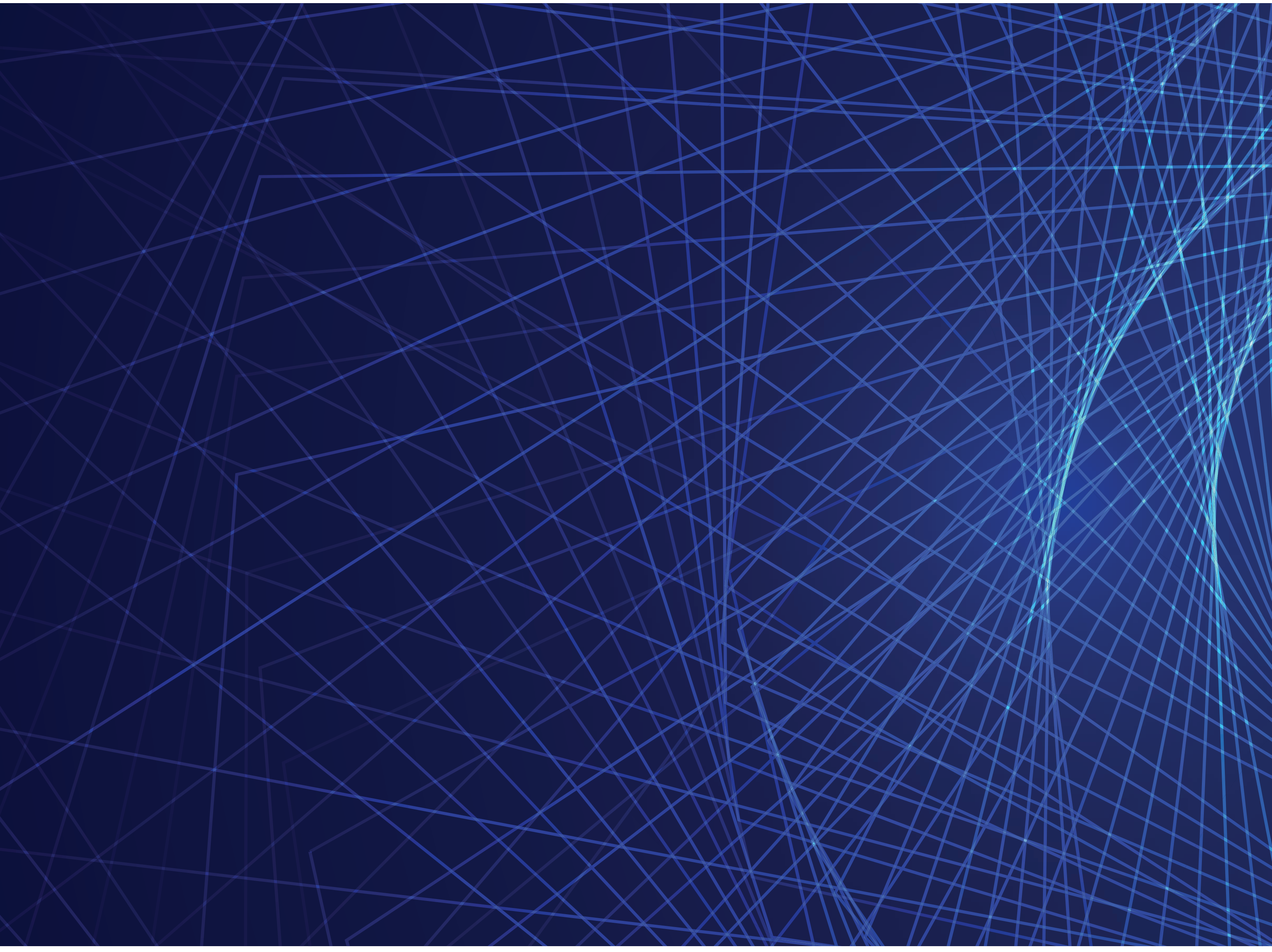
2021 | ANNUAL REPORT



AMETEK®

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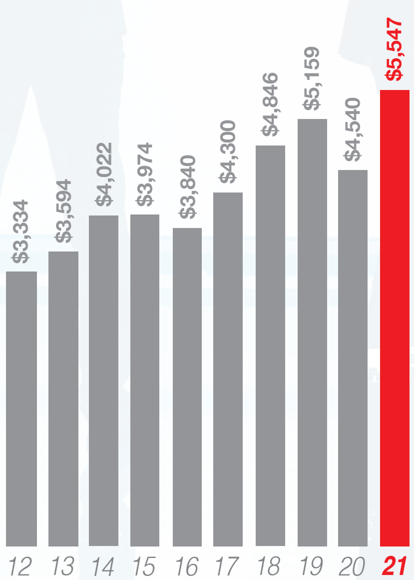
FINANCIAL HIGHLIGHTS

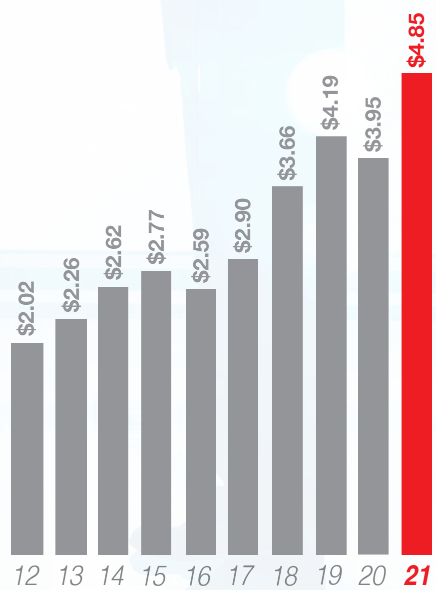
($ in millions, except per share amounts)

Year Ended December 31	2021	2020	2019	2018	2017
Net sales	**$ 5,546.5**	$ 4,540.0	$ 5,158.6	$ 4,845.9	$ 4,300.2
Operating income	**$ 1,308.7**	$ 1,071.8	$ 1,177.4	$ 1,075.5	$ 925.4
Net income	**$ 990.1**	$ 796.5	$ 861.3	$ 766.1	$ 606.0
Diluted earnings per share	**$ 4.85**	$ 3.95	$ 4.19	$ 3.66	$ 2.90
Dividends declared and paid per share	**$ 0.80**	$ 0.72	$ 0.56	$ 0.56	$ 0.36
Operating income margin	**23.6%**	23.6%	22.8%	22.2%	21.5%
EBITDA	**$ 1,594.3**	$ 1,421.6	$ 1,388.3	$ 1,267.7	$ 1,076.0
EBITDA margin	**28.7%**	31.3%	26.9%	26.2%	25.0%
At December 31					
Total debt	**$ 2,544.2**	$ 2,413.7	$ 2,768.7	$ 2,632.7	$ 2,174.3
Net debt	**$ 2,197.4**	$ 1,200.9	$ 2,375.7	$ 2,278.7	$ 1,528.0
Total debt/EBITDA	**1.5x**	1.7x	2.0x	2.1x	2.0x
Stockholders' equity	**$ 6,871.9**	$ 5,949.3	$ 5,115.5	$ 4,241.9	$ 4,027.6
Shares outstanding (in millions)	**231.7**	230.5	229.1	227.1	231.1

Note: This table and other financial measures in this report include non-GAAP (generally accepted accounting principles) results. Please visit the Investors section of ametek.com for a reconciliation of GAAP to non-GAAP results.



Net Sales
(in millions)



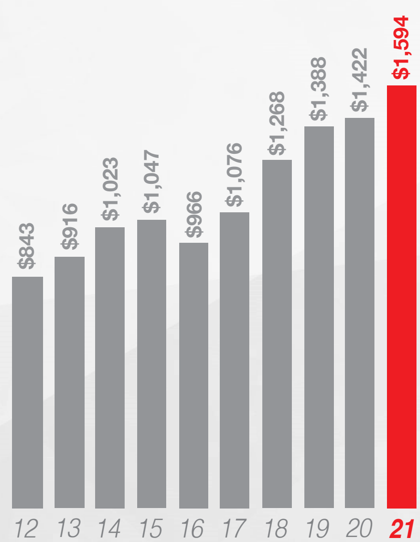
Diluted Earnings Per Share

LETTER TO SHAREHOLDERS

Since the start of the COVID-19 pandemic, our colleagues around the world have demonstrated time and again what it means to persevere, pushing forward with an admirable resolve in support of AMETEK's mission to solve our customers' most complex challenges with differentiated technology solutions. In this dynamic and uncertain environment, we increased our competitive advantage and delivered record financial results because of the efforts of all AMETEK colleagues.

AMETEK's total sales in 2021 were a record $5.5 billion, an increase of 22% versus the prior year. Demand for AMETEK's differentiated solutions was robust, with orders up 40% year over year, ending the year with a record backlog of $2.7 billion. Operating income increased 22% to a record $1.3 billion and operating margins were 23.6% with strong core operating margin expansion.

Adjusted earnings per diluted share were a record $4.85, up 23% versus 2020. Earnings before interest, taxes, depreciation and amortization (EBITDA) were a record $1.6 billion and 28.7% of sales. This outstanding performance supported a record year for capital deployment on strategic acquisitions, as we deployed nearly $2 billion on six acquisitions during the year.

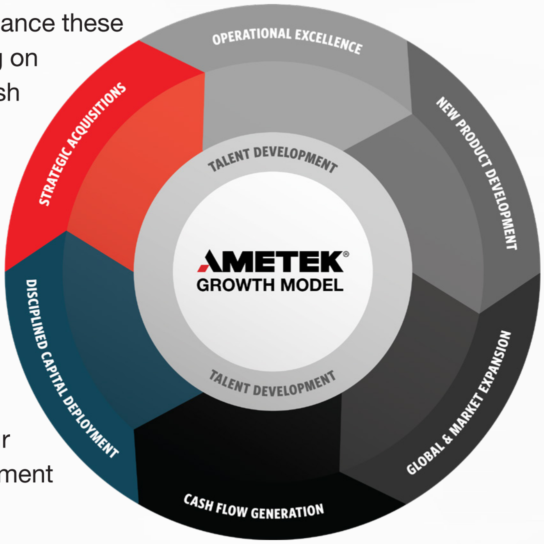


EBITDA
(in millions)

AMETEK GROWTH MODEL

These record results are driven by the AMETEK Growth Model. The Model's four growth strategies – Operational Excellence, New Product Development, Global and Market Expansion, and Strategic Acquisitions – are the foundational elements that guide our efforts.

We continue to enhance these strategies, focusing on organic growth, cash generation, and driving important sustainability initiatives. Supplementing this is our world-class talent, which we continue to develop through our leadership development processes.



Each foundational element of the Growth Model reinforces the others to create a greater impact, which provides a scalable platform to drive long-term, sustainable growth. Our asset-light business model and proven operating capability allow our businesses to generate excellent results and strong cash flow.

This cash flow supports meaningful investments in our organic growth initiatives. We are consistently investing in the research, development, and engineering of next-generation products and technologies, including a growing number of important solutions in support of customers' sustainability initiatives. In 2021, we invested approximately $300 million, or 5.5% of sales, in research, development, and engineering. One way we measure the success of our new product development efforts is through our Vitality Index, which was 25% in the fourth quarter. Our Vitality Index reflects the level of sales from products introduced over the past three years.

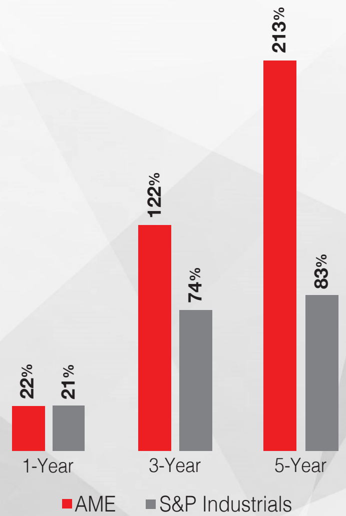
We also continue to deploy our balance sheet and free cash flow on the acquisition of highly differentiated businesses, allowing us to expand our presence in attractive niche markets. AMETEK's strategic acquisition process is a core capability and a proven, disciplined approach to providing strong returns for our shareholders.

As acquired businesses are integrated into AMETEK, we identify opportunities to improve their competitive position, further their global expansion efforts, accelerate new product development and drive efficiency improvements. AMETEK's proven operating model adds meaningful value for acquired companies and generates strong returns on the capital we deploy.

One key element of our operating model is our global sourcing expertise and capability. In 2021, this expertise was essential given significant supply chain challenges. Our supply chain colleagues have done amazing work helping us minimize the impact of these challenges and support our customers in their essential work.

More broadly, over the past two years, our businesses have nimbly adapted to market disruptions, demonstrating the flexibility needed to quickly react to changing conditions. We have implemented new digital tools and processes to adjust to the changing work environment. Our asset-light business model, coupled with a flexible supply chain and global manufacturing footprint, allowed our seasoned operating managers to weather these unprecedented challenges.

Additionally, we remain focused on the health and safety of our employees. We are very pleased with our improvements in workplace safety, with our lost workday incident rates well below industry averages. We also continue to implement our pandemic response plan, which provides a framework for our businesses to follow in managing their local facilities.



Total Shareholder Return as of December 31, 2021

A MORE SUSTAINABLE FUTURE

AMETEK remains focused on creating a more sustainable future. We recently released our 2021 Sustainability Report which highlights the progress and commitments we are making to create a better future for all of our stakeholders.

We expanded our environmental disclosures to include scope 1 and scope 2 emissions, energy consumption, water usage, and waste output. Additionally, we established greenhouse gas emission reduction goals to reduce carbon emissions across our organization. We have also begun providing disclosures aligned with the Sustainability Accounting Standards Board (SASB) and Task Force on Climate-Related Financial Disclosures (TCFD) frameworks.

We are also focused on human capital management and are committed to ensuring a diverse and inclusive culture to help drive innovation, growth and opportunities for our colleagues. Our hiring practices are focused on identifying the most diverse set of candidates while our training and development programs ensure AMETEK employees receive proper opportunities to thrive, both professionally and personally.

AMETEK is also supporting our customers' sustainability initiatives through our market-leading solutions. These solutions are creating a more sustainable future by supporting environmentally focused applications across a diverse set of industries. For example, Process Instruments' gas analysis and combustion analyzer solutions help to measure and reduce greenhouse gas emissions and other harmful pollutants, while improving process efficiency.

Please see our Sustainability Report for additional examples of how AMETEK is providing sustainable solutions to our customers.

STRATEGIC ACQUISITIONS

We remain focused on expanding our portfolio of innovative, differentiated technology solutions through strategic acquisitions. In 2021, we deployed nearly $2 billion on the acquisition of six businesses, a record year for capital deployment.

ABACO SYSTEMS: A leader in open-architecture computing and electronic systems for aerospace, defense, and specialized industrial markets. Abaco's ruggedized products are designed to withstand harsh operating environments such as extreme temperature and high vibration.

ALPHASENSE: A designer and manufacturer of a broad range of technologically advanced gas detection sensors used in fixed and portable detection systems. Alphasense sensors provide critical measurements of oxygen concentration, harmful toxic gases, and volatile organic compounds across a wide range of industrial, commercial and environmental applications.

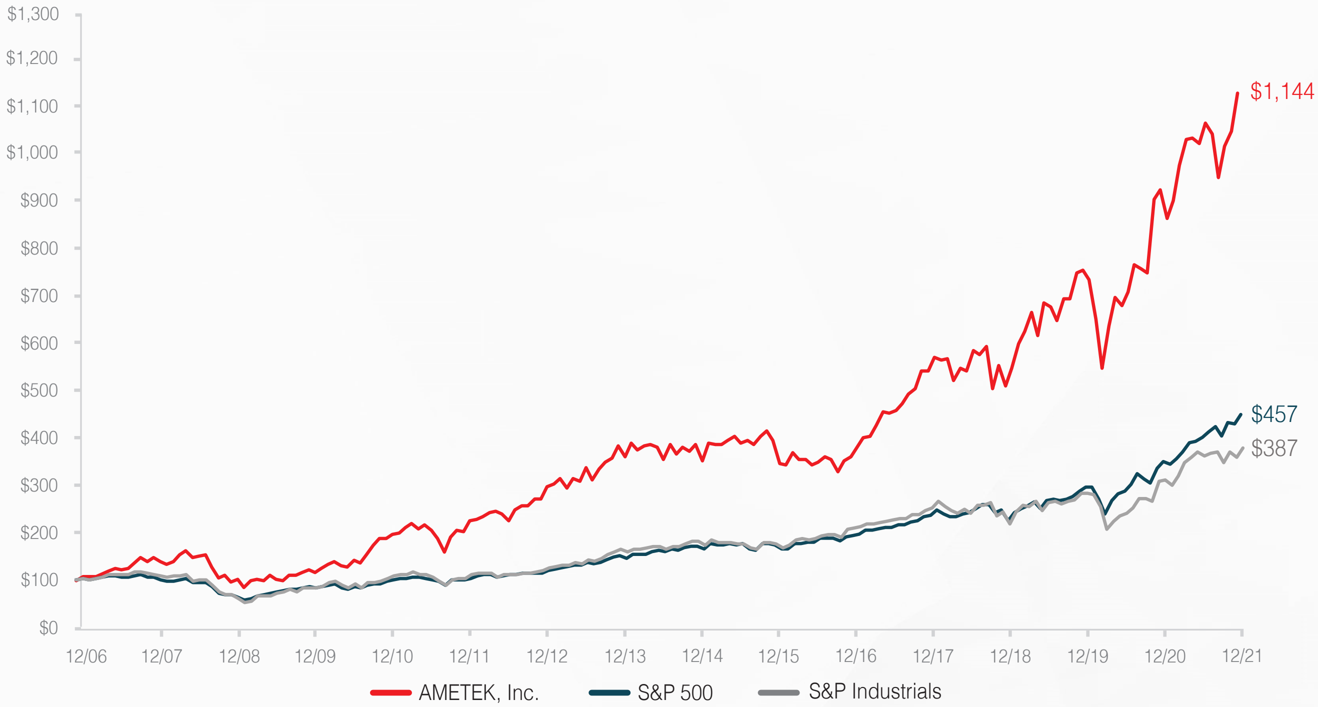
CRANK SOFTWARE: A leading provider of embedded graphical user interface (GUI) software and services. Storyboard – the company's flagship offering – is a premier, innovative solution that enables the design and development of customized user experiences in a wide range of embedded products.

EGS AUTOMATION: An automation solutions provider that designs and manufactures highly engineered, customized robotic solutions used in critical applications for the medical, food and beverage, and general industrial markets. Combined with our Dunkermotoren business, EGS provides a broader suite of solutions that expands our presence in an attractive market.

MAGNETROL: A leading provider of level and flow control solutions for challenging process applications across a diverse set of end markets, including medical, pharmaceutical, oil and gas, food and beverage, and general industrial.

NSI-MI: A leading provider of radio frequency and microwave test and measurement solutions and services. NSI-MI's expertise in advanced radio frequency and microwave technologies allows us to provide complete test and measurement systems for niche applications across the aerospace, defense, automotive, wireless communications, and research markets.

Total Return To Shareholders



The chart compares the performance of $100 invested in AMETEK, Inc., against the S&P 500 and S&P Industrials on 12/31/2006, including reinvestment of dividends. The 15-year compound annual growth rate for AMETEK's total return to shareholders is 18%.

LOOKING FORWARD

AMETEK delivered outstanding results and had much success in 2021. This success was due to the great efforts and contributions of all AMETEK colleagues. I would like to thank everyone for their perseverance, hard work, and dedication to AMETEK's mission. Together, we delivered outstanding performance and positioned the company for future growth.

AMETEK's core values – **Ethics and Integrity, Respect for the Individual, Diversity and Inclusion, Teamwork, and Social Responsibility** – remain critical to all areas of our company. These core values are essential to our culture and provide a roadmap for every decision we make.

While these remain extraordinary times, we remain highly confident in the strength of our Growth Model. We are well positioned for the future with a strong, experienced management team and proven capability to manage through business cycles. We have an excellent set of high-quality businesses with strong technology and leadership positions across a diverse set of niche market areas with high barriers to entry. We have an asset-light business model and a flexible operating structure that allow us to react quickly to changing market conditions. Additionally, we have a proven capital deployment strategy with a world-class acquisition process, a robust balance sheet and strong cash flows. We are very positive about the future of AMETEK.

Thank you to our stakeholders for their support and confidence in AMETEK.

David A. Zapico
Chairman of the Board and Chief Executive Officer

OVERVIEW

AMETEK is a leading global provider of electronic instruments and electromechanical devices with approximately 18,500 colleagues at over 150 operating locations and a global network of sales, service and support locations in 30 countries around the world. The company has been listed on the New York Stock Exchange (NYSE) since 1930 and is headquartered in Berwyn, Pennsylvania.

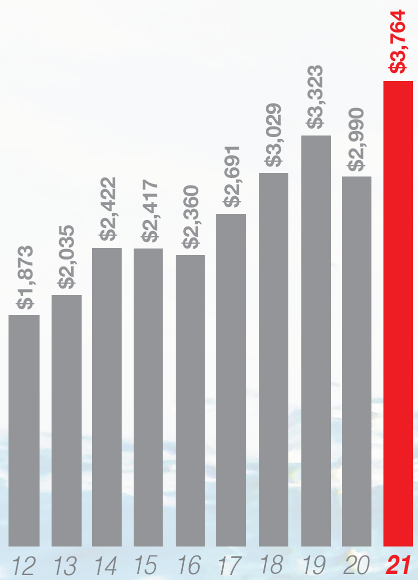
AMETEK'S OPERATING GROUPS

Electronic Instruments Group (EIG)

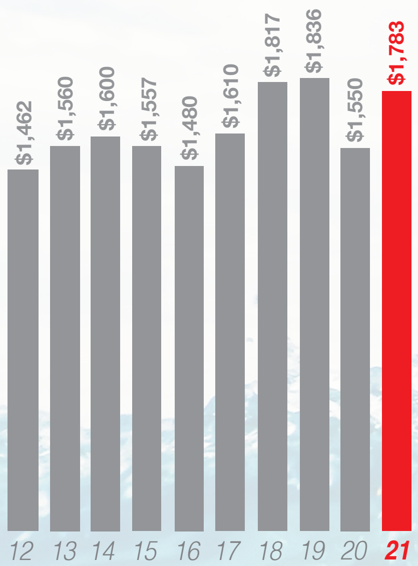
EIG is a worldwide leader in the design and manufacturing of advanced analytical, test and measurement instrumentation for aerospace, medical, power, energy, research and industrial markets.

Electromechanical Group (EMG)

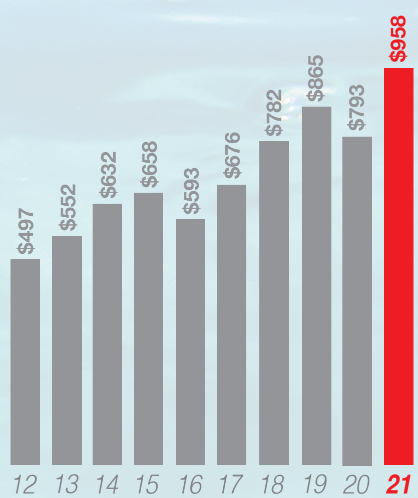
EMG is a differentiated supplier of automation and precision motion control solutions, as well as highly engineered electrical interconnects, specialty metals and thermal management systems.



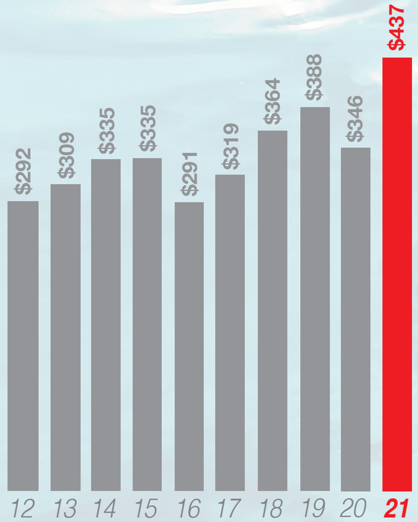
EIG Sales
(in millions)



EMG Sales
(in millions)



EIG Operating Income
(in millions)



EMG Operating Income
(in millions)

AT A GLANCE

AMETEK'S CORE VALUES

ETHICS & INTEGRITY

RESPECT FOR THE INDIVIDUAL

DIVERSITY & INCLUSION

TEAMWORK

SOCIAL RESPONSIBILITY

$5.5b
GLOBAL SALES

$1.6b
EBITDA

28.7%
EBITDA MARGIN

18,500
GLOBAL WORKFORCE

23.6%
OPERATING MARGIN

$1.0b
FREE CASH FLOW

90
NUMBER OF ACQUISITIONS SINCE 2000

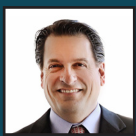
175+
MARKET-LEADING BRANDS

30
COUNTRIES

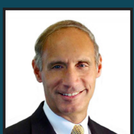
150+
OPERATING LOCATIONS

DIRECTORS AND OFFICERS

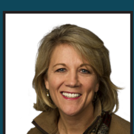
Board of Directors

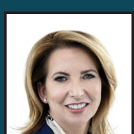

Thomas A. Amato

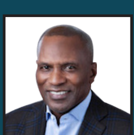

Tod E. Carpenter


Anthony J. Conti


Steven W. Kohlhagen


Gretchen W. McClain


Karleen M. Oberton


Dean Seavers

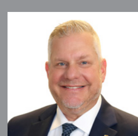
Corporate Executive Office


David A. Zapico


William J. Burke


Tony J. Ciampitti


John Wesley Hardin


David F. Hermance


Thomas C. Marecic


Ronald J. Oscher


Emanuela Speranza

Board of Directors

Thomas A. Amato
President and Chief Executive Officer, TriMas Corporation

Tod E. Carpenter
Chairman, President and Chief Executive Officer, Donaldson Company, Inc.

Anthony J. Conti
Retired Partner, PricewaterhouseCoopers LLP

Steven W. Kohlhagen
Retired Financial Executive

Gretchen W. McClain
Former President and Chief Executive Officer, Xylem Inc.

Karleen M. Oberton
Chief Financial Officer, Hologic, Inc.

Dean Seavers
Former President of National Grid US and Executive Director of National Grid plc

David A. Zapico
Chairman of the Board and Chief Executive Officer

Corporate Executive Office

David A. Zapico
Chairman of the Board and Chief Executive Officer

William J. Burke
Executive Vice President and Chief Financial Officer

Tony J. Ciampitti
President, Electronic Instruments

John Wesley Hardin
President, Electronic Instruments

David F. Hermance
President, Electromechanical Group

Thomas C. Marecic
President, Electronic Instruments

Ronald J. Oscher
Chief Administrative Officer

Emanuela Speranza
Chief Commercial Officer

Corporate Officers

William D. Eginton
Senior Vice President, Corporate Development

Robert S. Feit
Senior Vice President, General Counsel and Corporate Secretary

Thomas M. Montgomery
Senior Vice President and Comptroller

Robert J. Amodei
Vice President, Operational Finance and Accounting

Kevin C. Coleman
Vice President, Investor Relations and Treasurer

Nino DiPietro
Vice President, Audit Services

Corporate Officers, *cont.*

Stewart J. Douglas
Vice President and Chief Information Officer

David A. Frank
Vice President, Taxation

Matthew M. Fuss
Vice President, Strategic Procurement

John A. Mockler
Vice President, International Human Resources

Brian A. Nash
Vice President, Group Controller

Michael J. Pizzo
Vice President, Planning and Analysis

Dalip M. Puri
Vice President, Group Controller

Mark R. Scheuer
Vice President, Environmental, Health and Safety

Jeffrey T. Stevens
Vice President, Financial Reporting

Sheldon L. Thorpe
Vice President, Human Resources

Operating Officers

Matthew C. French
Senior Vice President and General Manager, Advanced Motion Solutions

James O. Davis
Vice President and General Manager, Measurement, Communications and Testing

Peter C. de Jong
Vice President, Mexico Operations

Brian A. Hoffmann*
Vice President and General Manager, Maintenance, Repair and Overhaul

Eleanor L. Lukens
Vice President and General Manager, Aerospace and Defense

Christoph J. Maetzig
Vice President and General Manager, Ultra Precision Technologies

Prakash Mahesh
Vice President and General Manager, Power Systems and Instruments

Thomas J. Matway
Vice President and General Manager, Engineered Materials, Interconnects and Packaging

Joseph R. Plante
Vice President and General Manager, Instrumentation and Specialty Controls

Keith A. Reazin
Vice President and General Manager, Abaco

David R. Samyn
Vice President and General Manager, Materials Analysis

Daniel J. Skinner
Vice President and General Manager, Process and Analytical Instruments

* Effective April 1, 2022, Mr. Hoffmann will retire and be succeeded by Sheraz Ahmed.

