

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, 2022

OR

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

For the transition period from to

Commission File Number: 1-4639

CTS CORPORATION

(Exact name of registrant as specified in its charter)

Indiana
(State or other jurisdiction of incorporation or organization)

35-0225010
(IRS Employer Identification Number)

4925 Indiana Avenue Lisle IL
(Address of principal executive offices)

60532
(Zip Code)

Registrant's telephone number, including area code: 630-577-8800

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, without par value	CTS	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 15(d) of the Exchange 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, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer", "accelerated filer", "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer Accelerated filer Non-accelerated filer Smaller reporting company Emerging growth company

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

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

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

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

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

The aggregate market value of the voting and non-voting stock held by non-affiliates of CTS Corporation, based upon the closing sales price of CTS common stock on June 30, 2022, was approximately \$1,069,446,384. There were 31,668,025 shares of common stock, without par value, outstanding on February 17, 2023.

DOCUMENTS INCORPORATED BY REFERENCE

(1) Portions of the Proxy Statement to be filed for the annual meeting of shareholders to be held on or about May 11, 2023 are incorporated by reference in Part III.

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Safe Harbor

Forward-Looking Statements

This document contains statements that are, or may be deemed to be, forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. These forward-looking statements include, but are not limited to, any financial or other guidance, statements that reflect our current expectations concerning future results and events, and any other statements that are not based solely on historical fact. Forward-looking statements are based on management's expectations, certain assumptions and currently available information. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date hereof and are based on various assumptions as to future events, the occurrence of which necessarily are subject to uncertainties. These forward-looking statements are made subject to certain risks, uncertainties and other factors, which could cause CTS' actual results, performance or achievements to differ materially from those presented in the forward-looking statements. Examples of factors that may affect future operating results and financial condition include, but are not limited to: the ultimate impact of the COVID-19 pandemic on CTS' business, results of operations or financial condition, including supply chain disruptions; changes in the economy generally, including inflationary and/or recessionary conditions, and in respect to the business in which CTS operates; unanticipated issues in integrating acquisitions, including our acquisitions of TEWA Temperature Sensors and Ferroperm Piezoceramics; the results of actions to reposition CTS' business; rapid technological change; general market conditions in the transportation, as well as conditions in the industrial, aerospace and defense, and medical markets; reliance on key customers; unanticipated public health crises, natural disasters or other events; environmental compliance and remediation expenses; the ability to protect CTS' intellectual property; pricing pressures and demand for CTS' products; and risks associated with CTS' international operations, including trade and tariff barriers, exchange rates and political and geopolitical risks (including, without limitation, the potential impact U.S./China relations and the conflict between Russia and Ukraine may have on our business, results of operations and financial condition). Many of these, and other risks and uncertainties, are discussed in further detail in Item 1A. of this Annual Report on Form 10-K and other filings made with the SEC. CTS undertakes no obligation to publicly update CTS' forward-looking statements to reflect new information or events or circumstances that arise after the date hereof, including market or industry changes.

PART I

Item 1. Business

CTS Corporation ("CTS", "we", "our", "us" or the "Company") is a global manufacturer of sensors, connectivity components, and actuators. CTS was established in 1896 as a provider of high-quality telephone products and was incorporated as an Indiana corporation in February 1929. Our principal executive offices are located in Lisle, Illinois.

We design, manufacture, and sell a broad line of sensors, connectivity components, and actuators primarily to original equipment manufacturers ("OEMs") and tier one suppliers for the aerospace and defense, industrial, medical, and transportation markets. Our vision is to be a leading provider of sensing and motion devices as well as connectivity components, enabling an intelligent and seamless world. These devices are categorized by their ability to Sense, Connect or Move. Sense products provide vital inputs to electronic systems. Connect products allow systems to function in synchronization with other systems. Move products ensure required movements are effectively and accurately executed. We are committed to achieving our vision by continuing to invest in the development of products, technologies, and talent within these categories.

We operate manufacturing facilities in North America, Asia, and Europe. Sales and marketing are accomplished through our sales engineers while also using independent manufacturers' representatives and distributors as an extension of our sales capability.

On February 28, 2022, we acquired 100% of the outstanding shares of TEWA for \$24,515. TEWA is a designer and manufacturer of high-quality temperature sensors. TEWA has complementary capabilities with our existing temperature sensing platform, and the acquisition supports our end market diversification strategy and expands our presence in Europe.

On June 30, 2022, we acquired 100% of the outstanding shares of Ferroperm for \$72,340. Ferroperm specializes in the design and manufacture of high performance piezoceramic components for use in complex and demanding medical, industrial, and aerospace applications. Ferroperm has complementary capabilities with our existing medical diagnostics and imaging product lines. The acquisition supports our end market diversification strategy and expands our presence in European end markets.

On February 6, 2023, we acquired 100% of the outstanding shares of maglab AG ("maglab") for \$4,164 in cash subject to additional earnout payments based on future performance. Maglab has deep expertise in magnetic system design and current measurement solutions for use in e-mobility, industrial automation, and renewable energy applications. Maglab's domain expertise coupled with CTS' commercial, technical and operational capabilities position us to advance our status as a recognized innovator in electric motor sensing and controls markets.

See the Consolidated Financial Statements and Notes included in Part II, Item 8 of this Annual Report on Form 10-K for financial information regarding the Company.

PRODUCTS BY MAJOR MARKETS

Our products perform specific electronic functions for a given product family and are intended for use in customer assemblies. Our major products consist principally of sensors and actuators used in passenger or commercial vehicles, connectivity components used in telecommunications infrastructure, information technology and other high-speed applications, switches, temperature sensors, and potentiometers supplied to multiple markets, and fabricated piezoelectric materials and substrates used primarily in the medical, industrial, and aerospace and defense markets.

The following table identifies major products by industry. Products are sold to several industry OEMs, tier one suppliers, and distributors.

Product Description	Transportation	Industrial	Medical	Aerospace and Defense
SENSE (Controls, Pedals, Piezo Sensing Products, Sensors, Switches, Transducers)	•	•	•	•
CONNECT (EMI/RFI Filters, Capacitors, Frequency Control, Resistors, RF filters)		•	•	•
MOVE (Piezo Microactuators, Rotary Actuators)	•	•	•	

The following table provides a breakdown of net sales by industry as a percent of consolidated net sales:

	2022	2021	2020
Industry			
Transportation	52%	55%	57%
Industrial	29%	27%	25%
Medical	10%	9%	9%
Aerospace and Defense	9%	9%	9%
% of consolidated net sales	100%	100%	100%

In the above table, previously reported Telecommunications & IT are included in the Industrial end-market for all periods presented.

MARKETING AND DISTRIBUTION

Sales and marketing to customers is accomplished through our sales engineers, independent manufacturers' representatives, and distributors. We maintain sales offices in China, Czech Republic, Denmark, Germany, Japan, Singapore, Taiwan, and the United States. Approximately 88% of 2022 net sales were attributable to our sales engineers.

Our sales engineers generally service our largest customers with application-specific products. A vast majority of our products are engineered solutions. The sales engineers work closely with major customers in designing and developing products to meet specific customer requirements.

In 2022, independent distributors accounted for approximately 9% of net sales. We use distributors for a small portion of our product portfolio that are standard and require less design support, to service smaller customers, and to provide supply chain fulfillment for certain customers. Our key distribution partners include large global and regional distributors such as Avnet, Inc., Digi-Key Electronics, Master Electronics, Future Electronics, and TTI, Inc. In addition, we also utilize the services of independent manufacturers' representatives for customers not serviced directly by our sales engineers. Independent manufacturers' representatives receive commissions from us. During 2022, approximately 3% of net sales were attributable to independent manufacturers' representatives.

RAW MATERIALS

We utilize a wide variety of raw materials and purchased parts in our manufacturing processes. The following are the most significant raw materials and purchased components:

Conductive inks and contactors, passive connectivity components, integrated circuits and semiconductors, certain rare earth elements ("REEs"), ceramic powders, plastic components, molding compounds, printed circuit boards and assemblies, quartz blanks and crystals, wire harness assemblies, copper, brass, silver, gold, platinum, lead, aluminum, and steel-based raw materials and components.

These raw materials and parts are purchased from a number of suppliers, and we generally do not believe we are dependent upon one or a limited number of suppliers. Although we purchase all of our semiconductors, REEs, conductive inks, and silver pastes from a limited number of suppliers, alternative sources are generally available.

Lead times between the placement of orders for certain raw materials and purchased parts and actual delivery to us may vary. Occasionally, we may need to order raw materials in greater quantities and at higher prices to compensate for the variability of lead times for delivery. The price and availability of raw materials and manufactured components is subject to change due to, among other things, new laws and regulations, global economic and political events including strikes, and public health and safety concerns.

Due to the COVID-19 pandemic, we have experienced supply chain disruptions and inflationary pressures. In particular, semiconductor and resin shortages have increased our material prices, and they have impacted our OEM customers' ability to finish assembly of vehicles, which in turn have adversely impacted our results of operations and cash flows. These pressures are expected to continue in fiscal 2023.

PATENTS, TRADEMARKS, AND LICENSES

We continue our practice of innovation and protect our intellectual property by obtaining patents in the U.S. and abroad. Our patents cover inventions relating to products that our engineers have designed, as well as for methods and technology related to our manufacturing processes. We obtained 22 patents in 2022, including 7 U.S. patents and 15 non-U.S. patents. We currently own 314

patents worldwide including 132 active U.S. patents. We own 9 registered U.S. trademarks, most of which are registered in jurisdictions throughout the world. We have also licensed certain patents and our license and royalty income for 2022 was less than 1% of net sales.

MAJOR CUSTOMERS

Our net sales to significant customers as a percentage of total net sales were as follows:

	Years Ended December 31,		
	2022	2021	2020
Cummins Inc.	15.3%	15.0%	13.1%
Toyota Motor Corporation	11.5%	12.4%	13.4%

We sell parts to these two transportation customers for certain vehicle platforms under purchase agreements that have program lifetime volume estimates and are subject to purchase orders issued from time to time.

No other customer accounted for 10% or more of total net sales during these periods. We continue to focus on broadening our customer base to diversify our end market exposure.

Changes in the level of our customers' orders have, in the past, had a significant impact on our operating results. If a major customer reduces the amount of business it transacts with us, or substantially changes the terms of that business, there could be an adverse impact on our operating results.

COMPETITION

We compete with domestic and foreign manufacturers principally based on product features, technology, price, quality, reliability, delivery, and service. Most of our product lines encounter significant global competition. The number of competitors varies from product line to product line. No one competitor competes with us in every product line, but some competitors are larger and more diversified than we are.

Some customers have reduced or plan to reduce their number of suppliers, while increasing their volume of purchases. Customers demand lower cost and higher quality, reliability, and delivery standards from us as well as from our competitors. These trends create opportunities for us, but also increase the risk of loss of business to competitors. We are subject to competitive risks that are typical in our end markets, including technical obsolescence.

We believe we compete most successfully in custom engineered products manufactured to meet specific applications of major OEMs.

NON-U.S. REVENUES AND OPERATIONS

Our net sales to customers originating from our non-U.S. operations as a percentage of total net sales were as follows:

	Years Ended December 31,		
	2022	2021	2020
Net sales from non-U.S. operations	44.4%	42.0%	43.0%

We believe the business risks to our non-U.S. operations, though substantial, are normal risks for global businesses. These risks include currency controls and changes in currency exchange rates, longer collection cycles, political and transportation risks, economic downturns and inflation, government regulations, and expropriation. Our non-U.S. manufacturing facilities are located in China, Czech Republic, Denmark, Mexico, Philippines, Poland, and Taiwan. Additional information regarding the Company's sales by geographic area and long-lived tangible assets in different geographic areas is included in Note 20 - "Geographic Data" of this Annual Report on Form 10-K.

HUMAN CAPITAL MANAGEMENT AND OUR CULTURE

CTS is a leading provider of sensing and motion devices as well as connectivity components and we believe our employees are a critical asset to meeting our mission of enabling an intelligent and seamless world. We take great pride in the products we build, and the manner

in which we operate as a company and as individuals. We pull together, drawing on our strengths, guided by our culture which is built on our values.

- Play to Win – being ambitious, seizing opportunities, challenging to get best results, acting with humility, intelligence, and integrity
- Responsiveness – being nimble and acting fast, understanding customers’ needs, respecting the views and needs of others, working with a sense of urgency
- Simplicity – being straightforward, easy to deal with, reducing bureaucracy and complexity, delivering solutions efficiently and effectively
- Solution Oriented – staying curious and resourceful, embracing challenges, understanding the challenges, finding new and better ways to work together

We have a global business, and our employees reflect the diversity of our geographic footprint. Below is a summary of our employees by location and gender as of December 31, 2022.

North America	2,288
Asia	1,352
Europe	569
Total	4,209
Female	58%
Male	42%

CTS is committed to fostering an environment where all employees are respected and treated equally. Empowering our employees’ distinctive talents delivers customer value and advances our culture and engagement. We strive to create an inclusive workplace where everyone feels valued, respected, appreciated, and embraced because of their differences – a place where every employee can be themselves so they can reach their highest potential and help us achieve our business goals. Our commitment to the aforementioned goals is evidenced through the formation and leadership from our global diversity council.

Our employees must adhere to a Code of Ethics that sets standards for appropriate behavior. We require annual training on preventing, identifying, reporting, and stopping any type of unlawful discrimination or unethical actions. A copy of our Code of Ethics is available for review on our Company’s website, www.ctscorp.com.

We have developed key recruitment and retention strategies that guide our human capital management approach as part of the overall management of our business. These strategies are advanced through a number of programs and initiatives outlined below:

Talent Planning Process

We have a global talent review and succession planning process designed to align our talent plans with the current and future strategies of the business. This includes the identification of key positions, assessment of internal talent and potential successors and plans for talent acquisition and development. Each year, employees are expected to have defined performance objectives so that they focus time and resources appropriately, understand their impact to the success of our strategy, and know how their performance will be assessed. On an annual basis managers complete a mid-year and year-end performance evaluation with their employees.

Employee Compensation

We strive to align compensation with the external market of companies from a similar industry or that are similarly sized and maintain equity within the organization. In addition, we offer a broad range of company-paid benefits, which we believe are competitive in our industry. Our compensation programs are designed to align the compensation of our employees with their performance and to provide the proper incentives to attract, retain and motivate employees to achieve superior results. We engage with outside consulting firms to benchmark all of our employee compensation and benefits aligning to market median.

Training and Development

Employee development and company growth goes hand in hand. At CTS we focus our learning and development activities on areas that we believe will most effectively support the delivery of our business objectives. In the competitive environment in which we operate, employees need to replenish their knowledge and acquire new skills to do their jobs better. CTS provides growth and development

opportunities through programs such as Education Reimbursement, Situational Leadership, Leadership Essentials, and the Accelerated Leadership Program.

Health and Safety

The safety and well-being of our employees is a priority and vital to our success. Our health and safety activities are overseen by our corporate environmental, health and safety function and are managed by employees in our locations, who coordinate on-site safety programs, resources, reporting and training. Our employees are regularly trained on safety-related topics, and we monitor and measure the effectiveness of our programs at all of our locations.

CTS Cares

We recognize that we have a responsibility to be a positive influence in the communities in which we do business around the world, and CTS Cares is the platform which connects CTS employees to the causes that we care about. We have a rich history of philanthropy and community involvement. Our employees routinely leverage their individual skills and capabilities to give back to their local communities. We value and are proud of the contributions that our employees make. CTS Cares supports our global community.

EXECUTIVE OFFICERS OF THE COMPANY

Executive Officers. The following serve as executive officers of CTS as of December 31, 2022.

Name	Age	Positions and Offices
Kieran O'Sullivan	60	President, Chief Executive Officer and Chairman of the Board
Ashish Agrawal	52	Vice President and Chief Financial Officer
Scott D'Angelo	52	Vice President, General Counsel and Secretary
Martin Baumeister	56	Senior Vice President
Mike Murray	52	Senior Vice President

Kieran O'Sullivan – 60 – President, Chief Executive Officer and Chairman of the Board. Mr. O'Sullivan joined CTS on January 7, 2013. Before joining CTS, Mr. O'Sullivan served as Executive Vice President of Continental AG's Global Infotainment and Connectivity Business and led the NAFTA Interior Division, having joined Continental AG, a global automotive supplier, in 2006. Mr. O'Sullivan is a member of the board of directors of LCI Industries, a supplier of engineered components for manufacturers of recreational vehicles, manufactured homes, marine applications, and for the related aftermarkets, serving as the chairperson of the risk committee, and as a member of the corporate governance, nominating and sustainability and audit committees.

Ashish Agrawal – 52 – Vice President and Chief Financial Officer. On November 11, 2013, Mr. Agrawal was elected Vice President and Chief Financial Officer of CTS. Mr. Agrawal joined CTS in June 2011 as Vice President, Treasury and Corporate Development, and was elected as Treasurer on September 1, 2011. Before joining CTS, Mr. Agrawal was with Dometic Group AB, a manufacturer of refrigerators, awnings and air conditioners, as Senior Vice President and Chief Financial Officer, Americas, beginning in 2007. Prior to that, Mr. Agrawal was with General Electric Co. in various positions beginning in December 1994.

