (income) loss as of December 31	$ 483	$ 354	$ (74)	$ (71)

As of December 31, 2022 and 2021, pension plans with projected benefit obligations in excess of plan assets had projected benefit obligations of $ 137 million and $ 232 million, respectively, and plan assets of $ 22 million and $ 59 million, respectively. As of December 31, 2022 and 2021, pension plans with accumulated benefit obligations in excess of plan assets had accumulated benefit obligations of $ 131 million and $ 223 million, respectively, and plan assets of $ 22 million and $ 59 million, respectively.

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

	Pension			Other Postretirement Benefits		
	2022	2021	2020	2022	2021	2020
Assumptions used to determine benefit obligations as of December 31:						
Discount rate	4.94 %	2.33 %	1.89 %	5.19 %	2.92 %	2.59 %
Rate of compensation increases	3.46 %	3.40 %	3.24 %			
Interest crediting rate - U.S. cash balance plan	3.75 %	3.75 %	3.75 %			
Assumptions used to determine net periodic benefit cost for the twelve months ended December 31:						
Discount rate	2.33 %	1.89 %	2.61 %	2.92 %	2.59 %	3.29 %
Expected return on plan assets	3.72 %	3.67 %	4.33 %	6.25 %	6.65 %	6.70 %
Rate of compensation increases	3.40 %	3.24 %	3.44 %			
Interest crediting rate - U.S. cash balance plan	3.75 %	3.75 %	4.00 %			

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. The Company estimates 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 as of December 31 were as follows:

	2022	2021	2020
Health care cost trend rate assumed for the next year	7.00 %	7.00 %	7.00 %
Ultimate trend rate	4.50 %	4.50 %	4.50 %
Year the rate reaches the ultimate trend rate	2031	2029	2027

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 as of December 31, 2022 and 2021, 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	2022 Total	Level 1	Level 2	Level 3
Pension Plan Assets:				
Cash and equivalents	$ 44	$ 44	$ —	$ —
Fixed income securities:				
Government securities	299	—	299	—
Corporate debt securities	737	—	737	—
Investment contracts with insurance companies	1	—	—	1
Commingled funds:				
Mutual funds	22			
Collective trust funds	994			
Partnerships/private equity interests	13			
Other	4	—	4	—
Total fair value of pension plan assets	$ 2,114	$ 44	$ 1,040	$ 1
Other Postretirement Benefit Plan Assets:				
Life insurance policies	$ 336			
Total fair value of other postretirement benefit plan assets	$ 336	$ —	$ —	$ —

In millions	2021 Total	Level 1	Level 2	Level 3
Pension Plan Assets:				
Cash and equivalents	$ 47	$ 43	$ 4	$ —
Fixed income securities:				
Government securities	370	—	370	—
Corporate debt securities	996	—	996	—
Investment contracts with insurance companies	1	—	—	1
Commingled funds:				
Mutual funds	28			
Collective trust funds	1,573			
Partnerships/private equity interests	21			
Other	5	—	5	—
Total fair value of pension plan assets	$ 3,041	$ 43	$ 1,375	$ 1
Other Postretirement Benefit Plan Assets:				
Life insurance policies	$ 434			
Total fair value of other postretirement benefit plan assets	$ 434	$ —	$ —	$ —

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.

Pension assets measured at net asset value include mutual funds, collective trust funds, partnerships/private equity interests and life insurance policies. Mutual funds and collective trust funds are 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 $ 14 million to its pension plans and $ 4 million to its other postretirement benefit plans in 2023. As of December 31, 2022, the Company's portion of the future benefit payments that are expected to be paid during the twelve months ending December 31 is as follows:

In millions	**Pension**	**Other Postretirement Benefits**
2023	$ 159	$ 37
2024	161	37
2025	163	37
2026	161	37
2027	164	37
Years 2028-2032	790	182

(13) Commitments and Contingencies

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.

(14) 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 August 3, 2018, the Company's Board of Directors authorized a stock repurchase program which provided for the repurchase of up to $ 3.0 billion of the Company's common stock over an open-ended period of time (the "2018 Program"). Under the 2018 Program, the Company repurchased approximately 6.7 million shares of its common stock at an average price of $ 158.11 per share during 2019, approximately 4.2 million shares of its common stock at an average price of $ 167.69 per share during 2020, approximately 4.4 million shares of its common stock at an average price of $ 227.29 per share during 2021 and approximately 1.2 million shares of its common stock at an average price of $ 216.62 per share during 2022. The 2018 Program was completed in the first quarter of 2022.