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

(Mark One)

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

For the fiscal year ended December 31, 2021

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 1-12981

AMETEK, Inc.

(Exact name of registrant as specified in its charter)

Delaware	**14-1682544**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
1100 Cassatt Road **Berwyn, Pennsylvania**	**19312-1177**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code: (610) 647-2121

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, $0.01 Par Value (voting)	**AME**	**New York Stock Exchange**

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

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

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

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, 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.

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. ☒

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 was approximately $30.9 billion as of June 30, 2021, the last business day of the registrant’s most recently completed second fiscal quarter.

The number of shares of the registrant’s Common Stock outstanding as of January 31, 2022 was 231,700,893.

Documents Incorporated by Reference

Part III incorporates information by reference from the Proxy Statement for the Annual Meeting of Stockholders on May 5, 2022.

AMETEK, Inc.

2021 Form 10-K Annual Report
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PART I

Item 1. Business

General Development of Business

AMETEK, Inc. (“AMETEK” or the “Company”) is incorporated in Delaware. Its predecessor was originally incorporated in Delaware in 1930 under the name American Machine and Metals, Inc. AMETEK is a leading global manufacturer of electronic instruments and electromechanical devices with operations in North America, Europe, Asia and South America. AMETEK maintains its principal executive offices in suburban Philadelphia at 1100 Cassatt Road, Berwyn, Pennsylvania, 19312. Listed on the New York Stock Exchange (symbol: AME), the common stock of AMETEK is a component of the Standard and Poor’s 500 and the Russell 1000 Indices.

Products and Services

AMETEK’s products are marketed and sold worldwide through two operating groups: Electronic Instruments (“EIG”) and Electromechanical (“EMG”). Electronic Instruments is a leader in the design and manufacture of advanced instruments for the process, power and industrial, and aerospace markets. Electromechanical is a differentiated supplier of precision motion control solutions, thermal management systems, specialty metals and electrical interconnects. Its end markets include aerospace and defense, medical, automation and other industrial markets.

Competitive Strengths

Management believes AMETEK has significant competitive advantages that help strengthen and sustain its market positions. Those advantages include:

Significant Market Share. AMETEK maintains significant market share in a number of targeted niche markets through its ability to produce and deliver high-quality, differentiated products at competitive prices. EIG has significant market positions in niche segments of the process, power and industrial, and aerospace markets. EMG holds significant positions in niche segments of the aerospace and defense, automation and medical markets.

Technological and Development Capabilities. AMETEK believes it has certain technological advantages over its competitors that allow it to maintain its leading market positions. Historically, it has demonstrated an ability to develop innovative new products and solutions that anticipate customer needs. It has consistently added to its investment in research, development and engineering, and improved its new product development efforts with the adoption of Design for Six Sigma and Value Analysis/Value Engineering methodologies. These have improved the pace and quality of product innovation and resulted in the introduction of a steady stream of new products across all of AMETEK’s businesses.

Efficient and Flexible Manufacturing Operations. Through its Operational Excellence initiatives, AMETEK has established a lean and flexible manufacturing platform for its businesses. In its effort to achieve best-cost manufacturing, AMETEK had operating facilities, as of December 31, 2021, in Brazil, China, the Czech Republic, Malaysia, Mexico, and Serbia. These facilities offer proximity to customers and provide opportunities for increasing international sales. Acquisitions also have allowed AMETEK to achieve operating synergies by consolidating operations, product lines and distribution channels, benefiting both of AMETEK’s operating groups.

Experienced Management Team. Another component of AMETEK’s success is the strength of its management team and that team’s commitment to improving Company performance. AMETEK senior management has extensive industry experience and an average of approximately 29 years of AMETEK service. The management team is focused on delivering strong, consistent and profitable growth, growing shareholder value, and creating a sustainable future for our stakeholders. Individual performance is tied to financial results through Company-established stock ownership guidelines and equity incentive programs.

Business Strategy

AMETEK is committed to achieving earnings growth through the successful implementation of the AMETEK Growth Model. The goal of that model is double-digit annual percentage growth in sales and earnings per share over the business cycle and a superior return on total capital. Other financial initiatives have been or may be undertaken, including public and private debt or equity issuance, bank debt refinancing, local financing in certain foreign countries and share repurchases.

AMETEK's Growth Model integrates the four growth strategies of Operational Excellence, Strategic Acquisitions, Global and Market Expansion, and New Product Development with a focus on cash generation and capital deployment.

Operational Excellence. Operational Excellence is AMETEK's cornerstone strategy for accelerating growth, improving profit margins and strengthening its competitive position across its businesses. Operational Excellence focuses on initiatives to drive increased organic sales growth, improvements in operating efficiencies and sustainable practices. It emphasizes team building and a participative management culture. AMETEK's Operational Excellence strategies include lean manufacturing, global sourcing, Design for Six Sigma, Value Engineering/Value Analysis and growth kaizens. Each plays an important role in improving efficiency, enhancing the pace and quality of innovation and driving profitable sales growth. Operational Excellence initiatives have yielded lower operating and administrative costs, shortened manufacturing cycle times, resulted in higher cash flow from operations and increased customer satisfaction. They also have played a key role in achieving synergies from newly acquired companies.

Strategic Acquisitions. Acquisitions are a key to achieving the goals of the AMETEK Growth Model. Since the beginning of 2017 through December 31, 2021, AMETEK has completed 18 acquisitions with annualized sales totaling approximately $1.4 billion, including six acquisitions in 2021. AMETEK targets companies that offer compelling strategic, technical and cultural fit. It seeks to acquire businesses in adjacent markets with complementary products and technologies. It also looks for businesses that provide attractive growth opportunities, often in new and emerging markets. Through these and prior acquisitions, AMETEK's management team has developed considerable skill in identifying, acquiring and integrating new businesses. As it has executed its acquisition strategy, AMETEK's mix of businesses has shifted toward those that are more highly differentiated and, therefore, offer better opportunities for growth and profitability.

Global & Market Expansion. AMETEK has historically experienced growth outside the United States, reflecting an expanding international customer base, investments in its global infrastructure and the attractive growth potential of its businesses in overseas markets. While Europe remains its largest overseas market, AMETEK has pursued growth opportunities worldwide, especially in key emerging markets. It has grown sales in Latin America and Asia by strategically building, acquiring and expanding manufacturing facilities. AMETEK also has expanded its sales, service, and engineering capabilities globally. Recently acquired businesses have further added to AMETEK's international presence.

New Products. New products are essential to AMETEK's long-term growth. As a result, AMETEK has maintained a consistent investment in new product development and engineering. AMETEK's businesses help solve our customers' most complex challenges with differentiated technology solutions. In 2021, AMETEK added to its highly differentiated product portfolio with a range of new products across many of its businesses.

AMETEK focuses on cash generation and capital deployment. AMETEK generates strong cash flow given its asset-light business model and strong operational execution. This cash flow supports AMETEK's capital deployment strategy with its primary focus on strategic, value-enhancing acquisitions. We are committed to paying a modest quarterly dividend.

Attracting, retaining, and developing talent is critical to the success and sustainability of the AMETEK Growth Model as our employees are responsible for successfully driving these strategies.

2021 Overview

Operating Performance

In 2021, the Company posted record sales, operating income, operating margins, net income, diluted earnings per share, backlog, and orders. The Company achieved these results from organic sales growth in both EIG and EMG, contributions from the 2021 acquisitions of Abaco Systems, Inc., Magnetrol International, NSI-MI Technologies, Crank Software, EGS Automation, and Alphasense as well as the Company's Operational Excellence Initiatives. See "Results of Operations" in Part II, Item 7 Management's Discussion and Analysis of Financial Condition and Results of Operations for further details.

In 2021, the Company achieved record sales of $5,546.5 million, an increase of 22.2% from 2020 due to 15% organic sales increase, a 7% increase from acquisitions, and a favorable 1% effect of foreign currency translation, partially offset by an unfavorable divestiture impact. Diluted earnings per share for 2021 were a record $4.25, an increase of $0.48 or 12.7%, compared with $3.77 per diluted share in 2020.

COVID-19 Pandemic

The COVID-19 pandemic resulted in significant global economic disruption and had an adverse impact on the Company's financial results throughout 2020. The Company has experienced sequential improvement in its financial results since the third quarter of 2020, and this trend has continued throughout 2021. The current economic environment in which the Company operates is characterized by increased material cost inflation, logistics challenges, labor availability issues, and component part shortages. The Company continues to monitor and closely manage through these conditions and has taken steps to mitigate the impacts of the challenging economic environment.

The Company's top priority during this pandemic is the health and safety of its employees. All global manufacturing facilities remained fully operational during 2021 and continue to operate with safety protocols in place to ensure the health and safety of its employees and communities. The Company will continue to evaluate the nature and extent of future impacts of the COVID-19 pandemic on its business. Please refer to "Risk Factors", Part I, Item 1A of this Form 10-K for more information.

Recent Acquisitions

The Company spent $1,959.2 million in cash, net of cash acquired, to purchase six businesses in 2021.

In February 2021, AMETEK acquired EGS Automation ("EGS"), a designer and manufacturer of highly engineered, customized robotic solutions used in critical applications for the medical, food and beverage, and general industrial markets.

In March 2021, AMETEK acquired Magnetrol International ("Magnetrol"), a leading provider of level and flow control solutions for challenging process applications across a diverse set of end markets including medical, pharmaceutical, oil and gas, food and beverage, and general industrial.

In March 2021, AMETEK acquired Crank Software, a leading provider of embedded graphical user interface software and services.

In April 2021, AMETEK acquired NSI-MI Technologies ("NSI-MI"), a leading provider of radio frequency and microwave test and measurement systems for niche applications across the aerospace, defense, automotive, wireless communications, and research markets.

In April 2021, AMETEK acquired Abaco Systems, Inc. ("Abaco"), specializing in open-architecture computing and electronic systems for aerospace, defense, and specialized industrial markets and is a leading provider of mission critical embedded computing systems.

In November 2021, AMETEK acquired Alphasense, a leading provider of gas and particulate sensors for use in environmental, health and safety, and air quality applications.

Financing

On April 26, 2021, the Company along with certain of its foreign subsidiaries amended its credit agreement dated as of September 22, 2011, as amended and restated as of March 10, 2016 and as further amended and restated as of October 30, 2018, with the lenders, JPMorgan Chase Bank, N.A., as Administrative Agent and Bank of America, N.A., PNC Bank, National Association, Trust Bank and Wells Fargo Bank, National Association, as Co-Syndication Agents. The credit agreement amends the Company's existing revolving credit facility to add a new five-year, delayed draw, term loan for up to $800 million. The credit agreement places certain restrictions on allowable additional indebtedness. In November 2021, the Company further amended the Credit Agreement to address the cessation of LIBOR on certain currencies.

Description of Business

Described below are the products and markets of each reportable segment:

EIG

EIG is a leader in the design and manufacture of advanced analytical, test and measurement instruments for the process, aerospace, medical, research, power and industrial markets. Its growth is based on the strategies outlined in the AMETEK Growth Model. In many instances, its products differ from or are technologically superior to its competitors' products. It has achieved competitive advantage through continued investment in research, development and engineering to develop market-leading products and solutions that serve niche markets. It also has expanded its sales and service capabilities globally to serve its customers.

EIG is a leader in many of the specialized markets it serves. Products supplied to these markets include process control instruments for the life sciences, pharmaceutical, semiconductor, automation, food and beverage, oil and gas, and petrochemical industries. It provides a growing range of instruments to the research and laboratory equipment, ultra-precision manufacturing, medical, and test and measurement markets. It is a leader in power quality monitoring and metering, uninterruptible power systems, programmable power equipment, electromagnetic compatibility ("EMC") test equipment, sensors for gas turbines, dashboard instruments for heavy trucks, and instrumentation and controls for the food and beverage industries. It supplies the aerospace industry with aircraft and engine sensors, monitoring systems, power supplies, fuel and fluid measurement systems, and data acquisition systems.

In 2021, 49% of EIG's net sales were to customers outside the United States. At December 31, 2021, EIG employed approximately 11,000 people, of whom approximately 600 were covered by collective bargaining agreements. At December 31, 2021, EIG had operating facilities in the United States, the United Kingdom, Germany, Canada, China, Denmark, Finland, France, Switzerland, Argentina, Austria and Mexico. EIG also shares operating facilities with EMG in Brazil, China and Mexico.

Process and Analytical Instrumentation Markets and Products

Process and analytical instrumentation sales represented 70% of EIG's 2021 net sales. These businesses include process analyzers, emission monitors and spectrometers; elemental and surface analysis instruments; level, pressure and temperature sensors and transmitters; radiation measurement devices; level measurement devices; precision manufacturing systems; materials- and force-testing instruments; contact and non-contact metrology products; and clinical and educational communication solutions. Among the industries it serves are power generation; pharmaceutical manufacturing; medical and healthcare; water and waste treatment; renewable energy production, semiconductor manufacturing; natural gas distribution; emissions monitoring, and oil, gas, and petrochemical refining. Its instruments are used for precision measurement in a number of applications, including radiation detection, trace element and materials analysis, nanotechnology research, ultraprecise manufacturing, and test and measurement.

Acquired in November 2021, Alphasense is a leading provider of gas and particulate sensors for use in environmental, health and safety, and air quality applications. Alphasense complements the Company's existing sensor business expanding the Company's presence in the environmental health and safety market.

Acquired in March 2021, Magnetrol is a leading provider of level and flow control solutions for challenging process applications across a diverse set of end markets including medical, pharmaceutical, oil and gas, food and beverage, and general industrial. Magnetrol's solutions combined with the Company's existing Sensors, Test and Calibration business, becomes an industry leading differentiated sensor platform with a broad range of level and flow measurement solutions.

Aerospace and Power Instrumentation Markets and Products

Aerospace and Power Instrumentation sales represented 30% of EIG’s 2021 net sales. These businesses produce a wide array of instrumentation, systems and sensors for applications in the aerospace, power and industrial markets.

These businesses produce power monitoring and metering instruments, uninterruptible power supply systems and programmable power supplies used in a wide range of industrial settings. It is a leader in the design and manufacture of power measurement, quality monitoring and event recorders for use in power generation, transmission and distribution. It provides uninterruptible power supply systems, multifunction electric meters, annunciators, alarm monitoring systems and highly specialized communications equipment for smart grid applications. It also offers precision power supplies and power conditioning products, and electrical immunity and EMC test equipment, sensors for electric vehicle testing, gas turbines, dashboard instruments for heavy trucks and other vehicles, and instrumentation and controls for the food and beverage industries.

AMETEK’s aerospace products are designed to customer specifications and manufactured to stringent operational and reliability requirements. These products include airborne data systems, turbine engine temperature measurement products, vibration-monitoring systems, cockpit instruments and displays, fuel and fluid measurement products, embedded computing systems, and sensors and switches. AMETEK serves all segments of the commercial and military aerospace market, including commercial airliners, business jets, regional aircraft and helicopters.

AMETEK operates in highly specialized aerospace market segments in which it has proven technological or manufacturing advantages versus its competition. Among its more significant competitive advantages is its 70-year-plus reputation as an established aerospace supplier. It has long-standing relationships with the world’s leading commercial and military aircraft, jet engine and original equipment manufacturers and aerospace system integrators. AMETEK also is a leading provider of spare part sales, repairs and overhaul services to commercial aerospace.

Acquired in April 2021, Abaco Systems, Inc. specializes in open-architecture computing and electronic systems for aerospace, defense, and specialized industrial markets and is a leading provider of mission critical embedded computing systems. Abaco's solutions expand and complement the Company's existing aerospace and defense businesses.

Acquired in April 2021, NSI-MI is a leading provider of radio frequency and microwave test and measurement systems for niche applications across the aerospace, defense, automotive, wireless communications, and research markets. NSI-MI strengthens the Company's test and measurement platforms.

Acquired in March 2021, Crank Software is a leading provider of embedded graphical user interface software and services. Crank Software expands the Company's growing portfolio of software solutions.

Acquired in January 2020, IntelliPower is a leading provider of high-reliability, ruggedized uninterruptible power systems serving a wide range of defense and industrial applications.

Customers

EIG is not dependent on any single customer such that the loss of that customer would have a material adverse effect on EIG's operations. Approximately 5% of EIG's 2021 net sales were made to its five largest customers. No single customer comprises more than 5% of net sales.

EMG

EMG is a differentiated supplier of automation solutions, thermal management systems, specialty metals and electrical interconnects. EMG is a leader in many of the niche markets in which it competes. Products supplied to these markets include its advanced precision motion control solutions, which are used in a wide range of automation applications across the medical, semiconductor, aerospace, defense, and food and beverage industries, as well as its highly engineered electrical connectors and electronics packaging used in aerospace and defense, medical, and industrial applications.

EMG supplies high-purity powdered metals, strip and foil, specialty clad metals and metal matrix composites. Its blowers and heat exchangers provide electronic cooling and environmental control for the aerospace and defense industries. Its motors are widely used in commercial appliances, fitness equipment, food and beverage machines, hydraulic pumps and industrial blowers. Additionally, it operates a global network of aviation maintenance, repair and overhaul ("MRO") facilities.

EMG designs and manufactures products that, in many instances, are significantly different from or technologically superior to competitors' products. It has achieved competitive advantage through continued investment in research, development and engineering, efficiency improvements from operational excellence, acquisition synergies and improved supply chain management.

In 2021, 50% of EMG's net sales were to customers outside the United States. At December 31, 2021, EMG employed approximately 7,000 people, of whom approximately 1,900 were covered by collective bargaining agreements. At December 31, 2021, EMG had operating facilities in the United States, the United Kingdom, China, Germany, France, Italy, Mexico, Serbia, Brazil, the Czech Republic, Malaysia and Taiwan.

Automation and Engineered Solutions Markets and Products

Automation and Engineered Solution sales represented 72% of EMG's 2021 net sales. These businesses produce precision motion control solutions, brushless motors, blowers and pumps, heat exchangers and other electromechanical systems. These products are used in a wide variety of automation applications, semiconductor equipment, medical equipment and power industries among others. Additionally, these businesses produce specialty motors which are used in a wide range of products, such as household, commercial and personal care appliances, fitness equipment, food and beverage machines, hydraulic pumps and industrial blowers.

AMETEK is a leader in highly engineered electrical connectors and electronics packaging used to protect sensitive devices and mission-critical electronics. Its electrical connectors, terminals, headers and packaging are designed specifically for harsh environments and highly customized applications. In addition, AMETEK is an innovator and market leader in specialized metal powder, strip, wire and bonded products used in medical, aerospace and defense, telecommunications, automotive and general industrial applications.

Acquired in February 2021, EGS Automation designs and manufactures highly engineered, customized robotic solutions used in critical applications for the medical, food and beverage, and general industrial markets. EGS complements the Company's existing Dunkermotoren business providing highly customizable engineering design and automation capabilities.

Aerospace Markets and Products

Aerospace sales represented 28% of EMG's 2021 net sales. These businesses produce motor-blower systems and heat exchangers used in thermal management and other applications on a variety of military and commercial aircraft and military ground vehicles. In addition, these businesses provide the commercial and military aerospace industry with third-party MRO services on a global basis with facilities in the United States, Europe and Asia.

Customers

EMG is not dependent on any single customer such that the loss of that customer would have a material adverse effect on EMG's operations. Approximately 8% of EMG's 2021 net sales were made to its five largest customers. No single customer comprises greater than 5% of net sales.

Marketing

AMETEK's marketing efforts generally are organized and carried out at the business level. EIG makes use of distributors and sales representatives to market its products along with a direct sales force for its technically sophisticated products. Within aerospace, the specialized customer base of aircraft and jet engine manufacturers is served primarily by direct sales engineers. Given the technical nature of its many products, as well as its significant worldwide market share, EMG conducts much of its domestic and international marketing activities through a direct sales force and makes some use of sales representatives and distributors, both in the United States and in other countries.

Competition

In general, AMETEK's markets are highly competitive with competition based on technology, performance, quality, service and price.

In EIG's markets, AMETEK believes it ranks as a leader in certain analytical measurement and control instruments, and power and industrial markets. It also is a major instrument and sensor supplier to commercial aviation. In process and analytical instruments, numerous companies compete in each market on the basis of product quality, performance and innovation. In power and industrial and in aerospace, AMETEK competes with a number of companies depending on the specific market segment.

EMG's businesses compete with a number of companies in each of its markets. Competition is generally based on product innovation, performance and price. There also is competition from alternative materials and processes.

Availability of Raw Materials

AMETEK's reportable segments obtain raw materials and supplies from a variety of sources and generally from more than one supplier. For EMG, however, certain items, including various base metals and certain steel components, are available from only a limited number of suppliers. AMETEK believes its sources and supplies of raw materials are adequate for its needs.

Environmental and Other Governmental Regulation

AMETEK's operations and properties are subject to laws and regulations relating to environmental protection, including those governing air emissions, water discharges, waste management, and workplace safety. The Company uses, generates and disposes of hazardous substances and waste in its operations and could be subject to material liabilities relating to the investigation and clean-up of contaminated properties and related claims. The Company is required to conform our operations and properties to these laws and adapt to regulatory requirements in all countries as these requirements change. The Company has a robust Environmental Health and Safety program responsible for supporting its environmental monitoring and compliance efforts. In connection with acquisitions, the Company will assess potential material environmental liabilities, and determine regulatory and fiduciary obligations during the course of the due diligence process. In addition, new laws and regulations, the discovery of previously unknown contamination or the imposition of new requirements could increase our costs or subject us to new or increased liabilities.

Information with respect to environmental matters is set forth in Note 13 to the Consolidated Financial Statements included in Part II, Item 8 of this Annual Report on Form 10-K.

Patents, Licenses and Trademarks

AMETEK owns numerous unexpired U.S. and foreign patents, including counterparts of its more important U.S. patents, in the major industrial countries of the world. It is a licensor or licensee under patent agreements of various types, and its products are marketed under various registered and unregistered U.S. and foreign trademarks and trade names. AMETEK, however, does not consider any single patent or trademark, or any group of them, essential either to its business as a whole or to either one of its reportable segments. The annual royalties received or paid under license agreements are not significant to either of its reportable segments or to AMETEK's overall operations.

Environmental, Social, and Governance ("ESG") and Human Capital Management

Environmental, Social, and Governance

AMETEK is committed to providing a consistent and excellent return to our stakeholders, all while maintaining a strong commitment to environmental stewardship, social responsibility, diversity and inclusion, and sound corporate governance. We believe that effectively prioritizing and managing our ESG initiatives will help create long-term value and a better future for our stakeholders.

The Company's ESG highlights include the following:

Core Values. Our core values — Ethics and Integrity, Respect for the Individual, Diversity and Inclusion, Teamwork, and Social Responsibility — remain the most critical components of our sustainability efforts. Sustainability is an integral aspect of the core values that guide the way we do business.

Environmental Stewardship. Our ongoing commitment to serve as environmental stewards and protect the environment for future generations is reflected in our corporate governance and oversight of compliance and risk management. We are reducing our environmental impact and increasing operational efficiency across our global footprint, while also establishing greenhouse gas emission reduction targets. Across AMETEK, our businesses are committed to developing innovative products and solutions to help reduce carbon emission, increase the use and adoption of renewable energy, and address the impacts of climate change.

Commitment to Diversity and Inclusion. AMETEK is committed to developing a diverse and inclusive culture to help power innovation, growth, and greater opportunities for all employees. Our hiring practices are geared toward identifying the most diverse set of candidates for open positions. Our training and development programs are focused on providing meaningful opportunities for personal and professional development. And our charitable arm, the AMETEK Foundation, provides wide-ranging support to non-profit and educational organizations in the communities where we operate.

Our Solutions. AMETEK's portfolio of differentiated technology solutions has grown significantly. Many of AMETEK's products and solutions are creating a more sustainable future by supporting customers' environmentally focused applications across a diverse set of markets. AMETEK partners with customers to develop sustainable solutions with specialized technology that help in the effort to improve the quality of life and the environment.

To read the Company's 2021 Sustainability Report, go to www.ametek.com/aboutus/sustainability.

Human Capital Management

As a global organization, we have seen firsthand that the innovation needed to solve our customers' biggest challenges can only come from employees that are fully engaged and committed, and who have diverse perspectives and backgrounds. Our Board regularly receives updates and presentations on key topics, including ESG, compliance, diversity and inclusion, and employee development and succession.

Our executive management team reviews the key talent across our company annually and assesses the adequacy of talent to meet business challenges and future growth needs. A major area of focus is a review of diversity and inclusion improvement efforts. We have a Women's Business Council and an African American Business Council, both of which drive initiatives focused on mentorship, education and career guidance. Diverse candidate slates are required for external salaried openings, including executive management and Board appointments, where at least one diverse candidate is interviewed.

We have created a leadership development program for employees on track to become operational leaders in the Company. This focused and intensive program involves both internal and external training on leadership effectiveness as well as specific job-related skills. In addition, participants receive hands-on experience in key AMETEK business system processes such as growth kaizens and acquisition due diligence. We have a long-standing commitment to responsible corporate conduct. Each employee is provided with annual performance goals which are reviewed in a performance review with their manager. Employee feedback is actively encouraged through an open-door policy for all managers, regular town hall/all hands meetings, executive presentations with Q&A sessions, a regular CEO podcast for all employees, and a hotline that can be used to report complaints.

Giving back to our community is an important part of our culture. Established in 1960, the AMETEK Foundation is the charitable giving arm of AMETEK, Inc. The Foundation's mission is to empower AMETEK colleagues making a positive impact in their local communities, with a focus on health and welfare, civic and social service programs, and education.

As of December 31, 2021, we have approximately 18,500 employees, of which 42% are diverse (global female employees plus diverse U.S. male employees). Our compensation programs are designed to provide competitive salaries and benefit programs to attract, retain and motivate a world-class workforce. Selected employees participate in short and long-term incentive programs that align employee and shareholder interests and promote long-term retention. Additionally, we strive to protect health and safety in every aspect of our enterprise – from the way we design, manufacture and deliver our products to the way our customers use them. We continue to drive towards our goal of zero lost-time work incidents. 2021 was our second year in a row with our lost-time incident rate being the lowest ever. We continue to enhance our safety initiatives as each facility is tasked with identifying opportunities for additional safety measures. Businesses with zero incidents share best practices and ensure ongoing training to maintain their safety excellence. In addition to our EHS facility audits, our facilities' activities include safety committees, continual training, documented self-audits, and behavior-based safety observations and feedback. .

Our U.S. Federal Employment Information Report (EEO-1) for 2020 is available on ametek.com and offers a snapshot of U.S. diversity data as of December 31, 2020. The EEO-1 data captures only U.S. employees and does not reflect the broad diversity of our 10,000 international employees.

Available Information

AMETEK's annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and all amendments to those reports filed or furnished pursuant to Section 13(a) of the Securities Exchange Act of 1934 are made available free of charge on the Company's website at www.ametek.com in the "Investors – Financial Information" section as soon as reasonably practicable after such material is electronically filed with, or furnished to, the U.S. Securities and Exchange Commission. All reports filed with the Securities Exchange Commission can also be viewed on their website at www.sec.gov. AMETEK has posted in the "Investors – Governance" section of its website its corporate governance guidelines, Board committee charters, codes of ethics, and social and environmental policies. Those documents also are available free of charge in published form to any stockholder who requests them by writing to the Investor Relations Department at AMETEK, Inc., 1100 Cassatt Road, Berwyn, Pennsylvania, 19312.

Item 1A. Risk Factors

You should consider carefully the following risk factors and all other information contained in this Annual Report on Form 10-K and the documents we incorporate by reference in this Annual Report on Form 10-K. Any of the following risks could materially and adversely affect our business, financial condition, results of operations and cash flows.

Risks Related to Our Operations

The coronavirus global pandemic could have a material adverse effect on our ability to operate, results of operations, financial condition, liquidity and ability to consummate future acquisitions.

We continue to address the impact of the COVID-19 pandemic. The outbreak of COVID-19, and any other significant outbreak of epidemic, pandemic or contagious disease, could have a negative effect on our ability to operate, results of operations, financial condition, liquidity and ability to consummate future acquisitions. In addition, the outbreak of COVID-19 has resulted in a widespread health crisis that is adversely affecting the economies and financial markets of many countries and the end markets for many of our products, which could result in an economic downturn that may negatively affect demand for our products. The extent to which COVID-19 will impact our business, results of operations and financial condition is highly uncertain and will depend on future developments. Such developments may include the geographic spread and duration of the virus, the severity of the disease and the actions that may be taken by various governmental authorities and other third parties in response to the outbreak.