Scott D'Angelo – 52 – Vice President, General Counsel and Secretary. Mr. D'Angelo joined CTS in February 2021 and was elected General Counsel and Secretary on February 11, 2021. Prior to joining CTS, Mr. D'Angelo was a member of the International Commercial and Trade Practice Group of Baker McKenzie, LLP from March 2019, and served as Vice President, Deputy General Counsel & Chief Compliance Officer of Fortune Brands Home & Security, Inc., a leading home and security products company, from May 2015 and, prior to that, served in several senior roles with McDonald's Corporation.

Martin Baumeister – 56 – Senior Vice President. Mr. Baumeister joined CTS on January 14, 2020. Immediately prior to joining CTS, Mr. Baumeister served as Executive Director - Product Line Electronics Americas at Vitesco Technologies since October 2019. Prior to that role, Mr. Baumeister served as Executive Director Electronics Americas when Continental separated that subsidiary into an independent entity from July 2018, and served as Executive Director - Global Customer Head from February 2015.

Mike Murray – 52 – Senior Vice President. Mr. Murray joined CTS on January 22, 2018. Prior to joining CTS, Mr. Murray gained global experience working and living in China and Hong Kong in senior roles at Laird PLC and Littelfuse, Inc. Most recently, he served as Laird's Vice President of Global Operations for the Performance Materials Business Unit beginning in January 2014.

Information with respect to the Company's Directors and corporate governance policies and practices may be found in our definitive proxy statement to be delivered to shareholders in connection with our 2023 Annual Meeting of Shareholders. Such information is incorporated herein by reference.

ADDITIONAL INFORMATION

We are incorporated in the State of Indiana. Our principal corporate office is located at 4925 Indiana Avenue Lisle, Illinois 60532.

Our internet address is www.ctscorp.com. We make available free of charge through our website our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) of the Securities Exchange Act of 1934 as soon as reasonably practicable after we electronically file such material with, or furnish it to, the Securities and Exchange Commission ("SEC"). Other than the documents that we file with or furnish to the SEC that are incorporated by reference herein, the information contained on or accessible through our website is not part of this or any other report we file or furnish to the SEC.

Investors and others should note that we announce material financial information to our investors using the Investors section of our website (ctscorp.com/investors), SEC filings, press releases, public conference calls and webcasts. We use these channels as well as social media and blogs to communicate with our investors and the public about the Company, our services and other issues. It is possible that the information we post on social media and blogs could be deemed to be material information. Therefore, we encourage investors, the media, and others interested in the Company to review the information we post on the social media channels and blogs listed on our investor relations website.

Item 1A. Risk Factors

The following are certain risk factors that could affect our business, financial condition and operating results. These risk factors should be considered in connection with evaluating forward-looking statements contained in this Annual Report on Form 10-K or in any other reports filed or furnished by us, because these factors could cause our actual results and financial condition to differ materially from those projected in any such forward-looking statements. Before you invest in us, you should know that making such an investment involves risks, including the risks described below. Although the risks are organized by headings, and each risk is discussed separately, many are interrelated. You should not interpret the disclosure of any risk factor to imply that the risk has not already materialized. The risks that are highlighted below are not the only ones that we face. If any of the following risks occur, our business, financial condition and operating results could be negatively affected.

Risks Related to Our Business and Industry

Because we currently derive a substantial portion of our revenues from a small number of customers, any decrease in orders from these customers could have an adverse effect on our business, financial condition and operating results.

We depend on a small number of customers for a substantial portion of our business, and changes in the level of our customers' orders have, in the past, had a significant impact on our results of operations. If a major customer significantly delays, reduces, or cancels the level of business it does with us, there could be an adverse effect on our business, financial condition and operating results. Significant pricing and margin pressures exerted by a major customer could also materially adversely affect our operating results. In addition, we generate significant accounts receivable from sales to our major customers. If one or more of our major customers were to become insolvent or otherwise unable to pay or were to delay payment for our products, our business, financial condition and operating results could be materially adversely affected.

Our customers may cancel their orders, change production quantities or locations or delay production.

We generally receive volume estimates, but not firm volume commitments from our customers, and may experience reduced or extended lead times in customer orders. Customers may cancel orders, change production quantities and delay production for a number of reasons. Uncertain economic and geopolitical conditions may result in some of our customers delaying the delivery of some of the products we manufacture for them and placing purchase orders for lower volumes of products than previously anticipated. Cancellations, reductions or delays by a significant customer or by a number of customers may harm our results of operations by reducing the volumes of products we manufacture and sell, as well as by causing a delay in the recovery of our expenditures for inventory in preparation for customer orders, or by reducing our asset utilization, resulting in lower profitability.

In addition, our customers may request that manufacturing of their products be transitioned from one of our facilities to another to achieve cost reductions and other objectives. Such transfers may result in short term inefficiencies and costs due to resulting excess

capacity and overhead at one facility and capacity constraints and the inability to fulfill all orders at another. In addition, we make key decisions based on our estimates of customer requirements, including determining the levels of orders that we will seek and accept, production schedules, component procurement commitments, personnel needs and other resource requirements. Changes in demand for our customers' products may reduce our ability to estimate future customer requirements accurately. This may make it difficult to schedule production and maximize utilization of our manufacturing capacity. Anticipated orders may not materialize, and delivery schedules may be deferred as a result of changes in demand for our products or our customers' products. We often increase staffing and capacity and incur other expenses to meet the anticipated demand of our customers, which causes reductions in our gross margins if customer orders are delayed or canceled. On occasion, customers may require rapid increases in production, which may stress our resources and reduce margins. We may not have sufficient capacity at any given time to meet our customers' demands. In addition, because many of our costs and operating expenses are relatively fixed over the short-term, a reduction in customer demand could harm our gross margin and operating income until such time as adjustments can be made to activity and operating levels or to structural costs.

Deterioration of general economic, political, credit and/or capital market conditions could adversely affect our financial performance, our ability to grow or sustain our business, financial condition and results of operations, and our ability to access the capital markets.

We compete around the world in various geographic regions and product markets. Global economic and political conditions affect our business and the businesses of our customers, suppliers and consumers. Recessions, economic downturns, price instability, inflation, slowing economic growth and social and political instability in the markets where we compete could negatively affect our revenues and financial performance, and adversely impact our ability to grow or sustain our business. For example, current macroeconomic and political instability caused by the Russia-Ukraine conflict (as discussed below), global supply chain disruptions and inflation have adversely impacted and could continue to adversely impact our business and financial results.

The capital and credit markets provide us with liquidity to operate and grow our business beyond the liquidity that operating cash flows provide. A global or regional economic downturn or disruption of the credit markets could increase our future borrowing costs and impair our ability to access capital and credit markets necessary for our operations and to execute our strategic plan. If our access to capital on terms commercially acceptable to us were to become significantly constrained, or if costs of capital increased significantly, then our financial condition, results of operations and cash flows could be adversely affected.

Our business, financial condition and results of operations could be adversely affected by disruptions in the global economy caused by the ongoing Russia-Ukraine conflict or other geopolitical tensions and conflict.

The ongoing conflict between Russia and Ukraine (which we refer to as the "Russia-Ukraine conflict"), has adversely affected the global economy, and the geopolitical tensions and conflicts it generates may continue to negatively impact our operations. It has resulted in heightened economic sanctions from the U.S., the U.K., the European Union and the international community. Even though we have no physical assets in Russia, the impact of the Russia-Ukraine conflict could have a material adverse effect on our business, financial condition, results of operations, supply chain, availability of critical supplies, intellectual property, partners, or customers. Further escalation of geopolitical tensions related to the Russia-Ukraine conflict, including increased trade barriers or restrictions on global trade, could result in, among other things, broader impacts that expand into other markets, cyberattacks, supply chain and logistics disruptions, and volatility in foreign exchange rates, interest rates and financial markets, any of which may adversely affect our business and supply chain. More broadly, there could be additional negative impacts to our financial results if the Russia-Ukraine conflict worsens, including, among other potential impacts, economic recessions in certain neighboring countries or globally due to inflationary pressures, including with respect to energy and supply chain cost increases or shortages, or the geographic proximity of the conflict relative to the rest of Europe. Similar geopolitical tensions and political conflicts, including tensions between the U.S. and China as well as between China and Taiwan, could adversely impact our employees, financial performance, and global operations, including by, among other things, jeopardizing the safety of our employees and facilities, disrupting our and our partners' production, supply chain and logistics and communications, and causing market volatility, which could adversely impact our sales. In addition, the effects of the ongoing Russia-Ukraine conflict as well as escalating tensions between China and Taiwan and other geopolitical conflicts could amplify or affect many of our other risks described elsewhere in Part I, Item 1A, "Risk Factors" in this Annual Report on Form 10-K.

The impacts of supply chain constraints and inflationary pressures could adversely impact our operating results.

Our business has been, and may continue to be, impacted by supply chain constraints, including as a result of raw materials and electronic component shortages, including, in particular, shortages of semiconductor chips and resin, longer lead times, port congestion, increased freight costs and the uncertain economic environment worldwide. These supply chain constraints have and may in the future prevent us from making scheduled shipments to customers. Our inability to make scheduled shipments could cause us to experience a shortfall in revenue, increase our costs and adversely affect our relationship with affected customers and our reputation as a reliable supplier. We may be required to pay higher prices for raw materials or electronic components in short supply and order these raw materials or electronic components in greater quantities to compensate for variable delivery times. We may also be required to pay higher prices for

raw materials or electronic components due to inflationary trends regardless of supply, including the current high inflationary environment. In addition, current proposed or future governmental policies may increase the risk of inflation, which could further increase the costs of raw materials and other components for our business. The supply and price of our key raw materials and electronic components can be affected by a number of factors beyond our control, including market demand, inflation, alternative sources for suppliers, global geopolitical events, global or regional disease outbreaks or pandemics, trade agreements among producing and consuming nations and governmental regulations (including tariffs).

Similarly, if the costs of goods continue to increase, our suppliers may seek price increases from us. If we are unable to mitigate the impact of these matters through price increases, cost savings to offset cost increases, hedging arrangements, or other measures, our results of operations and financial condition could be adversely impacted. If our competitors maintain or substantially lower their prices, we may lose customers and mark down prices. Our profitability may be impacted by prices that do not offset the inflationary pressures, which may impact our gross margins. Even if we are able to raise the prices of our products, we may not be able to sustain such price increases. Temporary or sustained price increases may also lead to a decrease in demand for our products as competitors may not adjust their prices which could lead to a decline in sales volume and loss of market share. Our projections may not accurately predict the volume impact of price increases, which could adversely affect our business, financial condition and results of operations.

We sell products to customers in cyclical industries that are subject to significant downturns that could materially adversely affect our business, financial condition and operating results.

We sell products to customers in cyclical industries that have experienced economic and industry downturns. The markets for our products have softened in the past and may again soften in the future. We may face reduced end-customer demand, underutilization of our manufacturing capacity, changes in our revenue mix and other factors that could adversely affect our results.

We are susceptible to trends and factors affecting industries that we serve.

Factors negatively affecting the industries we serve and the demand for their products could negatively affect our business, financial condition and operating results. Any adverse occurrence, including among others, industry slowdown, recession, public health crisis, political instability, costly or constraining regulations, increased tariffs, reduced government budgets and spending, armed hostilities, terrorism, excessive inflation, including the current high inflationary environment, prolonged disruptions in one or more of our customers' production schedules or labor disturbances, that results in a decline in the volume of sales in these industries, or in an overall downturn in the business and operations of our customers in these industries, could materially adversely affect our business, financial condition and operating results. These industries may be unionized and some of our customers have experienced labor disruptions in the past. Furthermore, these industries can be highly cyclical in nature and sensitive to changes in general economic conditions, consumer preferences and interest rates. The insolvency of customers that we serve may result in the failure to receive payment in full for products sold in the past and an abrupt reduction in demand for certain products. Weakness in demand, the insolvency of customers that we serve or their suppliers, and constriction of credit markets may negatively and materially affect our facility utilization, cost structure, financial condition, and operating results.

Our operating results may vary significantly from period to period.

We experience fluctuations in our operating results. Some of the principal factors that contribute to these fluctuations are: changes in demand for our products; our effectiveness in managing manufacturing processes, costs and timing of our component purchases so that components are available when needed for production, while mitigating the risks of purchasing inventory in excess of immediate production needs; the degree to which we are able to utilize our available manufacturing capacity; changes in the cost and availability of components, which often occur in the electronics manufacturing industry and which affect our margins and our ability to meet delivery schedules; general economic and served industry conditions; and local conditions and events that may affect our production volumes, such as labor conditions or political instability.

We may pursue acquisition opportunities that complement or expand our business as well as divestitures that could impact our business operations. We may not be able to complete these transactions, and these transactions, if executed, may pose risks that could materially adversely affect our business, financial condition and operating results.

On an ongoing basis we explore opportunities to buy other businesses or technologies that could complement, enhance or expand our current business or product lines or that might otherwise offer us growth opportunities. For example, during 2022, we acquired both TEWA Temperature Sensors SP. Zo.o. ("TEWA") and Meggitt A/S (a/k/a Ferroperm Piezoceramics A/S, "Ferroperm"). We may have difficulty finding suitable opportunities or, if we do identify these opportunities, we may not be able to complete the transactions for any number of reasons including a failure to secure financing. In addition, we may not be able to successfully or profitably integrate, operate, maintain and manage newly acquired businesses such as TEWA and Ferroperm, including their operations or employees. Any transactions that we are able to identify and complete may involve a number of risks, including: the diversion of management's attention

from our existing business to integrate the operations and personnel of the acquired or combined business; possible adverse effects on our operating results during the integration process; difficulties managing and integrating operations in geographically dispersed locations; increases in our expenses and working capital requirements, which could reduce our return on invested capital; exposure to unanticipated liabilities of acquired companies; and our possible inability to achieve the intended objectives of the transaction. Even if we are initially successful in integrating a new operation, we may not be able to maintain uniform standards, controls, procedures and policies, and this may lead to operational inefficiencies. In addition, future acquisitions may result in dilutive issuances of equity securities or the incurrence of additional debt. These and other factors could harm our ability to achieve anticipated levels of profitability from acquired operations or realize other anticipated benefits of an acquisition and could adversely affect our business and operating results.

We have in the past, and may in the future, consider divesting certain business operations. Divestitures may involve a number of risks, including the diversion of management's attention, significant costs and expenses, the loss of customer relationships and cash flow, and the disruption of operations in the affected business. Failure to timely complete or consummate a divestiture may negatively affect valuation of the affected business or result in restructuring charges.

We may restructure our operations or fail to execute capital projects as planned, which may materially adversely affect our business, financial condition and operating results.

We have announced and initiated restructuring plans or capital projects at various times in the recent past designed to revise and consolidate certain aspects of our operations for the purpose of improving our cost structure and operational efficiency. We may incur restructuring and impairment charges in the future if circumstances warrant, which could be material. Additionally, if we are unsuccessful in implementing restructuring plans or in executing capital projects, we may experience disruptions in our operations and higher ongoing costs, which may materially adversely affect our business, financial condition and operating results.

We may be unable to compete effectively against competitors.

The industries in which we operate are highly competitive and characterized by price erosion and rapid technological change. We compete against many domestic and foreign companies, some of which have substantially greater manufacturing, financial, research and development, and marketing resources than we do. If any customer becomes dissatisfied with our prices, quality, or timeliness of delivery, among other things, it could award business to our competitors. Moreover, some of our customers could choose to manufacture and develop particular products themselves rather than purchase them from us. Increased competition could result in price reductions, reduced profit margins and loss of market share, each of which could materially adversely affect our business, financial condition and operating results. These developments also may materially adversely affect our ability to compete successfully going forward. We cannot assure you that our products will continue to compete successfully with our competitors' products.

We may be unable to keep pace with rapid technological changes that could make some of our products or processes obsolete before we realize a return on our investment.

The technologies relating to some of our products have undergone and are continuing to undergo changes. End markets for our products are characterized by technological change, frequent new product introductions and enhancements, changes in customer requirements, and emerging industry standards. The introduction of products embodying new technologies and the emergence of new industry standards could render our existing products obsolete and unmarketable before we can recover any or all of our research, development and commercialization expenses, or our capital investments. Furthermore, the life cycles of our products and the products we manufacture for others vary, may change, and are difficult to estimate.

We may experience difficulties that could delay or prevent the successful development, introduction and marketing of new products or product enhancements and our new products or product enhancements may not adequately meet the requirements of the marketplace or achieve market acceptance. If we are unable, for technological or other reasons, to develop and market new products or product enhancements in a timely and cost-effective manner, our business, financial condition and operating results could be materially adversely affected.

Products we manufacture may contain design or manufacturing defects that could result in reduced demand for our products or services and liability claims against us.