On May 7, 2021, the Company's Board of Directors authorized a new stock repurchase program which provides for the repurchase of up to an additional $ 3.0 billion of the Company's common stock over an open-ended period of time (the "2021 Program"). Under the 2021 program, the Company repurchased approximately 7.1 million shares of its common stock at an average price of $ 210.46 per share during 2022. As of December 31, 2022, there were approximately $ 1.5 billion of authorized repurchases remaining under the 2021 Program.

Cash Dividends— Cash dividends declared were $ 5.06 per share in 2022, $ 4.72 per share in 2021 and $ 4.42 per share in 2020. Cash dividends paid were $ 4.97 per share in 2022, $ 4.64 per share in 2021 and $ 4.35 per share in 2020.

Accumulated other comprehensive income (loss)— The changes in accumulated other comprehensive income (loss) during 2022, 2021 and 2020 were as follows:

In millions	**2022**	**2021**	**2020**
Beginning balance	$ (1,502)	$ (1,642)	$ (1,705)
Foreign currency translation adjustments during the period	(192)	73	(82)
Foreign currency translation adjustments reclassified to income	—	5	—
Income taxes	(50)	(73)	86
Total foreign currency translation adjustments, net of tax	(242)	5	4
Pension and other postretirement benefit adjustments during the period	(149)	125	30
Pension and other postretirement benefit adjustments reclassified to income	23	54	48
Income taxes	29	(44)	(19)
Total pension and other postretirement benefit adjustments, net of tax	(97)	135	59
Ending balance	$ (1,841)	$ (1,502)	$ (1,642)

Foreign currency translation adjustments reclassified to income primarily relate to the exit of immaterial foreign operations. Pension and other postretirement benefit adjustments reclassified to income represented settlements and the amortization of actuarial gains and losses and prior service cost. Refer to Note 12. Pension and Other Postretirement Benefits for the amounts included in net periodic benefit cost.

The Company designated the € 1.0 billion of Euro notes issued in May 2014, the € 1.0 billion of Euro notes issued in May 2015 and the € 1.6 billion of Euro notes issued in June 2019 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). On February 22, 2022, € 500 million of the Euro notes issued in May 2014 were redeemed in full. Refer to Note 11. Debt for additional information regarding the redemption of these notes. The amount of pre-tax gain (loss) related to these notes recorded in Other comprehensive income (loss) for the twelve months ended December 31, 2022, 2021 and 2020 was $ 205 million, $ 303 million and $(359) million, respectively.

As of December 31, 2022 and 2021, the ending balance of Accumulated other comprehensive income (loss) consisted of after-tax cumulative translation adjustment losses of $ 1.5 billion and $ 1.3 billion, respectively, and after-tax unrecognized pension and other postretirement benefits costs of $ 293 million and $ 196 million, respectively.

(15) Stock-Based Compensation

On May 8, 2015 (the "Effective Date"), the 2015 Long-Term Incentive Plan (the "2015 Plan") was approved by shareholders. The 2015 Plan allows for the issuance of up to 10 million shares of ITW common stock for awards granted under the plan. 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 restricted stock unit.

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.

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 for the twelve months ended December 31, 2022, 2021 and 2020:

In millions	**2022**	**2021**	**2020**
Pre-tax stock-based compensation expense	$ 63	$ 53	$ 42
Tax benefit	(7)	(6)	(5)
Total stock-based compensation expense, net of tax	$ 56	$ 47	$ 37

The following table summarizes activity related to non-vested RSUs for the twelve months ended December 31, 2022:

Shares in millions	**Number of Shares**	**Weighted-Average Grant-Date Fair Value**
Unvested, January 1, 2022	0.6	$ 178.60
Granted	0.2	215.36
Vested	(0.2)	146.29
Unvested, December 31, 2022	0.6	203.48

The following table summarizes stock option activity for the twelve months ended December 31, 2022:

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, 2022	3.1	$ 144.93		
Granted	0.4	217.72		
Exercised	(0.3)	99.27		
Under option, December 31, 2022	3.2	158.71	5.9	$ 196
Exercisable, December 31, 2022	2.1	137.90	4.7	$ 173

The fair value of RSUs is equal to the common stock fair market value on the date of the grant. RSUs provide for dividend equivalents payable in additional RSUs for dividends that would have been paid during the vesting period. Stock option exercise prices are equal to the common stock fair market value on the date of grant. The Company estimates forfeitures based on historical rates for awards with similar characteristics. 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 option valuations for the twelve months ended December 31, 2022, 2021 and 2020:

	2022	**2021**	**2020**
Risk-free interest rate	1.04 - 2.07 %	0.04 - 1.38 %	1.41 %- 1.59 %
Weighted-average volatility	21.0 %	24.0 %	21.0 %
Dividend yield	2.20 %	2.50 %	2.56 %
Expected years until exercise	9.1 - 9.6	8.9 - 9.4	9.1 - 9.6

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 for the twelve months ended December 31, 2022, 2021 and 2020 was $ 45.15 , $ 40.90 and $ 35.45 per share, respectively. The aggregate intrinsic value of stock options exercised

during the twelve months ended December 31, 2022, 2021 and 2020 was $ 38 million, $ 68 million and $ 114 million, respectively. As of December 31, 2022, 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 twelve months ended December 31, 2022, 2021 and 2020 resulted in cash receipts of $ 29 million, $ 50 million and $ 66 million, respectively. The total fair value of vested stock option awards during the twelve months ended December 31, 2022, 2021 and 2020 was $ 18 million, $ 19 million and $ 16 million, respectively.

As of December 31, 2022, there was $ 49 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 1.7 years. The total fair value of vested RSU awards during the twelve months ended December 31, 2022, 2021 and 2020 was $ 28 million, $ 23 million and $ 25 million, respectively.

(16) Other Balance Sheet Information

Other balance sheet information as of December 31, 2022 and 2021 was as follows:

In millions	**2022**	**2021**
Prepaid expenses and other current assets:		
Value-added-tax receivables	$ 92	$ 84
Vendor advances	52	71
Income tax refunds receivable	10	18
Other	175	140
Total prepaid expenses and other current assets	$ 329	$ 313
Other assets:		
Cash surrender value of life insurance policies	$ 433	$ 449
Prepaid pension assets	251	465
Operating lease right-of-use assets	212	222
Customer tooling	159	154
Other	123	115
Total other assets	$ 1,178	$ 1,405
Accrued expenses:		
Compensation and employee benefits	$ 451	$ 460
Deferred revenue and customer deposits	427	394
Rebates	225	209
Current portion of operating lease liabilities	55	61
Warranties	42	46
Current portion of pension and other postretirement benefit obligations	15	14
Other	513	464
Total accrued expenses	$ 1,728	$ 1,648
Other liabilities:		
Pension benefit obligation	$ 173	$ 235
Postretirement benefit obligation	133	148
Long-term portion of operating lease liabilities	131	133
Other	506	537
Total other liabilities	$ 943	$ 1,053

(17) 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.

Segment information for 2022, 2021 and 2020 was as follows:

In millions	**2022**	**2021**	**2020**
Operating revenue:			
Automotive OEM	$ 2,969	$ 2,800	$ 2,571
Food Equipment	2,444	2,078	1,739
Test & Measurement and Electronics	2,828	2,346	1,963
Welding	1,894	1,650	1,384
Polymers & Fluids	1,905	1,804	1,622
Construction Products	2,113	1,945	1,652
Specialty Products	1,799	1,854	1,660
Intersegment revenue	(20)	(22)	(17)
Total	$ 15,932	$ 14,455	$ 12,574
Operating income:			
Automotive OEM	$ 499	$ 545	$ 457
Food Equipment	618	469	342
Test & Measurement and Electronics	684	643	507
Welding	583	490	376
Polymers & Fluids	479	457	402
Construction Products	548	530	421
Specialty Products	481	504	432
Total segments	3,892	3,638	2,937
Unallocated	(102)	(161)	(55)
Total	$ 3,790	$ 3,477	$ 2,882
Depreciation and amortization and impairment of intangible assets:			
Automotive OEM	$ 121	$ 128	$ 131
Food Equipment	40	42	41
Test & Measurement and Electronics	87	66	75
Welding	26	26	24
Polymers & Fluids	57	62	72
Construction Products	31	32	31
Specialty Products	48	54	53
Total	$ 410	$ 410	$ 427
Plant and equipment additions:			
Automotive OEM	$ 181	$ 116	$ 79
Food Equipment	41	30	34
Test & Measurement and Electronics	49	37	23
Welding	43	27	27
Polymers & Fluids	23	15	16
Construction Products	33	30	21
Specialty Products	42	41	36
Total	$ 412	$ 296	$ 236
Identifiable assets:			
Automotive OEM	$ 2,447	$ 2,260	$ 2,302
Food Equipment	1,188	1,052	983
Test & Measurement and Electronics	3,289	3,242	2,239
Welding	933	784	700
Polymers & Fluids	1,819	1,881	1,855
Construction Products	1,370	1,367	1,239
Specialty Products	1,696	1,682	1,635
Total segments	12,742	12,268	10,953
Corporate	2,680	3,809	4,659
Total	$ 15,422	$ 16,077	$ 15,612