Our global manufacturing facilities remain open with a focus on safety protocols, though a range of external factors related to the pandemic that are not within our control have restricted our ability to keep our manufacturing facilities fully operational. Any decline or lower than expected demand in our served markets could diminish demand for our products and services, which would adversely affect our financial condition and results of operations. Moreover, the COVID-19 pandemic may adversely affect the financial condition of our customers and suppliers in the future or their ability to purchase Company products, may delay customers' purchasing decisions, result in a shift to lower-priced products or away from discretionary products, and may result in longer payment terms or inability to collect customer payments. These issues may also materially affect our future access to our sources of liquidity, particularly our cash flows from operations, financial condition and ability to consummate future acquisitions.

In compliance with stay-at-home orders issued in connection with the COVID-19 pandemic, a significant subset of our employees have transitioned to working from home. As a result, more of our employees are working from locations where our cybersecurity program may be less effective and IT security may be less robust. This change may create increased vulnerability to cybersecurity incidents, including breaches of information systems security, which could result in a disruption of our operations, customer dissatisfaction, damage to our reputation and a loss of customers or revenues.

If significant portions of our workforce are unable to work effectively, including because of illness, quarantines or absenteeism; government actions; facility closures; work slowdowns or stoppages; limited supplies or resources; or other circumstances related to COVID-19, our operations will be further impacted. We may be unable to perform fully on our customer obligations and we may incur liabilities and suffer losses as a result. The continued spread of COVID-19 may also affect our ability to hire, develop and retain our talented and diverse workforce, and our ability in short periods to fully maintain and support our corporate culture.

A scarcity of resources or other hardships caused by the COVID-19 pandemic may result in increased nationalism, protectionism and political tensions which may cause governments and/or other entities to take actions that may have significant negative impact on the Company, its suppliers, and its customers to conduct business in the future. Risks related to consumers and businesses lowering or changing spending, which impact domestic and cross-border spend, are described in our risk factor titled "Foreign and domestic economic, political, legal, compliance and business factors could negatively affect our international sales and operations".

The duration and intensity of the impact of the COVID-19 pandemic and the resulting disruption to our operations is uncertain but could have a material impact on our operations, cash flows, financial condition and ability to consummate future acquisitions. We will continue to assess the financial impact of the pandemic on our business.

A downturn in the economy generally or in the markets we serve could adversely affect our business.

A number of the industries in which we operate are cyclical in nature and therefore are affected by factors beyond our control. A downturn in the U.S. or global economy, and, in particular, in the aerospace and defense, oil and gas, process instrumentation or power markets could have an adverse effect on our business, financial condition and results of operations.

Our growth could suffer if the markets into which we sell our products and services decline, do not grow as anticipated or experience cyclicality.

Our growth depends in part on the growth of the markets which we serve. Visibility into the future performance of certain of our markets is limited (particularly for markets into which we sell through distribution). Our quarterly sales and profits depend substantially on the volume and timing of orders received during the fiscal quarter, which are difficult to forecast. Any decline or lower than expected growth in our served markets could diminish demand for our products and services, which would adversely affect our financial statements. A number of our businesses operate in industries that may experience periodic, cyclical downturns. In addition, in certain of our businesses, demand depends on customers' capital spending budgets, as well as government funding policies. Matters of public policy and government budget dynamics, as well as product and economic cycles, can affect the spending decisions of these customers. Demand for our products and services is also sensitive to changes in customer order patterns, which may be affected by announced price changes, changes in incentive programs, new product introductions and customer inventory levels. Any of these factors could adversely affect our growth and results of operations in any given period.

We may not properly execute, or realize anticipated cost savings or benefits from, our Operational Excellence initiatives.

Our success is partly dependent upon properly executing and realizing cost savings or other benefits from our ongoing production and procurement initiatives. These initiatives are primarily designed to make the Company more efficient, which is necessary in the Company's highly competitive industries. These initiatives are often complex, and a failure to implement them properly may, in addition to not meeting projected cost savings or benefits, adversely affect our business and operations.

Foreign and domestic economic, political, legal, compliance and business factors could negatively affect our international sales and operations.

International sales for 2021 and 2020 represented 49.5% and 48.7% of our consolidated net sales, respectively. As a result of our growth strategy, we anticipate that the percentage of sales outside the United States will increase in the future. As of December 31, 2021, we have manufacturing operations in 17 countries outside the United States, with significant operations in China, the Czech Republic, Germany, Mexico, Serbia and the United Kingdom. A disruption of our ability to obtain a supply of goods from these countries or a change in the cost to purchase, manufacture, or distribute these products could have an adverse effect on our sales and operations. International sales and operations are subject to the customary risks of operating in an international environment, including:

- Imposition of trade or foreign exchange restrictions, including in the United States;
- Overlap of different tax structures;
- Unexpected changes in regulatory requirements, including in the United States;
- Trade protection measures, such as the imposition of or increase in tariffs and other trade barriers, including in the United States;
- The difficulty and/or costs of designing and implementing an effective control environment across diverse regions and employee bases;
- Restrictions on currency repatriation;
- General economic conditions;
- Unstable political situations and social unrest, both internationally and in the United States;
- Nationalization of assets; and
- Compliance with a wide variety of international and U.S. laws and regulatory requirements.

Furthermore, fluctuations in foreign currency exchange rates, including changes in the relative value of currencies in the countries where we operate, subject us to exchange rate exposure and may adversely affect our financial statements. For example, increased strength in the U.S. dollar will increase the effective price of our products sold overseas, which may adversely affect sales or require us to lower our prices. In addition, our consolidated financial statements are presented in U.S. dollars, and we must translate our assets, liabilities, sales and expenses into U.S. dollars for external reporting purposes. As a result, changes in the value of the U.S. dollar due to fluctuations in currency exchange rates or currency exchange controls may materially and negatively affect the value of these items in our consolidated financial statements, even if their value has not changed in their local currency.

Our international sales and operations may be adversely impacted by compliance with export laws.

We are required to comply with various import, export, export control and economic sanctions laws, which may affect our transactions with certain customers, business partners and other persons, including in certain cases dealings with or between our employees and subsidiaries. In certain circumstances, export control and economic sanctions regulations may prohibit the export of certain products, services and technologies and in other circumstances, we may be required to obtain an export license before exporting a controlled item. In addition, failure to comply with any of these regulations could result in civil and criminal, monetary and non-monetary penalties, disruptions to our business, limitations on our ability to import and export products and services and damage to our reputation.

Our reputation, ability to do business and financial statements may be impaired by improper conduct by any of our employees, agents or business partners.

We cannot provide assurance that our internal controls and compliance systems will always protect us from acts committed by employees, agents or business partners of ours (or of businesses we acquire or partner with) that would violate U.S. and/or non-U.S. laws, including the laws governing payments to government officials, bribery, fraud, kickbacks and false claims, pricing, sales and marketing practices, conflicts of interest, competition, export and import compliance, money laundering and data privacy. In particular, the U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act and similar anti-bribery laws in other jurisdictions generally prohibit companies and their intermediaries from making improper payments to government officials for the purpose of obtaining or retaining business, and we operate in many parts of the world that have experienced governmental corruption to some degree. Any such improper actions or allegations of such acts could damage our reputation and subject us to civil or criminal investigations in the U.S. and in other jurisdictions and related shareholder lawsuits could lead to substantial civil and criminal, monetary and non-monetary penalties and could cause us to incur significant legal and investigatory fees. In addition, we rely on our suppliers to adhere to our supplier standards of conduct and violations of such standards of conduct could occur that could have a material effect on our financial statements.

Any inability to hire, train and retain a sufficient number of skilled officers and other employees could impede our ability to compete successfully.

If we cannot hire, train and retain a sufficient number of qualified employees, we may not be able to effectively integrate acquired businesses and realize anticipated results from those businesses, manage our expanding international operations and otherwise profitably grow our business. Even if we do hire and retain a sufficient number of employees, the expense necessary to attract and motivate these officers and employees may adversely affect our results of operations.

If we are unable to develop new products on a timely basis, it could adversely affect our business and prospects.

We believe that our future success depends, in part, on our ability to develop, on a timely basis, technologically advanced products that meet or exceed appropriate industry standards. Maintaining our existing technological advantages will require us to continue investing in research and development and sales and marketing. There can be no assurance that we will have sufficient resources to make such investments, that we will be able to make the technological advances necessary to maintain such competitive advantages or that we can recover major research and development expenses. We are not currently aware of any emerging standards or new products which could render our existing products obsolete, although there can be no assurance that this will not occur or that we will be able to develop and successfully market new products.

Our technology is important to our success and our failure to protect this technology could put us at a competitive disadvantage.

Many of our products rely on proprietary technology; therefore, we endeavor to protect our intellectual property rights through patents, copyrights, trade secrets, trademarks, confidentiality agreements and other contractual provisions. Despite our efforts to protect proprietary rights, unauthorized parties or competitors may copy or otherwise obtain and use our products or technology. In addition, our ability to protect and enforce our intellectual property rights may be limited in certain countries outside the U.S. Actions to enforce our rights may result in substantial costs and diversion of resources and we make no assurances that any such actions will be successful.

A disruption in, shortage of, or price increases for, supply of our components and raw materials may adversely impact our operations.

While we manufacture certain parts and components used in our products, we require substantial amounts of raw materials and purchase some parts and components, including semiconductor chips and other electronic components, from suppliers. The availability and prices for raw materials, parts and components may be subject to curtailment or change due to, among other things, suppliers' allocation to other purchasers, interruptions in production by suppliers, changes in exchange rates and prevailing price levels. In addition, our facilities, supply chains, distribution systems, and products may be impacted by natural or man-made disruptions, including armed conflict, damaging weather or other acts of nature, pandemics or other public health crises. A shutdown of, or inability to utilize, one or more of our facilities, our supply chain, or our distribution system could significantly disrupt our operations, delay production and shipments, damage our relationships and reputation with customers, suppliers, employees, stockholders and others, result in lost sales, result in the misappropriation or corruption of data, or result in legal exposure and large remediation or other expenses. Furthermore, certain items, including base metals and certain steel components, are available only from a limited number of suppliers and are subject to commodity market fluctuations. Shortages in raw materials or price increases therefore could affect the prices we charge, our operating costs and our competitive position, which could adversely affect our business, financial condition, results of operations and cash flows.

We are subject to numerous governmental regulations, which may be burdensome or lead to significant costs.

Our operations are subject to numerous federal, state, local and foreign governmental laws and regulations. In addition, existing laws and regulations may be revised or reinterpreted and new laws and regulations, including with respect to privacy legislation and climate change, may be adopted or become applicable to us or customers for our products. For example, we are subject to federal, state and international privacy laws relating to the collection, use, retention, security and transfer of personally identifiable information. In many cases, these laws apply not only to third-party transactions, but also to transfers of information between the Company and its subsidiaries, and among the Company, its subsidiaries and other parties with which the Company has commercial relations. Several jurisdictions have passed laws in this area, and other jurisdictions are considering imposing additional restrictions. These laws continue to develop and may be inconsistent from jurisdiction to jurisdiction. Complying with emerging and changing international requirements may cause the Company to incur substantial costs or require the Company to change its business practices. We cannot predict the form any such new laws or regulations will take or the impact any of these laws and regulations will have on our business or operations.

We operate in highly competitive industries, which may adversely affect our results of operations or ability to expand our business.

Our markets are highly competitive. We compete, domestically and internationally, with individual producers, as well as with vertically integrated manufacturers, some of which have resources greater than we do. The principal elements of competition for our products are product technology, quality, service, distribution and price. Although we believe EIG is a market leader, competition is strong and could intensify in the markets served by EIG. In the aerospace markets served by EIG, a limited number of companies compete on the basis of product quality, performance and innovation. EMG’s competition in specialty metal products stems from alternative materials and processes. Our competitors may develop new or improve existing products that are superior to our products or may adapt more readily to new technologies or changing requirements of our customers. There can be no assurance that our business will not be adversely affected by increased competition in the markets in which it operates or that our products will be able to compete successfully with those of our competitors.

Our business and financial performance could be adversely impacted by a significant disruption in, or breach in security of, our information technology systems.

We rely on information technology systems, some of which are managed by third-parties, to process, transmit and store electronic information (including sensitive data such as confidential business information and personally identifiable data relating to employees, customers, other business partners and patients), and to manage or support a variety of critical business processes and activities (such as receiving and fulfilling orders, billing, collecting and making payments, shipping products, providing services and support to customers and fulfilling contractual obligations). These systems, products and services may be damaged, disrupted or shut down due to attacks by computer hackers, computer viruses, ransomware, human error or malfeasance, power outages, hardware failures, telecommunication or utility failures, catastrophes or other unforeseen events. In any such circumstances our system redundancy and other disaster recovery planning may be ineffective or inadequate. Further, given a significant subset of our employees have transitioned to working from home, disaster recovery may take longer to complete.

Attacks may also target hardware, software and information installed, stored or transmitted in our products after such products have been purchased and incorporated into third-party products, facilities or infrastructure. Like most multinational corporations, our information technology systems have been subject to computer viruses, malicious codes, unauthorized access and other cyber-attacks and we expect the sophistication and frequency of such attacks to continue to increase. Any of the attacks, breaches or other disruptions or damage described above could interrupt our operations or the operations of our customers and partners, delay production and shipments, result in theft of intellectual property and trade secrets, damage customer and business partner relationships and our reputation or result in defective products or services, legal claims and proceedings, liability and penalties under privacy laws and increased costs for security and remediation, each of which could adversely affect our business, reputation and financial statements. Although we maintain cyber risk insurance, damages and claims arising from such incidents may not be covered or may exceed the amount of any insurance available.

Risks Related to Our Acquisitions

Our growth strategy includes strategic acquisitions. We may not be able to consummate future acquisitions or successfully integrate recent and future acquisitions.

A portion of our growth has been attributed to acquisitions of strategic businesses. We plan to continue making strategic acquisitions to enhance our global market position and broaden our product offerings. Although we have been successful with our acquisition strategy in the past, our ability to successfully effectuate acquisitions will be dependent upon a number of factors, including:

- Our ability to identify acceptable acquisition candidates;
- The impact of increased competition for acquisitions, which may increase acquisition costs, affect our ability to consummate acquisitions on favorable terms, and result in us assuming a greater portion of the seller's liabilities;
- Successfully integrating acquired businesses, including integrating the management, technological and operational processes, procedures and controls of the acquired businesses with those of our existing operations;
- Adequate financing for acquisitions being available on terms acceptable to us;
- Unexpected losses of key employees, customers and suppliers of acquired businesses;
- Mitigating assumed, contingent and unknown liabilities; and
- Challenges in managing the increased scope, geographic diversity and complexity of our operations.

The process of integrating acquired businesses into our existing operations may result in unforeseen operating difficulties and may require additional financial resources and attention from management that would otherwise be available for the ongoing development or expansion of our existing operations. Furthermore, even if successfully integrated, the acquired business may not achieve the results we expected or produce expected benefits in the time frame planned. Failure to continue with our acquisition strategy and the successful integration of acquired businesses could have an adverse effect on our business, financial condition, results of operations and cash flows.

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

Certain of the acquisition agreements by which we have acquired companies require the former owners to indemnify us against certain liabilities related to the operation of the company before we acquired it. In most of these agreements, however, the liability of the former owners is limited, and certain former owners may be unable to meet their indemnification responsibilities. We cannot assure you that these indemnification provisions will protect us fully or at all, and as a result we may face unexpected liabilities that adversely affect our financial statements.

Risks Related to Our Financial Condition

Certain environmental risks may cause us to be liable for costs associated with hazardous or toxic substance clean-up which may adversely affect our financial condition.

Our businesses, operations and facilities are subject to a number of federal, state, local and foreign environmental and occupational health and safety laws and regulations concerning, among other things, air emissions, discharges to waters and the use, manufacturing, generation, handling, storage, transportation and disposal of hazardous substances and wastes. Environmental risks are inherent in many of our manufacturing operations. Certain laws provide that a current or previous owner or operator of property may be liable for the costs of investigating, removing and remediating hazardous materials at such property, regardless of whether the owner or operator knew of, or was responsible for, the presence of such hazardous materials. In addition, the Comprehensive Environmental Response, Compensation and Liability Act generally imposes joint and several liability for clean-up costs, without regard to fault, on parties contributing hazardous substances to sites designated for clean-up under the Act. We have been named a potentially responsible party at several sites, which are the subject of government-mandated clean-ups. As the result of our ownership and operation of facilities that use, manufacture, store, handle and dispose of various hazardous materials, we may incur substantial costs for investigation, removal, remediation and capital expenditures related to compliance with environmental laws. While it is not possible to precisely quantify the potential financial impact of pending environmental matters, based on our experience to date, we believe that the outcome of these matters is not likely to have a material adverse effect on our financial position or future results of operations. In addition, new laws and regulations, new classification of hazardous materials, stricter enforcement of existing laws and regulations, the discovery of previously unknown contamination or the imposition of new clean-up requirements could require us to incur costs or become the basis for new or increased liabilities that could have a material adverse effect on our business, financial condition and results of operations. There can be no assurance that future environmental liabilities will not occur or that environmental damages due to prior or present practices will not result in future liabilities.

We are subject to a variety of litigation and other legal and regulatory proceedings in the course of our business that could adversely affect our financial statements.

We are subject to a variety of litigation and other legal and regulatory proceedings incidental to our business (or the business operations of previously owned entities), including claims for damages arising out of the use of products or services and claims relating to intellectual property matters, employment matters, tax matters, commercial disputes, competition and sales and trading practices, environmental matters, personal injury, insurance coverage and acquisition-related matters, as well as regulatory investigations or enforcement. These lawsuits may include claims for compensatory damages, punitive and consequential damages and/or injunctive relief. The defense of these lawsuits may divert our management's attention, we may incur significant expenses in defending these lawsuits, and we may be required to pay damage awards or settlements or become subject to equitable remedies that could adversely affect our operations and financial statements. Moreover, any insurance or indemnification rights that we may have may be insufficient or unavailable to protect us against such losses. In addition, developments in proceedings in any given period may require us to adjust the loss contingency estimates that we have recorded in our financial statements, record estimates for liabilities or assets previously not susceptible of reasonable estimates or pay cash settlements or judgments. Any of these developments could adversely affect our financial statements in any particular period. We cannot assure you that our liabilities in connection with litigation and other legal and regulatory proceedings will not exceed our estimates or adversely affect our financial statements and reputation. However, based on our experience, current information and applicable law, we do not believe that any amounts we may be required to pay in connection with litigation and other legal and regulatory proceedings in excess of our reserves will have a material effect on our financial statements.

Restrictions contained in our revolving credit facility and other debt agreements may limit our ability to incur additional indebtedness.

Our existing revolving credit facility and other debt agreements (each a "Debt Facility" and collectively, "Debt Facilities") contain restrictive covenants, including restrictions on our ability to incur indebtedness. These restrictions could limit our ability to effectuate future acquisitions, limit our ability to pay dividends, limit our ability to make capital expenditures or restrict our financial flexibility. Our Debt Facilities contain covenants requiring us to achieve certain financial and operating results and maintain compliance with specified financial ratios. Our ability to meet the financial covenants or requirements in our Debt Facilities may be affected by events beyond our control, and we may not be able to satisfy such covenants and requirements. A breach of these covenants or our inability to comply with the financial ratios, tests or other restrictions contained in a Debt Facility could result in an event of default under one or more of our other Debt Facilities. Upon the occurrence of an event of default under a Debt Facility, and the expiration of any grace periods, the lenders could elect to declare all amounts outstanding under one or more of our other Debt Facilities, together with accrued interest, to be immediately due and payable. If this were to occur, our assets may not be sufficient to fully repay the amounts due under our Debt Facilities or our other indebtedness.

Our goodwill and other intangible assets represent a substantial proportion of our total assets and the impairment of such substantial goodwill and intangible assets could have a negative impact on our financial condition and results of operations.

Our total assets include substantial amounts of intangible assets, primarily goodwill. At December 31, 2021, goodwill and other intangible assets, net of accumulated amortization, totaled $8,607.4 million or 72% of our total assets. The goodwill results from our acquisitions, representing the excess of cost over the estimated fair value of the net tangible and other identifiable intangible assets we have acquired. At a minimum, we assess annually whether there has been impairment in the value of our intangible assets. If future operating performance at one or more of our reporting units were to fall significantly below current levels, we could record, under current applicable accounting rules, a non-cash charge to operating income for goodwill or other intangible asset impairment. Any determination requiring the impairment of a significant portion of goodwill or other intangible assets would negatively affect our financial condition and results of operations.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

At December 31, 2021, the Company conducted business from office and operating facilities at owned and leased locations throughout the United States and select global markets. The Company's leases a facility in Berwyn, Pennsylvania for its corporate headquarters.

The Company believes that all facilities have been adequately maintained, are in good operating condition, and are suitable for our current needs.

Item 3. Legal Proceedings

Please refer to Note 13 to the Consolidated Financial Statements included in Part II, Item 8 of this Annual Report on Form 10-K for information regarding certain litigation matters.

The Company is subject to a variety of litigation and other legal and regulatory proceedings incidental to its business (or the business operations of previously owned entities), including claims for damages arising out of the use of the Company's products or services and claims relating to intellectual property matters, employment matters, tax matters, commercial disputes, competition and sales and trading practices, environmental matters, personal injury, insurance coverage and acquisition-related matters, as well as regulatory investigations or enforcement. Based upon the Company's experience, the Company does not believe that these proceedings and claims will have a material adverse effect on its results of operations, financial position or cash flows.

Item 4. Mine Safety Disclosures

Not Applicable.

PART II

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

The principal market on which the Company's common stock is traded is the New York Stock Exchange and it is traded under the symbol "AME." On January 31, 2022, there were approximately 1,700 holders of record of the Company's common stock.

Market price and dividend information with respect to the Company's common stock is set forth below. Future dividend payments by the Company will be dependent on future earnings, financial requirements, contractual provisions of debt agreements and other relevant factors.

Under its share repurchase program, the Company repurchased approximately 113,000 shares of its common stock for $14.7 million in 2021 and approximately 55,000 shares of its common stock for $4.7 million in 2020.

Issuer Purchases of Equity Securities

The following table reflects purchases of AMETEK, Inc. common stock by the Company during the three months ended December 31, 2021:

Period	Total Number of Shares Purchased (1)(2)	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plan (2)	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Plan
October 1, 2021 to October 31, 2021	—	$ —	—	$ 471,378,035
November 1, 2021 to November 30, 2021	11,625	140.85	11,625	469,740,610
December 1, 2021 to December 31, 2021	74	147.04	74	469,729,729
Total	11,699	$ 140.89	11,699	

(1) Represents shares surrendered to the Company to satisfy tax withholding obligations in connection with employees' share-based compensation awards.

(2) Consists of the number of shares purchased pursuant to the Company's Board of Directors $500 million authorization for the repurchase of its common stock announced in February 2019. Such purchases may be effected from time to time in the open market or in private transactions, subject to market conditions and at management's discretion.

Securities Authorized for Issuance Under Equity Compensation Plan Information

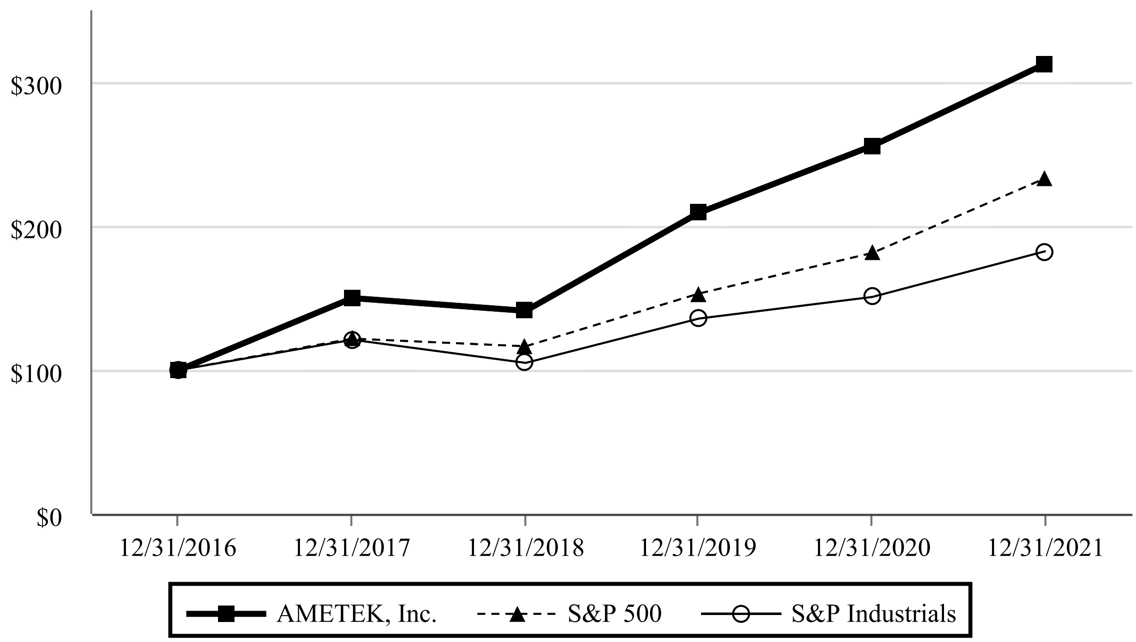
The following table sets forth information as of December 31, 2021 regarding all of the Company's existing compensation plans pursuant to which equity securities are authorized for issuance to employees and non-employee directors:

Plan category	Number of securities to be issued upon exercise of outstanding options, warrants and rights (a)	Weighted average exercise price of outstanding options, warrants and rights (b)	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a)) (c)
Equity compensation plans approved by security holders	3,352,346	$ 76.08	10,437,196
Equity compensation plans not approved by security holders	—	—	—
Total	3,352,346	$ 76.08	10,437,196

Stock Performance Graph

The following graph and accompanying table compare the cumulative total stockholder return for AMETEK over the last five years ended December 31, 2021 with total returns for the same period for the Standard and Poor's ("S&P") 500 Index and S&P Industrials. AMETEK's stock price is a component of both indices. The performance graph and table assume a $100 investment made on December 31, 2016 and reinvestment of all dividends. The stock performance shown on the graph below is based on historical data and is not necessarily indicative of future stock price performance.

COMPARISON OF FIVE-YEAR CUMULATIVE TOTAL RETURN



	December 31,					
	2016	2017	2018	2019	2020	2021
AMETEK, Inc.	$ 100.00	$ 149.98	$ 141.14	$ 209.26	$ 255.79	$ 312.88
S&P 500 Index	100.00	121.83	116.49	153.17	181.35	233.41
S&P Industrials	100.00	121.03	104.95	135.77	150.79	182.63

Item 6. Reserved

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

This report includes forward-looking statements based on the Company's current assumptions, expectations and projections about future events. When used in this report, the words "believes," "anticipates," "may," "expect," "intend," "estimate," "project" and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain such words. In this report, the Company discloses important factors that could cause actual results to differ materially from management's expectations. For more information on these and other factors, see "Forward-Looking Information" herein.

The following Management's Discussion and Analysis of Financial Condition and Results of Operations should be read in conjunction with "Item 1A. Risk Factors," and the consolidated financial statements and related notes included elsewhere in this Annual Report on Form 10-K.

Business Overview

AMETEK's operations are affected by global, regional and industry economic factors. However, the Company's strategic geographic and industry diversification, and its mix of products and services, have helped to mitigate the potential adverse impact of any unfavorable developments in any one industry or the economy of any single country on its consolidated operating results. In 2021, the Company posted record sales, operating income, operating margins, net income, diluted earnings per share, backlog, and orders. The Company's record backlog, contributions from recent acquisitions, and continued focus on and implementation of Operating Excellence initiatives, had a positive impact on 2021 results. The Company also benefited from its strategic initiatives under AMETEK's four key strategies: Operational Excellence, Strategic Acquisitions, Global & Market Expansion and New Products.

Highlights of 2021 were:

- Net sales for 2021 were a record $5,546.5 million, an increase of $1,006.5 million or 22.2%, compared with net sales of $4,540.0 million in 2020. The increase in net sales for 2021 was due to a 15% organic sales increase, a 7% increase from acquisitions, and a favorable 1% effect of foreign currency translation, partially offset by an unfavorable divestiture impact.

- Net income for 2021 was a record $990.1 million, an increase of $117.7 million or 13.5%, compared with $872.4 million in 2020.