Despite our quality control and quality assurance efforts, defects may occur in the products we manufacture due to design or manufacturing errors, supplier quality issues, or component failure. Product defects could result in delayed shipments and reduced demand for our products. We may be subject to increased costs due to warranty claims on defective products. Product defects could result in product liability claims against us where defects cause, or are alleged to cause, property damage, bodily injury or death. As we grow our business, the risk of exposure to product liability litigation increases. We may be required to participate in a recall involving

products which are, or are alleged to be, defective. We carry insurance for certain legal matters involving product liability; however, costs related to product defects and the costs of such claims, including costs of defense and settlement, may exceed our available coverage. Accordingly, our results of operations, cash flow and financial position could be adversely affected.

We are subject to government regulations, including environmental, health, and safety laws and regulations, that expose us to potential financial liability.

Our operations are regulated by a number of federal, state, local and foreign government regulations, including those pertaining to environmental, health, and safety (“EHS”) that govern, among other things, air and water emissions, worker protection, and the handling, storage and disposal of hazardous materials. Compliance with EHS laws and regulations is a major consideration for us because we use hazardous materials in our manufacturing processes. If we violate EHS laws and regulations, we could be liable for substantial fines, penalties, and costs of mandated remedial actions and we could suffer reputational damages due to any such violations. Our environmental permits could also be revoked or modified, which could require us to cease or limit production at one or more of our facilities, thereby materially adversely affecting our business, financial condition and operating results. EHS laws and regulations have generally become more stringent over time and could continue to do so, imposing greater compliance costs and increasing risks and penalties associated with any violation, which also could materially affect our business, financial condition and operating results.

We have been notified by the U.S. Environmental Protection Agency (the “EPA”), state environmental agencies and, in some cases, groups of potentially responsible parties, that we are potentially liable for environmental contamination at several sites currently and formerly owned or operated by us, including sites designated as National Priorities List sites under the EPA’s Superfund program. Superfund liability is joint and several and we may be held responsible for more than our share of contamination at a site. On February 8, 2023, we received a demand letter from the EPA seeking reimbursement of its past response costs and interest thereon in the amount of \$9,955 relating to the CTS of Asheville, Inc. Superfund Site, from the three potentially responsible parties associated with the site, including the Company. See Note 11 “Contingencies” in the Notes to the Consolidated Financial Statements in this Annual Report on Form 10-K. Although we estimate our potential environmental liability and reserve for such matters, including the Asheville site, we cannot assure you that our reserves will be sufficient to cover the actual costs that we incur as a result of these matters.

Future events, such as the notification of potential liability at new sites, the discovery of additional contamination or changes to an approved remedy at an existing site, changes to existing EHS laws and regulations or their interpretation, and more rigorous regulatory action by government authorities, may require additional expenditures by us, which could have a negative impact on our operations.

Changes in tax, environmental, trade or other regulations or failure to comply with existing licensing, trade and other regulations could cause volatility or have a material adverse effect on our business and financial results.

Future changes to U.S. or foreign tax and trade policies, impositions of new or increased tariffs, other trade restrictions or other government actions, including any government shutdown, may lead to the continuation or escalation of such risks and uncertainty.

In addition, changes to existing tax laws or the adoption of new tax laws, particularly in the U.S. and EU, could have a material adverse impact to our effective tax rate and future cash tax liabilities. The current economic and political environment may result in significant tax law changes in the numerous jurisdictions in which we operate. In addition, our effective tax rate could be materially affected by certain tax proposals developed by the Organization for Economic Cooperation and Development and European Commission regarding the taxation of multinational businesses.

Continued economic and political pressures to increase tax revenues in jurisdictions in which we operate, or the adoption of new or reformed tax legislation or regulation, may make resolving tax disputes more difficult. The final resolution of tax audits and any related litigation can differ from our historical provisions and accruals, resulting in an adverse effect on our financial performance. Additionally, modifications of laws and policies governing foreign trade and investment, including trade agreements and tariffs such as the United States-Mexico-Canada Agreement, or the European Union-United Kingdom Trade and Cooperating Agreement, could adversely affect our supply chain, business and results of operations. The implementation of additional tariffs and retaliatory tariffs from trade partners or related uncertainties could further increase the cost of certain of our imported materials, thereby adversely affecting our profitability.

Failure to comply with existing laws and regulations or changes in these laws, regulations, or interpretations thereof, specifically tax and environmental laws or any other laws or regulations could result in the loss, revocation or suspension of our licenses, permits or approvals and could have a material adverse effect on our business, financial condition and results of operations. Additionally, uncertainties exist with respect to the interpretation of, and potential future developments in, complex domestic and international tax laws and regulations, the amount and timing of future taxable income and the interaction of such laws and regulations among jurisdictions. Given the wide range of international business relationships and the long-term nature and complexity of existing contractual agreements, differences arising between the actual results and assumptions made, or future changes to such assumptions, could necessitate future adjustments to tax income and expense already recorded.

Negative or unexpected tax consequences could adversely affect our results of operations.

We operate globally and changes in tax laws could adversely affect our results. The international tax environment continues to change as a result of both coordinated actions by governments and unilateral measures enacted by individual countries, which could significantly impact our effective tax rate, tax liabilities, and ability to utilize deferred tax assets.

Adverse changes in the underlying profitability and financial outlook of our operations in several jurisdictions could lead to changes in our valuation allowances against deferred tax assets and other tax accruals that could materially and adversely affect our results of operations. In addition, acquisitions or divestitures may cause our effective tax rate to change.

We base our tax positions upon the anticipated nature and conduct of our business and upon our understanding of the tax laws of the various countries in which we have assets or conduct activities. However, our tax positions are subject to review and possible challenge by taxing authorities and to possible changes in law, which may have a retroactive effect.

Risks Related to Indebtedness and Financing

Our indebtedness may adversely affect our financial health.

Our indebtedness could, among other things: increase our vulnerability to general economic and industry conditions, including recessions; require us to use cash flow from operations to service our indebtedness, thereby reducing our ability to fund working capital, capital expenditures, research and development efforts and other expenses; limit our flexibility in planning for, or reacting to, changes in our business and the industries in which we operate; place us at a competitive disadvantage compared to competitors that have less indebtedness; or limit our ability to borrow additional funds that may be needed to operate and expand our business.

Our credit facility contains provisions that could materially restrict our business.

Our revolving credit facility contains restrictions limiting our ability to: dispose of assets; incur certain additional debt; repay other debt or amend subordinated debt instruments; create liens on assets; make investments, loans or advances; make acquisitions or engage in mergers or consolidations; engage in certain transactions with our subsidiaries and affiliates; repurchase stock; or make dividend payments above a certain amount.

The restrictions contained in our credit facility could limit our ability to plan for or react to changes in market conditions or meet capital needs or could otherwise restrict our activities or business plans. These restrictions could adversely affect our ability to finance our operations, make strategic acquisitions, fund investments or other capital needs or engage in other business activities that could be in our interest.

Further, our ability to comply with our loan covenants may be affected by events beyond our control that could result in an event of default under our credit facility, or documents governing any other existing or future indebtedness. A default, if not cured or waived, may permit acceleration of our indebtedness. In addition, our lenders could terminate their commitments to make further extensions of credit under our credit facility. If our indebtedness is accelerated, we cannot be certain that we will have sufficient funds to pay the accelerated indebtedness or that we will have the ability to refinance accelerated indebtedness on terms favorable to us, or at all.

The estimates and assumptions on which our financial projections are based may prove to be inaccurate, which may cause our actual results to materially differ from such projections, which may adversely affect our future profitability, cash flows and stock price.

Our financial projections, including any sales or earnings guidance or outlook we may provide from time to time, are dependent on certain estimates and assumptions related to, among other things, development and launch of innovative new products, market share projections, product pricing, sales, volume and product mix, foreign exchange rates and volatility, tax rates, interest rates, commodity prices, cost savings, accruals for estimated liabilities, including litigation reserves, and our ability to generate sufficient cash flow to reinvest in our existing business, fund internal growth, repurchase of our stock, make acquisitions, pay dividends and meet debt obligations. There is no assurance that we will fully realize the anticipated cost savings and other benefits of our restructuring activities in the time frames we desire or at all. Our financial projections are based on historical experience and on various other estimates and assumptions that we believe to be reasonable under the circumstances and at the time they are made, and our actual results may differ materially from our financial projections. Any material variation between our financial projections and our actual results may adversely affect our future profitability, cash flows and stock price.

Risks Related to COVID-19 Pandemic and Other External Factors

Public health issues such as the COVID-19 pandemic have adversely affected, and could in the future, adversely affect our business or financial results.

Any outbreaks of contagious diseases and other adverse public health developments in countries where we operate could have a material and adverse effect on our business, operations, financial condition, liquidity and results of operations. For example, the COVID-19 pandemic has affected our offices and manufacturing facilities throughout the world, as well as the facilities of our suppliers, customers and their customers for the past several years. As of December 31, 2022, we continue to experience some disruptions, mainly to our operations in China. The extent to which the COVID-19 pandemic will continue to impact our business and financial results going forward will be dependent on future developments such as any additional future resurgences from known or new variants, future government regulations and actions in response to the crisis, the timing, availability, effectiveness and adoption rates of vaccines and treatments, and the overall impact of the COVID-19 pandemic on the global economy and capital markets, among many other factors, all of which remain highly uncertain and unpredictable. Given these uncertainties, we expect the pandemic to continue to have an impact on our business, operations, financial condition, liquidity and results of operations in 2023 and potentially beyond. There can be no assurance that the COVID-19 pandemic will not have a material and adverse effect on our business, operations, financial condition, liquidity and results of operations in the future.

Loss, operational disruptions or closure of a key facility, including those of our suppliers, due to unforeseen or catastrophic events or otherwise, could have a material adverse effect on our business and financial results.

Our business could be interrupted and our financial results could be materially adversely impacted by physical risks such as earthquakes, fires, hurricanes, floods, acts of war, terrorist attacks, cyberattacks and other disruptions in information systems, disease outbreaks or pandemics, and other natural disasters or catastrophic events that damage, disrupt or destroy one of our key facilities or the key facilities of our significant suppliers. If any of our key facilities or the key facilities of our significant suppliers experience a significant operational disruption or catastrophic loss, it could delay, disrupt or reduce production, shipments and revenue, and result in potentially significant expenses to repair or replace these properties. Such significant disruptions could be due to, among other things:

- the loss or disruption of the timely availability of adequate supplies of essential raw materials for us and our suppliers, including single-source suppliers;
- our ability to integrate new suppliers into our operations;
- material financial issues facing our suppliers, such as bankruptcy or similar proceedings;
- transportation and logistics challenges, including as a result of port and border closures and other governmental restrictions and the availability and capacity of shipping channels;
- the loss or disruption of other manufacturing, distribution and supply capabilities;
- the loss or disruption of the energy sources or energy suppliers in Europe due to supply shortages as a result of the Russia-Ukraine conflict, including price increases in the energy market;
- labor shortages, strikes or work stoppages;
- illness to our employees or their families or governmental restrictions on such employees' ability to travel or perform necessary business functions; or
- as a result of the need for us or our suppliers to operate our respective businesses with substantial modifications to employee travel and employee work locations.

Additionally, certain catastrophes are not covered by our general insurance policies, which could result in significant unrecoverable losses. Our business and results of operations could also be adversely impacted by under-investment in physical assets or production capacity.

Climate-related events and climate change legislation could adversely impact our business.

The effects of climate change and the ongoing efforts to mitigate its impact, including through climate change-related legislation and regulation, could have a material adverse effect on our business, financial condition, and results of operations. The physical effects of climate change, including extreme weather and natural disasters (including those risks discussed under the heading “*Loss, operational disruptions or closure of a key facility, including those of our suppliers, due to unforeseen or catastrophic events or otherwise, could have a material adverse effect on our business and financial results*”) may disrupt our operations and those of our customers and suppliers. In addition, changes to laws or regulations enacted to address the potential impacts of climate change could have a material

adverse impact on our business, financial condition, and results of operations. For example, continuing political and social attention to the issue of climate change has resulted in both existing and pending international agreements and national, regional, or local legislation and regulatory measures to limit greenhouse gas emissions. Any future increased regulation concerning greenhouse gas emissions and other climate-change related laws and regulations, may require equipment modifications, operational changes, payment of increased or additional taxes, or the purchase of emission credits to reduce the emission of greenhouse gases from our operations, which may result in us incurring substantial capital expenditures and compliance, operating, maintenance and remediation costs. In addition, any such future regulatory changes could result in transition risks to our business, including but not limited to (i) the nature and timing of any requirement to lower greenhouse gas emissions and adopt more energy-efficient energy use, which could result in changes or disruptions to the way we operate our business, (ii) the risk of lower demand for our products related to customers who experience business declines or disruptions due to the impact of any requirement to lower greenhouse gas emissions, (iii) financial risks where compliance with such regulations requires unforeseen capital expenditures, (iv) legal risks associated with the implementation of any new technologies required to comply with such regulations, which could impede our ability to innovate new products, meet customer and market demand or compete on pricing and quality in the market, and/or (v) reputational risks associated with our customers' and investors' perceptions of our business. We are not able to predict how any future definitive agreements, pacts and/or regulations, if and when they are adopted and required, and the commitments necessary to comply with such requirements, will affect our business, financial condition, and results of operations.

General Risk Factors

Unfavorable outcomes of legal or regulatory matters may adversely affect our business and financial condition and damage our reputation.

We are from time to time involved in or subject to a variety of litigation, claims, legal or regulatory proceedings or matters related to our business, warranty claims, our intellectual property rights, alleged infringement or misappropriation by us of intellectual property rights of others, tax, environmental, privacy, insurance, ERISA and employment matters. Such matters, even those that are ultimately non-meritorious, can be complex, costly, and highly disruptive to business operations by diverting the attention and energies of management and other key personnel, and may generate adverse publicity that damages our reputation. The assessment of the outcome of such matters, including our potential liability, if any, is a highly subjective process that requires judgments about future events that are not within our control and are based on the information available to management at that time. The outcome of such matters, including amounts ultimately received or paid upon judgment or settlement, may differ materially from management's outlook or estimates, including any amounts accrued in the financial statements. Actual outcomes, including judgments, awards, settlements or orders, could have a material adverse effect on our business, financial condition, operating results, or cash flows and damage our reputation.

We face risks relating to our international operations.

Because we have significant international operations, our operating results and financial condition could be materially adversely affected by economic, political, health, regulatory and other factors existing in foreign countries in which we operate. Our international operations are subject to inherent risks, which may materially adversely affect us, including: political and economic instability in countries in which our products are manufactured; expropriation or the imposition of government controls; changes in government regulations; export license requirements; trade restrictions; earnings repatriation and expatriation restrictions; exposure to different legal standards, including related to intellectual property; health conditions and standards; currency controls; fluctuations in exchange rates; increases in the duties and taxes we pay; inflation or deflation; greater difficulty in collecting accounts receivable and longer payment cycles; changes in labor conditions and difficulties in staffing and managing our international operations; limitations on insurance coverage against geopolitical risks, natural disasters, and business operations; and communication among and with management of international operations. In addition, these same factors may also place us at a competitive disadvantage compared to some of our foreign competitors.

We may face risks associated with violations of the Foreign Corrupt Practices Act and similar anti-bribery laws (collectively, "Anti-Bribery Laws"). Anti-Bribery Laws generally prohibit companies and their intermediaries from making improper payments to government officials for the purpose of obtaining or retaining business. Our Code of Ethics mandates compliance with these Anti-Bribery Laws. We operate in many parts of the world where strict compliance with Anti-Bribery Laws may conflict with local customs and practices. We cannot assure you that our internal controls and procedures always will protect us from the detrimental actions by our employees or agents. If we are found to be liable for violations of Anti-Bribery Laws (either due to our own acts or inadvertence or due to the acts or inadvertence of others), we could suffer from criminal or civil penalties or other sanctions, which could have a material adverse effect on our business.

Public health or safety concerns and governmental restrictions that impact the availability of raw materials, labor, or the movement of goods in some of the countries in which we operate could have a material adverse effect on our business, financial condition, and operating results.

We are exposed to fluctuations in foreign currency exchange rates that may adversely affect our business, financial condition and operating results.

We transact business in various foreign countries. We present our consolidated financial statements in U.S. dollars, but a portion of our revenues and expenditures are transacted in other currencies. As a result, we are exposed to fluctuations in foreign currencies. Additionally, we have currency exposure arising from funds held in local currencies in foreign countries. Volatility in the exchange rates between the foreign currencies and the U.S. dollar could harm our business, financial condition and operating results. Furthermore, to the extent we sell our products in foreign markets, currency fluctuations may result in our products becoming too expensive for foreign customers.

If we are unable to protect our intellectual property or we infringe or are alleged to infringe, on others' intellectual property rights, our business, financial condition and operating results could be materially adversely affected.