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 the twelve months ended December 31, 2022, 2021 and 2020 was as follows:

In millions	**2022**	**2021**	**2020**
Operating Revenue by Geographic Region:			
United States	$ 7,609	$ 6,578	$ 5,834
Canada/Mexico	1,095	940	778
Total North America	8,704	7,518	6,612
Europe, Middle East and Africa	3,913	3,870	3,447
Asia Pacific	2,991	2,802	2,291
South America	324	265	224
Total operating revenue	$ 15,932	$ 14,455	$ 12,574

Operating revenue by geographic region is based on the customers' locations. The Company had approximately 45 % of its total net plant and equipment in the United States as of December 31, 2022 and 2021. Additionally, the Company had 12 % and 11 % of its total net plant and equipment in China as of December 31, 2022 and 2021, respectively. No other countries represented more than 10% of the Company's net plant and equipment as of December 31, 2022 and 2021. No single customer accounted for more than 5% of consolidated revenues for the twelve months ended December 31, 2022, 2021 or 2020.

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, 2022. 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, 2022, 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, 2022 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.

ITEM 9C. *Disclosure Regarding Foreign Jurisdictions that Prevent Inspections*

None.

PART III

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

Information regarding the Directors of the Company who are standing for reelection and any persons nominated to become 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 2023 Annual Meeting of Stockholders.

Information regarding the Audit Committee and its Financial Experts is incorporated by reference from the information under the captions "Corporate Governance - Board of Directors and its Committees" and "Audit Committee Report" in the Company's Proxy Statement for the 2023 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 "Information About Our Executive Officers."

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 "Corporate Governance Policies and Code of Conduct" in the Company's Proxy Statement for the 2023 Annual Meeting of Stockholders.

ITEM 11. ***Executive Compensation***

Information regarding executive compensation is incorporated by reference from the information under the captions "Director Compensation," and "Executive Compensation" in the Company's Proxy Statement for the 2023 Annual Meeting of Stockholders.

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

Information regarding security ownership of certain beneficial owners and management and related stockholder matters is incorporated by reference from the information under the captions "Beneficial Ownership of Common Stock" and "NEO Compensation - Equity Compensation Plan Information" in the Company's Proxy Statement for the 2023 Annual Meeting of Stockholders.

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

Information regarding certain relationships and related transactions as well as director independence is incorporated by reference from the information under the captions "Proposal 1 - Election of Directors - Board Independence," "Other Governance Matters - Certain Relationships and Related Party Transactions" and "Corporate Governance Policies and Code of Conduct" in the Company's Proxy Statement for the 2023 Annual Meeting of Stockholders.

ITEM 14. ***Principal Accounting Fees and Services***

This information is incorporated by reference from the information under the caption "Proposal 4 - Ratification of the Appointment of Independent Registered Public Accounting Firm" in the Company's Proxy Statement for the 2023 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
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

The following report of the Company's independent registered public accounting firm (PCAOB ID: 34) is included as part of Item 8. Financial Statements and Supplementary Data:

Report of Independent Registered Public Accounting Firm

(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.)
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 4.4 to the Company's Registration Statement on Form S-3 filed on August 7, 2020 (Commission File No. 333-242331) 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 4.5 to the Company's Registration Statement on Form S-3 filed on August 7, 2020 (Commission File No. 333-242331) and incorporated herein by reference.
4(c)	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.
4(d)	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.