- Diluted earnings per share for 2021 were a record $4.25, an increase of $0.48 or 12.7%, compared with $3.77 per diluted share in 2020.

- Orders for 2021 were a record $6,474.4 million, an increase of $1,850.0 million or 40.0%, compared with $4,624.4 million in 2020. The increase in orders was due to a 26% organic order increase, a favorable 15% from acquisitions, partially offset by an unfavorable 1% effect of foreign currency translation. As a result, the Company's backlog of unfilled orders at December 31, 2021 was a record $2,730.1 million.

- During 2021, the Company spent $1,959.2 million in cash, net of cash acquired, to purchase six businesses:

    - In February 2021, AMETEK acquired EGS Automation ("EGS"), a designer and manufacturer of highly engineered, customized robotic solutions used in critical applications for the medical, food and beverage, and general industrial markets.

    - In March 2021, AMETEK acquired Magnetrol International ("Magnetrol"), a leading provider of level and flow control solutions for challenging process applications across a diverse set of end markets including medical, pharmaceutical, oil and gas, food and beverage, and general industrial.

- In March 2021, AMETEK acquired Crank Software, a leading provider of embedded graphical user interface software and services.

- In April 2021, AMETEK acquired NSI-MI Technologies ("NSI-MI"), a leading provider of radio frequency and microwave test and measurement systems for niche applications across the aerospace, defense, automotive, wireless communications, and research markets.

- In April 2021, AMETEK acquired Abaco Systems, Inc. ("Abaco"), specializing in open-architecture computing and electronic systems for aerospace, defense, and specialized industrial markets and is a leading provider of mission critical embedded computing systems.

- In November 2021, AMETEK acquired Alphasense, a leading provider of gas and particulate sensors for use in environmental, health and safety, and air quality applications.

- Cash flow provided by operating activities for 2021 was $1,160.5 million. Free cash flow (cash flow provided by operating activities less capital expenditures) was $1,049.8 million in 2021.

- EBITDA (earnings before interest, income taxes, depreciation, and amortization) was a record $1,594.3 million in 2021, compared with $1,421.6 million in 2020.

- The Company continued its emphasis on investment in research, development and engineering, spending $299.6 million in 2021. Sales from products introduced in the past three years were $1,244.0 million.

Impact of COVID-19 Pandemic on our Business

The COVID-19 pandemic resulted in significant global economic disruption and had an adverse impact on our financial results throughout 2020. As the global economy has begun to recover, we eliminated certain of the temporary cost saving actions put in place in 2020, but continue to closely monitor fixed costs, capital expenditure plans, inventory, and capital resources to respond to changing conditions and to ensure we have the resources to meet our future needs. We have experienced sequential improvement in our financial results since the third quarter of 2020, and this trend has continued throughout 2021. The current economic environment in which we operate is characterized by increased material cost inflation, logistics challenges, labor availability issues, and component part shortages. As we move into 2022, we continue to monitor and closely manage through these conditions and have taken steps to mitigate the impacts of the challenging economic environment.

We are closely tracking developments regarding vaccine mandates. Until it was prohibited by a federal court order in December 2021, we had taken steps to comply with the federal contractor vaccine mandate, requiring employees in our U.S. workforce to be fully vaccinated against COVID-19 by January 18, 2022, except in limited circumstances. Although the federal contractor mandate has been temporarily suspended, pending the outcome of an appeal, we continue to encourage all employees to be vaccinated, including booster shots. If the mandate is reinstated, or new mandates implemented, it is uncertain to what extent compliance with such vaccine mandates may result in workforce attrition.

Our top priority during this pandemic is the health and safety of our employees. All global manufacturing facilities remained fully operational during 2021 and continue to operate with safety protocols in place to ensure the health and safety of our employees and communities. We will continue to evaluate the nature and extent of future impacts of the COVID-19 pandemic on its business. Please refer to "Risk Factors", Part I, Item 1A of this Form 10-K for more information.

Results of Operations

The following table sets forth net sales and income by reportable segment and on a consolidated basis:

	Year Ended December 31,		
	2021	2020	2019
		(In thousands)	
Net sales:			
Electronic Instruments	**$ 3,763,758**	$ 2,989,928	$ 3,322,881
Electromechanical	**1,782,756**	1,550,101	1,835,676
Consolidated net sales	**$ 5,546,514**	$ 4,540,029	$ 5,158,557
Operating income and income before income taxes:			
Segment operating income:			
Electronic Instruments	**$ 958,183**	$ 770,620	$ 865,307
Electromechanical	**437,378**	324,962	387,931
Total segment operating income	**1,395,561**	1,095,582	1,253,238
Corporate administrative expenses	**(86,891)**	(67,698)	(75,858)
Consolidated operating income	**1,308,670**	1,027,884	1,177,380
Interest expense	**(80,381)**	(86,062)	(88,481)
Other (expense) income, net	**(5,119)**	140,487	(19,151)
Consolidated income before income taxes	**$ 1,223,170**	$ 1,082,309	$ 1,069,748

The following "Results of Operations of the year ended December 31, 2021 compared with the year ended December 31, 2020" section presents an analysis of the Company's consolidated operating results displayed in the Consolidated Statement of Income. A discussion regarding our financial condition and results of operations for the year ended December 31, 2020 compared to the year ended December 31, 2019 can be found under Item 7 in our Annual Report on Form 10-K for the fiscal year ended December 31, 2020, filed with the Securities and Exchange Commission on February 18, 2021.

Results of Operations for the year ended December 31, 2021 compared with the year ended December 31, 2020

Net sales for 2021 were a record $5,546.5 million, an increase of $1,006.5 million or 22.2%, compared with net sales of $4,540.0 million in 2020. The increase in net sales for 2021 was due to a 15% organic sales increase, a 7% increase from acquisitions, and a favorable 1% effect of foreign currency translation, partially offset by an unfavorable divestiture impact. EIG net sales were $3,763.8 million in 2021, an increase of 25.9%, compared with $2,989.9 million in 2020. EMG net sales were $1,782.8 million in 2021, an increase of 15.0%, compared with $1,550.1 million in 2020.

Total international sales for 2021 were a record $2,745.6 million or 49.5% of net sales, an increase of $535.7 million or 24.2%, compared with international sales of $2,209.9 million or 48.7% of net sales in 2020. The increase in international sales was primarily driven by strong demand in Europe and Asia as well as contributions from recent acquisitions. Export shipments from the United States, which are included in total international sales, were $1,475.6 million in 2021, an increase of $279.2 million or 23.3%, compared with $1,196.4 million in 2020.

Orders for 2021 were a record $6,474.4 million, an increase of $1,850.0 million or 40.0% compared with $4,624.4 million in 2020. The increase in orders was due to a 26% organic order increase, a favorable 15% from acquisitions, partially offset by an unfavorable 1% effect of foreign currency translation. The Company's backlog of unfilled orders at December 31, 2021 was a record $2,730.1 million, an increase of $927.9 million or 51.5%, compared with $1,802.2 million at December 31, 2020.

Segment operating income for 2021 was $1,395.6 million, an increase of $300.0 million or 27.4%, compared with segment operating income of $1,095.6 million in 2020. Segment operating income, as a percentage of net sales, increased to 25.2% in 2021, compared with 24.1% in 2020. The Company recorded 2020 realignment costs of $43.7 million in response to the impact of a weak global economy as a result of the COVID-19 pandemic. The 2020 realignment costs were composed of $35.3 million in severance costs for a reduction of workforce and $8.4 million of asset write-downs, primarily inventory, which decreased margins by 100 basis points. Segment operating income and segment operating margins were positively impacted in 2021 by the increase in net sales discussed above as well as the Company's Operational Excellence initiatives, including ongoing savings from the 2020 realignment actions.

Cost of sales for 2021 was $3,633.9 million or 65.5% of net sales, an increase of $637.4 million or 21.3%, compared with $2,996.5 million or 66.0% of net sales for 2020. The cost of sales increase was primarily due to the net sales increase discussed above. The 2020 cost of sales included the realignment costs discussed above.

Selling, general and administrative expenses for 2021 were $603.9 million or 10.9% of net sales, an increase of $88.3 million or 17.1%, compared with $515.6 million or 11.4% of net sales in 2020. Selling, general and administrative expenses increased primarily due to the increase in net sales discussed above.

Consolidated operating income was a record $1,308.7 million or a record 23.6% of net sales for 2021, an increase of $280.8 million or 27.3%, compared with $1,027.9 million or 22.6% of net sales in 2020. The consolidated operating income and operating income margins were positively impacted in 2021 by the increase in net sales discussed above as well as the benefits of the Company's Operational Excellence initiatives. The 2021 acquisitions of Abaco, Magnetrol, NSI-MI, Crank Software, EGS, and Alphasense diluted operating margins by 110 basis points. Excluding the acquisitions, operating income margins would have been 24.7% for 2021. The consolidated operating income margins were negatively impacted by 100 basis points in 2020 due to the realignment costs discussed above.

Other expense, net was $5.1 million for 2021, compared with $140.5 million of other income in 2020, a change of $145.6 million. In March 2020, the Company completed the sale of its Reading Alloys business ("Reading") to Kymera International for net proceeds of $245.3 million in cash. The sale resulted in a pre-tax gain of $141.0 million.

The effective tax rate for 2021 was 19.1%, compared with 19.4% in 2020. See Note 9 to the Consolidated Financial Statements included in Part II, Item 8 of this Annual Report on Form 10-K for further details.

Net income for 2021 was a record $990.1 million, an increase of $117.7 million or 13.5%, compared with $872.4 million in 2020. The net of tax gain of $109.6 million on the sale of Reading and net of tax expense of $33.6 million on the 2020 realignment costs are included in net income in 2020.

Diluted earnings per share for 2021 were a record $4.25, an increase of $0.48 or 12.7%, compared with $3.77 per diluted share in 2020. The net of tax gain of $0.47 per diluted share on the sale of Reading and net of tax expense of $0.15 per diluted share on the 2020 realignment costs are included in diluted earnings per share in 2020.

Segment Results

EIG's net sales totaled $3,763.8 million for 2021, an increase of $773.9 million or 25.9%, compared with $2,989.9 million in 2020. The net sales increase was due to a 14% organic sales increase, an 11% increase from acquisitions, and a favorable 1% effect of foreign currency translation.

EIG's operating income was $958.2 million for 2021, an increase of $187.6 million or 24.3%, compared with $770.6 million in 2020. EIG's operating margins were 25.5% of net sales for 2021, compared with 25.8% of net sales in 2020. EIG's operating income and operating margins in 2021 were positively impacted by the sales increase discussed above as well as the Company's Operational Excellence initiatives. The 2021 acquisitions of Abaco, Magnetrol, NSI-MI, Crank Software, and Alphasense diluted operating margins by 180 basis points. Excluding the acquisitions, EIG operating margins would have been 27.3% for 2021. EIG's operating margins were negatively impacted in 2020 by 70 basis points due to the 2020 realignment costs discussed above.

EMG's net sales totaled $1,782.8 million for 2021, an increase of $232.7 million or 15.0%, compared with $1,550.1 million in 2020. The net sales increase was due to a 15% organic sales increase, a favorable 1% effect of foreign currency translations, partially offset by an unfavorable 1% impact from the Reading divestiture.

EMG's operating income was $437.4 million for 2021, an increase of $112.4 million or 34.6%, compared with $325.0 million in 2020. EMG's operating margins were 24.5% of net sales for 2021, compared with 21.0% of net sales in 2020. EMG's operating income and operating margins in 2021 were positively impacted by the sales increase discussed above as well as the Company's Operational Excellence initiatives. EMG's 2020 operating margins were negatively impacted by 130 basis points due to the 2020 realignment costs discussed above.

Liquidity and Capital Resources

Cash provided by operating activities totaled $1,160.5 million in 2021, a decrease of $120.5 million or 9.4%, compared with $1,281.0 million in 2020. The decrease in cash provided by operating activities for 2021 was primarily due to higher working capital requirements, partially offset by higher net income, net of the gain on the sale of the Reading business in 2020.

Free cash flow (cash flow provided by operating activities less capital expenditures) was $1,049.8 million in 2021, compared with $1,206.8 million in 2020. EBITDA (earnings before interest, income taxes, depreciation and amortization) was a record $1,594.3 million in 2021, compared with $1,421.6 million in 2020. Free cash flow and EBITDA are presented because the Company is aware that they are measures used by third parties in evaluating the Company. (See "Non-GAAP Financial Measures" for a reconciliation of U.S. GAAP measures to comparable non-GAAP measures).

Cash used by investing activities totaled $2,055.8 million in 2021, compared with cash provided by investing activities of $61.6 million in 2020. In 2021, the Company paid $1,959.2 million, net of cash acquired, to purchase Abaco Systems, Magnetrol International, NSI-MI Technologies, Crank Software, EGS Automation, and Alphasense compared to $116.5 million to acquire IntelliPower in 2020. In 2020, the Company received proceeds of $245.3 million from the sale of its Reading business. Additions to property, plant and equipment totaled $110.7 million in 2021, compared with $74.2 million in 2020.

Cash provided by financing activities totaled $39.3 million in 2021, compared with $539.4 million of cash used by financing activities in 2020. At December 31, 2021, total debt, net was $2,544.2 million, compared with $2,413.7 million at December 31, 2020. In 2021, total borrowings increased by $183.9 million, driven by the 2021 acquisitions, compared with a decrease of $430.9 million in 2020. At December 31, 2021, the Company had available borrowing capacity of $2,447.5 million under its revolving credit facility and term loan, including the $500 million accordion feature.

On April 26, 2021, the Company along with certain of its foreign subsidiaries amended its credit agreement dated as of September 22, 2011, as amended and restated as of March 10, 2016 and as further amended and restated as of October 30, 2018, with the lenders, JPMorgan Chase Bank, N.A., as Administrative Agent and Bank of America, N.A., PNC Bank, National Association, Trust Bank and Wells Fargo Bank, National Association, as Co-Syndication Agents. The credit agreement amends the Company's existing revolving credit facility to add a new five-year, delayed draw, term loan for up to $800 million. The credit agreement places certain restrictions on allowable additional indebtedness. In November 2021, the Company further amended the Credit Agreement to address the cessation of LIBOR on certain currencies. At December 31, 2021, the Company had $150.0 million outstanding on the term loan.

In the fourth quarter of 2021, 55 million Swiss franc ($59.7 million) 2.44% senior note matured and was paid. In the third quarter of 2020, an 80 million British pound ($102.9 million) 4.68% senior note matured and was paid. The debt-to-capital ratio was 27.0% at December 31, 2021, compared with 28.9% at December 31, 2020. The net debt-to-capital ratio (total debt, net less cash and cash equivalents divided by the sum of net debt and stockholders' equity) was 24.2% at December 31, 2021, compared with 16.8% at December 31, 2020. The net debt-to-capital ratio is presented because the Company is aware that this measure is used by third parties in evaluating the Company. (See "Non-GAAP Financial Measures" for a reconciliation of U.S. GAAP measures to comparable non-GAAP measures).

In 2021, the Company repurchased approximately 113,000 shares of its common stock for $14.7 million, compared with $4.7 million used for repurchases of approximately 55,000 shares in 2020. At December 31, 2021, $469.7 million was available under the Company's Board of Directors authorization for future share repurchases.

Additional financing activities for 2021 included cash dividends paid of $184.6 million, compared with $165.0 million in 2020. On February 11, 2021, the Company's Board of Directors approved an 11% increase in the quarterly cash dividend on the Company's common stock to $0.20 per common share from $0.18 per common share. Proceeds from the exercise of employee stock options were $60.3 million in 2021, compared with $64.9 million in 2020.

As a result of all of the Company's cash flow activities in 2021, cash and cash equivalents at December 31, 2021 totaled $346.8 million, compared with $1,212.8 million at December 31, 2020. At December 31, 2021, the Company had $334.0 million in cash outside the United States, compared with $344.0 million at December 31, 2020. The Company utilizes this cash to fund its international operations, as well as to acquire international businesses. The Company is in compliance with all covenants, including financial covenants, for all of its debt agreements. The Company believes it has sufficient cash-generating capabilities from domestic and unrestricted foreign sources, available credit facilities and access to long-term capital funds to enable it to meet its operating needs and contractual obligations for the foreseeable future.

Subsequent Event

Effective February 9, 2022, the Company's Board of Directors approved a 10% increase in the quarterly cash dividend on the Company's common stock to $0.22 per common share from $0.20 per common share.

Contractual Obligations and Other Commitments

Material contractual obligations arising in the normal course of business primarily consist of purchase obligations, long-term debt and related interest payments, and leases. See Note 10 to the Consolidated Financial Statements included in Part II, Item 8 of this Annual Report on Form 10-K for more information on the nature and timing of debt obligations.

Leases expire over a range of years from 2022 to 2032, except for a single land lease with 62 years remaining. Most of the leases contain renewal or purchase options, subject to various terms and conditions. See Note 14 to the Consolidated Financial Statements included in Part II, Item 8 of this Annual Report on Form 10-K for more information on the nature and timing of lease obligations.

Purchase obligations primarily consist of contractual commitments to purchase certain inventories at fixed prices. At December 31, 2021, the Company had $840.4 million of purchase obligations due within one year and $50.5 million of purchase obligations due in more than one year.

The Company has standby letters of credit and surety bonds of $56.2 million related to performance and payment guarantees at December 31, 2021. Based on experience with these arrangements, the Company believes that any obligations that may arise will not be material to its financial position.

Non-GAAP Financial Measures

EBITDA represents earnings before interest, income taxes, depreciation and amortization. EBITDA is presented because the Company is aware that it is used by rating agencies, securities analysts, investors and other parties in evaluating the Company. It should not be considered, however, as an alternative to operating income as an indicator of the Company's operating performance or as an alternative to cash flows as a measure of the Company's overall liquidity as presented in the Company's consolidated financial statements. Furthermore, EBITDA measures shown for the Company may not be comparable to similarly titled measures used by other companies. The following table presents the reconciliation of net income reported in accordance with U.S. generally accepted accounting principles ("GAAP") to EBITDA:

	Year Ended December 31,		
	2021	**2020**	**2019**
		(In millions)	
Net income	**$ 990.1**	$ 872.4	$ 861.3
Add (deduct):			
Interest expense	**80.4**	86.1	88.5
Interest income	**(1.4)**	(2.1)	(4.0)
Income taxes	**233.1**	209.9	208.5
Depreciation	**108.5**	101.3	101.4
Amortization	**183.6**	154.0	132.6
Total adjustments	**604.2**	549.2	527.0
EBITDA	**$ 1,594.3**	$ 1,421.6	$ 1,388.3

Free cash flow represents cash flow from operating activities less capital expenditures. Free cash flow is presented because the Company is aware that it is used by rating agencies, securities analysts, investors and other parties in evaluating the Company. The following table presents the reconciliation of cash flow from operating activities reported in accordance with U.S. GAAP to free cash flow:

	Year Ended December 31,		
	2021	**2020**	**2019**
		(In millions)	
Cash provided by operating activities	**$ 1,160.5**	$ 1,281.0	$ 1,114.4
Deduct: Capital expenditures	**(110.7)**	(74.2)	(102.3)
Free cash flow	**$ 1,049.8**	$ 1,206.8	$ 1,012.1

Net debt represents total debt, net minus cash and cash equivalents. Net debt is presented because the Company is aware that it is used by rating agencies, securities analysts, investors and other parties in evaluating the Company. The following table presents the reconciliation of total debt, net reported in accordance with U.S. GAAP to net debt:

	December 31,	
	2021	**2020**
	(In millions)	
Total debt, net	**$ 2,544.2**	$ 2,413.7
Less: Cash and cash equivalents	**(346.8)**	(1,212.8)
Net debt	**2,197.4**	1,200.9
Stockholders' equity	**6,871.9**	5,949.3
Capitalization (net debt plus stockholders' equity)	**$ 9,069.3**	$ 7,150.2
Net debt as a percentage of capitalization	**24.2 %**	16.8 %

Internal Reinvestment

Capital Expenditures

Capital expenditures were $110.7 million or 2.0% of net sales in 2021, compared with $74.2 million or 1.6% of net sales in 2020. In 2021, approximately 63% of capital expenditures were for improvements to existing equipment or additional equipment to increase productivity and expand capacity. Capital expenditures in 2022 are expected to be approximately 2% of net sales, with a continued emphasis on spending to improve productivity.

Research, Development and Engineering

The Company is committed to, and has consistently invested in, research, development and engineering activities to design and develop new and improved products and solutions. Research, development and engineering costs before customer reimbursement were $299.6 million in 2021, $246.2 million in 2020 and $260.3 million in 2019. These amounts included research and development expenses of $194.2 million, $158.9 million and $161.9 million in 2021, 2020, and 2019, respectively. All such expenditures were directed toward the development of new products and solutions and the improvement of existing products and solutions.

Environmental Matters

Information with respect to environmental matters is set forth in Note 13 to the Consolidated Financial Statements included in Part II, Item 8 of this Annual Report on Form 10-K.

Critical Accounting Policies and Estimates

Critical accounting policies are those policies that can have a significant impact on the presentation of the Company's financial condition and results of operations and that require the use of complex and subjective estimates based on the Company's historical experience and management's judgment. Because of the uncertainty inherent in such estimates, actual results may differ materially from the estimates used. Below are the policies used in preparing the Company's financial statements that management believes are the most dependent upon the application of estimates and assumptions. A complete list of the Company's significant accounting policies is in Note 1 to the Consolidated Financial Statements included in Part II, Item 8 of this Annual Report on Form 10-K.

- *Business Combinations.* The Company allocates the purchase price of an acquired company, including when applicable, the acquisition date fair value of contingent consideration between tangible and intangible assets acquired and liabilities assumed from the acquired business based on their estimated fair values, with the residual of the purchase price recorded as goodwill. Third party appraisal firms and other consultants are engaged to assist management in determining the fair values of certain assets acquired and liabilities assumed. Estimating fair values requires significant judgments, estimates and assumptions, including but not limited to: discount rates, future cash flows and the economic lives of trade names, technology, and customer relationships. These estimates are based on historical experience and information obtained from the management of the acquired companies and are inherently uncertain.

- *Goodwill and Other Intangible Assets.* Goodwill and other intangible assets with indefinite lives, primarily trademarks and trade names, are not amortized; rather, they are tested for impairment at least annually. The Company can elect to perform a qualitative analysis to determine if it is more likely than not that the fair values of its reporting units are less than the respective carrying values of those reporting units. The Company elected to bypass performing the qualitative screen and performed the quantitative analysis of the goodwill impairment test in the current year. The Company may elect to perform the qualitative analysis in future periods.

  The Company principally relies on a discounted cash flow analysis to determine the fair value of each reporting unit, which considers forecasted cash flows discounted at an appropriate discount rate. The

Company believes that market participants would use a discounted cash flow analysis to estimate the fair value of its reporting units in a sale transaction. The annual goodwill impairment test requires the Company to make a number of assumptions and estimates concerning future levels of revenue growth, operating margins, depreciation, amortization and working capital requirements, which are based on the Company's long-range plan and are considered level 3 inputs. The Company's long-range plan is updated as part of its annual planning process and is reviewed and approved by management. The discount rate is an estimate of the overall after-tax rate of return required by a market participant whose weighted average cost of capital includes both equity and debt, including a risk premium. While the Company uses the best available information to prepare its cash flow and discount rate assumptions, actual future cash flows or market conditions could differ significantly resulting in future impairment charges related to recorded goodwill balances. While there are always changes in assumptions to reflect changing business and market conditions, the Company's overall methodology and the population of assumptions used have remained unchanged. In order to evaluate the sensitivity of the goodwill impairment test to changes in the fair value calculations, the Company applied a hypothetical 10% decrease in fair values of each reporting unit. The 2021 results (expressed as a percentage of carrying value for the respective reporting unit) showed that, despite the hypothetical 10% decrease in fair value, the fair values of the Company's reporting units still exceeded their respective carrying values by 118% to 534%.

The impairment test for indefinite-lived intangibles other than goodwill (primarily trademarks and trade names) consists of a comparison of the estimated fair value of the indefinite-lived intangible asset to the carrying value of the asset as of the impairment testing date. The Company can elect to perform a qualitative analysis to determine if it is more likely than not that the fair values of its indefinite-lived intangible assets are less than the respective carrying values of those assets. The Company elected to bypass performing the qualitative screen. The Company may elect to perform the qualitative analysis in future periods. The Company estimates the fair value of its indefinite-lived intangibles using the relief from royalty method using level 3 inputs, which is a widely used valuation technique for such assets. The fair value derived from the relief from royalty method is determined by applying a royalty rate to a projection of net revenues discounted using an appropriate discount rate. Each royalty rate is determined based on the profitability of the trade name to which it relates and observed market royalty rates. Certain impairment models have discount rates calculated based on a debt/equity cost of capital. While the Company uses the best available information to prepare its cash flow and discount rate assumptions, actual future cash flows or market conditions could differ significantly resulting in future impairment charges related to recorded intangible balances. While there are always changes in assumptions to reflect changing business and market conditions, the Company's overall methodology and the population of assumptions used have remained unchanged.

The Company's acquisitions have generally included a significant goodwill component and the Company expects to continue to make acquisitions. At December 31, 2021, goodwill and other indefinite-lived intangible assets totaled $6,113.1 million or 51.4% of the Company's total assets. The Company completed its required annual impairment tests in the fourth quarter of 2021 and determined that the carrying values of the Company's goodwill and indefinite-lived intangibles were not impaired. There can be no assurance that goodwill or indefinite-lived intangibles impairment will not occur in the future.

- *Pensions.* The Company has U.S. and foreign defined benefit and defined contribution pension plans. The most significant elements in determining the Company's pension income or expense are the assumed pension liability discount rate and the expected return on plan assets. The pension discount rate reflects the current interest rate at which the pension liabilities could be settled at the valuation date. At the end of each year, the Company determines the assumed discount rate to be used to discount plan liabilities. In estimating this rate for 2021, the Company considered rates of return on high-quality, fixed-income investments that have maturities consistent with the anticipated funding requirements of the plan. In estimating the U.S. and foreign discount rates, the Company's actuaries developed a customized discount rate appropriate to the plans' projected benefit cash flow based on yields derived from a database of long-term bonds at consistent maturity dates. The Company determines the expected long-term rate of return based primarily on its expectation of future returns for the pension plans' investments. Additionally, the

Company considers historical returns on comparable fixed-income and equity investments and adjusts its estimate as deemed appropriate.

- *Income Taxes.* The process of providing for income taxes and determining the related balance sheet accounts requires management to assess uncertainties, make judgments regarding outcomes and utilize estimates. The Company conducts a broad range of operations around the world and is therefore subject to complex tax regulations in numerous international taxing jurisdictions, resulting at times in tax audits, disputes and potential litigation, the outcome of which is uncertain. Management must make judgments currently about such uncertainties and determine estimates of the Company's tax assets and liabilities. To the extent the final outcome differs, future adjustments to the Company's tax assets and liabilities may be necessary.

  The Company assesses the realizability of its deferred tax assets, taking into consideration the Company's forecast of future taxable income, available net operating loss carryforwards and available tax planning strategies that could be implemented to realize the deferred tax assets. Based on this assessment, management must evaluate the need for, and the amount of, valuation allowances against the Company's deferred tax assets. To the extent facts and circumstances change in the future, adjustments to the valuation allowances may be required.

  The Company assesses the uncertainty in its tax positions, by applying a minimum recognition threshold which a tax position is required to meet before a tax benefit is recognized in the financial statements. Once the minimum threshold is met, using a more likely than not standard, a series of probability estimates is made for each item to properly measure and record a tax benefit. The tax benefit recorded is generally equal to the highest probable outcome that is more than 50% likely to be realized after full disclosure and resolution of a tax examination. The underlying probabilities are determined based on the best available objective evidence such as recent tax audit outcomes, published guidance, external expert opinion, or by analogy to the outcome of similar issues in the past. There can be no assurance that these estimates will ultimately be realized given continuous changes in tax policy, legislation and audit practice. The Company recognizes interest and penalties accrued related to uncertain tax positions in income tax expense.

Recent Accounting Pronouncements

See Note 2, Recent Accounting Pronouncements, to the Company's Consolidated Financial Statements included in Part II, Item 8 of this Annual Report on Form 10-K for information regarding recently issued accounting pronouncements.