The success of our business depends, in part, upon our ability to protect our trade secrets, trademarks, copyrights and patents, obtain or license patents and operate without infringing on the intellectual property rights of others. We rely on a combination of trade secrets, copyrights, patents, nondisclosure agreements and technical and other measures to protect our proprietary rights in our products and technology. The steps we have taken to prevent misappropriation of our technology may be inadequate. In addition, the laws of some foreign countries in which we operate do not protect our proprietary rights to the same extent as do the laws of the United States. Although we continue to evaluate and implement protective measures, there can be no assurance that these efforts will be successful. Our inability to protect our intellectual property rights could diminish or eliminate the competitive advantages that we derive from our technology, cause us to lose sales or otherwise harm our business.

We believe that patents will continue to play an important role in our business. However, there can be no assurance that we will be successful in securing patents for claims in any pending patent application or that any issued patent will provide us with any competitive advantage. We also cannot provide assurance that the patents will not be challenged by third parties or that the patents of others will not materially adversely affect our ability to do business.

We may become involved in litigation in the future to protect our intellectual property or because others may allege that we infringed on their intellectual property. These claims and any resulting lawsuit could subject us to liability for damages and invalidate our intellectual property rights. If an infringement claim is successfully asserted by a holder of intellectual property rights, we may be required to cease marketing or selling certain products, pay penalties and spend significant time and money to develop a non-infringing product or process or to obtain licenses for the technology, process or information from the holder. We may not be successful in the development of a non-infringing alternative, or licenses may not be available on commercially acceptable terms, if at all, in which case we may lose sales and profits. In addition, any litigation could be lengthy and costly and could materially adversely affect us even if we are successful in the litigation.

Loss of our key management and other personnel, or an inability to attract key management and other personnel, could materially affect our business.

We depend on our senior executive officers and other key personnel to run our business. We do not have long-term employment contracts with our key personnel. The loss of any of these officers or other key personnel could adversely affect our operations. Our future success depends on our ability to identify, attract, and retain qualified personnel on a timely basis. If we were to experience turnover of senior management or if a member of our senior management were to become ill or incapacitated, our stock price, our results of operations, our commercial and supply chain operations and our vendor or customer relationships could each be adversely impacted, and such events may make recruiting for future management positions more difficult. The labor market for many of our employees is very competitive, and wages and compensation costs continue to increase. Our ability to attract and retain key talent has been, and may continue to be, impacted by challenges in the labor market, particularly in the U.S., which has recently been experiencing wage inflation, labor shortages, a continued shift toward remote work. If we face labor shortages and/or increased labor costs as a result of increased competition for employees, higher employee turnover rates, or increases in employee benefits costs, our operating expenses could increase, which could negatively impact our growth and results of operations. Labor shortages, and higher employee turnover rates could also lead to disruptions in our business. In addition, we must successfully integrate any new management personnel that we hire within our organization, or who join our organization as a result of an acquisition, in order to achieve our operating objectives, and changes in other key management positions may temporarily affect our financial performance and results of operations as new management becomes familiar with our business.

Ineffective internal control over our financial reporting may harm our business.

We are subject to the ongoing internal control provisions of Section 404 of the Sarbanes-Oxley Act of 2002 ("Sarbanes-Oxley"). Our controls necessary for continued compliance with Sarbanes-Oxley may not operate effectively or at all times and may result in a material

weakness. The identification of material weaknesses in internal control over financial reporting could indicate a lack of proper controls to generate accurate financial statements. Further, the effectiveness of our internal controls may be impacted if we are unable to retain sufficient skilled finance and accounting personnel, especially in light of the increased demand for such personnel among publicly traded companies.

Global privacy, data protection and data security laws are highly complex, evolving rapidly, and may increase our costs to comply.

To conduct our operations, we may need to move data across national borders, and consequently we are subject to a variety of continuously evolving and developing laws and regulations in the U.S. and abroad regarding privacy, data protection and data security ("Data Protection Laws"). Data Protection Laws typically impose significant requirements and additional obligations for companies on how they collect, process and transfer personal data by enacting consumer privacy rights and imposing significant fines for non-compliance. The potential for fines and other related costs in the event of a breach of or non-compliance with existing or proposed Data Protection Laws may have an adverse effect on our financial results. Further, the regulatory framework around data custody, data privacy and breaches vary by jurisdiction and is an evolving area of law. We may not be able to limit our liability or damages in the event of such a loss.

We are exposed to, and may be adversely affected by, potential security breaches or other disruptions to our information technology systems and data security.

We rely on our information technology systems and networks, including cloud-based systems, in connection with many of our business activities, some of which are managed directly by us, while others are managed by third-party service providers and are not under our direct control. Our operations routinely involve receiving, storing, processing and transmitting sensitive information pertaining to our business, customers, suppliers, employees, and other sensitive matters. We have both an increasing reliance on IT systems and an increasing digital footprint as a result of changing technologies, connected devices and digital offerings, as well as expanded remote work policies. If these technologies, systems, products or services are damaged, cease to function properly, are compromised due to employee or third-party contractor error, user error, malfeasance, system errors, or other vulnerabilities, or are subject to cybersecurity attacks, such as those involving denial of service attacks, unauthorized access, malicious software, or other intrusions, including by criminals, nation states or insiders, our business may be adversely impacted. The impacts of any such circumstances could include production downtimes, operational delays, and other impacts on our operations and ability to provide products and services to our customers; compromise of confidential, proprietary or otherwise protected information, including personal information and customer confidential data; destruction, corruption, or theft of data or intellectual property; manipulation, disruption, or improper use of these technologies, systems, products or services; financial losses from fraudulent transactions, remedial actions, loss of business or potential liability; adverse media coverage; and legal claims or legal proceedings, including regulatory investigations, actions and fines; and damage to our reputation. There has been a rise in the number of cyberattacks targeting confidential business information generally and in the manufacturing industry specifically. Moreover, there has been a rise in the number of cyberattacks that depend on human error or manipulation, including phishing attacks or schemes that use social engineering to gain access to systems or perpetrate wire transfer or other frauds. Furthermore, geopolitical turmoil has heightened the risk of cyberattacks.

These trends increase the likelihood of such events occurring as well as the costs associated with protecting against such attacks. It is possible for vulnerabilities in our IT systems to remain undetected for an extended period of time up to and including several years. We, and the service providers that we depend on to support our systems and business operations, are regularly the target of, and periodically respond to, cyberattacks, including phishing and denial-of-service attacks. As a result, we continuously monitor our systems to protect our technology infrastructure and data from misappropriation or corruption. In addition, we further attempt to mitigate these risks by employing a number of other measures, including employee training, a breach response plan, and maintenance of backup and protective systems. Further, while we maintain insurance coverage that is intended to address certain aspects of cybersecurity risks, such insurance coverage may not cover all losses or all types of claims that arise. Notwithstanding those measures, our systems, networks, products and services remain potentially vulnerable to known or unknown cybersecurity attacks and other threats, any of which could have a material adverse effect on our financial results.

Environmental, social, and governance ("ESG") issues, including those related to climate change and sustainability, may have an adverse effect on our business, financial condition and results of operations and damage our reputation.

Companies across all industries are facing increasing scrutiny relating to their ESG practices and policies. Increased focus and activism related to ESG may hinder our access to capital or negatively impact our stock price, as investors may reconsider their capital investment based on their assessment of our ESG practices and policies. In particular, investor advocacy groups, institutional investors, stockholders, employees, consumers, customers, regulators, proxy advisory services and other market participants have increasingly focused on ESG practices and policies of companies, including sustainability performance and risk mitigation efforts, and their effect on companies from an investor, consumer, customer or employee perspective. If our ESG practices do not meet investor or other stakeholder expectations

and standards or evolving regulatory requirements, our stock price, sales, ability to access capital markets, reputation and employee retention, among other things, may be negatively affected.

Shareholder activism efforts or unsolicited offers from a third-party could cause a material disruption to our business and financial results.

We may be subject to various legal and business challenges due to actions instituted by shareholder activists or an unsolicited third-party offer. Perceived uncertainties as to our future direction as a result of shareholder activism may lead to the perception of a change in the direction of the business or other instability and may affect our relationships with vendors, customers, prospective and current employees and others. Proposed or future laws and regulations may increase the chance we become the target of shareholder activist campaigns, including ESG-related actions. If shareholder activist campaigns are initiated against us, our response to such actions could be costly and time-consuming, which could divert the attention and resources of our Board of Directors, Chief Executive Officer and senior management from the pursuit of our business strategies, which could harm our business, negatively impact our stock price, and have an adverse effect on our business and financial results.

Future dividends on our common stock may be restricted or eliminated.

Dividends are declared at the discretion of our Board of Directors, and future dividends will depend on our future earnings, cash flow, financial requirements and other factors. Our ability to pay cash dividends on our common stock is limited under the terms of our credit agreements. Under the most restrictive terms of our credit agreements, our ability to pay cash dividends on our common stock is limited, as described under “Risks Related to Indebtedness and Financing.” There can be no assurance that we will continue to pay dividends in the future.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

As of December 31, 2022, we had manufacturing facilities, administrative, research and development and sales offices in the following locations:

Manufacturing Facilities	Square Footage	Owned/Leased
Albuquerque, New Mexico	114,525	Leased
Boise, Idaho	15,000	Leased
Calamba, Philippines	14,800	Leased
Hopkinton, Massachusetts	32,000	Owned
Juarez, Mexico	42,834	Leased
Kaohsiung, Taiwan	75,900	Leased ⁽¹⁾
Kvistgaard, Denmark	13,659	Leased
Kvistgaard, Denmark	50,569	Leased
Lisle, Illinois	31,000	Leased
Matamoros, Mexico	51,000	Owned
Tecate, Mexico	26,460	Leased
Tecate, Mexico	24,500	Owned
Nogales, Mexico	67,000	Leased
Nupaky, Czech Republic	55,919	Leased
Ostrava, Czech Republic	67,473	Leased
Tianjin, China	225,000	Owned ⁽²⁾
Zhongshan, China	112,600	Leased
Lublin, Poland	24,886	Leased
Leczna, Poland	8,503	Leased
Total manufacturing	1,053,628	

(1) Ground lease through 2026; restrictions on use and transfer apply.

(2) Land Use Rights Agreement through 2050 includes transfer, lease and mortgage rights.

A small portion of the China, Czech Republic, and Denmark locations above also maintain sales offices.

Non-Manufacturing Facilities	Square Footage	Owned/Leased	Description
Boise, ID	13,150	Leased	Warehouse
Brownsville, Texas	N/A	Owned	Land
Brownsville, Texas	10,000	Leased	Warehouse
El Paso, Texas	22,400	Leased	Office and Warehouse
Matamoros, Mexico	20,173	Leased	Warehouse and administrative offices
Elkhart, Indiana	319,000	Owned	Idle facility
Elkhart, Indiana	93,000	Owned	Administrative offices and research
Farmington Hills, Michigan	1,790	Leased	Sales office
Kaohsiung, Taiwan	8,951	Leased	Administrative offices and research
Lisle, Illinois	74,925	Leased	Administrative offices and research
Nagoya, Japan	800	Leased	Sales office
Singapore	5,597	Leased	Sales office
Yokohama, Japan	1,403	Leased	Sales office
Total non-manufacturing	<u>571,189</u>		

We regularly assess our facilities for manufacturing capacity, available labor, and proximity to our markets and major customers. Management believes our manufacturing facilities are suitable and adequate and have sufficient capacity to meet our current needs. The extent of utilization varies from plant to plant and with economic conditions. We also review the operating costs of our facilities and may from time-to-time relocate a portion of our manufacturing activities in order to reduce operating costs and improve asset utilization and cash flow.

Item 3. Legal Proceedings

From time to time we are involved in litigation with respect to matters arising from the ordinary conduct of our business, and currently certain claims are pending against us. In the opinion of management, we believe we have established adequate accruals pursuant to U.S. generally accepted accounting principles for our expected future liability with respect to pending lawsuits, claims and proceedings, where the nature and extent of any such liability can be reasonably estimated based on presently available information. However, we cannot provide assurance that the final resolution of any existing or future lawsuits, claims or proceedings will not have a material adverse effect on our business, results of operations, financial condition, or cash flows.

See Note 11 "Contingencies" in the Notes to the Consolidated Financial Statements in this Annual Report on Form 10-K.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

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

Our common stock is listed on the New York Stock Exchange under the symbol "CTS." On February 17, 2023, there were approximately 831 shareholders of record.

On May 13, 2021, the Board of Directors (the "Board") authorized a stock repurchase program with a maximum dollar limit of \$50 million. This program authorizes us to make repurchases of our common stock from time to time on the open market, including pursuant to Rule 10b5-1 plans, but does not obligate us to make repurchases, and it has no expiration date.

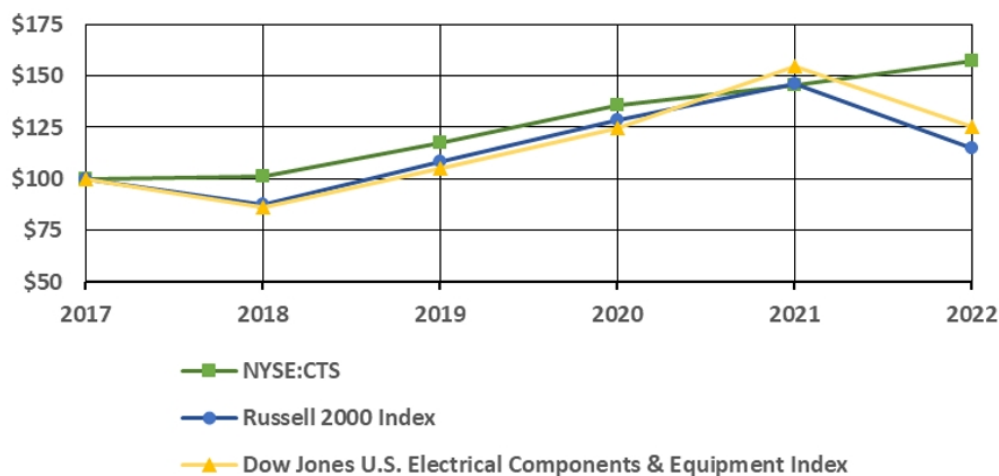
	(a) Total Number of Shares Purchased	(b) Average Price Paid per Share	(c) Total Number of Shares Purchased as Part of Publicly Announced Programs	(d) Maximum Value of Shares That May Yet Be Purchased Under the Plans or Programs
October 1, 2022 – October 31, 2022	10,100	\$ 38.00	10,100	\$ 27,385
November 1, 2022 – November 30, 2022	69,800	\$ 41.34	69,800	\$ 24,499
December 1, 2022 – December 31, 2022	119,198	\$ 39.70	119,198	\$ 19,767
Total	199,098		199,098	

On February 9, 2023, the Board approved a new share repurchase program that authorizes the Company to repurchase up to \$50 million of its common stock. The repurchase program has no set expiration date and supersedes and replaces the repurchase program approved by the Board in May 2021.

Shareholder Performance Graph

The following graph shows a five-year comparison of the cumulative total shareholder return on CTS common stock with the cumulative total returns of a general market index and a peer group index (Russell 2000 Index and Dow Jones Electrical Components & Equipment Industry Group). The graph tracks the performance of a \$100 investment in the Company's common stock and in each of the indexes (with the reinvestment of all dividends) on December 31, 2017.

Comparison of 5 Year Cumulative Total Shareholder Return



Item 6. Reserved

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

This section of this Annual Report on Form 10-K generally discusses 2022 and 2021 items and year-to-year comparisons between 2022 and 2021. Discussions of 2020 items and year-to-year comparisons between 2021 and 2020 that are not included in this Annual Report on Form 10-K can be found in "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Part II, Item 7 of the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2021.

Overview

CTS Corporation ("CTS", "we", "our" or "us") is a leading designer and manufacturer of products that Sense, Connect and Move. Our vision is to be a leading provider of sensing and motion devices as well as connectivity components, enabling an intelligent and seamless world. These devices are categorized by their ability to Sense, Connect or Move. Sense products provide vital inputs to electronic systems. Connect products allow systems to function in synchronization with other systems. Move products ensure required movements are effectively and accurately executed. We are committed to achieving our vision by continuing to invest in the development of products, technologies and talent within these categories.

We manufacture sensors, actuators, and connectivity components in North America, Europe, and Asia. CTS provides engineered products to OEMs and tier one suppliers in the aerospace and defense, industrial, medical, and transportation markets.

There is an increasing proliferation of sensing and motion applications within various markets we serve. In addition, the increasing connectivity of various devices to the internet results in greater demand for communication bandwidth and data storage, increasing the need for our connectivity products. Our success is dependent on the ability to execute our strategy to support these trends. We are subject to challenges including periodic market softness, competition from other suppliers, changes in technology, and the ability to add new customers, launch new products or penetrate new markets.

On February 28, 2022, we acquired 100% of the outstanding shares of TEWA for \$24,515. TEWA is a designer and manufacturer of high-quality temperature sensors. TEWA has complementary capabilities with our existing temperature sensing platform, and the acquisition supports our end market diversification strategy and expands our presence in Europe.

On June 30, 2022, we acquired 100% of the outstanding shares of Ferroperm for \$72,340. Ferroperm specializes in the design and manufacture of high performance piezoceramic components for use in complex and demanding medical, industrial, and aerospace applications. Ferroperm has complementary capabilities with our existing medical diagnostics and imaging product lines. The acquisition supports our end market diversification strategy and expands our presence in European end markets.