Exhibit Number	Description
4(e)	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(f)	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(g)	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(h)	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.
4(i)	Officers' Certificate dated June 5, 2019, establishing the terms, and setting forth the forms, of the 0.250% Notes due 2024, the 0.625% Notes due 2027 and the 1.000% Notes due 2031, filed as Exhibit 4.1 to the Company's Current Report on Form 8-K filed on June 5, 2019 (Commission File No. 001-04797) and incorporated herein by reference.
4(j)	Description of the Company's common stock, filed as Exhibit 4(j) to the Company's Annual Report on Form 10-K for the year ended December 31, 2019 (Commission File No. 1-4797) and incorporated herein by reference.
4(k)	Description of the 1.75% Euro Notes due 2022 and 3.00% Euro Notes due 2034, filed as Exhibit 4(k) to the Company's Annual Report on Form 10-K for the year ended December 31, 2019 (Commission File No. 1-4797) and incorporated herein by reference.
4(l)	Description of the 1.25% Euro Notes due 2023 and 2.125% Euro Notes due 2030, filed as Exhibit 4(l) to the Company's Annual Report on Form 10-K for the year ended December 31, 2019 (Commission File No. 1-4797) and incorporated herein by reference.
4(m)	Description of the 0.250% Euro Notes due 2024, 0.625% Euro Notes due 2027 and 1.00% Euro Notes due 2031, filed as Exhibit 4(m) to the Company's Annual Report on Form 10-K for the year ended December 31, 2019 (Commission File No. 1-4797) and incorporated herein by reference.
10(a)(i)	Credit Agreement dated as of October 21, 2022 among Illinois Tool Works Inc., JPMorgan Chase Bank, N.A., as Agent, Citibank, N.A., as Syndication Agent, and a syndicate of lenders, filed as Exhibit 10(a) to the Company's Current Report on Form 8-K filed on October 26, 2022 (Commission File No. 1-4797) and incorporated herein by reference.
10(a)(ii)	Suspension of Rights Agreement dated September 22, 2021 between Illinois Tool Works Inc. and JPMorgan Chase Bank, N.A., as Agent, under the Five Year Credit Agreement dated as of September 27, 2019, among Illinois Tool Works Inc., as Borrower, and JPMorgan Chase Bank, N.A., as Agent, and the Lenders thereto (as amended or otherwise modified from time to time), filed as Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2021 (Commission File No. 1-4797) and incorporated herein by reference.
10(b)*	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(c)*	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(d)*	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(e)*	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(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, 2017 (Commission File No. 1-4797) and incorporated herein by reference.

Exhibit Number	Description
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 14, 2019 (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 5, 2020 (Commission File No. 1-4797) and incorporated herein by reference.
10(i)*	Form of performance share unit terms filed as Exhibit 99.2 to the Company's Current Report on Form 8-K filed on February 5, 2020 (Commission File No. 1-4797) and incorporated herein by reference.
10(j)*	Form of performance cash terms filed as Exhibit 99.3 to the Company's Current Report on Form 8-K filed on February 5, 2020 (Commission File No. 1-4797) and incorporated herein by reference.
10(k)*	Form of restricted stock unit terms filed as Exhibit 99.4 to the Company's Current Report on Form 8-K filed on February 5, 2020 (Commission File No. 1-4797) and incorporated herein by reference.
10(l)*	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(m)*	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(n)*	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(o)*	Illinois Tool Works Inc. Amended and Restated Directors' Deferred Fee Plan effective May 2, 2014, as amended on May 8, 2015 and May 4, 2018, filed herewith.
10(p)*	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.
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.
101.INS	iXBRL Instance Document**
101.SCH	iXBRL Taxonomy Extension Schema**
101.CAL	iXBRL Taxonomy Extension Calculation Linkbase**
101.DEF	iXBRL Taxonomy Extension Definition Linkbase**
101.LAB	iXBRL Taxonomy Extension Label Linkbase**
101.PRE	iXBRL Taxonomy Extension Presentation Linkbase**
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101).

* 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, 2022, formatted in iXBRL (Inline Extensible Business Reporting Language): (i) Statement of Income, (ii) Statement of Comprehensive Income, (iii) Statement of Changes in Stockholders' Equity (iv) Statement of Financial Position, (v) Statement of Cash Flows and (vi) related Notes to Financial Statements.

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 10th day of February 2023.

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 10th day of February 2023.

Signatures	Title
/s/ E. SCOTT SANTI E. Scott Santi	Chairman & Chief Executive Officer, Director (Principal Executive Officer)
/s/ MICHAEL M. LARSEN Michael M. Larsen	Senior Vice President & Chief Financial Officer (Principal Financial Officer)
/s/ RANDALL J. SCHEUNEMAN Randall J. Scheuneman	Vice President & Chief Accounting Officer (Principal Accounting Officer)
DANIEL J. BRUTTO	Director
SUSAN CROWN	Director
DARRELL L. FORD	Director
KELLY J. GRIER	Director
JAMES W. GRIFFITH	Director
JAY L. HENDERSON	Director
RICHARD H. LENNY	Director
DAVID B. SMITH, JR.	Director
PAMELA B. STROBEL	Director
ANRÉ D. WILLIAMS	Director

By: /s/ E. SCOTT SANTI
(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).