Forward-Looking Information

Certain matters discussed in this Form 10-K are "forward-looking statements" as defined in the Private Securities Litigation Reform Act of 1995 ("PSLRA"), which involve risk and uncertainties that exist in the Company's operations and business environment and can be affected by inaccurate assumptions, or by known or unknown risks and uncertainties. Many such factors will be important in determining the Company's actual future results. The Company wishes to take advantage of the "safe harbor" provisions of the PSLRA by cautioning readers that numerous important factors in some cases have caused, and in the future could cause, the Company's actual results to differ materially from those expressed in any forward-looking statements made by, or on behalf of, the Company. Some, but not all, of the factors or uncertainties that could cause actual results to differ from present expectations are set forth above and under Item 1A. Risk Factors. The Company undertakes no obligation to publicly update any forward-looking statements, whether as a result of new information, subsequent events or otherwise, unless required by the securities laws to do so.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

The Company's primary exposures to market risk are fluctuations in interest rates, foreign currency exchange rates and commodity prices, which could impact its financial condition and results of operations. The Company addresses its exposure to these risks through its normal operating and financing activities. The Company's differentiated and global business activities help to reduce the impact that any particular market risk may have on its operating income as a whole.

The Company's short-term debt carries variable interest rates and generally its long-term debt carries fixed rates. These financial instruments are more fully described in the Notes to the Consolidated Financial Statements included in Part II, Item 8 of this Annual Report on Form 10-K.

The foreign currencies to which the Company has the most significant exchange rate exposure are the Euro, the British pound, the Japanese yen, the Chinese renminbi, the Canadian dollar, and the Mexican peso. Exposure to foreign currency rate fluctuation is modest, monitored, and when possible, mitigated through the use of local borrowings and occasional derivative financial instruments in the foreign currency affected. The effect of translating foreign subsidiaries' balance sheets into U.S. dollars is included in other comprehensive income within stockholders' equity. Foreign currency transactions have not had a significant effect on the operating results reported by the Company because revenues and costs associated with the revenues are generally transacted in the same foreign currencies.

The primary commodities to which the Company has market exposure are raw material purchases of nickel, aluminum, copper, steel, titanium, and gold. Exposure to price changes in these commodities are generally mitigated through adjustments in selling prices of the ultimate product and purchase order pricing arrangements, although forward contracts are sometimes used to manage some of those exposures.

Based on a hypothetical ten percent adverse movement in interest rates, commodity prices or foreign currency exchange rates, the Company's best estimate is that the potential losses in future earnings, fair value of risk-sensitive financial instruments and cash flows are not material, although the actual effects may differ materially from the hypothetical analysis.

Item 8. Financial Statements and Supplementary Data

Index to Financial Statements (Item 15(a)(1))

Financial Statement Schedules (Item 15(a)(2))

Financial statement schedules have been omitted because either they are not applicable, or the required information is included in the financial statements or the notes thereto.

Management's Responsibility for Financial Statements

Management has prepared and is responsible for the integrity of the consolidated financial statements and related information. The statements are prepared in conformity with U.S. generally accepted accounting principles consistently applied and include certain amounts based on management's best estimates and judgments. Historical financial information elsewhere in this report is consistent with that in the financial statements.

In meeting its responsibility for the reliability of the financial information, management maintains a system of internal accounting and disclosure controls, including an internal audit program. The system of controls provides for appropriate division of responsibility and the application of written policies and procedures. That system, which undergoes continual reevaluation, is designed to provide reasonable assurance that assets are safeguarded, and records are adequate for the preparation of reliable financial data.

Management is responsible for establishing and maintaining adequate internal control over financial reporting. AMETEK, Inc. maintains a system of internal controls that is designed to provide reasonable assurance as to the fair and reliable preparation and presentation of the consolidated financial statements; however, there are inherent limitations in the effectiveness of any system of internal controls.

Management recognizes its responsibility for conducting the Company's activities according to the highest standards of personal and corporate conduct. That responsibility is characterized and reflected in a code of business conduct for all employees and in a financial code of ethics for the Chief Executive Officer and Senior Financial Officers, as well as in other key policy statements publicized throughout the Company.

The Audit Committee of the Board of Directors, which is composed solely of independent directors who are not employees of the Company, meets with the independent registered public accounting firm, the internal auditors and management to satisfy itself that each is properly discharging its responsibilities. The report of the Audit Committee is included in the Company's Proxy Statement for the 2022 Annual Meeting of Stockholders. Both the independent registered public accounting firm and the internal auditors have direct access to the Audit Committee.

The Company's independent registered public accounting firm, Ernst & Young LLP, is engaged to render an opinion as to whether management's financial statements present fairly, in all material respects, the Company's financial position and operating results. This report is included herein.

Management's Report on Internal Control over Financial Reporting

Management of the Company is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in the Exchange Act Rules 13a-15(f) and 15d-15(f). Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, AMETEK, Inc. conducted an evaluation of the effectiveness of the Company's internal control over financial reporting as of December 31, 2021 based on criteria established in Internal Control – Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework). Based on that evaluation, our management concluded that the Company's internal control over financial reporting was effective as of December 31, 2021.

The Company acquired Magnetrol International ("Magnetrol") in March 2021, NSI-MI Technologies ("NSI-MI") and Abaco Systems, Inc. ("Abaco") in April 2021, and Alphasense in November 2021. As permitted by the U.S. Securities and Exchange Commission staff interpretative guidance for newly acquired businesses, the Company excluded Magnetrol, NSI-MI, Abaco, and Alphasense from management's assessment of the effectiveness of the Company's internal control over financial reporting as of December 31, 2021. Magnetrol, NSI-MI, Abaco, and Alphasense constituted 17.4% of total assets as of December 31, 2021 and 6.0% of net sales for the year then ended.

The Company's internal control over financial reporting as of December 31, 2021 has been audited by Ernst & Young LLP, an independent registered public accounting firm, as stated in their report, which is included herein.

/s/ DAVID A. ZAPICO	/s/ WILLIAM J. BURKE
Chairman of the Board and Chief Executive Officer	Executive Vice President – Chief Financial Officer

February 22, 2022

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM ON INTERNAL CONTROL OVER FINANCIAL REPORTING

To the Board of Directors and Stockholders of AMETEK, Inc.:

Opinion on Internal Control over Financial Reporting

We have audited AMETEK, Inc.'s internal control over financial reporting as of December 31, 2021, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, AMETEK, Inc. (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2021, based on the COSO criteria.

As indicated in the accompanying *Management's Report on Internal Control over Financial Reporting*, management's assessment of and conclusion on the effectiveness of internal control over financial reporting did not include the internal controls of Magnetrol, NSI-MI, Abaco, and Alphasense, which are included in the 2021 consolidated financial statements of the Company and constituted 17.4% of total assets as of December 31, 2021 and 6.0% of net sales for the year then ended. Our audit of internal control over financial reporting of the Company also did not include an evaluation of the internal control over financial reporting of Magnetrol, NSI-MI, Abaco, and Alphasense.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of AMETEK, Inc. as of December 31, 2021 and 2020, the related consolidated statements of income, comprehensive income, stockholders' equity and cash flows for each of the three years in the period ended December 31, 2021, and the related notes and our report dated February 22, 2022 expressed an unqualified opinion thereon.

Basis for Opinion

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

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

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

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

/s/ ERNST & YOUNG LLP
Philadelphia, Pennsylvania
February 22, 2022

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM ON FINANCIAL STATEMENTS

To the Board of Directors and Stockholders of AMETEK, Inc.:

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of AMETEK, Inc. (the Company) as of December 31, 2021 and 2020, the related consolidated statements of income, comprehensive income, stockholders' equity and cash flows for each of the three years in the period ended December 31, 2021, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2021 and 2020, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2021, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2021, based on criteria established in Internal Control – Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated February 22, 2022 expressed an unqualified opinion thereon.

Basis for Opinion

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

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

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate 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 consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing a separate opinion on the critical audit matters or on the accounts or disclosures to which they relate.

Accounting for the Acquisition of Abaco Systems, Inc.

Description of the Matter	As described in Note 6 to the consolidated financial statements, the Company completed the acquisition of Abaco Systems, Inc. in April 2021 for consideration of $1,344.5 million, net of cash acquired. This acquisition has been accounted for as a business combination and the finalization of the acquisition accounting was completed in 2021. Auditing the Company's estimated fair value of the acquired intangible assets for the acquisition of Abaco Systems, Inc. was complex and highly judgmental due to subjectivity of the significant assumptions used by management in the valuation of acquired identifiable intangible assets. In particular, the inputs to the valuation models used to estimate the fair value of acquired identifiable intangible assets were inherently uncertain and generally unobservable, and the resulting valuations were sensitive to changes in the underlying significant assumptions. The significant assumptions used included discount rates, royalty rates and certain assumptions that form the basis of the forecasted future cash flows, including revenue growth rates, earnings before interest, taxes, depreciation and amortization (EBITDA) margins and estimated economic lives. These significant assumptions are forward looking and could be affected by future economic or market conditions.
How We Addressed the Matter in Our Audit	We obtained an understanding, evaluated the design and tested the operating effectiveness of controls over the Company's estimation of the fair value of the acquired intangible assets of Abaco Systems, Inc. For example, we tested controls over the valuation of acquired identifiable intangible assets including controls over management's review of the valuation models and the significant assumptions described above. To test the estimated fair value of the acquired intangible assets, we performed audit procedures that included, among others, assessing the fair value methodologies utilized by management and the significant assumptions discussed above, including the underlying data used in the analyses. For example, when evaluating the significant assumptions, we compared them to current financial and operating plans, market and industry studies, historical trends, and assumptions used in prior periods. We also performed sensitivity analyses of significant assumptions to evaluate the changes in the fair value estimates of the acquired identifiable intangible assets that would result from changes in the assumptions. We involved our valuation specialists to assist in evaluating certain significant assumptions and valuation methodologies used by the Company.

Impairment Assessment of Indefinite Lived Intangible Assets (other than Goodwill)

Description of the Matter	At December 31, 2021, the Company's indefinite lived intangible assets (other than goodwill) totaled $874.3 million, consisting of trademarks and trade names. As described in Note 1 to the consolidated financial statements, indefinite lived intangible assets are not amortized but are tested for impairment at least annually in the Company's fourth quarter. Auditing management's indefinite lived intangible asset impairment tests was complex and highly judgmental due to the significant measurement uncertainty in estimating the fair value of the trademarks and trade names. In particular, the fair value estimates were sensitive to significant assumptions such as discount rate, forecasted revenues and royalty rates, which are affected by expectations about future market or economic conditions.

How We Addressed the Matter in Our Audit	We obtained an understanding, evaluated the design and tested the operating effectiveness of controls over the Company's indefinite lived intangible asset impairment process. For example, we tested controls over management's review of the valuation models and significant assumptions, including forecasted financial information, as well as management's controls to validate that the data used in the valuations was complete and accurate. To test the estimated fair value of the Company's indefinite lived intangible assets, we performed audit procedures that included, among others, assessing the fair value methodologies utilized by management and the significant assumptions discussed above, including the underlying data used in the analyses. For example, when evaluating the significant assumptions, we compared them to current financial and operating plans, market and industry studies, historical trends, and other assumptions used in prior periods. We also assessed the historical accuracy of management's forecasts and performed sensitivity analyses of significant assumptions to evaluate the changes in the fair value estimates of the trademarks and trade names that would result from changes in the assumptions. We involved our valuation specialists to assist in evaluating the discount rate, royalty rate and valuation methodologies used by the Company.

/s/ ERNST & YOUNG LLP
We have served as the Company's auditor since 1930.

Philadelphia, Pennsylvania
February 22, 2022

AMETEK, Inc.
Consolidated Statement of Income
(In thousands, except per share amounts)

	Year Ended December 31,		
	2021	**2020**	**2019**
Net sales	**$ 5,546,514**	$ 4,540,029	$ 5,158,557
Cost of sales	**3,633,900**	2,996,515	3,370,897
Selling, general and administrative	**603,944**	515,630	610,280
Total operating expenses	**4,237,844**	3,512,145	3,981,177
Operating income	**1,308,670**	1,027,884	1,177,380
Interest expense	**(80,381)**	(86,062)	(88,481)
Other (expense) income, net	**(5,119)**	140,487	(19,151)
Income before income taxes	**1,223,170**	1,082,309	1,069,748
Provision for income taxes	**233,117**	209,870	208,451
Net income	**$ 990,053**	$ 872,439	$ 861,297
Basic earnings per share	**$ 4.29**	$ 3.80	$ 3.78
Diluted earnings per share	**$ 4.25**	$ 3.77	$ 3.75
Weighted average common shares outstanding:			
Basic shares	**230,955**	229,435	227,759
Diluted shares	**232,813**	231,150	229,395

See accompanying notes.

AMETEK, Inc.
Consolidated Statement of Comprehensive Income
(In thousands)

	Year Ended December 31,		
	2021	**2020**	**2019**
Net income	**$ 990,053**	$ 872,439	$ 861,297
Other comprehensive income (loss):			
Amounts arising during the period – gains (losses), net of tax (expense) benefit:			
Foreign currency translation:			
Translation adjustments	**(47,331)**	64,521	23,692
Change in long-term intercompany notes	**(16,333)**	16,695	(5,999)
Net investment hedge instruments gain (loss), net of tax of $(12,631), $14,787 and $581 in 2021, 2020 and 2019, respectively	**39,047**	(45,716)	(1,803)
Defined benefit pension plans:			
Net actuarial gain (loss), net of tax of $(15,298), $8,637 and $767 in 2021, 2020 and 2019, respectively	**46,049**	(18,733)	(10,522)
Amortization of net actuarial loss, net of tax of ($4,103), ($3,539) and ($3,505) in 2021, 2020 and 2019, respectively	**12,249**	11,940	12,180
Amortization of prior service costs, net of tax of $(114), $7 and $(83) in 2021, 2020 and 2019, respectively	**343**	(36)	401
Other comprehensive income	**34,024**	28,671	17,949
Total comprehensive income	**$ 1,024,077**	$ 901,110	$ 879,246

See accompanying notes.

AMETEK, Inc.
Consolidated Balance Sheet
(In thousands, except share amounts)

	December 31, 2021	December 31, 2020
ASSETS		
Current assets:		
Cash and cash equivalents	**$ 346,772**	$ 1,212,822
Receivables	**829,213**	597,472
Inventories, net	**769,175**	559,171
Other current assets	**183,605**	153,005
Total current assets	**2,128,765**	2,522,470
Property, plant and equipment, net	**617,138**	526,530
Right of use assets, net	**169,924**	167,233
Goodwill	**5,238,726**	4,224,906
Other intangibles, net	**3,368,629**	2,623,719
Investments and other assets	**375,005**	292,625
Total assets	**$ 11,898,187**	$ 10,357,483
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Short-term borrowings and current portion of long-term debt, net	**$ 315,093**	$ 132,284
Accounts payable	**470,252**	360,370
Customer advanced payments	**298,728**	194,633
Income taxes payable	**35,904**	38,896
Accrued liabilities and other	**443,337**	349,732
Total current liabilities	**1,563,314**	1,075,915
Long-term debt, net	**2,229,148**	2,281,441
Deferred income taxes	**719,675**	533,478
Other long-term liabilities	**514,166**	517,303
Total liabilities	**5,026,303**	4,408,137
Stockholders' equity:		
Preferred stock,$0.01 par value; authorized 5,000,000 shares; none issued	**—**	—
Common stock, $0.01 par value; authorized 800,000,000 shares; issued: 2021 – 267,800,160 shares; 2020 – 266,746,248 shares	**2,689**	2,676
Capital in excess of par value	**1,012,526**	921,752
Retained earnings	**7,900,113**	7,094,656
Accumulated other comprehensive loss	**(470,444)**	(504,468)
Treasury stock: 2021 – 36,137,864 shares; 2020 – 36,227,061 shares	**(1,573,000)**	(1,565,270)
Total stockholders' equity	**6,871,884**	5,949,346
Total liabilities and stockholders' equity	**$ 11,898,187**	$ 10,357,483

See accompanying notes.

AMETEK, Inc.
Consolidated Statement of Stockholders' Equity
(In thousands)

	Year Ended December 31,		
	2021	**2020**	**2019**
Capital stock			
Preferred stock, $0.01 par value	$ —	$ —	$ —
Common stock, $0.01 par value			
Balance at the beginning of the year	2,676	2,662	2,640
Shares issued	13	14	22
Balance at the end of the year	2,689	2,676	2,662
Capital in excess of par value			
Balance at the beginning of the year	921,752	832,821	706,743
Issuance of common stock under employee stock plans	44,671	47,366	85,684
Share-based compensation costs	46,103	41,565	40,394
Balance at the end of the year	1,012,526	921,752	832,821
Retained earnings			
Balance at the beginning of the year	7,094,656	6,387,612	5,653,811
Net income	990,053	872,439	861,297
Cash dividends paid	(184,595)	(165,035)	(127,496)
Adoption of ASU 2016-13	—	(360)	—
Other	(1)	—	—
Balance at the end of the year	7,900,113	7,094,656	6,387,612
Accumulated other comprehensive (loss) income			
Foreign currency translation:			
Balance at the beginning of the year	(250,748)	(286,248)	(302,138)
Translation adjustments	(47,331)	64,521	23,692
Change in long-term intercompany notes	(16,333)	16,695	(5,999)
Net investment hedge instruments gain (loss), net of tax of $(12,631), $14,787 and $581 in 2021, 2020 and 2019, respectively	39,047	(45,716)	(1,803)
Balance at the end of the year	(275,365)	(250,748)	(286,248)
Defined benefit pension plans:			
Balance at the beginning of the year	(253,720)	(246,891)	(248,950)
Net actuarial gain (loss), net of tax of $(15,298), $8,637 and $767 in 2021, 2020 and 2019, respectively	46,049	(18,733)	(10,522)
Amortization of net actuarial loss, net of tax of ($4,103), ($3,539) and ($3,505) in 2021, 2020 and 2019, respectively	12,249	11,940	12,180
Amortization of prior service costs, net of tax of $(114), $7 and $(83) in 2021, 2020 and 2019, respectively	343	(36)	401
Balance at the end of the year	(195,079)	(253,720)	(246,891)
Accumulated other comprehensive loss at the end of the year	(470,444)	(504,468)	(533,139)
Treasury stock			
Balance at the beginning of the year	(1,565,270)	(1,574,464)	(1,570,184)
Issuance of common stock under employee stock plans	6,981	13,879	7,644
Purchase of treasury stock	(14,711)	(4,685)	(11,924)
Balance at the end of the year	(1,573,000)	(1,565,270)	(1,574,464)
Total stockholders' equity	$ 6,871,884	$ 5,949,346	$ 5,115,492

See accompanying notes.

AMETEK, Inc.
Consolidated Statement of Cash Flows
(In thousands)

	Year Ended December 31,		
	2021	**2020**	**2019**
Cash provided by (used for):			
Operating activities:			
Net income	**$ 990,053**	$ 872,439	$ 861,297
Adjustments to reconcile net income to total operating activities:			
Depreciation and amortization	**292,112**	255,275	234,042
Deferred income taxes	**(29,762)**	1,839	19,380
Share-based compensation expense	**46,103**	41,565	40,394
Gain on sale of business	**(6,349)**	(141,020)	—
Gain on sale of facilities	—	(7,523)	(5,332)
Changes in assets and liabilities, net of acquisitions:			
(Increase) decrease in receivables	**(172,791)**	163,471	14,398
(Increase) decrease in inventories and other current assets	**(129,593)**	77,448	16,410
Increase (decrease) in payables, accruals and income taxes	**212,101**	7,017	(58,932)
(Decrease) increase in other long-term liabilities	**(35,104)**	20,430	(16,845)
Pension contributions	**(10,277)**	(9,527)	(5,609)
Other, net	**3,964**	(434)	15,219
Total operating activities	**1,160,457**	1,280,980	1,114,422
Investing activities:			
Additions to property, plant and equipment	**(110,671)**	(74,199)	(102,346)
Purchases of businesses, net of cash acquired	**(1,959,218)**	(116,509)	(1,061,945)
Proceeds from sale of business	**12,000**	245,311	—
Proceeds from sale of facilities	**2,341**	9,508	11,306
Other, net	**(294)**	(2,481)	2,060
Total investing activities	**(2,055,842)**	61,630	(1,150,925)
Financing activities:			
Net change in short-term borrowings	**243,615**	(328,003)	130,705
Proceeds from long-term borrowings	—	—	100,000
Repayments of long-term borrowings	**(59,718)**	(102,947)	(100,000)
Repurchases of common stock	**(14,711)**	(4,685)	(11,924)
Cash dividends paid	**(184,595)**	(165,035)	(127,496)
Acquisition contingent consideration	—	—	(3,000)
Proceeds from stock option exercises	**60,297**	64,903	90,388
Other, net	**(5,551)**	(3,669)	(5,760)
Total financing activities	**39,337**	(539,436)	72,913
Effect of exchange rate changes on cash and cash equivalents	**(10,002)**	16,618	2,645
(Decrease) increase in cash and cash equivalents	**(866,050)**	819,792	39,055
Cash and cash equivalents:			
Beginning of year	1,212,822	393,030	353,975
End of year	**$ 346,772**	$ 1,212,822	$ 393,030

See accompanying notes.

AMETEK, Inc.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. Significant Accounting Policies

Basis of Consolidation

The accompanying consolidated financial statements reflect the results of operations, financial position and cash flows of AMETEK, Inc. (the "Company"), and include the accounts of the Company and subsidiaries, after elimination of all intercompany transactions in the consolidation.

Use of Estimates

The preparation of financial statements in conformity with U.S. generally accepted accounting principles ("GAAP") requires management to make estimates and assumptions that affect amounts reported in the financial statements and accompanying notes. Actual results could differ from those estimates and assumptions.

Cash Equivalents, Securities and Other Investments

All highly liquid investments with maturities of three months or less when purchased are considered cash equivalents.

Accounts Receivable

The Company maintains allowances for estimated credit losses resulting from the inability of customers to meet their financial obligations to the Company. The Company recognizes an allowance for credit losses, on all accounts receivable and contract assets, which considers risk of future credit losses based on factors such as historical experience, contract terms, as well as general and market business conditions, country, and political risk. Balances are written off when considered uncollectible. Bad debt expense was $1.2 million in 2021, $3.6 million in 2020 and $2.8 million in 2019. At December 31, 2021 and 2020, the allowance for estimated credit losses was $11.2 million and $12.7 million, respectively.

Inventories

The Company uses the first-in, first-out ("FIFO") method of accounting, which approximates current replacement cost, for approximately 89% of its inventories at December 31, 2021. The last-in, first-out ("LIFO") method of accounting is used to determine cost for the remaining 11% of the Company's inventory at December 31, 2021. For inventories where cost is determined by the LIFO method, the FIFO value would have been $29.8 million and $22.8 million higher than the LIFO value reported in the consolidated balance sheet at December 31, 2021 and 2020, respectively. The Company provides estimated inventory reserves for slow-moving and obsolete inventory based on current assessments about future demand, market conditions, customers who may be experiencing financial difficulties and related management initiatives.

Business Combinations

The Company allocates the purchase price of an acquired company, including when applicable, the acquisition date fair value of contingent consideration between tangible and intangible assets acquired and liabilities assumed from the acquired business based on their estimated fair values, with the residual of the purchase price recorded as goodwill. The results of operations of the acquired business are included in the Company's operating results from the date of acquisition.

Property, Plant and Equipment

Property, plant and equipment are stated at cost. Expenditures for additions to plant facilities, or that extend their useful lives, are capitalized. The cost of minor tools, jigs and dies, and maintenance and repairs is charged to expense as incurred. Depreciation of plant and equipment is calculated principally on a straight-line basis over the estimated useful lives of the related assets. The range of lives for depreciable assets is generally three to 10 years for machinery and equipment, five to 27 years for leasehold improvements and 25 to 50 years for buildings. Depreciation expense was $108.5 million, $101.3 million and $101.4 million for the years ended December 31, 2021, 2020 and 2019, respectively.

Goodwill and Other Intangible Assets

Goodwill and other intangible assets with indefinite lives, primarily trademarks and trade names, are not amortized; rather, they are tested for impairment at least annually.

The Company identifies its reporting units at the component level, which is one level below its operating segments. Generally, goodwill arises from acquisitions of specific operating companies and is assigned to the reporting unit in which the operating company resides. The Company's reporting units are divisions that are one level below its operating segments and for which discrete financial information is prepared and regularly reviewed by segment management.

The Company principally relies on a discounted cash flow analysis to estimate the fair value of each reporting unit, which considers forecasted cash flows discounted at an appropriate discount rate. The Company believes that market participants would use a discounted cash flow analysis to determine the fair value of its reporting units in a sale transaction. The annual goodwill impairment test requires the Company to make several assumptions and estimates concerning future levels of revenue growth, operating margins, depreciation, amortization and working capital requirements, which are based on the Company's long-range plan and are considered level 3 inputs. The Company's long-range plan is updated as part of its annual planning process and is reviewed and approved by management. The discount rate is an estimate of the overall after-tax rate of return required by a market participant whose weighted average cost of capital includes both equity and debt, including a risk premium. While the Company uses the best available information to prepare its cash flow and discount rate assumptions, actual future cash flows or market conditions could differ significantly resulting in future impairment charges related to recorded goodwill balances.

The impairment test for indefinite-lived intangibles other than goodwill (primarily trademarks and trade names) consists of a comparison of the estimated fair value of the indefinite-lived intangible asset to the carrying value of the asset as of the impairment testing date. The Company estimates the fair value of its indefinite-lived intangibles using the relief from royalty method using level 3 inputs for revenue growth rates and royalty rates. The fair value derived from the relief from royalty method is measured as the discounted cash flow savings realized from owning such trademarks and trade names and not having to pay a royalty for their use.

The Company completed its required annual impairment tests in the fourth quarter of 2021, 2020 and 2019 and determined that the carrying values of the Company's goodwill were not impaired. The Company completed its required annual impairment tests in the fourth quarter of 2021, 2020 and 2019 and determined that the carrying values of the Company's other intangible assets with indefinite lives were not impaired.

Other intangible assets with finite lives are evaluated for impairment when events or changes in circumstances indicate the carrying value may not be recoverable. The carrying value of other intangible assets with finite lives is considered impaired when the total projected undiscounted cash flows from the asset group are less than the carrying value. In that event, a loss is recognized based on the amount by which the carrying value exceeds the fair value of those assets. Fair value is determined primarily using present value techniques based on projected cash flows from the asset group.

Intangible assets, other than goodwill, with definite lives are amortized over their estimated useful lives. Patents and technology are being amortized over useful lives of nine to 20 years, with a weighted average life of 14 years. Customer relationships are being amortized over a period of ten to 20 years, with a weighted average life of 19 years. On a quarterly basis, the Company evaluates the reasonableness of the estimated useful lives of these intangible assets.

Financial Instruments and Foreign Currency Translation

Assets and liabilities of foreign operations are translated using exchange rates in effect at the balance sheet date and their results of operations are translated using average exchange rates for the year. Certain transactions of the Company and its subsidiaries are denominated in currencies other than their functional currency. Exchange gains and losses from those transactions are included in operating results for the year.

The Company makes infrequent use of derivative financial instruments. Forward contracts are entered into from time to time to hedge certain inventory purchases, export sales, debt or foreign currency transactions, thereby minimizing the Company's exposure to raw material commodity price or foreign currency fluctuation.

In instances where transactions are designated as hedges of an underlying item, the gains and losses on those transactions are included in accumulated other comprehensive income within stockholders' equity to the extent they are effective as hedges. An evaluation of hedge effectiveness is performed by the Company on an ongoing basis and any changes in the hedge are made as appropriate.

Revenue Recognition

Revenue is derived from sales of products and services. The Company's products and services are marketed and sold worldwide through two operating groups: EIG and EMG. See Note 15 *Descriptive Information about Reportable Segments.*

The majority of the Company's revenues on product sales were recognized at a point in time when the customer obtains control of the product. The transfer in control of the product to the customer was typically evidenced by one or more of the following: the customer having legal title to the product, the Company's present right to payment, the customer's physical possession of the product, the customer accepting the product, or the customer having the benefits of ownership or risk of loss. For a small percentage of sales where title and risk of loss transfers at the point of delivery, the Company recognized revenue upon delivery to the customer, which is the point that control transferred, assuming all other criteria for revenue recognition were met.

Research and Development

Research and development costs are included in Cost of sales as incurred and were $194.2 million in 2021, $158.9 million in 2020 and $161.9 million in 2019.

Shipping and Handling Costs

Shipping and handling costs are included in Cost of sales and were $86.1 million in 2021, $56.8 million in 2020 and $66.7 million in 2019.

Share-Based Compensation

The Company expenses the fair value of share-based awards made under its share-based plans in the consolidated financial statements over their requisite service period of the grants.