On February 6, 2023, we acquired 100% of the outstanding shares of maglab AG ("maglab") for \$4,164 in cash subject to additional earnout payments based on future performance. Maglab has deep expertise in magnetic system design and current measurement solutions for use in e-mobility, industrial automation, and renewable energy applications. Maglab's domain expertise coupled with CTS' commercial, technical and operational capabilities position us to advance our status as a recognized innovator in electric motor sensing and controls markets.

COVID-19 Impact and Supply Chain Uncertainties

The COVID-19 pandemic and subsequent supply chain uncertainties have had a significant negative impact on the global economy in 2022 and 2021. These events have disrupted the financial markets, negatively impacted the global supply chain and increased the cost of materials and operations, particularly within the global automotive industry. Key semiconductor chip and other critical part shortages continue to force OEMs to shut down production, often on short notice. With customers changing orders on short notice, we run the risk of carrying excess inventory in these situations. These developments are outside of our control, remain highly uncertain, and cannot be predicted. In addition, the supply chain shortages continue to put pressure on our manufacturing costs and our gross margins. We continue to actively monitor the ongoing impacts of the COVID-19 pandemic and supply chain issues and will seek to mitigate and minimize their impact on our business, when possible. We anticipate the supply chain disruptions to continue to impact our results in 2023 and we remain cautious about the financial impact of these potential disruptions on our business.

Results of Operations: Year Ended December 31, 2022 versus Year Ended December 31, 2021

(Amounts in thousands, except percentages and per share amounts):

The following table highlights changes in significant components of the Consolidated Statements of Earnings (Loss) for the years ended December 31, 2022, and December 31, 2021:

	Years Ended December 31,		Percent Change	Percent of Net Sales	
	2022	2021		2022	2021
Net sales	\$ 586,869	\$ 512,925	14.4%	100%	100%
Cost of goods sold	376,331	328,306	14.6	64.1	64.0
Gross margin	210,538	184,619	14.0	35.9	36.0
Selling, general and administrative expenses	91,520	82,597	10.8	15.6	16.1
Research and development expenses	24,100	23,856	1.0	4.1	4.7
Restructuring charges	1,912	1,687	13.3	0.3	0.3
Total operating expenses	117,532	108,140	8.7	20.0	21.1
Operating earnings	93,006	76,479	21.6	15.8	14.9
Total other (expense) income, net	(12,269)	(137,359)	(91.1)	(2.1)	(26.8)
Earnings (loss) before taxes	80,737	(60,880)	n/a	13.8	(11.9)
Income tax expense (benefit)	21,162	(19,014)	n/a	3.6	(3.7)
Net earnings (loss)	\$ 59,575	\$ (41,866)	n/a	10.2%	(8.2)%
Diluted earnings (loss) per share:					
Diluted net earnings (loss) per share	\$ 1.85	\$ (1.30)			

Net sales were \$586,869 for the year ended December 31, 2022, an increase of \$73,944, or 14.4% from 2021. Net sales growth was driven by increased demand for our products in all end markets we serve. Net sales to transportation markets increased \$19,615 or 6.9%. Net sales to other markets increased \$54,329, or 23.7%. The TEWA and Ferroperm acquisitions added sales of \$23,489 in 2022. Changes in foreign exchange rates decreased net sales by \$10,985 year-over-year primarily due to the U.S. Dollar appreciating compared to the Chinese Renminbi and Euro.

Gross margin was \$210,538 for the year ended December 31, 2022, an increase of \$25,919 or 14.0% from the year ended December 31, 2021. The increase in gross margin was driven by sales volume and mix partially offset by increased material freight costs, changes in foreign exchange rates of \$3,577 and \$4,048 in inventory step-up amortization charges taken relating to the TEWA and Ferroperm acquisitions. We continue to experience significant inflation in material and freight costs as well as interruptions in the supply chain, particularly due to the global semiconductor chip shortages. The impact of the supply chain shortages and OEM shutdowns are expected to continue to have an adverse effect on our operations that we are continuing to attempt to mitigate.

Selling, general and administrative ("SG&A") expenses were \$91,520, or 15.6% of sales for the year ended December 31, 2022, versus \$82,597 or 16.1% of sales in 2021. The increase in SG&A expenses was driven by the acquisitions and increased incentive compensation.

Research and development ("R&D") expenses were \$24,100, or 4.1% of sales in 2022 compared to \$23,856, or 4.7% of sales in 2021, in line with our commitment to continue investing in research and product development to drive organic growth.

Restructuring charges were \$1,912, or 0.3% of net sales in 2022, compared to \$1,687, or 0.3% of net sales in 2021. We continue to implement certain restructuring actions to improve our cost structure and competitive position.

Other income and expense items are summarized in the following table:

	Years Ended December 31,	
	2022	2021
Interest expense	\$ (2,192)	\$ (2,111)
Interest income	1,326	840
Other expense	(11,403)	(136,088)
Total other (expense), net	\$ (12,269)	\$ (137,359)

The reduction in other expense, net was primarily driven by decreased pension expense due to the U.S. pension plan termination, effective in 2021. Other expense, net for the year ended December 31, 2022 was primarily driven by \$6,803 in excise taxes incurred as part of the U.S. pension plan termination, \$1,776 in derivative losses associated with the acquisition of Ferroperm, and foreign currency losses primarily related to the Euro and Chinese Renminbi offset partially by income from the U.S. pension plan investments realized prior to the final termination. Other expense, net in 2021 was primarily driven by increased pension expense including \$126,269 in

settlement charges from our U.S. pension plan termination process in the second and third quarters of 2021 as well as foreign currency translation losses, mainly due to the appreciation of the U.S. Dollar compared to the Czech Koruna and Mexican Peso.

	Years Ended December 31,	
	2022	2021
Effective tax rate	26.2%	31.2%

The effective income tax rate in 2022 was 26.2% compared to 31.2% in the prior year. The decrease in our effective income tax rate is primarily attributed to a one-time non-cash settlement expense related to the termination of the U.S. pension plan incurred in the second and third quarters of 2021.

Liquidity and Capital Resources

We have historically funded our capital and operating needs primarily through cash flows from operating activities, supported by available credit under our Revolving Credit Facility (as defined below). We believe that cash flows from operating activities and available borrowings under our Revolving Credit Facility will be adequate to fund our working capital needs, capital expenditures, investments, and debt service requirements for at least the next twelve months and for the foreseeable future thereafter. However, we may choose to pursue additional equity and debt financing to provide additional liquidity or to fund acquisitions.

Cash and cash equivalents were \$156,910 at December 31, 2022 and \$141,465 at December 31, 2021, of which \$90,244 and \$124,635 respectively, were held outside the United States. Total debt as of December 31, 2022 and December 31, 2021 was \$83,670 and \$50,000, respectively. Total debt as a percentage of total capitalization, defined as long-term debt as a percentage of total debt and shareholders' equity, was 14.2% at December 31, 2022, compared to 9.7% at December 31, 2021.

Cash Flows from Operating Activities

Net cash provided by operating activities was \$121,197 during the year ended December 31, 2022. Components of net cash provided by operating activities included net earnings of \$59,575, depreciation and amortization expense of \$29,753, other net non-cash items totaling \$10,260, and a net cash inflow from changes in assets and liabilities of \$21,609 primarily driven by \$34,016 received from the U.S. pension plan termination.

Net cash provided by operating activities was \$86,141 during the year ended December 31, 2021. Components of net cash provided by operating activities included net loss of \$(41,866), depreciation and amortization expense of \$26,930, non-cash pension and other post-retirement plan expenses of \$132,650, and other net non-cash items totaling \$24,912, and a net cash outflow from changes in assets and liabilities of \$6,661.

Cash Flows from Investing Activities

Net cash used in investing activities for the year ended December 31, 2022 was \$111,188, driven by the acquisition payments for the TEWA and Ferroperm acquisitions of \$96,855 and capital expenditures of \$14,333. See Note 3 "Business Acquisitions" in the Notes to the Consolidated Financial Statements in this Annual Report on Form 10-K.

Net cash used in investing activities for the year ended December 31, 2021, was \$15,896, driven primarily by capital expenditures.

Cash Flows from Financing Activities

Net cash provided by financing activities for the year ended December 31, 2022, was \$4,336. The net cash inflow was the result of net cash from debt of \$33,638 associated with completed acquisitions, partially offset by treasury stock purchases of \$21,447, dividend payments of \$5,131, taxes paid on behalf of equity award participants of \$1,524, and contingent consideration payments of \$1,200.

Net cash used in financing activities for the year ended December 31, 2021, was \$20,712. The net cash outflow was the result of net payments of long-term debt of \$4,600, treasury stock purchases of \$8,786, dividend payments of \$5,173, taxes paid on behalf of equity award participants of \$1,503, and contingent consideration payments of \$650.

Capital Resources

Long-term debt was comprised of the following:

	As of December 31,	
	2022	2021
Total credit facility availability	\$ 400,000	\$ 400,000
Balance outstanding	83,670	50,000
Standby letters of credit	1,640	1,740
Amount available, subject to covenant restrictions	\$ 314,690	\$ 348,260
Weighted-average interest rate	2.96%	1.16%

On December 15, 2021, we entered into a second amended and restated five-year credit agreement with a group of banks (the “Revolving Credit Facility”) to (i) increase the total credit facility availability to \$400,000 which may be increased by \$200,000 at the request of the Company, subject to the administrative agent's approval, (ii) extend the maturity of the Revolving Credit Facility from February 12, 2024 to December 15, 2026, (iii) replace LIBOR with SOFR as the primary reference rate used to calculate interest on the loans under the Revolving Credit Facility, (iv) increase available sublimits for letters of credit, and swingline loans as well as providing for additional alternative currency borrowing capabilities, and (v) modify the financial and non-financial covenants to provide the Company additional flexibility. This new unsecured credit facility replaced the prior \$300,000 unsecured credit facility, which would have expired February 12, 2024.

Borrowings in U.S. dollars under the Revolving Credit Facility bear interest, at a per annum rate equal to the applicable Term SOFR rate (but not less than 0.0%), plus the Term SOFR adjustment, and plus an applicable margin, which ranges from 1.00% to 1.75%, based on our net leverage ratio. Similarly, borrowings of alternative currencies under the Revolving Credit Facility bear interest equal to a defined risk-free reference rate, plus the applicable risk-free rate adjustment and plus an applicable margin, which ranges from 1.00% to 1.75%, based on our net leverage ratio.

The Revolving Credit Facility includes a swing line sublimit of \$20,000 and a letter of credit sublimit of \$20,000. We also pay a quarterly commitment fee on the unused portion of the Revolving Credit Facility. The commitment fee ranges from 0.175% to 0.25% based on our net leverage ratio. We were in compliance with all debt covenants at December 31, 2022.

Our liquidity, access to capital, and borrowing costs could be adversely impacted by declines in our credit rating, our financial performance, and global credit market conditions, as well as a broad range of other factors, including those related to the COVID-19 pandemic discussed in this Annual Report on Form 10-K. See “Item 1A. Risk Factors” for additional discussion of these and other risks that our business faces.

As of December 31, 2022, our material cash requirements for our known contractual and other obligations were as follows:

- Long-term debt, including interest – Outstanding principal on our Revolving Credit Facility was \$83,670 at December 31, 2022, with no amounts payable within 12 months. Additionally, we have minimum contractual future interest payments on our hedged borrowings under our Revolving Credit Facility estimated to be \$6,295 through maturity, with approximately \$1,464 payable within 12 months based on the December 31, 2022 exchange rate. We may paydown certain portions of these obligations early. See Note 13 and 14, “Debt” and “Derivatives,” respectively, in the Notes to the Consolidated Financial Statements in this Annual Report on Form 10-K for further details of our debt and hedging activities.
- Operating lease payments – We enter into various noncancelable lease agreements for land, buildings and equipment under non-cancellable operating leases used in our operations. Operating lease obligations were \$32,559, with \$5,357 payable within 12 months. See Note 12, “Leases,” in the Notes to the Consolidated Financial Statements in this Annual Report on Form 10-K for further detail of our obligations and the timing of expected future payments.
- Retirement obligations – Expected future contributions relating to our defined benefit postretirement plans were \$6,240, with \$759 payable in 12 months. See Note 7, “Retirement Plan,” in the Notes to the Consolidated Financial Statements in this Annual Report on Form 10-K for further detail of our obligations and the timing of expected future payments.

We have no off-balance sheet arrangements that have a material current effect or are reasonably likely to have a material future effect on our financial condition or changes in our financial condition.

Acquisitions

On February 28, 2022, we acquired TEWA, a designer and manufacturer of high-quality temperature sensors. The net cash payment of \$24,515 for this acquisition was funded by the Company's cash on hand.

On June 30, 2022, we acquired Ferroperm, a designer and manufacturer of high performance piezoceramic components for use in complex and demanding medical, industrial, and aerospace applications. The net cash payment of \$72,340 for this acquisition was funded by a combination of cash on hand and borrowings under our Revolving Credit Facility.

On February 6, 2023, we acquired 100% of the outstanding shares of maglab for \$4,164 in cash subject to additional earnout payments based on future performance. The acquisition was funded from cash on hand.

Critical Accounting Estimates and Policies

The Securities and Exchange Commission ("SEC") has defined a company's critical accounting policies as the ones that are most important to the portrayal of a company's financial condition and results of operations, and which require a company to make its most difficult and subjective judgments, often as a result of the need to make estimates of matters that are inherently uncertain. Based on this definition, we have identified the critical accounting policies and judgments addressed below. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances. Actual results may differ from these estimates.

Critical Accounting Estimates

Goodwill, Intangibles and Other Long-Lived Assets

Purchase Accounting

We use the acquisition method of accounting to allocate costs of acquired businesses to the assets acquired and liabilities assumed based on their estimated fair values at the dates of acquisition. The excess costs of acquired businesses over the fair values of the assets acquired and liabilities assumed are recognized as goodwill. The valuations of the acquired assets and liabilities assumed will impact the determination of future operating results. Determining the fair value of assets acquired and liabilities assumed requires management's judgment and often involves the use of significant estimates and assumptions, including assumptions with respect to future cash inflows and outflows, revenue growth rates, discount rates, customer attrition rates, asset lives, contributory asset charges, and market multiples, among other items. We determine the fair values of intangible assets acquired generally in consultation with third-party valuation advisors.

Intangible assets other than goodwill are recognized if the benefit of the intangible asset is obtained through contractual or other legal rights, or if the intangible asset can be sold, transferred, licensed or exchanged, regardless of the Company's intent to do so. Goodwill represents the excess purchase price over the fair value of the tangible net assets and intangible assets acquired in a business combination and is reviewed annually for impairment or more frequently if impairment indicators arise. Finite-lived intangible assets are reviewed for impairment if facts and circumstances warrant.

Impairment Assessment – Goodwill

Goodwill of a reporting unit is tested for impairment on the first day of its fiscal fourth quarter, or more frequently if an event occurs or circumstances change that would more-likely-than-not reduce the fair value of a reporting unit below its carrying amount. Examples of such events or circumstances include, but are not limited to, the following:

- Significant decline in market capitalization relative to net book value,
- Significant adverse change in regulatory factors or in the business climate,
- Unanticipated competition,
- More-likely-than-not expectation that a reporting unit or a significant portion of a reporting unit will be sold or otherwise disposed of,
- Testing for recoverability of a significant asset group within a reporting unit, and
- Allocation of a portion of goodwill to a business to be disposed.

If we believe that one or more indicators of impairment have occurred, we perform an impairment test.

We have the option to perform a qualitative assessment (commonly referred to as a "step zero" test) to determine whether further quantitative analysis for impairment of goodwill and indefinite-lived intangible assets is necessary. The qualitative assessment includes a review of macroeconomic conditions, industry and market considerations, internal cost factors, and our own overall financial and share price performance, among other factors. If, after assessing the totality of events or circumstances we determine that it is not more-likely-than-not that the fair value of a reporting unit is less than its carrying amount, we do not need to perform a quantitative analysis.

If a quantitative assessment is required, we estimate the fair value of each reporting unit using a combination of discounted cash flow analysis and market-based valuation methodologies. Determining fair value using a quantitative approach requires significant judgment, including judgments about projected revenues, cash flows over a multi-year period, discount rates and estimated valuation multiples. The discount rate applied to our forecasts of future cash flows is based on our estimated weighted average cost of capital. In assessing the reasonableness of our determined fair values, we evaluate our results against our market capitalization. Changes in these estimates and assumptions could materially affect the determination of fair value and impact the goodwill impairment assessment.

For 2022, we elected to perform the qualitative assessment. Based upon our latest assessment, we determined that our goodwill was not impaired as of October 1, 2022. We will monitor future results and will perform a test if indicators trigger an impairment review.