Income Taxes

The Company's process of providing for income taxes and determining the related balance sheet accounts requires management to assess uncertainties, make judgments regarding outcomes and utilize estimates. The Company conducts a broad range of operations around the world and is therefore subject to complex tax regulations in numerous international taxing jurisdictions, resulting at times in tax audits, disputes and potential litigation, the outcome of which is uncertain. Management must make judgments currently about such uncertainties and determine estimates of the Company's tax assets and liabilities. To the extent the final outcome differs, future adjustments to the Company's tax assets and liabilities may be necessary. The Company recognizes interest and penalties accrued related to uncertain tax positions in income tax expense.

The Company assesses the realizability of its deferred tax assets, taking into consideration the Company's forecast of future taxable income, available net operating loss carryforwards and available tax planning strategies that could be implemented to realize the deferred tax assets. Based on this assessment, management must evaluate the need for, and amount of, valuation allowances against the Company's deferred tax assets. To the extent facts and circumstances change in the future, adjustments to the valuation allowances may be required.

The Company assesses the uncertainty in its tax positions, by applying a minimum recognition threshold which a tax position is required to meet before a tax benefit is recognized in the financial statements. Once the minimum threshold is met, using a more likely than not standard, a series of probability estimates is made for each item to properly measure and record a tax benefit. The tax benefit recorded is generally equal to the highest probable outcome that is more than 50% likely to be realized after full disclosure and resolution of a tax examination. The underlying probabilities are determined based on the best available objective evidence such as recent tax audit outcomes, published guidance, external expert opinion, or by analogy to the outcome of similar issues in the past. There can be no assurance that these estimates will ultimately be realized given continuous changes in tax policy, legislation and audit practice. The Company recognizes interest and penalties accrued related to uncertain tax positions in income tax expense.

Pensions

The Company has U.S. and foreign defined benefit and defined contribution pension plans. The most significant assumptions in determining the Company's pension income or expense are the assumed pension liability discount rate and the expected return on plan assets. All unrecognized prior service costs, remaining transition obligations or assets and actuarial gains and losses have been recognized, net of tax effects, as a charge to accumulated other comprehensive income in stockholders' equity and will be amortized as a component of net periodic pension cost. The Company uses a measurement date of December 31 (its fiscal year end) for its U.S. and foreign defined benefit plans.

Earnings Per Share

The calculation of basic earnings per share is based on the weighted average number of common shares considered outstanding during the periods. The calculation of diluted earnings per share reflects the effect of all potentially dilutive securities (principally outstanding stock options and restricted stock grants). The number of weighted average shares used in the calculation of basic earnings per share and diluted earnings per share was as follows for the years ended December 31:

	2021	**2020**	**2019**
		(In thousands)	
Weighted average shares:			
Basic shares	**230,955**	229,435	227,759
Equity-based compensation plans	**1,858**	1,715	1,636
Diluted shares	**232,813**	231,150	229,395

2. Recent Accounting Pronouncements

Recently Adopted Accounting Pronouncement

In December 2019, the FASB issued ASU No. 2019-12, Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes ("ASU 2019-12"), which simplifies the accounting for income taxes by removing certain exceptions to the general principles in ASC Topic 740. The Company prospectively adopted ASU 2019-12, effective January 1, 2021, and the adoption did not have a significant impact on the Company's consolidated results of operations, financial position, cash flows and financial statement disclosures.

Recent Accounting Pronouncement

In October 2021, the FASB issued ASU No. 2021-08, Business Combinations (Topic 8050): Accounting for Contract Assets and Contract Liabilities from Contracts with Customers ("ASU 2021-08"), which provides a single comprehensive accounting model for the acquisition of contract balances under ASC 805. ASU 2021-08 is effective for fiscal years beginning after December 15, 2022. Early adoption is permitted. The Company will adopt the ASU on January 1, 2022, and the amendments in this ASU will be applied on a prospective basis to all periods presented. The adoption of ASU 2021-08 is not expected to impact the Company's consolidated results of operations, financial position, cash flows or financial statement disclosures.

3. Revenues

The majority of the Company's revenues on product sales are recognized at a point in time when the customer obtains control of the product. The Company determined that revenues from certain of its customer contracts met the criteria of satisfying its performance obligations over time, primarily in the areas of the manufacture of custom-made equipment and for service repairs of customer-owned equipment. Recognizing revenue over time for custom-manufactured equipment is based on the Company's judgment that, in certain contracts, the product does not have an alternative use and the Company has an enforceable right to payment for performance completed to date.

The Company recognizes incremental cost of obtaining contracts as an expense when incurred if the amortization period of the contract cost assets that the Company would have otherwise recognized is one year or less. These costs are included in Selling, general and administrative expenses in the consolidated statement of income.

The determination of the revenue to be recognized in each period for performance obligations satisfied over time is based on the input method. The Company recognizes revenue over time as it performs on these contracts because the transfer of control to the customer occurs over time. Revenue is recognized based on the extent of progress towards completion of the performance obligation. The Company generally uses the total cost-to-cost input method of progress because it best depicts the transfer of control to the customer that occurs as costs are incurred. Under the cost-to-cost method, the extent of progress towards completion is measured based on the proportion of costs incurred to date to the total estimated costs at completion of the performance obligation. On certain contracts, labor hours are used as the measure of progress when it is determined to be a better depiction of the transfer of control to the customer due to the timing and pattern of labor hours incurred.

Performance obligations also include post-delivery service, installation and training. Post-delivery service revenues are recognized over the contract term. Installation and training revenues are recognized over the period the service is provided. Warranty terms in customer contracts can also be considered separate performance obligations if the warranty provides services beyond assurance that a product complies with agreed-upon specification or if a warranty can be purchased separately. The Company does not incur significant obligations for customer returns and refunds.

The Company has certain contracts with variable consideration in the form of volume discounts, rebates and early payment options, which may affect the transaction price used as the basis for revenue recognition. In these contracts, the amount of the variable consideration is allocated among the various performance obligations in the customer contract based on the relative standalone selling price of each performance obligation to the total standalone value of all the performance obligations.

Payment terms generally begin upon shipment of the product. The Company does have contracts with multiple billing terms that are all due within one year from when the product is delivered. No significant financing component exists. Payment terms are generally 30-60 days from the time of shipment or customer acceptance, but terms can be shorter or longer, not exceeding one year. For customer contracts that have revenue recognized over time, revenue is generally recognized prior to a payment being due from the customer. In such cases, the Company recognizes a contract asset at the time the revenue is recognized. When payment becomes due based on the contract terms, the Company reduces the contract asset and records a receivable. In contracts with billing milestones or in other instances with a long production cycle or concerns about credit, customer advance payments are received. The Company may receive a payment in excess of revenue recognized to that date. In these circumstances, a contract liability is recorded. Contract liabilities are derecognized when the performance obligations are satisfied, and revenue is recognized.

The outstanding contract asset and liability accounts were as follows:

	2021	2020
	(In thousands)	
Contract assets – January 1	$ 68,971	$ 73,039
Contract assets – December 31	**95,274**	68,971
Change in contract assets – (decrease) increase	**26,303**	(4,068)
Contract liabilities – January 1	215,093	167,306
Contract liabilities – December 31	**328,816**	215,093
Change in contract liabilities – increase	**(113,723)**	(47,787)
Net change	**$ (87,420)**	$ (51,855)

The net change in 2021 and 2020 was primarily driven by the receipt of advance payments from customers significantly exceeding the recognition of revenue and customer advance payments from acquired businesses. For the years ended December 31, 2021 and 2020, the Company recognized revenue of $184 million and $133 million, respectively, that was previously included in the beginning balance of contract liabilities.

Contract assets are reported as a component of Other current assets in the consolidated balance sheet. At December 31, 2021 and 2020, $30.1 million and $20.5 million, respectively, of Customer advanced payments (contract liabilities) were recorded in Other long-term liabilities in the consolidated balance sheet.

The remaining performance obligations exceeding one year as of December 31, 2021 and 2020 were $342.5 million and $300.8 million, respectively. Remaining performance obligations represent the transaction price of firm, non-cancelable orders, with expected delivery dates to customers greater than one year from the balance sheet date, for which the performance obligation is unsatisfied or partially unsatisfied. These performance obligations will be substantially satisfied within two to three years.

Geographic Areas

Net sales were attributed to geographic areas based on the location of the customer. Information about the Company's operations in different geographic areas was as follows for the year ended December 31:

	2021		
	EIG	EMG	Total
		(In thousands)	
United States	**$ 1,910,203**	**$ 890,737**	**$ 2,800,940**
International[(1)]:			
United Kingdom	**96,206**	**121,290**	**217,496**
European Union countries	**482,426**	**403,890**	**886,316**
Asia	**927,027**	**254,370**	**1,181,397**
Other foreign countries	**347,896**	**112,469**	**460,365**
Total international	**1,853,555**	**892,019**	**2,745,574**
Consolidated net sales	**$ 3,763,758**	**$ 1,782,756**	**$ 5,546,514**

(1) Includes U.S. export sales of $1,475.6 million.

	2020		
	EIG	EMG	Total
		(In thousands)	
United States	$ 1,513,967	$ 816,159	$ 2,330,126
International[(1)]:			
United Kingdom	54,158	117,469	171,627
European Union countries	371,884	324,203	696,087
Asia	769,532	189,987	959,519
Other foreign countries	280,387	102,283	382,670
Total international	1,475,961	733,942	2,209,903
Consolidated net sales	$ 2,989,928	$ 1,550,101	$ 4,540,029

(1) Includes U.S. export sales of $1,196.4 million.

	2019		
	EIG	EMG	Total
		(In thousands)	
United States	$ 1,685,369	$ 998,317	$ 2,683,686
International[(1)]:			
United Kingdom	64,423	132,485	196,908
European Union countries	434,072	392,283	826,355
Asia	773,034	186,535	959,569
Other foreign countries	365,983	126,056	492,039
Total international	1,637,512	837,359	2,474,871
Consolidated net sales	$ 3,322,881	$ 1,835,676	$ 5,158,557

(1) Includes U.S. export sales of $1,306.2 million

Major Products and Services

The Company's major products and services in the reportable segments were as follows for the year ended December 31:

	2021		
	EIG	EMG	Total
	(In thousands)		
Process and analytical instrumentation	**$ 2,627,476**	**$ —**	**$ 2,627,476**
Aerospace and power	**1,136,282**	**506,925**	**1,643,207**
Automation and engineered solutions	**—**	**1,275,831**	**1,275,831**
Consolidated net sales	**$ 3,763,758**	**$ 1,782,756**	**$ 5,546,514**

	2020		
	EIG	EMG	Total
	(In thousands)		
Process and analytical instrumentation	$ 2,199,167	$ —	$ 2,199,167
Aerospace and power	790,761	466,343	1,257,104
Automation and engineered solutions	—	1,083,758	1,083,758
Consolidated net sales	$ 2,989,928	$ 1,550,101	$ 4,540,029

	2019		
	EIG	EMG	Total
	(In thousands)		
Process and analytical instrumentation	$ 2,393,587	$ —	$ 2,393,587
Aerospace and power	929,294	491,171	1,420,465
Automation and engineered solutions	—	1,344,505	1,344,505
Consolidated net sales	$ 3,322,881	$ 1,835,676	$ 5,158,557

Timing of Revenue Recognition

The Company's timing of revenue recognition was as follows for the year ended December 31:

	2021		
	EIG	EMG	Total
	(In thousands)		
Products transferred at a point in time	**$ 3,048,819**	**$ 1,596,911**	**$ 4,645,730**
Products and services transferred over time	**714,939**	**185,845**	**900,784**
Consolidated net sales	**$ 3,763,758**	**$ 1,782,756**	**$ 5,546,514**

	2020		
	EIG	EMG	Total
	(In thousands)		
Products transferred at a point in time	$ 2,427,254	$ 1,390,574	$ 3,817,828
Products and services transferred over time	562,674	159,527	722,201
Consolidated net sales	$ 2,989,928	$ 1,550,101	$ 4,540,029

	2019		
	EIG	EMG	Total
	(In thousands)		
Products transferred at a point in time	$ 2,680,296	$ 1,670,448	$ 4,350,744
Products and services transferred over time	642,585	165,228	807,813
Consolidated net sales	$ 3,322,881	$ 1,835,676	$ 5,158,557

Product Warranties

The Company provides limited warranties in connection with the sale of its products. The warranty periods for products sold vary among the Company's operations, but the majority do not exceed one year. The Company calculates its warranty expense provision based on its historical warranty experience and adjustments are made periodically to reflect actual warranty expenses. Product warranty obligations are reported as a component of Accrued liabilities and other in the consolidated balance sheet.

Changes in the accrued product warranty obligation were as follows:

	2021	2020	2019
	(In thousands)		
Balance at the beginning of the year	$ 27,839	$ 27,611	$ 23,482
Accruals for warranties issued during the year	**11,518**	12,000	21,145
Settlements made during the year	**(13,669)**	(14,602)	(19,637)
Warranty accruals related to acquired businesses and other during the year	**1,790**	2,830	2,621
Balance at the end of the year	**$ 27,478**	$ 27,839	$ 27,611

4. Fair Value Measurements

Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date.

The Company utilizes a valuation hierarchy for disclosure of the inputs to the valuations used to measure fair value. This hierarchy prioritizes the inputs into three broad levels as follows. Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities. Level 2 inputs are quoted prices for similar assets and liabilities in active markets or inputs that are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the financial instrument. Level 3 inputs are unobservable inputs based on the Company's own assumptions used to measure assets and liabilities at fair value. A financial asset or liability's classification within the hierarchy is determined based on the lowest level input that is significant to the fair value measurement.

The following table provides the Company's assets that are measured at fair value on a recurring basis, consistent with the fair value hierarchy, at December 31:

	2021	2020
	Fair Value	Fair Value
	(In thousands)	
Mutual fund investments	**$ 10,703**	$ 8,969

The fair value of mutual fund investments, which are valued as level 1 investments, was based on quoted market prices. The mutual fund investments are shown as a component of long-term assets in the consolidated balance sheet.

For the years ended December 31, 2021 and 2020, gains and losses on the investments detailed above were not significant.

Financial Instruments

Cash, cash equivalents and mutual fund investments are recorded at fair value at December 31, 2021 and 2020 in the accompanying consolidated balance sheet.

The following table provides the estimated fair values of the Company's financial instrument liabilities, for which fair value is measured for disclosure purposes only, compared to the recorded amounts at December 31:

	2021		2020	
	Recorded Amount	Fair Value	Recorded Amount	Fair Value
	(In thousands)			
Long-term debt (including current portion)	**$ (2,233,705)**	**$ (2,378,930)**	$ (2,347,587)	$ (2,550,956)

The fair value of short-term borrowings, net approximates the carrying value. Short-term borrowings, net are valued as level 2 liabilities as they are corroborated by observable market data. The Company's long-term debt, net is all privately held with no public market for this debt, therefore, the fair value of long-term debt, net was computed based on comparable current market data for similar debt instruments and is considered to be a level 3 liability. See Note 10 for long-term debt principal amounts, interest rates and maturities.

Foreign Currency

At December 31, 2021 and 2020, the Company had no foreign currency forward contracts outstanding. At December 31, 2019, the Company had a Canadian dollar forward contract for a total notional value of 14.0 million Canadian dollars ($0.1 million fair value unrealized loss at December 31, 2019). For the year ended December 31, 2021 and 2020, realized gains and losses on foreign currency forward contracts were not significant. The Company does not typically designate its foreign currency forward contracts as accounting hedges.

5. Hedging Activities

The Company has designated certain foreign-currency-denominated long-term borrowings as hedges of the net investment in certain foreign operations. As of December 31, 2021, and 2020, these net investment hedges included British-pound and Euro-denominated long-term debt. These borrowings were designed to create net investment hedges in each of the designated foreign subsidiaries. The Company designated the British-pound- and Euro-denominated loans referred to above as hedging instruments to offset translation gains or losses on the net investment due to changes in the British pound and Euro exchange rates. These net investment hedges are evidenced by management's contemporaneous documentation supporting the hedge designation. Any gain or loss on the hedging instruments (the debt) following hedge designation is reported in accumulated other comprehensive income in the same manner as the translation adjustment on the hedged investment based on changes in the spot rate, which is used to measure hedge effectiveness.

At December 31, 2021 and 2020, the Company had $304.6 million and $307.3 million, respectively, of British-pound denominated loans, which were designated as a hedge against the net investment in British pound functional currency foreign subsidiaries. At December 31, 2021 and 2020, the Company had $654.1 million and $699.7 million, respectively, in Euro-denominated loans, which were designated as a hedge against the net investment in Euro functional currency foreign subsidiaries. As a result of the British-pound and Euro-denominated loans being designated and 100% effective as net investment hedges, $51.7 million of pre-tax currency remeasurement losses and $60.5 million of pre-tax currency remeasurement losses have been included in the foreign currency translation component of other comprehensive income for the years ended December 31, 2021 and 2020, respectively.

6. Acquisitions and Divestiture

Acquisitions

The Company spent $1,959.2 million in cash, net of cash acquired, to acquire Magnetrol International ("Magnetrol"), Crank Software, and EGS Automation ("EGS") in March 2021, and NSI-MI Technologies ("NSI-MI"), Abaco Systems, Inc. ("Abaco") in April 2021, and Alphasense in November 2021. Magnetrol is a leading provider of level and flow control solutions for challenging process applications across a diverse set of end markets including medical, pharmaceutical, oil and gas, food and beverage, and general industrial. Crank Software is a leading provider of embedded graphical user interface software and services. EGS is an automation solutions provider that designs and manufactures highly engineered, customized robotic solutions used in critical applications for the medical, food and beverage, and general industrial markets. NSI-MI is a leading provider of radio frequency and microwave test and measurement systems for niche applications across the aerospace, defense, automotive, wireless communications, and research markets. Abaco specializes in open-architecture computing and electronic systems for aerospace, defense, and specialized industrial markets and is a leading provider of mission critical embedded computing systems. Alphasense is a leading provider of gas and particulate sensors for use in environmental, health and safety, and air quality applications. Magnetrol, Crank Software, NSI-MI, Abaco, and Alphasense are part of EIG. EGS is part of EMG.

The following table represents the allocation of the purchase price for the net assets of the acquisitions based on the estimated fair values at acquisition (in millions):

	Abaco	Other Acquisitions	Total
		(in millions)	
Property, plant and equipment	$ 56.2	$ 45.5	$ 101.7
Goodwill	739.3	304.5	1,043.8
Other intangible assets	620.8	319.9	940.7
Deferred income taxes	(123.3)	(51.1)	(174.4)
Net working capital and other(1)	51.5	(4.1)	47.4
Total cash paid	$ 1,344.5	$ 614.7	$ 1,959.2

(1) Includes $70.6 million in accounts receivable, whose fair value, contractual cash flows and expected cash flows are approximately equal as well as $71.6 million of customer advance payments.

The amounts allocated to goodwill are reflective of the benefits the Company expects to realize from the 2021 acquisitions. Abaco's computing and electronic solutions expand and complement the Company's existing aerospace and defense businesses. NSI-MI strengthens the Company's test and measurement platform. Magnetrol's solutions combined with the Company’s existing Sensors, Test and Calibration business, becomes an industry leading differentiated sensor platform with a broad range of level and flow measurement solutions. Alphasense complements the Company's existing sensor business expanding the Company's presence in the environmental health and safety market. Crank Software expands the Company's growing portfolio of software solutions. EGS complements the Company's existing Dunkermotoren business providing highly customizable engineering design and automation capabilities. The Company expects approximately $123.2 million of the goodwill relating to the 2021 acquisitions will be tax deductible in future years.

At December 31, 2021, the purchase price allocated to other intangible assets of $940.7 million consists of $126.2 million of indefinite-lived intangible trade names, which are not subject to amortization. The remaining $814.5 million of other intangible assets consists of $614.6 million of customer relationships, which are being amortized over a period of 15 to 20 years and $199.9 million of purchased technology, which is being amortized over a period of 11 to 20 years. Amortization expense for each of the next five years for the 2021 acquisitions is expected to be $45.1 million per year.

The Company finalized the measurements of its tangible and intangible assets and liabilities for its 2021 acquisitions of EGS, Crank Software, Abaco, and NSI-MI, excluding the accounting for income taxes for Abaco, Magnetrol, and NSI-MI, which had no material impact to the consolidated statement of income and balance sheet. The Company is in the process of finalizing its measurements of certain tangible and intangible assets and liabilities for its November 2021 acquisition of Alphasense.

The acquisitions had an immaterial impact on reported sales, net income, and diluted earnings per share for the year ended December 31, 2021. Had the acquisitions been made at the beginning of 2021 or 2020, pro forma net income and diluted earnings per share for the year ended December 31, 2021 and 2020, would not have been materially different than the amounts reported. Pro forma net sales would not have been materially different than the amounts reported for the year ended December 31, 2021 and would have been approximately 12% higher than the reported amounts for the year ended December 31, 2020.

In 2020, the Company spent $116.5 million in cash, net of cash acquired, to acquire IntelliPower in January 2020. IntelliPower designs and manufactures a broad portfolio of ruggedized solutions including uninterruptible power systems, external battery packs, power distribution units and power conditioners. IntelliPower was privately held and is headquartered in Orange, California. IntelliPower is part of EIG.

In 2019, the Company spent $1,061.9 million in cash, net of cash acquired, to acquire Pacific Design Technologies, Inc. (“PDT”) in September 2019 and Gatan in October 2019. PDT designs and manufactures a complete range of custom-engineered, liquid cooling systems and components used in a broad set of current and next-generation commercial aerospace, defense and space platforms. Gatan is a leading manufacturer of instrumentation and software used to enhance and extend the operation and performance of electron microscopes. PDT is part of EMG and Gatan is part of EIG.

Divestiture

The Company completed its sale of Reading Alloys to Kymera International in March 2020 for net cash proceeds of $245.3 million. The transaction resulted in a pre-tax gain of $141.0 million, recorded in Other Income (expense) in the Consolidated Statement of Income, and income tax expense of $31.4 million in connection with the sale. Reading Alloys revenue and costs were reported within the EMG segment through the date of sale.

7. Goodwill and Other Intangible Assets

The changes in the carrying amounts of goodwill by segment were as follows:

	EIG	EMG	Total
		(In millions)	
Balance at December 31, 2019	$ 2,892.2	$ 1,155.3	$ 4,047.5
Goodwill acquired	57.3	—	57.3
Purchase price allocation adjustments and other	74.6	—	74.6
Foreign currency translation adjustments	26.2	19.3	45.5
Balance at December 31, 2020	3,050.3	1,174.6	4,224.9
Goodwill acquired	**1,037.9**	**5.9**	**1,043.8**
Purchase price allocation adjustments and other	**1.9**	**—**	**1.9**
Foreign currency translation adjustments	**(16.3)**	**(15.6)**	**(31.9)**
Balance at December 31, 2021	**$ 4,073.8**	**$ 1,164.9**	**$ 5,238.7**

Other intangible assets were as follows at December 31:

	2021	2020
	(In thousands)	
Definite-lived intangible assets (subject to amortization):		
Patents	**$ 48,071**	$ 49,396
Purchased technology	**677,896**	487,517
Customer lists	**2,930,120**	2,326,934
	3,656,087	2,863,847
Accumulated amortization:		
Patents	**(37,713)**	(37,858)
Purchased technology	**(235,989)**	(209,308)
Customer lists	**(888,092)**	(745,945)
	(1,161,794)	(993,111)
Net intangible assets subject to amortization	**2,494,293**	1,870,736
Indefinite-lived intangible assets (not subject to amortization):		
Trademarks and trade names	**874,336**	752,983
	$ 3,368,629	$ 2,623,719

Amortization expense was $183.6 million, $154.0 million and $132.6 for the years ended December 31, 2021, 2020 and 2019, respectively. Amortization expense for each of the next five years is expected to approximate $198 million per year, not considering the impact of potential future acquisitions.

8. Other Consolidated Balance Sheet Information

	December 31,	
	2021	2020
	(In thousands)	
INVENTORIES, NET		
Finished goods and parts	**$ 89,985**	$ 81,619
Work in process	**122,356**	102,945
Raw materials and purchased parts	**556,834**	374,607
	$ 769,175	$ 559,171
PROPERTY, PLANT AND EQUIPMENT, NET		
Land	**$ 41,709**	$ 33,382
Buildings	**343,996**	302,158
Machinery and equipment	**1,149,316**	1,119,419
	1,535,021	1,454,959
Less: Accumulated depreciation	**(917,883)**	(928,429)
	$ 617,138	$ 526,530

	December 31, 2021	December 31, 2020
	(In thousands)	
ACCRUED LIABILITIES AND OTHER		
Employee compensation and benefits	**$ 205,994**	$ 124,347
Product warranty obligation	**27,478**	27,839
Realignment	**30,476**	32,904
Short term lease liability	**47,353**	44,948
Other	**132,036**	119,694
	$ 443,337	$ 349,732

9. Income Taxes

The components of income before income taxes and the details of the provision for income taxes were as follows for the years ended December 31:

	2021	2020	2019
	(In thousands)		
Income before income taxes:			
Domestic	**$ 958,206**	$ 810,844	$ 766,436
Foreign	**264,964**	271,465	303,312
Total	**$ 1,223,170**	$ 1,082,309	$ 1,069,748
Provision for income taxes:			
Current:			
Federal	**$ 99,706**	$ 126,427	$ 88,526
Foreign	**146,890**	61,672	81,452
State	**16,282**	19,932	19,093
Total current	**262,878**	208,031	189,071
Deferred:			
Federal	**23,538**	(1,254)	18,005
Foreign	**(56,572)**	(4,072)	(29)
State	**3,273**	7,165	1,404
Total deferred	**(29,761)**	1,839	19,380
Total provision	**$ 233,117**	$ 209,870	$ 208,451

Significant components of the deferred tax (asset) liability were as follows at December 31:

	2021	2020
	(In thousands)	
Non-current deferred tax (asset) liability:		
Differences in basis of property and accelerated depreciation [1]	**$ 44,199**	$ 46,023
Reserves not currently deductible	**(113,392)**	(61,872)
Pensions	**63,329**	39,256
Differences in basis of intangible assets and accelerated amortization	**768,542**	565,661
Net operating loss carryforwards	**(44,164)**	(26,767)
Share-based compensation	**(12,728)**	(13,780)
Foreign Tax Credit Carryforwards	**(2,291)**	(261)
Unremitted earnings	**11,361**	10,657
Other	**(33,529)**	(43,507)
	681,327	515,410
Less: Valuation allowance	**11,349**	5,965
	692,676	521,375
Portion included in non-current assets	**26,999**	12,103
Gross non-current deferred tax liability	**$ 719,675**	$ 533,478

(1) Presented net of deferred tax asset of approximately $33.3 million and $32.4 million at December 31, 2021 and 2020, respectively, resulting from lease obligations.

The Company's effective tax rate reconciles to the U.S. Federal statutory rate as follows for the years ended December 31:

	2021	2020	2019
U.S. Federal statutory rate	**21.0 %**	21.0 %	21.0 %
State income taxes, net of federal income tax benefit	**1.5**	2.3	1.8
Foreign operations, net	**(0.4)**	(1.4)	(0.9)
U.S. Benefits for Manufacturing, Export and credits	**(2.6)**	(1.9)	(2.0)
Uncertain Tax Items	**(0.1)**	(1.3)	(1.0)
Stock compensation	**(1.7)**	(1.0)	(1.5)
U.S. Tax on Foreign Earnings	**3.9**	2.2	2.6
U.S. General Basket FTC	**(2.9)**	(0.1)	(0.3)
Other	**0.3**	(0.5)	(0.3)
Consolidated effective tax rate	**19.1 %**	19.4 %	19.5 %

The Company elected to pay the cash tax cost of the one-time mandatory tax on previously deferred earnings of non-U.S. subsidiaries over an eight-year period. As of December 31, 2021, the Company has a remaining cash tax obligation of $35.9 million, all of which is classified as non-current.

The Company has evaluated the impact of the global intangible low-taxed income ("GILTI") section of the Tax Act and has made a tax accounting policy election to record the annual tax cost of GILTI as a current period expense when incurred and, as such, will not be measuring an impact of GILTI in its determination of deferred taxes.

As a result of the one-time mandatory deemed repatriation and the taxable inclusions under the GILTI provisions of the Tax Act, the Company has approximately $714.6 million in previously taxed income ("PTI") as of December 31, 2021 which can be repatriated without incremental U.S. Federal tax. The Company intends to reinvest its earnings indefinitely in operations outside the United States except to the extent of the PTI. There has been no provision for U.S. deferred income taxes for the undistributed earnings over PTI of approximately $186.4 million and $411.0 million at December 31, 2021 and 2020 respectively because determination of the amount of the unrecognized deferred income tax liability on these undistributed earnings is not practicable.