Impairment Assessment – Other Intangible Assets and Other Long-Lived Assets

We evaluate the impairment of identifiable intangibles and other long-lived assets whenever events or changes in circumstances indicate that the carrying value may not be recoverable. Factors considered that may trigger an impairment review consist of, but are not limited to, the following:

- Significant decline in market capitalization relative to net book value,
- Significant underperformance relative to expected historical or projected future operating results,
- Significant changes in the manner of use of the acquired assets or the strategy for the overall business,
- Significant negative industry or economic trends.

If we believe that one or more indicators of impairment have occurred, we perform a recoverability test by comparing the carrying amount of an asset or asset group to the sum of the undiscounted cash flows expected to result from the use and the eventual disposition of the asset or asset group. If such assets are considered to be impaired, the impairment to be recognized is measured by the amount by which the carrying amount of the assets exceeds the fair value.

Income Taxes

Our income tax expense, deferred tax assets and liabilities, and liabilities for unrecognized tax benefits reflect management's best estimate of current and future taxes to be paid. We are subject to income taxes in the United States and numerous foreign jurisdictions. Significant judgments and estimates are required in the determination of consolidated income tax provision.

Deferred income taxes arise from temporary differences between the tax basis of assets and liabilities and their reported amounts in the financial statements, which will result in taxable or deductible amounts in the future. In evaluating our ability to recover our deferred tax assets in the jurisdiction from which they arise, we consider all available positive and negative evidence, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax-planning strategies, and results of recent operations. The assumptions about future taxable income require the use of significant judgment and are consistent with the plans and estimates we are using to manage our underlying businesses.

The calculation of our tax liabilities involves dealing with uncertainties in the application of complex tax laws and regulations in a multitude of jurisdictions across our global operations. Accounting Standards Codification ("ASC") 740 states that a tax benefit from an uncertain tax position may be recognized when it is more-likely-than-not that the position will be sustained upon examination, including resolution of any related appeals or litigation processes, on the basis of its technical merits. We record unrecognized tax benefits as liabilities in accordance with ASC 740 and adjust these liabilities when our judgment changes as a result of the evaluation of new information not previously available. Because of the complexity of some of these uncertainties, the ultimate resolution may result in a payment that is materially different from our current estimate of the unrecognized tax benefit liabilities. These differences will be reflected as increases or decreases to income tax expense in the period in which new information is available.

Critical Accounting Policies

Revenue Recognition

We recognize revenue in accordance with the Financial Accounting Standards Board's ("FASB") ASC 606 *Revenue from Contracts with Customers*, net of estimated reserves. Our revenue reserves contain uncertainties because they require management to make assumptions and to apply judgment to estimate the value of future credits to customers for price adjustments. We base these estimates on the most likely value method considering all reasonably available information, including our historical experience and current expectations, and are reflected in the transaction price when sales are recorded.

Product Warranties

Provisions for estimated warranty expenses are made at the time products are sold. The expense and corresponding accrual primarily relate to our products sold to our transportation markets. These estimates are established using a quoted industry rate and are based on customer specific circumstances. We adjust our warranty reserve for any known or anticipated warranty claims as new information becomes available. We evaluate our warranty obligations at least quarterly and adjust our accruals if it is probable that future costs will be different than our current reserve.

Over the last three years, product warranty reserves have ranged from 0.4% to 2.7% of net sales. We believe our reserve level is appropriate considering all facts and circumstances surrounding any outstanding quality claims and our historical experience selling our products to our customers.

Inventories

We value our inventories at the lower of the actual cost to purchase or manufacture using the first-in, first-out ("FIFO") method, or net realizable value. We review inventory quantities on hand and record a provision for excess and obsolete inventory based on historical consumption trends as well as forecasts of product demand including related production requirements. Once reserves are established, write-downs of inventory are considered permanent adjustments to the cost basis of inventory. Our reserves contain uncertainties because the calculation requires management to make assumptions and to apply judgment regarding historical experience, market conditions, and product life cycles. Changes in actual demand or market conditions could adversely impact our reserve calculations.

Over the last three years, our reserves for excess and obsolete inventories have ranged from 10.8% to 16.0% of gross inventory. We believe our reserve level is appropriate considering the quantities and quality of the inventories.

Environmental Contingencies

U.S. GAAP requires a liability to be recorded for contingencies when it is probable that a liability has been incurred and the amount of the liability can be reasonably estimated. We record environmental contingent loss accruals on an undiscounted basis. Significant judgment is required to determine the existence and amounts of our environmental liabilities. We regularly consult with attorneys and consultants to determine the relevant facts and circumstances before we record a liability. Changes in the estimates on which the accruals are based, unanticipated government enforcement action, or changes in health, safety, environmental, and chemical control regulations and testing requirements could, and have, resulted in higher or lower costs.

Recent Accounting Pronouncements

The information set forth under Note 1 - "Summary of Significant Accounting Policies" in the Notes to the Consolidated Financial Statements in this Annual Report on Form 10-K is incorporated herein by reference.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

(in thousands)

Our cash flows and earnings are subject to fluctuations resulting from changes in foreign currency exchange rates, interest rates and commodity prices. We manage our exposure to these market risks through internally established policies and procedures and, when deemed appropriate, through the use of derivative financial instruments. Our policies do not allow speculation in derivative instruments for profit or execution of derivative instrument contracts for which there are no underlying exposures. We do not use financial instruments for trading purposes, and we are not a party to any leveraged derivatives. We monitor our underlying market risk exposures on an ongoing basis and believe that we can modify or adapt our hedging strategies as needed.

Interest Rate Risk

We are exposed to risk of changes in interest rates on our Revolving Credit Facility. There was \$83,670 and \$50,000 outstanding under our Revolving Credit Facility at December 31, 2022 and 2021, respectively. As of December 31, 2022, we had interest rate swaps that fix interest costs on \$50,000 of our long-term debt through December 2026 and \$22,500 of our long-term debt through June 2027. The remaining long-term debt is unhedged as of December 31, 2022. A 100 basis point change in interest rates would not materially impact our total interest expense.

Foreign Currency Risk

We are exposed to foreign currency exchange rate risks. Our significant foreign subsidiaries are located in China, Czech Republic, Denmark, Mexico, and Taiwan. During 2022, net sales from outside the U.S. were approximately 44% of total net sales. During 2021, net sales to customers from outside the U.S. were approximately 42% of total net sales.

The Company's foreign exchange exposures result primarily from the sale of products in foreign currencies, foreign currency denominated purchases, and employee-related and other costs of running operations in foreign countries. Changes in foreign exchange rates could affect the Company's sales, costs, balance sheet values and earnings; therefore, we have entered into foreign currency forward contracts with notional values of \$12,602 and \$17,732 as of December 31, 2022 to hedge our exposure against the Euro and Mexican Peso, respectively.

In addition, we entered into a cross currency interest rate swap agreement on June 27, 2022 that synthetically swapped \$25,000 of variable rate debt to Krone denominated variable rate debt. Upon completion of the Ferroperm acquisition on June 30, 2022, the transaction was designated as a net investment hedge for accounting purposes and will mature on June 30, 2027. Accordingly, any gains or losses on this derivative instrument will be included in the foreign currency translation component of other comprehensive income until the net investment is sold, diluted or liquidated. Interest payments received for the cross currency-swap are excluded from the net investment hedge effectiveness assessment and are recorded in interest expense in the Condensed Consolidated Statements of Earnings. The assumptions used in measuring fair value of the cross-currency swap are considered level 2 inputs, which are based upon the Krone to United States Dollar exchange rate market. At December 31, 2022 we had a net unrealized loss of \$557 in accumulated other comprehensive (loss) income.

Commodity Price Risk

Many of our products require the use of raw materials that are produced in only a limited number of regions around the world or are available from only a limited number of suppliers. Our results of operations may be materially and adversely affected if we have difficulty obtaining these raw materials, the quality of available raw materials deteriorates, or there are significant price increases for these raw materials. For periods in which the prices of these raw materials are rising, we may be unable to pass on the increased cost to our customers, which would result in decreased margins for the products in which they are used. For periods in which the prices are declining, we may be required to write down our inventory carrying cost of these raw materials, since we record our inventory at the lower of cost or net realizable value.

Due to the impact from the COVID-19 pandemic, freight costs increased significantly in 2022. While the Company is exposed to significant changes in certain commodity prices and expects higher freight costs into 2023, the Company actively monitors these exposures and may take various actions from time to time to mitigate any negative impacts relating thereto.

Item 8. Financial Statements and Supplementary Data

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Shareholders
CTS Corporation

Opinion on the financial statements

We have audited the accompanying consolidated balance sheets of CTS Corporation (an Indiana corporation) and subsidiaries (the “Company”) as of December 31, 2022 and 2021, the related consolidated statements of earnings (loss), comprehensive earnings, changes in shareholders’ equity, and cash flows for each of the three years in the period ended December 31, 2022, and the related notes and financial statement schedules included under Item 15(a) (collectively referred to as the “financial statements”). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2022 and 2021, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2022, in conformity with accounting principles generally accepted in the United States of America.

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, 2022, based on criteria established in the 2013 *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”), and our report dated February 24, 2023 expressed an unqualified opinion.

Basis for opinion

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

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

Critical audit matter

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

Acquisition of TEWA Temperature Sensors SP. Zo.o.

As described further in Note 3 to the financial statements, the Company acquired TEWA Temperature Sensors SP. Zo.o. (“TEWA”) on February 28, 2022 for a total purchase price of \$24.5 million. Accordingly, the purchase price was allocated to the assets acquired and liabilities assumed based on their respective fair values, including identified intangible assets of approximately \$13.7 million, which is primarily comprised of customer relationships of \$13 million. The Company estimated the fair value of the customer relationships using the multi-period excess earnings method, which is an income approach that required management to make significant estimates and assumptions related to future revenues and cash flows and the selection of the discount rate. We identified the measurement of the acquisition-date fair value of the acquired customer relationships as a critical audit matter.

The principal considerations for our determination that the acquisition-date fair value of the acquired customer relationships is a critical audit matter was the high degree of auditor judgment and an increased extent of effort, which included utilizing specialists, to test

management's internally developed assumptions for which there was limited observable market information. These assumptions were: 1) the forecasted revenue growth rates for existing customers, 2) the estimated customer attrition rate, and 3) the discount rate.

Our audit procedures related to the critical audit matter included the following, among others:

- We tested certain internal controls over the Company's acquisition-date valuation process, including controls over the development of the key assumptions such as the forecasted revenues, customer attrition rate, and the discount rate.
- We evaluated the Company's forecasted revenue growth rates for existing customers by comparing the forecasted growth assumptions to peer and historical results.
- We tested, with the assistance of specialists, the Company's selected customer attrition rate by comparing it to TEWA's historical customer attrition data.
- We assessed, with the assistance of specialists, the Company's discount rate by comparing it against a discount rate range that was independently developed using publicly available market data for comparable peers and performing a sensitivity analysis based on that data.

/s/ GRANT THORNTON LLP

We have served as the Company's auditor since 2005.

Chicago, Illinois
February 24, 2023

CTS CORPORATION AND SUBSIDIARIES

Consolidated Statements of Earnings (Loss)

(in thousands, except per share amounts)

	Years Ended December 31,		
	2022	2021	2020
Net sales	\$ 586,869	\$ 512,925	\$ 424,066
Cost of goods sold	376,331	328,306	285,003
Gross margin	210,538	184,619	139,063
Selling, general and administrative expenses	91,520	82,597	67,787
Research and development expenses	24,100	23,856	24,317
Restructuring charges	1,912	1,687	1,830
Operating earnings	93,006	76,479	45,129
Other (expense) income:			
Interest expense	(2,192)	(2,111)	(3,272)
Interest income	1,326	840	1,047
Other (expense) income	(11,403)	(136,088)	2,575
Total other (expense) income, net	(12,269)	(137,359)	350
Earnings (loss) before taxes	80,737	(60,880)	45,479
Income tax expense (benefit)	21,162	(19,014)	10,793
Net earnings (loss)	\$ 59,575	\$ (41,866)	\$ 34,686
Net earnings (loss) per share:			
Basic	\$ 1.86	\$ (1.30)	\$ 1.07
Diluted	\$ 1.85	\$ (1.30)	\$ 1.06
Basic weighted-average common shares outstanding	31,968	32,327	32,317
Effect of dilutive securities	270	—	267
Diluted weighted-average common shares outstanding	32,238	32,327	32,584
Cash dividends declared per share	\$ 0.16	\$ 0.16	\$ 0.16

The accompanying notes are an integral part of the consolidated financial statements.

CTS CORPORATION AND SUBSIDIARIES
Consolidated Statements of Comprehensive Earnings
(in thousands)

	Years Ended December 31,		
	2022	2021	2020
Net earnings (loss)	\$ 59,575	\$ (41,866)	\$ 34,686
Other comprehensive earnings (loss):			
Changes in fair market value of derivatives, net of tax	3,499	311	(1,307)
Changes in unrealized pension cost, net of tax	1,203	91,081	(2,965)
Cumulative translation adjustment, net of tax	(848)	4	77
Other comprehensive earnings (loss)	\$ 3,854	\$ 91,396	\$ (4,195)
Comprehensive earnings	\$ 63,429	\$ 49,530	\$ 30,491

The accompanying notes are an integral part of the consolidated financial statements.

CTS CORPORATION AND SUBSIDIARIES

Consolidated Balance Sheets

(in thousands)

	December 31,	
	2022	2021
ASSETS		
Current Assets		
Cash and cash equivalents	\$ 156,910	\$ 141,465
Accounts receivable, net	90,935	82,191
Inventories, net	62,260	49,506
Other current assets	15,655	15,927
Total current assets	325,760	289,089
Property, plant and equipment, net	97,300	96,876
Operating lease assets, net	22,702	21,594
Other assets		
Prepaid pension asset	—	49,382
Goodwill	152,361	109,798
Other intangible assets, net	108,053	69,888
Deferred income taxes	23,461	25,415
Other assets	18,850	2,420
Total other assets	302,725	256,903
Total Assets	\$ 748,487	\$ 664,462
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current Liabilities		
Accounts payable	\$ 53,211	\$ 55,537
Operating lease obligations	3,936	3,393
Accrued payroll and benefits	20,063	18,418
Accrued expenses and other liabilities	35,322	36,718
Total current liabilities	112,532	114,066
Long-term debt	83,670	50,000
Long-term operating lease obligations	21,754	21,354
Long-term pension obligations	5,048	6,886
Deferred income taxes	16,010	5,894
Other long-term obligations	3,249	2,684
Total Liabilities	242,263	200,884
Commitments and Contingencies (Note 11)		
Shareholders' Equity		
Common stock	316,803	314,620
Additional contributed capital	46,144	42,549
Retained earnings	546,703	492,242
Accumulated other comprehensive loss	(671)	(4,525)
Total shareholders' equity before treasury stock	908,979	844,886
Treasury stock	(402,755)	(381,308)
Total shareholders' equity	506,224	463,578
Total Liabilities and Shareholders' Equity	\$ 748,487	\$ 664,462

The accompanying notes are an integral part of the consolidated financial statements.

CTS CORPORATION AND SUBSIDIARIES
Consolidated Statements of Cash Flows

(in thousands)

	Years Ended December 31,		
	2022	2021	2020
CASH FLOWS FROM OPERATING ACTIVITIES:			
Net earnings (loss)	\$ 59,575	\$ (41,866)	\$ 34,686
Adjustments to reconcile net earnings (loss) to net cash provided by operating activities:			
Depreciation and amortization	29,753	26,930	26,670
Non-cash inventory charges	4,048	—	—
Pensions and other post-retirement plan (income) expense	(1,792)	132,650	2,698
Stock-based compensation	7,726	6,105	3,417
Asset impairment charges	—	—	1,016
Restructuring non-cash charges	—	—	300
Deferred income taxes	492	(30,982)	(2,048)
Gain on foreign current hedges, net of tax	(214)	(35)	(20)
Changes in assets and liabilities, net of acquisitions:			
Accounts receivable	(5,913)	(928)	(343)
Inventories	(8,211)	(3,570)	(578)
Operating lease assets	1,266	1,687	1,363
Other assets	5,625	(2,076)	3,701
Accounts payable	(2,293)	3,136	3,860
Accrued payroll and benefits	450	5,023	2,518
Operating lease liabilities	(1,431)	(1,709)	(1,257)
Accrued expenses and other liabilities	(1,381)	(7,937)	1,056
Pension and other post-retirement plans	33,497	(287)	(256)
Net cash provided by operating activities	<u>121,197</u>	<u>86,141</u>	<u>76,783</u>
CASH FLOWS FROM INVESTING ACTIVITIES:			
Capital expenditures	(14,333)	(15,641)	(14,858)
Payments for acquisitions, net of cash acquired	(96,855)	(255)	(8,309)
Net cash used in investing activities	<u>(111,188)</u>	<u>(15,896)</u>	<u>(23,167)</u>
CASH FLOWS FROM FINANCING ACTIVITIES:			
Payments of long-term debt	(722,942)	(808,800)	(3,792,550)
Proceeds from borrowings of long-term debt	756,580	804,200	3,747,450
Purchase of treasury stock	(21,447)	(8,786)	(8,080)
Dividends paid	(5,131)	(5,173)	(5,179)
Taxes paid on behalf of equity award participants	(1,524)	(1,503)	(1,917)
Contingent consideration payments	(1,200)	(650)	(1,057)
Net cash provided by (used in) financing activities	<u>4,336</u>	<u>(20,712)</u>	<u>(61,333)</u>
Effect of exchange rate on cash and cash equivalents	1,100	159	(751)
Net increase (decrease) in cash and cash equivalents	<u>15,445</u>	<u>49,692</u>	<u>(8,468)</u>
Cash and cash equivalents at beginning of year	141,465	91,773	100,241
Cash and cash equivalents at end of year	<u>\$ 156,910</u>	<u>\$ 141,465</u>	<u>\$ 91,773</u>
Supplemental cash flow information:			
Cash paid for interest	\$ 2,016	\$ 1,950	\$ 2,597
Cash paid for income taxes, net	\$ 20,080	\$ 16,887	\$ 11,967
Non-cash financing and investing activities:			
Capital expenditures incurred not paid	\$ 2,480	\$ 2,348	\$ 729

The accompanying notes are an integral part of the consolidated financial statements.

CTS CORPORATION AND SUBSIDIARIES
Consolidated Statements of Shareholders' Equity
(in thousands)

	Common Stock	Additional Contributed Capital	Retained Earnings	Accumulated Other Comprehensive Loss	Treasury Stock	Total
Balances at January 1, 2020	\$ 307,932	\$ 43,689	\$ 509,766	\$ (91,726)	\$ (364,442)	\$ 405,219
Net earnings	—	—	34,686	—	—	34,686
Changes in fair market value of derivatives, net of tax	—	—	—	(1,307)	—	(1,307)
Changes in unrealized pension cost, net of tax	—	—	—	(2,965)	—	(2,965)
Cumulative translation adjustment, net of tax	—	—	—	77	—	77
Cash dividends of \$0.16 per share	—	—	(5,171)	—	—	(5,171)
Acquired 342,731 shares of treasury stock	—	—	—	—	(8,080)	(8,080)
Issued shares on vesting of restricted stock units	3,258	(5,175)	—	—	—	(1,917)
Stock compensation	—	3,140	—	—	—	3,140
Balances at December 31, 2020	\$ 311,190	\$ 41,654	\$ 539,281	\$ (95,921)	\$ (372,522)	\$ 423,682
Net earnings	—	—	(41,866)	—	—	(41,866)
Changes in fair market value of derivatives, net of tax	—	—	—	311	—	311
Changes in unrealized pension cost, net of tax	—	—	—	91,081	—	91,081
Cumulative translation adjustment, net of tax	—	—	—	4	—	4
Cash dividends of \$0.16 per share	—	—	(5,173)	—	—	(5,173)
Acquired 266,722 shares for treasury stock	—	—	—	—	(8,786)	(8,786)
Issued shares on vesting of restricted stock units	3,430	(4,932)	—	—	—	(1,502)
Stock compensation	—	5,827	—	—	—	5,827
Balances at December 31, 2021	\$ 314,620	\$ 42,549	\$ 492,242	\$ (4,525)	\$ (381,308)	\$ 463,578
Net earnings	—	—	59,575	—	—	59,575
Changes in fair market value of derivatives, net of tax	—	—	—	3,499	—	3,499
Changes in unrealized pension cost, net of tax	—	—	—	1,203	—	1,203
Cumulative translation adjustment, net of tax	—	—	—	(848)	—	(848)
Cash dividends of \$0.16 per share	—	—	(5,114)	—	—	(5,114)
Acquired 583,526 shares for treasury stock	—	—	—	—	(21,447)	(21,447)
Issued shares on vesting of restricted stock units	2,183	(3,708)	—	—	—	(1,525)
Stock compensation	—	7,303	—	—	—	7,303
Balances at December 31, 2022	\$ 316,803	\$ 46,144	\$ 546,703	\$ (671)	\$ (402,755)	\$ 506,224

The accompanying notes are an integral part of the consolidated financial statements.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

(in thousands, except for share and per share data)

NOTE 1 — Summary of Significant Accounting Policies

Description of Business: CTS Corporation ("CTS", "we", "our", "us" or the "Company") is a global manufacturer of sensors, connectivity components, and actuators operating as a single reportable business segment. We operate manufacturing facilities located throughout North America, Asia and Europe and service major markets globally.

Principles of Consolidation: The consolidated financial statements include the accounts of CTS and its wholly owned subsidiaries. All significant intercompany accounts and transactions have been eliminated.

Use of Estimates: The preparation of financial statements in conformity with the accounting principles generally accepted in the United States of America ("U.S. GAAP") requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. Actual results could differ materially from those estimates.

Cash and Cash Equivalents: All highly liquid investments with maturities of three months or less at the date of purchase are considered to be cash equivalents.

Accounts Receivable and Allowance for Credit Losses: Accounts receivable consists primarily of amounts due from normal business activities. We maintain an allowance for credit losses for estimated uncollectible accounts receivable. Our reserves for estimated credit losses are based upon historical experience, specific customer collection issues, current conditions and reasonable and supportable forecasts that affect the collectability of the remaining cash flows over the contractual terms of our receivables and other financial assets. Accounts are written off against the allowance account when they are determined to no longer be collectible.

Concentration of Credit Risk: Financial instruments that potentially subject us to concentrations of credit risk consist of cash and cash equivalents and trade receivables. Our cash and cash equivalents, at times, may exceed federally insured limits. Cash and cash equivalents are deposited primarily in banking institutions with global operations. We have not experienced any losses in such accounts. We believe we are not exposed to any significant credit risk related to cash and cash equivalents.

Trade receivables subject us to the potential for credit risk with major customers. We sell our products to customers principally in the aerospace and defense, industrial, medical, and transportation markets, primarily in North America, Europe, and Asia. We perform ongoing credit evaluations of our customers to minimize credit risk. We do not require collateral. The allowance for credit losses is based on management's estimates of the collectability of our accounts receivable after analyzing historical credit losses, customer concentrations, customer creditworthiness, current economic trends, specific customer collection issues, and reasonable and supportable forecasts that affect the collectability of the remaining cash flows over the contractual terms of our receivables. Uncollectible trade receivables are charged against the allowance for credit losses when all reasonable efforts to collect the amounts due have been exhausted.

Our net sales to significant customers as a percentage of total net sales were as follows:

	Years Ended December 31,		
	2022	2021	2020
Cummins Inc.	15.3%	15.0%	13.1%
Toyota Motor Corporation	11.5%	12.4%	13.4%

No other customer accounted for 10% or more of total net sales during these periods.

Inventories: We value our inventories at the lower of the actual cost to purchase or manufacture using the first-in, first-out ("FIFO") method, or net realizable value. We review inventory quantities on hand and record a provision for excess and obsolete inventory based on historical consumption trends as well as forecasts of product demand including related production requirements. Once reserves are established, write-downs of inventory are considered permanent adjustments to the cost basis of inventory. Our reserves contain uncertainties because the calculation requires management to make assumptions and to apply judgment regarding historical experience, market conditions, and product life cycles. Changes in actual demand or market conditions could adversely impact our reserve calculations.

Property, Plant and Equipment: Property, plant and equipment is stated at cost, less accumulated depreciation. Depreciation is computed primarily over the estimated useful lives of the various classes of assets using the straight-line method. Useful lives for buildings and improvements range from 10 to 45 years, machinery and equipment from three to 15 years, and software from 2 to 15 years. Depreciation on leasehold improvements is computed over the lesser of the lease term or estimated useful lives of the assets. Amounts expended for maintenance and repairs are charged to expense as incurred. Major overhauls that extend the useful lives of existing assets are capitalized. Upon disposition, any related gains or losses are included in operating earnings.

Income Taxes: We account for income taxes under the asset and liability method, which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the financial statements. Under this method, we determine deferred tax assets and liabilities on the basis of the differences between the financial statement and tax bases of assets and liabilities by using enacted tax rates in effect for the year in which the differences are expected to reverse. The effect of a change in tax rates on deferred tax assets and liabilities is recognized in income in the period that includes the enactment date.

We recognize deferred tax assets to the extent that we believe that these assets are more-likely-than-not to be realized. In making such a determination, we consider all available positive and negative evidence, including future reversals of existing taxable temporary differences, projected future taxable income, tax-planning strategies, and results of recent operations. If we determine that we would be able to realize our deferred tax assets in the future in excess of their net recorded amount, we would make an adjustment to the deferred tax asset valuation allowance, which would reduce the provision for income taxes.

We record uncertain tax positions in accordance with Accounting Standards Codification ("ASC") Topic 740 on the basis of a two-step process in which (1) we determine whether it is more-likely-than-not that the tax positions will be sustained on the basis of the technical merits of the position and (2) for those tax positions that meet the more-likely-than-not recognition threshold, we recognize the largest amount of tax benefit that is more than 50 percent likely to be realized upon ultimate settlement with the related tax authority.

We recognize interest and penalties related to unrecognized tax benefits on the income tax expense line in the accompanying Consolidated Statements of Earnings (Loss). Accrued interest and penalties are included in the related tax liability line in the Consolidated Balance Sheets.

See Note 19, "Income Taxes" for further information.

Goodwill and Indefinite-lived Intangible Assets: Goodwill represents the excess of the purchase price over the fair values of the net assets acquired in a business combination. In accordance with ASC 350, *Intangibles—Goodwill and Other*, goodwill is not amortized, but instead is tested for impairment annually or more frequently if circumstances indicate a possible impairment may exist. Absent any interim indicators of impairment, the Company tests for goodwill impairment as of the first day of its fourth fiscal quarter of each year.

Based upon our latest assessment, we determined that our goodwill was not impaired as of October 1, 2022.

In addition to goodwill, we also had an acquired in-process research and development ("IPR&D") intangible asset that was treated as indefinite-lived intangible assets and therefore was not subject to amortization until the completion or abandonment of the associated research and development efforts. In the third quarter of 2020, due to the restructuring actions further outlined in Note 9 - "Costs Associated with Exit and Restructuring Activities", we identified a triggering event associated with a specific asset group including IPR&D due to executed restructuring actions. This resulted in the recognition of \$2,200 of impairment charges, and a revaluation of associated contingent liabilities totaling \$1,900. The net impact of \$300 was recorded as restructuring charges in the Consolidated Statements of Earnings (Loss) in 2020.

Other Intangible Assets and Long-lived Assets: We account for long-lived assets (excluding indefinite-lived intangible assets) in accordance with the provisions of ASC 360, *Property, Plant, and Equipment*. This statement requires that long-lived assets, which includes fixed assets and finite-lived intangible assets, be reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. If an impairment test is warranted, recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to the sum of the undiscounted cash flows expected to result from the use and the eventual disposition of the asset. If such assets are considered to be impaired, the impairment to be recognized is measured by the amount in which the carrying amount of the assets exceeds the fair value of the assets. Assets to be disposed of are reported at the lower of the carrying amount or fair value less costs to sell. In 2020, we recorded a charge of \$1,016 due to the impairment of a specific asset group that was recorded in selling, general and administrative expenses in the Consolidated Statements of Earnings (Loss).

Intangible assets (excluding indefinite-lived intangible assets) consist primarily of technology, customer lists and relationships, patents, and trade names. These assets are recorded at cost and usually amortized on a straight-line basis over their estimated lives. We assess useful lives based on the period over which the asset is expected to contribute to cash flows.

Revenue Recognition: Product revenue is recognized upon the transfer of promised goods to a customer in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods net of reserves. We follow the five step model to determine when this transfer has occurred: 1) identify the contract(s) with the customer; 2) identify the performance obligations in the contract; 3) determine the transaction price; 4) allocate the transaction price to the performance obligations in the contract; 5) recognize revenue when (or as) the entity satisfies a performance obligation. Our revenue reserves contain uncertainties because they require management to make assumptions and to apply judgment to estimate the value of future credits to customers for product returns, price adjustments, and stock rotation adjustments. We base these estimates on the most likely value method considering all reasonably available information, including our historical experience and current expectations, and are reflected in the transaction price when sales are recorded.

Research and Development: Research and development ("R&D") costs include expenditures for search and investigation aimed at discovery of new knowledge to be used to develop new products or processes or to significantly enhance existing products or production processes. R&D costs also include the implementation of new knowledge through design, testing of product alternatives, or construction of prototypes. We expense all R&D costs as incurred, net of customer reimbursements for sales of prototypes and non-recurring engineering charges.

We create prototypes and tools related to R&D projects. A prototype is defined as a constructed product not intended for production resulting in a commercial sale. We also incur engineering costs related to R&D activities. Such costs are incurred to support such activities to improve the reliability, performance and cost-effectiveness of our existing products and to design and develop innovative products that meet customer requirements for new applications. Furthermore, we may engage in activities that develop tooling machinery and equipment for our customers.

We occasionally enter into agreements with our customers whereby we receive a contractual guarantee based on achieving milestones to be reimbursed the costs we incur in the product development process or to construct molds, dies, and other tools that are used to make many of the products we sell. The costs we incur are included in other current assets on the Consolidated Balance Sheets until reimbursement is received from the customer. Reimbursements received from customers are netted against such costs and included in our Consolidated Statements of Earnings (Loss) if the amount received is in excess of the costs that we incur. The following is a summary of amounts to be received from customers as of December 31, 2022 and 2021:

	As of December 31,	
	2022	2021
Cost of molds, dies and other tools included in other current assets	\$ 2,569	\$ 4,497

Financial Instruments: We use forward contracts to mitigate currency risk related to forecasted foreign currency revenue and costs. These forward contracts are designed as cash flow hedges. At least quarterly, we assess the effectiveness of these hedging relationships based on the total change in their fair value using regression analysis. In addition, we use interest rate swaps to convert a portion of our revolving credit facility's variable rate of interest into a fixed rate. As a result of the use of these derivative instruments, the Company is exposed to the risk that counterparties to derivative contracts will fail to meet their contractual obligations. To mitigate the counterparty credit risk, the Company has a policy of only entering into contracts with carefully selected major financial institutions based upon their credit ratings and other factors and by using netting agreements. Our established policies and procedures for mitigating credit risk on principal transactions include reviewing and establishing limits for credit exposure and continually assessing the creditworthiness of counterparties.

We estimate the fair value of our cash, cash equivalents, accounts receivable and accounts payable as cost due to the short-term nature of these instruments. Please refer to Note 13 - "Debt" and Note 14 - "Accumulated Other Comprehensive (Loss) Income" for information on the method of determining fair value for our debt and financial derivatives, respectively.

Debt Issuance Costs: We have debt issuance costs related to our long-term debt that are being amortized using the straight-line method over the term of the debt. Debt issuance costs are capitalized and reflected as an asset in deferred financing costs in the accompanying Consolidated Balance Sheets. Amortization of debt issuance costs are recorded in interest expense.

Stock-Based Compensation: We recognize expense related to the fair value of stock-based compensation awards, consisting of restricted stock units ("RSUs"), cash-settled restricted stock units, and performance share units ("PSUs") in the Consolidated Statements of Earnings (Loss).

The grant date fair values of our service-based and performance-based RSUs are the closing price of our common stock on the date of grant. The grant date fair value of our market-based RSUs is determined by using a simulation, or Monte Carlo, approach. Under this approach, stock returns from a comparative group of companies are simulated over the performance period, considering both stock price

volatility and the correlation of returns. The simulated results are then used to estimate the future payout based on the performance and payout relationship established by the conditions of the award. The future payout is discounted to the measurement date using the risk-free interest rate.

Our RSU awards primarily have a graded vesting schedule. We recognize expense on a straight-line basis over the requisite service period for each separately vesting tranche of the award as if the award was, in substance, multiple awards. Compensation expense for PSUs is measured by determining the fair value of the award using the closing share price on the grant date and is recognized ratably from the grant date to the vesting date for the number of awards expected to vest. The amount of compensation expense recognized for PSUs is dependent upon a quarterly assessment of the likelihood of achieving the performance conditions and is subject to adjustment based on management's assessment of the Company's performance relative to the target number of shares performance criteria. Forfeitures are recorded as they occur.

See Note 17, "Stock-Based Compensation" for further information.

Earnings (Loss) Per Share: Basic earnings (loss) per share excludes any dilution and is computed by dividing net earnings (loss) available to common shareholders by the weighted-average number of common shares outstanding for the period.

Diluted earnings per share is calculated by dividing net earnings by the weighted average shares outstanding assuming dilution. Dilutive common shares outstanding is computed using the Treasury Stock Method and reflects the additional shares that would be outstanding if dilutive stock options were exercised, and restricted stock units were settled for common shares during the period. In addition, dilutive shares include any shares issuable related to performance share units for which the performance conditions would have been met as of the end of the period and therefore would be considered contingently issuable. If the common stock equivalents have an anti-dilutive effect, they are excluded from the computation of diluted earnings per share. There was no anti-dilutive impact for the year ended December 31, 2021 as result of a net loss incurred in the period. If there is a net loss for the period, then basic earnings (loss) per share equals diluted earnings (loss) per share.