As of December 31, 2021, and 2020, the Company recorded deferred income taxes totaling $11.4 million and $10.7 million respectively in state income and foreign withholding taxes expected to be incurred when the cash amounts related to the mandatory tax are ultimately repatriated to the U.S.

The Company is acquisitive and at times acquires entities with tax attributes (net operating losses or tax credits) that carry over to post-acquisition tax periods of the Company. At December 31, 2021, the Company had tax effected benefits, net of uncertain tax positions of $44.1 million related to net operating loss carryforwards, which will be available to offset future income taxes payable, subject to certain annual or other limitations based on foreign and U.S. tax laws. This amount includes net operating loss carryforwards of $11.7 million for federal income tax purposes with no valuation allowance for the U.S. consolidated group, $12.0 million for state income tax purposes with a valuation allowance of $2.9 million, and $20.4 million for foreign income tax purposes with a valuation allowance of $1.4 million. These net operating loss carryforwards, if not used, will expire between 2022 and 2041.

At December 31, 2021, the Company had tax effected benefits of $11.8 million related to tax credit carryforwards, which will be available to offset future income taxes payable, subject to certain annual or other limitations based on foreign and U.S. tax laws. This amount includes tax credit carryforwards of $5.4 million for federal income tax purposes with a valuation allowance of $3.3 million, $6.4 million for state income tax purposes with a valuation allowance of $2.4 million, and no remaining credit carryforwards for foreign income tax purposes. These tax credit carryforwards, if not used, will expire between 2022 and 2041.

The Company maintains a valuation allowance (VA) to reduce certain deferred tax assets to amounts that are more likely than not to be realized. This allowance primarily relates to deferred tax assets established for state non-deductible interest expense, federal and state credits and state net operating loss carryforwards. In 2021, the Company recorded an increase of $5.4 million in the valuation allowance of which $2.1 million mostly relates to foreign tax credit carryforwards and $3.3 million relates to state net operating losses and credits that are not expected to be utilized.

At December 31, 2021, the Company had gross unrecognized tax benefits of $147.0 million, of which $110.0 million, if recognized, would impact the effective tax rate. At December 31, 2020, the Company had gross unrecognized tax benefits of $100.7 million, of which $60.6 million, if recognized, would impact the effective tax rate.

At December 31, 2021 and 2020, the Company reported $9.1 million and $11.6 million, respectively, related to interest and penalty exposure as accrued income tax expense in the consolidated balance sheet. During 2021, and 2020, the Company recognized a net benefit of $2.5 million, and $2.6 million respectively for interest and penalties related to uncertain tax positions in the consolidated statement of income as a component of income tax expense.

Approximately 62% of the Company's overall tax liability is incurred in the United States. The Company files income tax returns in various other state and foreign tax jurisdictions, in some cases for multiple legal entities per jurisdiction. Generally, the Company has open tax years subject to tax audit on average of between three and six years in these jurisdictions. At December 31, 2021, the Company was notified by the Internal Revenue Service ("IRS") that the U.S. consolidated tax group and a separate company filer was selected for audit for the 2019 tax year. A preliminary meeting with the IRS and company representative has been scheduled. The Company has not materially extended any other statutes of limitation for any significant location and has reviewed and accrued for, where necessary, tax liabilities for open periods including state and foreign jurisdictions that remain subject to examination. There have been no penalties asserted or imposed by the IRS related to substantial understatement of income, gross valuation misstatement or failure to disclose a listed or reportable transaction.

During 2021, the Company added $58.6 million of tax, interest and penalties related to identified uncertain tax positions and reversed $35.2 million of tax and interest related to statute expirations and settlement of prior uncertain positions. During 2020, the Company added $24.3 million of tax, interest and penalties related to identified uncertain tax positions and reversed $35.3 million of tax and interest related to statute expirations and settlement of prior uncertain positions.

The following is a reconciliation of the liability for uncertain tax positions at December 31:

	2021	2020	2019
		(In millions)	
Balance at the beginning of the year	**$ 100.7**	$ 109.1	$ 119.3
Additions for tax positions related to the current year	**41.4**	15.6	17.5
Additions for tax positions of prior years	**34.9**	6.2	2.8
Reductions for tax positions of prior years	**(1.5)**	(0.3)	(1.3)
Reductions related to settlements with taxing authorities	**(0.1)**	(0.5)	(0.9)
Reductions due to statute expirations	**(28.4)**	(29.4)	(28.3)
Balance at the end of the year	**$ 147.0**	$ 100.7	$ 109.1

In 2021, the additions above primarily reflect the increase in tax liabilities for uncertain tax positions related to certain higher transfer pricing risks. The reductions above primarily relate to statute expirations. The net increase of $46.3 million in uncertain tax positions resulted in an increase of $18.9 million to income tax expense and the remainder primarily in goodwill. At December 31, 2021, tax, interest and penalties of $134.2 million were classified as a non-current liability and $22.0 million was reflected as a reduction against deferred tax assets.

10. Debt

Long-term debt, net consisted of the following at December 31:

	2021	2020
	(In thousands)	
U.S. dollar 3.73% senior notes due September 2024	**$ 300,000**	$ 300,000
U.S. dollar 3.91% senior notes due June 2025	**50,000**	50,000
U.S. dollar 3.96% senior notes due August 2025	**100,000**	100,000
U.S. dollar 4.18% senior notes due December 2025	**275,000**	275,000
U.S. dollar 3.83% senior notes due September 2026	**100,000**	100,000
U.S. dollar 4.32% senior notes due December 2027	**250,000**	250,000
U.S. dollar 4.37% senior notes due December 2028	**50,000**	50,000
U.S. dollar 3.98% senior notes due September 2029	**100,000**	100,000
U.S. dollar 4.45% senior notes due August 2035	**50,000**	50,000
British pound 2.59% senior note due November 2028	**203,046**	204,880
British pound 2.70% senior note due November 2031	**101,510**	102,433
Euro 1.34% senior notes due October 2026	**341,284**	366,806
Euro 1.71% senior notes due December 2027	**85,323**	91,706
Euro 1.53% senior notes due October 2028	**227,541**	244,572
Swiss franc 2.44% senior note due December 2021	**—**	62,190
Revolving credit facility borrowings	**314,480**	72,145
Other, principally foreign	**1,976**	—
Less: Debt issuance costs	**(5,919)**	(6,007)
Total debt, net	**2,544,241**	2,413,725
Less: Current portion, net	**(315,093)**	(132,284)
Total long-term debt, net	**$ 2,229,148**	$ 2,281,441

Maturities of long-term debt borrowings outstanding at December 31, 2021 were as follows: none in 2023; $300.0 million in 2024; $425.0 million in 2025; $441.3 million in 2026; $335.3 million in 2027; and $732.1 million in 2028 and thereafter.

In the fourth quarter of 2021, the Company paid in full, at maturity, a 55 million Swiss franc ($59.7 million) in aggregate principal amount of 2.44% senior note.

In the third quarter of 2020, the Company paid in full, at maturity, an 80 million British pound ($102.9 million) in aggregate principal amount of 4.68% senior note.

In December 2018, the Company completed a private placement agreement to sell $575 million and 75 million Euros in senior notes to a group of institutional investors (the "2018 Private Placement") utilizing two funding dates. The first funding occurred in December 2018 for $475 million and 75 million Euros ($85.3 million at December 31, 2021). The second funding was in January 2019 for $100 million. The 2018 Private Placement senior notes carry a weighted average interest rate of 3.93% and are subject to certain customary covenants, including financial covenants that, among other things, require the Company to maintain certain debt-to-EBITDA (earnings before interest, income taxes, depreciation and amortization) and interest coverage ratios.

In September 2014, the Company issued $300 million in aggregate principal amount of 3.73% senior notes due September 2024, $100 million in aggregate principal amount of 3.83% senior notes due September 2026 and $100 million in aggregate principal amount of 3.98% senior notes due September 2029. In June 2015, the Company issued $50 million in aggregate principal amount of 3.91% senior notes due June 2025. In August 2015, the

Company issued $100 million in aggregate principal amount of 3.96% senior notes due August 2025 and $50 million in aggregate principal amount of 4.45% senior notes due August 2035.

In September 2010, the Company issued an 80 million British pound 4.68% senior note due September 2020 (paid in full, at maturity, as previously noted). In December 2011, the Company issued a 55 million Swiss franc (paid in full, at maturity, as previously noted) 2.44% senior note due December 2021. In October 2016, the Company issued 300 million Euros ($341.3 million at December 31, 2021) in aggregate principal amount of 1.34% senior notes due October 2026 and 200 million Euros ($227.5 million at December 31, 2021) in aggregate principal amount of 1.53% senior notes due October 2028. In November 2016, the Company issued 150 million British pounds ($203.0 million at December 31, 2021) in aggregate principal amount of 2.59% senior notes due November 2028 and 75 million British pounds ($101.5 million at December 31, 2021) in aggregate principal amount of 2.70% senior notes due November 2031.

In April 2021, the Company along with certain of its foreign subsidiaries amended its credit agreement dated as of September 22, 2011, as amended and restated as of March 10, 2016 and as further amended and restated as of October 30, 2018 (the “Credit Agreement”). The Credit Agreement amends the Company’s existing revolving credit facility to add a new five-year, delayed draw, term loan for up to $800.0 million. The Credit Agreement consists of a five-year revolving credit facility in an aggregate principal amount of $1.5 billion with a final maturity date in October 2023. The revolving credit facility total borrowing capacity excludes an accordion feature that permits the Company to request up to an additional $500 million in revolving credit commitments at any time during the life of the Credit Agreement under certain conditions. The credit agreement places certain restrictions on allowable additional indebtedness. In November 2021, the Company further amended the Credit Agreement to address the cessation of LIBOR on certain currencies. At December 31, 2021, the Company had available borrowing capacity of $2,447.5 million under its revolving credit facility and term loan, including the $500 million accordion feature. At December 31, 2021, the Company had $150.0 million outstanding on the term loan with a maturity date of June 2026. The proceeds from the term loan were used to fund the Company's 2021 acquisitions.

Interest rates on outstanding borrowings under the revolving credit facility are at the applicable benchmark rate plus a negotiated spread or at the U.S. prime rate. At December 31, 2021 and 2020 the Company had $314.5 million and $72.1 million of borrowings outstanding under the revolving credit facility, respectively. The weighted average interest rate on the revolving credit facility for the years ended December 31, 2021 and 2020 was 1.34% and 1.84%, respectively. The Company had outstanding letters of credit primarily under the revolving credit facility totaling $38.0 million and $30.2 million at December 31, 2021 and 2020, respectively.

The private placements, the senior notes and the revolving credit facility are subject to certain customary covenants, including financial covenants that, among other things, require the Company to maintain certain debt-to-EBITDA and interest coverage ratios. The Company was in compliance with all provisions of the debt arrangements at December 31, 2021.

Foreign subsidiaries of the Company had available credit facilities with local foreign lenders of $56.8 million and $53.0 million at December 31, 2021 and 2020, respectively. At December 31, 2021, foreign subsidiaries had $2.0 million in debt borrowings outstanding, which was reported in short-term borrowings. At December 31, 2020, foreign subsidiaries had no debt borrowings outstanding.

The weighted average interest rate on total debt borrowings outstanding at December 31, 2021 and 2020 was 3.1% and 3.0%, respectively.

11. Share-Based Compensation

Under the terms of the Company's stockholder-approved share-based plans, performance restricted stock units ("PRSUs"), incentive and non-qualified stock options and restricted stock have been, and may be, issued to the Company's officers, management-level employees and members of its Board of Directors. Stock options granted prior to 2018 generally vest at a rate of one-fourth on each of the first four anniversaries of the grant date and have a maximum contractual term of seven years. Beginning in 2018, stock options granted generally vest at a rate of one-third on each of the first three anniversaries of the grant date and have a maximum contractual term of ten years. Restricted stock granted to employees prior to 2018 generally vests four years after the grant date (cliff vesting) and is subject to accelerated vesting due to certain events, including doubling of the grant price of the Company's common stock as of the close of business during any five consecutive trading days. Beginning in 2018, restricted stock granted to employees generally vests one-third on each of the first three anniversaries of the grant date. Restricted stock granted to non-employee directors generally vests two years after the grant date (cliff vesting) and is subject to accelerated vesting due to certain events, including doubling of the grant price of the Company's common stock as of the close of business during any five consecutive trading days.

Share Based Compensation Expense

The Company measures and records compensation expense related to all stock awards by recognizing the grant date fair value of the awards over their requisite service periods in the financial statements. For grants under any of the Company's plans that are subject to graded vesting based on a service condition, the Company recognizes expense on a straight-line basis over the requisite service period for the entire award.

Total share-based compensation expense was as follows for the years ended December 31:

	2021	2020	2019
		(In thousands)	
Stock option expense	**$ 12,733**	$ 13,695	$ 12,810
Restricted stock expense	**21,393**	17,997	16,169
PRSU expense	**11,977**	9,873	11,415
Total pre-tax expense	**$ 46,103**	$ 41,565	$ 40,394

Pre-tax share-based compensation expense is included in the consolidated statement of income in either Cost of sales or Selling, general and administrative expenses, depending on where the recipient's cash compensation is reported.

Stock Options

The fair value of each stock option grant is estimated on the date of grant using a Black-Scholes-Merton option pricing model. The following weighted average assumptions were used in the Black-Scholes-Merton model to estimate the fair values of stock options granted during the years indicated:

	2021	2020	2019
Expected volatility	**24.2 %**	22.2 %	19.1 %
Expected term (years)	**5.0**	5.0	5.0
Risk-free interest rate	**0.85 %**	0.52 %	2.25 %
Expected dividend yield	**0.66 %**	1.14 %	0.66 %
Black-Scholes-Merton fair value per stock option granted	**$ 25.63**	$ 11.01	$ 16.85

Expected volatility is based on the historical volatility of the Company's stock over the stock options' expected term. The Company used historical exercise data to estimate the stock options' expected term, which represents the period of time that the stock options granted are expected to be outstanding. Management anticipates that the future stock option holding periods will be similar to the historical stock option holding periods. The risk-free interest rate for periods within the expected term of the stock option is based on the U.S. Treasury yield curve at the time of grant. The expected dividend yield is calculated by dividing the Company's annual dividend, based on the most recent quarterly dividend rate, by the Company's closing common stock price on the grant date. Compensation expense recognized for all share-based awards is net of estimated forfeitures. The Company's estimated forfeiture rates are based on its historical experience.

The following is a summary of the Company's stock option activity and related information for the year ended December 31, 2021:

	Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life	Aggregate Intrinsic Value
	(In thousands)		(Years)	(In millions)
Outstanding at the beginning of the year	3,950	$ 65.16		
Granted	**552**	**121.91**		
Exercised	**(1,025)**	**57.60**		
Forfeited	**(123)**	**85.52**		
Expired	**(2)**	**59.79**		
Outstanding at the end of the year	**3,352**	**$ 76.08**	**6.2**	**$ 237.9**
Exercisable at the end of the year	**2,060**	**$ 67.15**	**4.7**	**$ 164.6**

The aggregate intrinsic value of stock options exercised during 2021, 2020 and 2019 was $59.1 million, $63.7 million and $88.2 million, respectively. The total fair value of stock options vested during 2021, 2020 and 2019 was $13.7 million, $12.9 million and $11.8 million, respectively.

The following is a summary of the Company's non-vested stock option activity and related information for the year ended December 31, 2021:

	Shares	Weighted Average Grant Date Fair Value
	(In thousands)	
Non-vested stock options outstanding at the beginning of the year	1,906	$ 13.34
Granted	**552**	**25.63**
Vested	**(1,043)**	**13.18**
Forfeited	**(123)**	**16.61**
Non-vested stock options outstanding at the end of the year	**1,292**	**$ 18.41**

As of December 31, 2021, there was approximately $14 million of expected future pre-tax compensation expense related to the 1.3 million non-vested stock options outstanding, which is expected to be recognized over a weighted average period of less than two years.

Restricted Stock

The fair value of restricted shares under the Company's restricted stock arrangement is determined by the product of the number of shares granted and the Company's closing common stock price on the grant date. Upon the grant of restricted stock, the fair value of the restricted shares (unearned compensation) at the grant date is charged as a reduction of capital in excess of par value in the Company's consolidated balance sheet and is amortized to expense on a straight-line basis over the vesting period, which is the same as the calculated derived service period as determined on the grant date.

The following is a summary of the Company's non-vested restricted stock activity and related information for the year ended December 31, 2021:

	Shares	Weighted Average Grant Date Fair Value
	(In thousands)	
Non-vested restricted stock outstanding at the beginning of the year	701	$ 76.86
Granted	**153**	**122.60**
Vested	**(395)**	**72.45**
Forfeited	**(46)**	**94.80**
Non-vested restricted stock outstanding at the end of the year	**413**	**$ 96.07**

The total fair value of restricted stock vested during 2021, 2020 and 2019 was $28.6 million, $14.4 million and $25.2 million, respectively. The weighted average fair value of restricted stock granted per share during 2021 and 2020 was $122.60 and $80.27, respectively. As of December 31, 2021, there was approximately $28 million of expected future pre-tax compensation expense related to the 0.4 million non-vested restricted shares outstanding, which is expected to be recognized over a weighted average period of less than two years.

Performance Restricted Stock Units

The PRSUs vest over a period up to three years from the grant date based on continuous service, with the number of shares earned (0% to 200% of the target award) depending upon the extent to which the Company achieves certain financial and market performance targets measured over the period from January 1 of the year of grant through December 31 of the third year. Half of the PRSUs are valued in a manner similar to restricted stock as the financial targets are based on the Company's operating results. The grant date fair value of these PRSUs are recognized as compensation expense over the vesting period based on the number of awards expected to vest at each reporting date. The other half of the PRSUs were valued using a Monte Carlo model as the performance target is related to the Company's total shareholder return compared to a group of peer companies, which represents a market condition. The Company recognizes the grant date fair value of these awards as compensation expense ratably over the vesting period.

The following is a summary of the Company's non-vested performance restricted stock activity and related information for the year ended December 31, 2021:

	Shares	Weighted Average Grant Date Fair Value
	(In thousands)	
Non-vested performance restricted stock outstanding at the beginning of the year	264	$ 72.90
Granted	**81**	**121.91**
Performance assumption change [1]	**39**	**78.20**
Vested	**(88)**	**78.20**
Forfeited	**(7)**	**89.83**
Non-vested performance restricted stock outstanding at the end of the year	**289**	**$ 85.29**

[1] Reflects the number of PRSUs above target levels based on performance metrics.

As of December 31, 2021, there was approximately $4 million of expected future pre-tax compensation expense related to the 0.3 million non-vested performance restricted shares outstanding, which is expected to be recognized over a weighted average period of less than one year.

The Company issues previously unissued shares when stock options are exercised, and shares are issued from treasury stock upon the award of restricted stock.

12. Retirement Plans and Other Postretirement Benefits

Retirement and Pension Plans

The Company sponsors several retirement and pension plans covering eligible salaried and hourly employees. The plans generally provide benefits based on participants' years of service and/or compensation. The following is a brief description of the Company's retirement and pension plans.

The Company maintains contributory and non-contributory defined benefit pension plans. Benefits for eligible salaried and hourly employees under all defined benefit plans are funded through trusts established in conjunction with the plans. The Company's funding policy with respect to its defined benefit plans is to contribute amounts that provide for benefits based on actuarial calculations and the applicable requirements of U.S. federal and local foreign laws. The Company estimates that it will make both required and discretionary cash contributions of approximately $8 million to $12 million to its worldwide defined benefit pension plans in 2022.

The Company uses a measurement date of December 31 (its fiscal year end) for its U.S. and foreign defined benefit pension plans.

The Company sponsors a 401(k) retirement and savings plan for eligible U.S. employees. Participants in the retirement and savings plan may contribute a specified portion of their compensation on a pre-tax basis, which varies by location. The Company matches employee contributions ranging from 20% to 100%, up to a maximum percentage ranging from 1% to 8% of eligible compensation or up to a maximum of $1,200 per participant in some locations.

The Company's retirement and savings plan has a defined contribution retirement feature principally to cover U.S. salaried employees joining the Company after December 31, 1996. Under the retirement feature, the Company makes contributions for eligible employees based on a pre-established percentage of the covered employee's salary subject to pre-established vesting. Employees of certain of the Company's foreign operations participate in various local defined contribution plans.

The Company has non-qualified unfunded retirement plans for certain Directors and retired employees. It also provides supplemental retirement benefits, through contractual arrangements and/or a Supplemental Executive Retirement Plan ("SERP") covering certain current and former executives of the Company. These supplemental benefits are designed to compensate the executive for retirement benefits that would have been provided under the Company's primary retirement plan, except for statutory limitations on compensation that must be taken into account under those plans. The projected benefit obligations of the SERP and the contracts will primarily be funded by a grant of shares of the Company's common stock upon retirement or termination of the executive. The Company is providing for these obligations by charges to earnings over the applicable periods.

The following tables set forth the changes in net projected benefit obligation and the fair value of plan assets for the funded and unfunded defined benefit plans for the years ended December 31:

U.S. Defined Benefit Pension Plans:

	2021	2020
	(In thousands)	
Change in projected benefit obligation:		
Net projected benefit obligation at the beginning of the year	$ 532,357	$ 510,514
Service cost	**2,767**	3,015
Interest cost	**14,074**	17,235
Actuarial (gains) losses	**(12,593)**	32,963
Gross benefits paid	**(31,832)**	(31,370)
Net projected benefit obligation at the end of the year	**$ 504,773**	$ 532,357
Change in plan assets:		
Fair value of plan assets at the beginning of the year	$ 662,298	$ 621,632
Actual return on plan assets	**70,540**	71,281
Employer contributions	**621**	755
Gross benefits paid	**(31,832)**	(31,370)
Fair value of plan assets at the end of the year	**$ 701,627**	$ 662,298

Foreign Defined Benefit Pension Plans:

	2021	2020
	(In thousands)	
Change in projected benefit obligation:		
Net projected benefit obligation at the beginning of the year	$ 351,584	$ 311,783
Service cost	**4,218**	4,246
Interest cost	**4,458**	5,376
Foreign currency translation adjustments	**(6,580)**	13,955
Employee contributions	**76**	92
Actuarial (gains) losses	**(10,199)**	27,055
Expenses paid from assets	**(1,121)**	(838)
Gross benefits paid	**(10,426)**	(10,615)
Curtailments	**412**	—
Plan amendments	**—**	530
Net projected benefit obligation at the end of the year	**$ 332,422**	$ 351,584
Change in plan assets:		
Fair value of plan assets at the beginning of the year	$ 250,735	$ 224,347
Actual return on plan assets	**20,184**	20,966
Employer contributions	**9,656**	8,772
Employee contributions	**76**	92
Foreign currency translation adjustments	**(2,816)**	8,011
Expenses paid from assets	**(1,121)**	(838)
Gross benefits paid	**(10,426)**	(10,615)
Fair value of plan assets at the end of the year	**$ 266,288**	$ 250,735

The projected benefit obligation assumptions impacting net actuarial losses (gains) consist of changes in discount and mortality rates, as well as changes in plan experience. A significant component of the decrease in actuarial losses in 2020 for both the U.S. and Foreign Defined Benefit Plans was the change in discount rates.

The accumulated benefit obligation consisted of the following at December 31:

U.S. Defined Benefit Pension Plans:

	2021	2020
	(In thousands)	
Funded plans	**$ 492,957**	$ 515,667
Unfunded plans	**3,913**	4,494
Total	**$ 496,870**	$ 520,161

Foreign Defined Benefit Pension Plans:

	2021	2020
	(In thousands)	
Funded plans	**$ 284,013**	$ 295,998
Unfunded plans	**47,761**	53,090
Total	**$ 331,774**	$ 349,088

Weighted average assumptions used to determine benefit obligations at December 31:

	2021	2020
U.S. Defined Benefit Pension Plans:		
Discount rate	**3.02 %**	2.69 %
Rate of compensation increase (where applicable)	**3.75 %**	3.75 %
Foreign Defined Benefit Pension Plans:		
Discount rate	**1.78 %**	1.27 %
Rate of compensation increase (where applicable)	**2.50 %**	2.50 %

The following is a summary of the fair value of plan assets for U.S. plans at December 31:

	2021			2020		
Asset Class	Total	Level 1	Level 2	Total	Level 1	Level 2
	(In thousands)					
Corporate debt instruments	**$ 4,053**	**$ —**	**$ 4,053**	$ 3,442	$ —	$ 3,442
Corporate debt instruments – Preferred	**11,265**	**—**	**11,265**	12,196	—	12,196
Corporate stocks – Common	**67,975**	**67,975**	**—**	62,897	62,897	—
Municipal bonds	**676**	**—**	**676**	876	—	876
Registered investment companies	**150,535**	**150,535**	**—**	236,530	236,530	—
U.S. Government securities	**663**	**—**	**663**	526	—	526
Total investments	**235,167**	**218,510**	**16,657**	316,467	299,427	17,040
Investments measured at net asset value	**466,460**	**—**	**—**	345,831	—	—
Total investments	**$701,627**	**$218,510**	**$ 16,657**	$662,298	$299,427	$ 17,040

U.S. equity securities and global equity securities categorized as level 1 are traded on national and international exchanges and are valued at their closing prices on the last trading day of the year. For U.S. equity securities and global equity securities not traded on an active exchange, or if the closing price is not available, the trustee obtains indicative quotes from a pricing vendor, broker or investment manager. These securities are categorized as level 2 if the custodian obtains corroborated quotes from a pricing vendor. Additionally, some U.S. equity securities and global equity securities are public investment vehicles valued using the Net Asset Value ("NAV") provided by the fund manager. The NAV is the total value of the fund divided by the number of shares outstanding.

Fixed income securities categorized as level 1 are traded on national and international exchanges and are valued at their closing prices on the last trading day of the year and categorized as level 2 if valued by the trustee using pricing models that use verifiable observable market data, bids provided by brokers or dealers or quoted prices of securities with similar characteristics.

The expected long-term rate of return on these plan assets was 6.75% in 2021 and 7.00% in 2020. Equity securities included 384,788 shares of AMETEK, Inc. common stock with a market value of $56.6 million (8.1% of total plan investment assets) at December 31, 2021 and 384,788 shares of AMETEK, Inc. common stock with a market value of $46.5 million (7.0% of total plan investment assets) at December 31, 2020.

The objectives of the Company's U.S. defined benefit plans' investment strategy are to maximize the plans' funded status and minimize Company contributions and plan expense. Because the goal is to optimize returns over the long term, an investment policy that favors equity holdings has been established. Since there may be periods of time where both equity and mutual fund markets provide poor returns, an allocation to alternative assets may be made to improve the overall portfolio's diversification and return potential. The Company periodically reviews its asset allocation, taking into consideration plan liabilities, plan benefit payment streams and the investment strategy of the pension plans. The actual asset allocation is monitored frequently relative to the established targets and ranges and is re-balanced when necessary. The target allocations for the U.S. defined benefits plans are approximately 50% equity securities, 20% fixed income securities and 30% other securities and/or cash.

The equity portfolio is diversified by market capitalization and style. The equity portfolio also includes international components.

The objective of the mutual fund portion of the pension assets is to provide interest rate sensitivity for a portion of the assets and to provide diversification. The mutual fund portfolio is diversified within certain quality and maturity guidelines to minimize the adverse effects of interest rate fluctuations.

Certain investments are prohibited and include venture capital, private placements, unregistered or restricted stock, margin trading, commodities, short selling and rights and warrants. Foreign currency futures, options and forward contracts may be used to manage foreign currency exposure.

The following is a summary of the fair value of plan assets for foreign defined benefit pension plans at December 31:

	2021		2020	
Asset Class	Total	Level 3	Total	Level 3
	(In thousands)			
Life insurance	**$ 18,806**	**$ 18,806**	$ 20,908	$ 20,908
Total investments	**18,806**	**18,806**	20,908	20,908
Investments measured at net asset value	**247,482**	**—**	229,827	—
Total investments	**$ 266,288**	**$ 18,806**	$ 250,735	$ 20,908

Life insurance assets are considered level 3 investments as their values are determined by the sponsor using unobservable market data.

Life insurance assets categorized as level 3 are valued based on unobservable inputs and cannot be corroborated using verifiable observable market data. Investments in level 3 funds are redeemable, however, cash reimbursement may be delayed, or a portion held back until asset finalization.

The following is a summary of the changes in the fair value of the foreign plans' level 3 investments (fair value determined using significant unobservable inputs):

	Life Insurance
	(In thousands)
Balance, December 31, 2019	$ 19,298
Actual return on assets:	
Unrealized losses relating to instruments still held at the end of the year	$ 1,610
Realized gains (losses) relating to assets sold during the year	$ —
Purchases, sales, issuances and settlements, net	$ —
Balance, December 31, 2020	$ 20,908
Actual return on assets:	
Unrealized gains (losses) relating to instruments still held at the end of the year	**$ (2,102)**
Realized gains (losses) relating to assets sold during the year	$ —
Purchases, sales, issuances and settlements, net	**$ —**
Balance, December 31, 2021	**$ 18,806**

The objective of the Company's foreign defined benefit plans' investment strategy is to maximize the long-term rate of return on plan investments, subject to a reasonable level of risk. Liability studies are also performed on a regular basis to provide guidance in setting investment goals with an objective to balance risks against the current and future needs of the plans. The trustees consider the risk associated with the different asset classes, relative to the plans' liabilities and how this can be affected by diversification, and the relative returns available on equities, mutual fund investments, real estate and cash. Also, the likely volatility of those returns and the cash flow requirements of the plans are considered. It is expected that equities will outperform mutual fund investments over the long term. However, the trustees recognize the fact that mutual fund investments may better match the liabilities for pensioners. Because of the relatively young active employee group covered by the plans and the immature nature of the plans, the trustees have chosen to adopt an asset allocation strategy more heavily weighted toward equity investments. This asset allocation strategy will be reviewed, from time to time, in view of changes in market conditions and in the plans' liability profile. The target allocations for the foreign defined benefit plans are approximately 22% equity securities, 21% fixed income securities, 51% multi-asset funds and 6% other securities, insurance or cash.

The assumption for the expected return on plan assets was developed based on a review of historical investment returns for the investment categories for the defined benefit pension assets. This review also considered current capital market conditions and projected future investment returns. The estimates of future capital market returns by asset class are lower than the actual long-term historical returns. The current low interest rate environment influences this outlook. Therefore, the assumed rate of return for U.S. plans is 6.75% and 5.85% for foreign plans in 2022.

The projected benefit obligation, accumulated benefit obligation and fair value of plan assets for pension plans with a projected benefit obligation in excess of plan assets and pension plans with an accumulated benefit obligation in excess of plan assets were as follows at December 31:

U.S. Defined Benefit Pension Plans:

	Projected Benefit Obligation Exceeds Fair Value of Assets		Accumulated Benefit Obligation Exceeds Fair Value of Assets	
	2021	2020	2021	2020
	(In thousands)			
Benefit obligation	**$ 6,234**	$ 6,842	**$ 6,234**	$ 6,842
Fair value of plan assets	**1,239**	1,155	**1,239**	1,155

Foreign Defined Benefit Pension Plans:

	Projected Benefit Obligation Exceeds Fair Value of Assets		Accumulated Benefit Obligation Exceeds Fair Value of Assets	
	2021	2020	2021	2020
	(In thousands)			
Benefit obligation	**$ 272,245**	$ 349,762	**$ 271,596**	$ 347,267
Fair value of plan assets	**200,862**	248,914	**200,862**	248,914

The following table provides the amounts recognized in the consolidated balance sheet at December 31:

	2021	2020
	(In thousands)	
Funded status asset (liability):		
Fair value of plan assets	**$ 967,915**	$ 913,034
Projected benefit obligation	**(837,195)**	(883,940)
Funded status at the end of the year	**$ 130,720**	$ 29,094
Amounts recognized in the consolidated balance sheet consisted of:		
Non-current asset for pension benefits (other assets)	**$ 207,099**	$ 135,628
Current liabilities for pension benefits	**(2,133)**	(2,174)
Non-current liability for pension benefits	**(74,246)**	(104,360)
Net amount recognized at the end of the year	**$ 130,720**	$ 29,094

The following table provides the amounts recognized in accumulated other comprehensive income, net of taxes, at December 31:

Net amounts recognized:	2021	2020
	(In thousands)	
Net actuarial loss	**$ 193,220**	$ 249,468
Prior service costs	**1,855**	4,247
Transition asset	**4**	5
Total recognized	**$ 195,079**	$ 253,720

The following table provides the components of net periodic pension benefit expense (income) for the years ended December 31:

	2021	2020	2019
		(In thousands)	
Defined benefit plans:			
Service cost	**$ 6,985**	$ 7,261	$ 6,556
Interest cost	**18,532**	22,611	26,979
Expected return on plan assets	**(56,752)**	(54,629)	(52,402)
Curtailment	**3,151**	—	—
Settlement	**—**	—	739
Amortization of:			
Net actuarial loss	**16,353**	15,479	15,685
Prior service costs	**456**	486	484
Transition asset	**1**	1	1
Total net periodic benefit income	**(11,274)**	(8,791)	(1,958)
Other plans:			
Defined contribution plans	**31,149**	30,829	32,508
Foreign plans and other	**8,454**	7,902	9,406
Total other plans	**39,603**	38,731	41,914
Total net pension expense	**$ 28,329**	$ 29,940	$ 39,956

The total net periodic benefit expense (income) is included in Cost of sales, General and administrative expense and Other income and expense in the consolidated statement of income.

The following weighted average assumptions were used to determine the above net periodic pension benefit income for the years ended December 31:

	2021	2020	2019
U.S. Defined Benefit Pension Plans:			
Discount rate	**2.69 %**	3.45 %	4.40 %
Expected return on plan assets	**6.75 %**	7.00 %	7.50 %
Rate of compensation increase (where applicable)	**3.75 %**	3.75 %	3.75 %
Foreign Defined Benefit Pension Plans:			
Discount rate	**1.27 %**	1.83 %	2.59 %
Expected return on plan assets	**5.47 %**	5.97 %	6.52 %
Rate of compensation increase (where applicable)	**2.50 %**	2.50 %	2.50 %

Estimated Future Benefit Payments

The estimated future benefit payments for U.S. and foreign plans are as follows: 2022 – $42.4 million; 2023 – $43.7 million; 2024 – $44.2 million; 2025 – $43.7 million; 2026 – $43.8 million; 2026 to 2030 - $216.1 million. Future benefit payments primarily represent amounts to be paid from pension trust assets. Amounts included that are to be paid from the Company's assets are not significant in any individual year.

Postretirement Plans and Post-employment Benefits

The Company provides limited postretirement benefits other than pensions for certain retirees and a small number of former employees. Benefits under these arrangements are not funded and are not significant.

The Company also provides limited post-employment benefits for certain former or inactive employees after employment but before retirement. Those benefits are not significant in amount.

The Company has a deferred compensation plan, which allows employees whose compensation exceeds the statutory IRS limit for retirement benefits to defer a portion of earned bonus compensation. The plan permits deferred amounts to be deemed invested in either, or a combination of, (a) an interest-bearing account, benefits from which are payable out of the general assets of the Company, or (b) the equivalent of a fund which invests in shares of the Company's common stock on behalf of the employee. The amount deferred under the plan, including income earned, was $28.4 million and $25.1 million at December 31, 2021 and 2020, respectively. Administrative expense for the deferred compensation plan is borne by the Company and is not significant.

13. Contingencies

Indemnifications

In conjunction with certain acquisition and divestiture transactions, the Company may agree to make payments to compensate or indemnify other parties for possible future unfavorable financial consequences resulting from specified events (e.g., breaches of contract obligations or retention of previously existing environmental, tax or employee liabilities) whose terms range in duration and often are not explicitly defined. Where appropriate, the obligation for such indemnifications is recorded as a liability. Because the amount of these types of indemnifications generally is not specifically stated, the overall maximum amount of the obligation under such indemnifications cannot be reasonably estimated. Further, the Company indemnifies its directors and officers for claims against them in connection with their positions with the Company. Historically, any such costs incurred to settle claims related to these indemnifications have been minimal for the Company. The Company believes that future payments, if any, under all existing indemnification agreements would not have a material impact on its consolidated results of operations, financial position or cash flows.

Asbestos Litigation

The Company (including its subsidiaries) has been named as a defendant in a number of asbestos-related lawsuits. Certain of these lawsuits relate to a business which was acquired by the Company and do not involve products which were manufactured or sold by the Company. In connection with these lawsuits, the seller of such business has agreed to indemnify the Company against these claims (the "Indemnified Claims"). The Indemnified Claims have been tendered to, and are being defended by, such seller. The seller has met its obligations, in all respects, and the Company does not have any reason to believe such party would fail to fulfill its obligations in the future. To date, no judgments have been rendered against the Company as a result of any asbestos-related lawsuit. The Company believes that it has good and valid defenses to each of these claims and intends to defend them vigorously.

Environmental Matters

Certain historic processes in the manufacture of products have resulted in environmentally hazardous waste by-products as defined by federal and state laws and regulations. At December 31, 2021, the Company is named a Potentially Responsible Party ("PRP") at 13 non-AMETEK-owned former waste disposal or treatment sites (the "non-owned"sites). The Company is identified as a "de minimis" party in 12 of these sites based on the low volume of waste attributed to the Company relative to the amounts attributed to other named PRPs. In eight of these sites, the Company has reached a tentative agreement on the cost of the de minimis settlement to satisfy its obligation and is awaiting executed agreements. The tentatively agreed-to settlement amounts are fully accrued. In the other four sites, the Company is continuing to investigate the accuracy of the alleged volume attributed to the Company as estimated by the parties primarily responsible for remedial activity at the sites to establish an appropriate settlement amount. At the remaining site where the Company is a non-de minimis PRP, the Company is participating in the investigation and/or related required remediation as part of a PRP Group and reserves have been established sufficient to satisfy the Company's expected obligations. The Company historically has resolved these issues within established reserve levels and reasonably expects this result will continue. In addition to these non-owned sites, the Company has an ongoing practice of providing reserves for probable remediation activities at certain of its current or previously owned manufacturing locations (the "owned" sites). For claims and proceedings against the Company with respect to other environmental matters, reserves are established once the Company has determined that a loss is probable and estimable. This estimate is refined as the Company moves through the various stages of investigation, risk assessment, feasibility study and corrective action processes. In certain instances, the Company has developed a range of estimates for such costs and has recorded a liability based on the best estimate. It is reasonably possible that the actual cost of remediation of the individual sites could vary from the current estimates and the amounts accrued in the consolidated financial statements; however, the amounts of such variances are not expected to result in a material change to the consolidated financial statements. In estimating the Company's liability for remediation, the Company also considers the likely proportionate share of the anticipated remediation expense and the ability of the other PRPs to fulfill their obligations.

Total environmental reserves at December 31, 2021 and 2020 were $37.2 million and $32.4 million, respectively, for both non-owned and owned sites. In 2021, the Company recorded $12.1 million in reserves. Additionally, in 2021 the Company spent $7.3 million on environmental matters.

The Company has agreements with other former owners of certain of its acquired businesses, as well as new owners of previously owned businesses. Under certain of the agreements, the former or new owners retained, or assumed and agreed to indemnify the Company against, certain environmental and other liabilities under certain circumstances. The Company and some of these other parties also carry insurance coverage for some environmental matters.

The Company believes it has established reserves for the environmental matters described above, which are sufficient to perform all known responsibilities under existing claims and consent orders. In the opinion of management, based on presently available information and the Company's historical experience related to such matters, an adequate provision for probable costs has been made and the ultimate cost resulting from these actions is not expected to materially affect the consolidated results of operations, financial position or cash flows of the Company.

14. Leases and Other Commitments

Leases

The Company determines if an arrangement is a lease at inception. This determination generally depends on whether the arrangement conveys to the Company the right to control the use of an explicitly or implicitly identified fixed asset for a period of time in exchange for consideration. Control of an underlying asset is conveyed to the Company if the Company obtains the rights to direct the use of and to obtain substantially all of the economic benefits from using the underlying asset. The Company has lease agreements which include lease and non-lease components, which the Company has elected to account for as a single lease component for all classes of underlying assets. Lease expense for variable lease components are recognized when the obligation is probable.

Operating leases are included in right-of-use ("ROU") assets, accrued liabilities and other, and other long-term liabilities on our consolidated balance sheets. Operating lease ROU assets and liabilities are recognized at commencement date based on the present value of lease payments over the lease term. Operating lease payments are recognized as lease expense on a straight-line basis over the lease term. The Company has no finance leases. The Company primarily leases buildings (real estate) and automobiles which are classified as operating leases. ASC 842 requires a lessee to discount its unpaid lease payments using the interest rate implicit in the lease or, if that rate cannot be readily determined, its incremental borrowing rate. As an implicit interest rate is not readily determinable in our leases, we use our incremental borrowing rate based on the information available at commencement date in determining the present value of lease payments.

The lease term for all of the Company's leases includes the non-cancellable period of the lease plus any additional periods covered by either a Company option to extend (or not to terminate) the lease that the Company is reasonably certain to exercise, or an option to extend (or not to terminate) the lease controlled by the lessor. Options for lease renewals have been excluded from the lease term (and lease liability) for the majority of the Company's leases as the reasonably certain threshold is not met. In a small number of the Company's leases, the options for renewals have been included in the lease term as the reasonably certain threshold is met due to the Company having significant economic incentive for extending the lease.

Lease payments included in the measurement of the lease liability are comprised of fixed payments, variable payments that depend on an index or rate and amounts probable to be payable under the exercise of the Company option to purchase the underlying asset if reasonably certain.

Variable lease payments not dependent on a rate or index associated with the Company's leases are recognized when the events, activities, or circumstances in the lease agreement on which those payments are assessed are probable. Variable lease payments are presented as operating expense in the Company's income statement in the same line item as expense arising from fixed lease payments. Cash used in operations for operating leases is not materially different than total lease costs.

The Company has commitments under operating leases for certain facilities, vehicles and equipment used in its operations. Our leases have initial lease terms ranging from 1 month to 16 years, with the exception of a single land lease with 62 years remaining. Certain lease agreements contain provisions for future rent increases.

The components of lease expense were as follows:

	2021	2020	2019
		(In thousands)	
Operating lease cost	**$ 61,680**	$ 44,498	$ 45,438
Variable lease cost	**7,724**	4,526	7,813
Total lease cost	**$ 69,404**	$ 49,024	$ 53,251

Supplemental balance sheet information related to leases was as follows:

	December 31,	
	2021	2020
	(In thousands)	
Right of use assets, net	**$ 169,924**	$ 167,233
Lease liabilities included in Accrued liabilities and other	**47,353**	44,948
Lease liabilities included in Other long-term liabilities	**129,101**	128,173
Total lease liabilities	**$ 176,454**	$ 173,121

Supplemental cash flow information and other information related to leases was as follows for the year ended December 31:

	2021	2020
	(In thousands)	
Right-of-use assets obtained in exchange for new operating liabilities	$ 64,653	$ 35,923
Weighted-average remaining lease terms – operating leases (years)	5.36	5.44
Weighted-average discount rate – operating leases	2.91 %	3.40 %

Maturities of lease liabilities as of December 31, 2021 were as follows:

Lease Liability Maturity Analysis	Operating Leases
	(In thousands)
2022	$ 50,854
2023	41,993
2024	30,070
2025	22,186
2026	15,638
Thereafter	30,839
Total lease payments	191,580
Less: imputed interest	15,126
	$ 176,454

The Company does not have any significant leases that have not yet commenced.

Other Commitments

As of December 31, 2021, and 2020, the Company had $890.9 million and $494.1 million, respectively, in purchase obligations outstanding, which primarily consisted of contractual commitments to purchase certain inventories at fixed prices.

The Company does not provide significant guarantees on a routine basis. The Company primarily issues guarantees, stand-by letters of credit and surety bonds in the ordinary course of its business to provide financial or performance assurance to third parties on behalf of its consolidated subsidiaries to support or enhance the subsidiary's stand-alone creditworthiness. The amounts subject to certain of these agreements vary depending on the covered contracts outstanding at any particular point in time. At December 31, 2021, the maximum amount of future payment obligations relative to these various guarantees was $107.9 million and the outstanding liability under certain of those guarantees was $1.0 million.

15. Reportable Segments and Geographic Areas Information

Descriptive Information about Reportable Segments

The Company has two reportable segments, EIG and EMG. The Company's operating segments are identified based on the existence of segment managers. Certain of the Company's operating segments have been aggregated for segment reporting purposes primarily on the basis of product type, production processes, distribution methods and similarity of economic characteristics.

EIG manufactures advanced instruments for the process, power and industrial, and aerospace markets. It provides process and analytical instruments for the oil and gas, petrochemical, pharmaceutical, semiconductor, automation, and food and beverage industries. EIG also provides instruments to the laboratory equipment, ultra-precision manufacturing, medical, and test and measurement markets. It makes power quality monitoring and metering devices, uninterruptible power supplies, programmable power equipment, electromagnetic compatibility test equipment and gas turbines sensors. EIG also provides dashboard instruments for heavy trucks and other vehicles, as well as instrumentation and controls for the food and beverage industries. It supplies the aerospace industry with aircraft and engine sensors, monitoring systems, power supplies, fuel and fluid measurement systems, and data acquisition systems.

EMG is a differentiated supplier of automation solutions, thermal management systems, specialty metals and electrical interconnects. It manufactures highly engineered electrical connectors and electronic packaging used to protect sensitive electronic devices. EMG also makes precision motion control products for data storage, medical devices, business equipment, automation and other applications. It supplies high-purity powdered metals, strip and foil, specialty clad metals and metal matrix composites. EMG also manufactures motors used in commercial appliances, fitness equipment, food and beverage machines, hydraulic pumps and industrial blowers. It produces motor-blower systems and heat exchangers used in thermal management and other applications on a variety of military and commercial aircraft and military ground vehicles. EMG also operates a global network of aviation maintenance, repair and overhaul facilities.

Measurement of Segment Results

Segment operating income represents net sales less all direct costs and expenses (including certain administrative and other expenses) applicable to each segment but does not include interest expense. Net sales by segment are reported after elimination of intra- and inter-segment sales and profits, which are insignificant in amount. Reported segment assets include allocations directly related to the segment’s operations. Corporate assets consist primarily of investments, prepaid pensions, insurance deposits and deferred taxes.

Reportable Segment Financial Information

	2021	2020	2019
		(In thousands)	
Operating income and income before income taxes:			
Segment operating income:			
Electronic Instruments	**$ 958,183**	$ 770,620	$ 865,307
Electromechanical	**437,378**	324,962	387,931
Total segment operating income	**1,395,561**	1,095,582	1,253,238
Corporate administrative expenses	**(86,891)**	(67,698)	(75,858)
Consolidated operating income	**1,308,670**	1,027,884	1,177,380
Interest and other income (expenses), net	**(85,500)**	54,425	(107,632)
Consolidated income before income taxes	**$ 1,223,170**	$ 1,082,309	$ 1,069,748
Assets:			
Electronic Instruments	**$ 8,672,711**	$ 6,554,414	
Electromechanical	**2,638,773**	2,646,985	
Total segment assets	**11,311,484**	9,201,399	
Corporate	**586,703**	1,156,084	
Consolidated assets	**$ 11,898,187**	$ 10,357,483	
Additions to property, plant and equipment[(1)]:			
Electronic Instruments	**$ 168,267**	$ 48,638	$ 74,994
Electromechanical	**34,586**	26,381	42,924
Total segment additions to property, plant and equipment	**202,853**	75,019	117,918
Corporate	**10,417**	1,007	4,770
Consolidated additions to property, plant and equipment	**$ 213,270**	$ 76,026	$ 122,688
Depreciation and amortization:			
Electronic Instruments	**$ 210,118**	$ 174,494	$ 153,111
Electromechanical	**79,497**	78,297	78,664
Total segment depreciation and amortization	**289,615**	252,791	231,775
Corporate	**2,497**	2,484	2,267
Consolidated depreciation and amortization	**$ 292,112**	$ 255,275	$ 234,042

(1) Includes $102.6 million in 2021, $1.8 million in 2020 and $20.3 million in 2019 from acquired businesses.

Geographic Areas

Information about the Company's operations in different geographic areas for the years ended December 31, 2021 and 2020 is shown below.

	2021	2020
	(In thousands)	
Long-lived assets from continuing operations (excluding intangible assets):		
United States	**$ 416,323**	$ 344,535
International[1]:		
United Kingdom	**74,525**	55,519
European Union countries	**87,117**	82,256
Asia	**11,971**	14,066
Other foreign countries	**27,202**	30,154
Total international	**200,815**	181,995
Total consolidated	**$ 617,138**	$ 526,530

(1) Represents long-lived assets of foreign-based operations only.

16. Additional Consolidated Income Statement and Cash Flow Information

Included in other income (expense), net are interest and other investment income of $2.0 million, $2.7 million and $4.6 million for 2021, 2020 and 2019, respectively. Income taxes paid in 2021, 2020 and 2019 were $245.5 million, $210.4 million and $221.6 million, respectively. Cash paid for interest was $78.7 million, $86.2 million and $84.9 million in 2021, 2020 and 2019, respectively.

17. Stockholders' Equity

In 2020, the Company repurchased approximately 55,000 shares of its common stock for $4.7 million in cash under its share repurchase authorization. In 2021, the Company repurchased approximately 113,000 shares of its common stock for $14.7 million in cash under its share repurchase authorization. At December 31, 2021, $469.7 million was available under the Company's Board of Directors authorization for future share repurchases.

Effective February 11, 2021, the Company's Board of Directors approved an 11% increase in the quarterly cash dividend on the Company's common stock to $0.20 per common share from $0.18 per common share.

At December 31, 2021, the Company held 36,137,864 shares in its treasury at a cost of $1,573.0 million, compared with 36,227,061 shares at a cost of $1,565.3 million at December 31, 2020. The number of shares outstanding at December 31, 2021 was 231.7 million shares, compared with 230.5 million shares at December 31, 2020.

Subsequent Event

Effective February 9, 2022, the Company's Board of Directors approved a 10% increase in the quarterly cash dividend on the Company's common stock to $0.22 per common share from $0.20 per common share.

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

None.

Item 9A. Controls and Procedures

Disclosure Controls and Procedures

The Company maintains a system of disclosure controls and procedures that is designed to provide reasonable assurance that information, which is required to be disclosed, is accumulated and communicated to management in a timely manner. Under the supervision and with the participation of our management, including the Company's principal executive officer and principal financial officer, we have evaluated the effectiveness of our system of disclosure controls and procedures as required by Exchange Act Rule 13a-15(b) as of December 31, 2021. Based on that evaluation, the Company's principal executive officer and principal financial officer concluded that the Company's disclosure controls and procedures are effective at the reasonable assurance level.

Such evaluation did not identify any change in the Company's internal control over financial reporting during the quarter ended December 31, 2021 that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

Internal Control over Financial Reporting

Management's report on the Company's internal controls over financial reporting is included in Part II, Item 8 of this Annual Report on Form 10-K.The report of the independent registered public accounting firm with respect to the effectiveness of internal control over financial reporting is included in Part II, Item 8 of this Annual Report on Form 10-K.

Item 9B. Other Information

None

PART III

Item 10. Directors, Executive Officers and Corporate Governance

a) Directors of the Registrant.

Information with respect to Directors of the Company is set forth under the heading "Election of Directors" in the Company's Proxy Statement for the 2022 Annual Meeting of Stockholders and is incorporated herein by reference.

b) Executive Officers of the Registrant.

Information with respect to executive officers of the Company is set forth under the heading "Executive Officers" in the Company's Proxy Statement for the 2022 Annual Meeting of Stockholders and is incorporated herein by reference.

c) Section 16(a) Compliance.

Information concerning compliance with Section 16(a) of the Securities Exchange Act of 1934 is set forth under the heading "Delinquent Section 16(a) Reports" in the Company's Proxy Statement for the 2022 Annual Meeting of Stockholders and is incorporated herein by reference.

d) Identification of the Audit Committee.

Information concerning the audit committee of the Company is set forth under the heading "Committees of the Board" in the Company's Proxy Statement for the 2022 Annual Meeting of Stockholders and is incorporated herein by reference.

e) Audit Committee Financial Experts.

Information concerning the audit committee financial experts of the Company is set forth under the heading "Committees of the Board" in the Company's Proxy Statement for the 2022 Annual Meeting of Stockholders and is incorporated herein by reference.

f) Corporate Governance/Nominating Committee.

Information concerning any material changes to the way in which security holders may recommend nominees to the Company's Board of Directors is set forth under the heading "Stockholder Proposals and Director Nominations for the 2023 Annual Meeting" in the Company's Proxy Statement for the 2022 Annual Meeting of Stockholders and is incorporated herein by reference.

g) Code of Ethics for Chief Executive Officer and Senior Financial Officers.

The Company has adopted a Code of Ethics for the principal executive officer, principal financial officer and principal accounting officer, which may be found on the Company's website at www.ametek.com. Any amendments to the Code of Ethics or any grant of a waiver from the provisions of the Code of Ethics requiring disclosure under applicable U.S. Securities and Exchange Commission rules will be disclosed on the Company's website.

Item 11. Executive Compensation

Information regarding executive compensation, including the "Compensation Discussion and Analysis," the "Compensation Committee Report," "Compensation Tables" and "Potential Payments Upon Termination or Change of Control” is set forth under the heading “Executive Compensation” in the Company’s Proxy Statement for the 2022 Annual Meeting of Stockholders and is incorporated herein by reference.

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

Information regarding security ownership of certain beneficial owners and management appearing under “Stock Ownership of Executive Officers and Directors” and “Beneficial Ownership of Principal Stockholders” in the Company’s Proxy Statement for the 2022 Annual Meeting of Stockholders is incorporated herein by reference.

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

Information appearing under “Certain Relationships and Related Transactions” and “Independence” in the Company’s Proxy Statement for the 2022 Annual Meeting of Stockholders is incorporated herein by reference.

Item 14. Principal Accountant Fees and Services

Information appearing under “Ratification of Appointment of Independent Registered Public Accounting Firm” in the Company’s Proxy Statement for the 2022 Annual Meeting of Stockholders is incorporated herein by reference.

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.

AMETEK, Inc.

By: /s/ DAVID A. ZAPICO

David A. Zapico

Chief Executive Officer

Date : February 22, 2022

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ DAVID A. ZAPICO David A. Zapico	Chairman of the Board of Directors and Chief Executive Officer (Principal Executive Officer)	February 22, 2022
/s/ WILLIAM J. BURKE William J. Burke	Executive Vice President – Chief Financial Officer (Principal Financial Officer)	February 22, 2022
/s/ THOMAS M. MONTGOMERY Thomas M. Montgomery	Senior Vice President – Comptroller (Principal Accounting Officer)	February 22, 2022
/s/ THOMAS A. AMATO Thomas A. Amato	Director	February 22, 2022
/s/ TOD E. CARPENTER Tod E. Carpenter	Director	February 22, 2022
/s/ ANTHONY J. CONTI Anthony J. Conti	Director	February 22, 2022
/s/ STEVEN W. KOHLHAGEN Steven W. Kohlhagen	Director	February 22, 2022
/s/ GRETCHEN W. MCCLAIN Gretchen W. McClain	Director	February 22, 2022
/s/ KARLEEN M. OBERTON Karleen M. Oberton	Director	February 22, 2022

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SHAREHOLDER INFORMATION

Corporate Office

AMETEK, Inc.
1100 Cassatt Road
Berwyn, PA 19312-1177 U.S.A.
610-647-2121 or 800-473-1286

The Corporate Office is located in suburban Philadelphia.

Investor Communications

Investors seeking additional information about the company may call or write Investor Relations at the Corporate Office or e-mail investor.relations@ametek.com. AMETEK earnings announcements, press releases, SEC filings and other investor information are available at the Investors section of AMETEK's website: ametek.com.

Annual Meeting

Thursday, May 5, 2022
11:00 a.m. Eastern Time
Via webcast:
www.virtualshareholdermeeting.com/AME2022

All shareholders are invited to attend.

Stock Exchange Listing

New York Stock Exchange
Symbol: AME

Shareholder Services

American Stock Transfer & Trust Company, LLC
6201 15th Avenue
Brooklyn, NY 11219
Attn: Shareholder Services
718-921-8124 or 800-937-5449
astfinancial.com

AMETEK's transfer agent responds to inquiries regarding dividend payments, direct deposit of dividends, stock transfers, address changes, and replacement of lost dividend payments and lost stock certificates.

Independent Registered Public Accounting Firm

Ernst & Young LLP
Philadelphia, Pennsylvania

AMETEK is an equal opportunity employer.
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For the most up-to-date investor information, scan this code with your smartphone to be taken to the Investors section of www.ametek.com.

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