Our antidilutive securities consist of the following:

(units)	Years Ended December 31,		
	2022	2021	2020
Antidilutive securities	21,687	—	26,140

Foreign Currencies: The financial statements of the majority of our non-U.S. subsidiaries are remeasured into U.S. dollars using the U.S. dollar as the functional currency with all remeasurement adjustments included in the determination of net earnings (loss).

Foreign currency (losses) gains recorded in the Consolidated Statements of Earnings (Loss) includes the following:

	Years Ended December 31,		
	2022	2021	2020
Foreign currency (losses) gains	\$ (4,875)	\$ (3,305)	\$ 5,316

The assets and liabilities of our non U.S. dollar functional subsidiaries are translated into U.S. dollars at the current exchange rate at period end, with the resulting translation adjustments made directly to the "accumulated other comprehensive loss" component of shareholders' equity. Our Consolidated Statements of Earnings (Loss) accounts are translated at the average rates during the period.

Shipping and Handling: All fees billed to the customer for shipping and handling are classified as a component of net sales. All costs associated with shipping and handling are classified as a component of cost of goods sold or operating expenses, depending on the nature of the underlying purchase.

Sales Taxes: When applicable, we classify sales taxes on a net basis in our consolidated financial statements.

Reclassifications: Certain reclassifications have been made to prior year amounts to conform to the current year presentation. The reclassifications had no impact on previously reported net earnings.

Accounting Pronouncements Recently Adopted

ASU No. 2020-04, "Reference Rate Reform (Topic 848): Facilitation of the Effects of Reference Rate Reform on Financial Reporting"

In March 2020, the Financial Accounting Standards Board (“FASB”) issued ASU 2020-04, *Reference Rate Reform (Topic 848): Facilitation of the Effects of Reference Rate Reform on Financial Reporting*, which provides temporary optional guidance for a limited period of time to ease the potential burden in accounting for (or recognizing the effects of) reference rate reform on financial reporting as it relates to our LIBOR indexed instruments. ASU 2020-04 provides optional expedients and exceptions for applying U.S. GAAP to contracts, hedging relationships, and other transactions affected by reference rate reform if certain criteria are met. ASU 2020-04 is effective for all entities as of March 12, 2020 through December 31, 2022, and an entity may elect to apply ASU 2020-04 for contract modifications by Topic or Industry Subtopic as of any date from the beginning of an interim period that includes or is subsequent to March 12, 2020, or prospectively from a date within an interim period that includes or is subsequent to March 12, 2020, up to the date that the financial statements are available to be issued.

We amended and restated our credit and underlying interest rate swap agreements effective December 15, 2021. We have elected to continue to apply hedge accounting as we have determined that the hedge remains effective. See Note 13 - "Debt" for further discussion of the credit agreement modification.

NOTE 2 – Revenue Recognition

The core principle of ASC 606 is that an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The guidance provides a five-step process to achieve that core principle:

- Identify the contract(s) with a customer
- Identify the performance obligations
- Determine the transaction price
- Allocate the transaction price
- Recognize revenue when the performance obligations are met

We recognize revenue when the performance obligations specified in our contracts have been satisfied, after considering the impact of variable consideration and other factors that may affect the transaction price. Our contracts normally contain a single performance obligation that is fulfilled on the date of delivery based on shipping terms stipulated in the contract. We usually expect payment within 30 to 90 days from the shipping date, depending on our terms with the customer. None of our contracts as of December 31, 2022 or 2021 contained a significant financing component. Differences between the amount of revenue recognized and the amount invoiced, collected from, or paid to our customers are recognized as contract assets or liabilities. Contract assets will be reviewed for impairment when events or circumstances indicate that they may not be recoverable.

To the extent the transaction price includes variable consideration, we estimate the amount of variable consideration that should be included in the transaction price utilizing the most likely value method based on an analysis of historical experience and current facts and circumstances, which may require significant judgment. Variable consideration is included in the transaction price if, in our judgment, it is probable that a significant future reversal of cumulative revenue under the contract will not occur.

Disaggregated Revenue

The following table presents revenues disaggregated by the major markets we serve:

	Years Ended December 31,	
	2022	2021
Transportation	\$ 303,695	\$ 284,080
Industrial	168,088	133,371
Medical	64,890	48,159
Aerospace & Defense	50,196	47,315
Total	\$ 586,869	\$ 512,925

NOTE 3 - Business Acquisitions

TEWA Temperature Sensors SP. Zo.o. Acquisition

On February 28, 2022, we acquired 100% of the outstanding shares of TEWA Temperature Sensors SP. Zo.o. (“TEWA”). TEWA is a designer and manufacturer of high-quality temperature sensors. TEWA has complementary capabilities with our existing temperature sensing platform, and the acquisition supports our end market diversification strategy and expands our presence in Europe.

The purchase price of \$24,515, which includes assumed changes in working capital, net of cash acquired of \$2,979, has been allocated to the fair values of assets and liabilities acquired as of February 28, 2022. The allocation of the purchase price continues to be preliminary pending the completion of the working capital settlement in the first quarter of 2023. The purchase price will be reduced by \$794 due to final settlements in the first quarter of 2023.

The following table summarizes the consideration paid and the fair values of the assets acquired, and the liabilities assumed as of the date of acquisition:

	Fair Values at February 28, 2022
Accounts Receivable	\$ 2,521
Inventory	3,136
Other current assets	69
Property, plant and equipment	654
Other assets	27
Goodwill	9,267
Intangible assets	13,650
Fair value of assets acquired	29,324
Less fair value of liabilities acquired	(4,809)
Purchase price	\$ 24,515

Goodwill represents value the Company expects to be created by combining the operations of the acquired business with the Company's operations, including the expansion of customer relationships, access to new customers, and potential cost savings and synergies. Goodwill related to the acquisition is expected to be deductible for tax purposes.

The Company recorded a \$1,180 step-up of inventory to its fair value as of the acquisition date based on the preliminary valuation. The step-up was amortized as a non-cash charge to cost of goods sold as the acquired inventory was sold with all of it recognized in the twelve months ended December 31, 2022.

The following table summarizes the carrying amounts and weighted average lives of the acquired intangible assets:

	Carrying Value	Weighted Average Amortization Period
Customer lists/relationships	\$ 13,000	12.0
Trademarks, tradenames, and other intangibles	650	3.0
Total	\$ 13,650	

Ferroperm Piezoceramics A/S Acquisition

On June 30, 2022, we acquired 100% of the outstanding shares of Ferroperm Piezoceramics A/S (“Ferroperm”). Ferroperm specializes in the design and manufacture of high performance piezoceramic components for use in complex and demanding medical, industrial, and aerospace applications. Ferroperm has complementary capabilities with our existing medical diagnostics and imaging product lines. The acquisition supports our end market diversification strategy and expands our presence in European end markets.

The purchase price of \$72,340, which includes assumed changes in working capital, net of cash acquired of \$5,578, has been allocated to the fair values of assets and liabilities acquired as of June 30, 2022. The allocation of the purchase price continues to be preliminary pending the completion of the valuation of intangible assets. The final purchase price allocation may result in a materially different allocation than that recorded as of December 31, 2022.

The following table summarizes the consideration paid, the fair values of the assets acquired, and the liabilities assumed as of the date of acquisition:

	Fair Values at June 30, 2022	
Accounts Receivable	\$	3,073
Inventory		6,848
Other current assets		1,003
Property, plant and equipment		3,953
Other assets		158
Goodwill		33,274
Intangible assets		36,448
Fair value of assets acquired		84,757
Less fair value of liabilities acquired		(12,417)
Purchase price	\$	72,340

Goodwill represents value the Company expects to be created by combining the operations of the acquired business with the Company's operations, including the expansion of customer relationships, access to new customers, and potential cost savings and synergies. Goodwill related to the acquisition is expected to be deductible for tax purposes.

The Company recorded a \$3,012 step-up of inventory to its fair value as of the acquisition date based on the preliminary valuation. The step-up was amortized as a non-cash charge to cost of goods sold as the acquired inventory was sold with all of it recognized in the twelve months ended December 31, 2022.

Intangible assets acquired have been assigned a provisional value of \$36,448 with an estimated weighted average amortization period of 12 years. They are included as customer lists/relationships in our Condensed Consolidated Balance Sheets and subsequent notes. Due to the timing of the acquisition, the identification and valuation of all intangible assets remains incomplete; however, management used historical experience and projections to estimate the potential value at December 31, 2022. The amount and assumptions included above remain an estimate that will be adjusted once purchase accounting is complete.

Maglab AG Acquisition

On February 6, 2023, we acquired 100% of the outstanding shares of maglab AG ("maglab") for \$4,164 in cash subject to additional earnout payments based on future performance. Maglab has deep expertise in magnetic system design and current measurement solutions for use in e-mobility, industrial automation, and renewable energy applications. Maglab's domain expertise coupled with CTS' commercial, technical and operational capabilities position us to advance our status as a recognized innovator in electric motor sensing and controls markets.

NOTE 4 — Accounts Receivable, net

The components of accounts receivable, net are as follows:

	As of December 31,	
	2022	2021
Accounts receivable, gross	\$ 92,171	\$ 83,848
Less: Allowance for credit losses	(1,236)	(1,657)
Accounts receivable, net	\$ 90,935	\$ 82,191

NOTE 5 — Inventories, net

Inventories, net consist of the following:

	As of December 31,	
	2022	2021
Finished goods	\$ 12,865	\$ 11,955
Work-in-process	22,819	18,878
Raw materials	37,362	28,078
Less: Inventory reserves	(10,786)	(9,405)
Inventories, net	\$ 62,260	\$ 49,506

NOTE 6 — Property, Plant and Equipment, net

Property, plant and equipment, net is comprised of the following:

	As of December 31,	
	2022	2021
Land and land improvements	\$ 1,100	\$ 1,095
Buildings and improvements	71,938	69,614
Machinery and equipment	258,159	247,708
Less: Accumulated depreciation	(233,897)	(221,541)
Property, plant and equipment, net	\$ 97,300	\$ 96,876

Depreciation expense recorded in the Consolidated Statements of Earnings (Loss) includes the following:

	For the Years Ended		
	2022	2021	2020
Depreciation expense	\$ 18,126	\$ 17,517	\$ 17,615

NOTE 7 — Retirement Plans

As of December 31, 2022, we have two active noncontributory defined benefit pension plans ("pension plans") covering less than 1% of our active employees. These two plans consist of a U.S. supplemental retirement plan ("SERP") and a Taiwan pension plan. The SERP is comprised entirely of participants who were past employees of the Company.

We also provide post-retirement life insurance benefits for certain retired employees. Domestic employees who were hired prior to 1982 and certain former union employees are eligible for life insurance benefits upon retirement. We fund life insurance benefits through term life insurance policies and intend to continue funding all of the premiums on a pay-as-you-go basis.

We recognize the funded status of a benefit plan in our consolidated balance sheets. The funded status is measured as the difference between plan assets at fair value and the projected benefit obligation. We also recognize, as a component of other comprehensive earnings, net of tax, the gains or losses and prior service costs or credits that arise during the period but are not recognized as components of net periodic benefit/cost.

The measurement dates for the pension plans for our U.S. and non-U.S. locations were December 31, 2022 and 2021.

In February 2020, the CTS Board of Directors authorized management to explore termination of the U.S.-based pension plan ("Plan"), subject to certain conditions. On June 1, 2020, we entered into the fifth amendment to the Plan whereby we set an effective termination date for the Plan of July 31, 2020. In February 2021, we received a determination letter from the Internal Revenue Service that allowed us to proceed with the termination process for the Plan. During the second quarter of 2021, the Company offered the option of receiving a lump sum payment to eligible participants with vested qualified Plan benefits in lieu of receiving monthly annuity payments. Approximately 365 participants elected to receive the settlement, and lump sum payments of approximately \$35,594 were made from Plan assets to these participants in June 2021.

As required under U.S. GAAP, the Company recognizes a settlement gain or loss when the aggregate amount of lump-sum distributions to participants equals or exceeds the sum of the service and interest cost components of the net periodic pension cost. The amount of settlement gain or loss recognized is the pro rata amount of the existing unrealized gain or loss immediately prior to the settlement. In general, both the projected benefit obligation and fair value of plan assets are required to be remeasured in order to determine the settlement gain or loss.

Upon the partial settlement of the pension liability due to the lump sum offering in the second quarter of 2021, the Company recognized a non-cash and non-operating settlement charge of \$20,063 related to pension losses, reclassified from accumulated other comprehensive loss to other (income) expense in the Company's Condensed Consolidated Statements of Earnings (Loss).

On July 29, 2021, the Plan purchased a group annuity contract that transferred our benefit obligations for approximately 2,700 CTS participants and beneficiaries in the United States ("Transferred Participants"). As part of the purchase of the group annuity contract, Plan benefit obligations and related annuity administration services for Transferred Participants were irrevocably assumed and guaranteed by the insurance company effective as of August 3, 2021. There will be no change to pension benefits for Transferred Participants. The purchase of the group annuity contract was fully funded directly by Plan assets.

As a result of the final settlement of the pension liability with the purchase of annuities, we reclassified the remaining related unrecognized pension losses of \$106,206 that were previously recorded in accumulated other comprehensive loss to the Consolidated Statements of Earnings (Loss) in the third quarter of 2021.

In January 2022, we transferred approximately \$17,500 of funds from Plan assets to a qualified replacement plan (QRP) managed by the Company. This plan requires that these assets be used to fund future annual Company contributions to our U.S. 401(k) program. The remaining Plan assets were transferred to the Company in the third quarter of 2022 as part of the final termination process. As a result, approximately \$34,016 was transferred to the Company, which resulted in \$6,803 of excise tax being recorded in Other Expense in the Company's Condensed Consolidated Statements of Earnings (Loss).

The following table provides a reconciliation of benefit obligation, plan assets, and the funded status of the pension plans for U.S. and non-U.S. locations at the measurement dates.

	U.S. Pension Plans		Non-U.S. Pension Plans	
	2022	2021	2022	2021
Accumulated benefit obligation	\$ 814	\$ 1,008	\$ 1,771	\$ 1,957
Change in projected benefit obligation:				
Projected benefit obligation at January 1	\$ 1,008	\$ 230,205	\$ 2,335	\$ 2,686
Service cost	—	—	20	26
Interest cost	18	2,861	13	17
Benefits paid	(103)	(12,206)	(238)	(476)
Actuarial (gain) loss	(109)	(3,533)	239	44
Plan settlements	—	(216,319)	—	—
Foreign exchange impact	—	—	(223)	38
Projected benefit obligation at December 31	\$ 814	\$ 1,008	\$ 2,146	\$ 2,335
Change in plan assets:				
Assets at fair value at January 1	\$ 49,382	\$ 285,675	\$ 1,421	\$ 1,595
Actual return on assets	2,134	(7,967)	116	28
Company contributions	103	199	213	252
Benefits paid	(103)	(12,206)	(238)	(476)
Plan settlements	—	(216,319)	—	—
Qualified replacement plan transfer	(17,500)	—	—	—
Asset reversion	(34,016)	—	—	—
Foreign exchange impact	—	—	(136)	22
Assets at fair value at December 31	\$ —	\$ 49,382	\$ 1,376	\$ 1,421
Funded status (plan assets less projected benefit obligations)	\$ (814)	\$ 48,374	\$ (770)	\$ (914)

The measurement dates for the post-retirement life insurance plan were December 31, 2022 and 2021. The following table provides a reconciliation of benefit obligation, plan assets, and the funded status of the post-retirement life insurance plan at those measurement dates.

	Post-Retirement Life Insurance Plan	
	2022	2021
Accumulated benefit obligation	\$ 4,018	\$ 5,231
Change in projected benefit obligation:		
Projected benefit obligation at January 1	\$ 5,231	\$ 5,376
Service cost	1	1
Interest cost	102	80
Benefits paid	(147)	(151)
Actuarial (gain) loss	(1,169)	(75)
Projected benefit obligation at December 31	\$ 4,018	\$ 5,231
Change in plan assets:		
Assets at fair value at January 1	\$ —	\$ —
Actual return on assets	—	—
Company contributions	147	151
Benefits paid	(147)	(151)
Other	—	—
Assets at fair value at December 31	\$ —	\$ —
Funded status (plan assets less projected benefit obligations)	\$ (4,018)	\$ (5,231)

The components of the prepaid (accrued) cost of the domestic and foreign pension plans are classified in the following lines in the Consolidated Balance Sheets at December 31:

	U.S. Pension Plans		Non-U.S. Pension Plans	
	2022	2021	2022	2021
Prepaid pension asset	\$ —	\$ 49,382	\$ —	\$ —
Accrued expenses and other liabilities	(99)	(100)	—	—
Long-term pension obligations	(715)	(908)	(770)	(914)
Net (accrued) prepaid cost	\$ (814)	\$ 48,374	\$ (770)	\$ (914)

The components of the accrued cost of the post-retirement life insurance plan are classified in the following lines in the Consolidated Balance Sheets at December 31:

	Post-Retirement Life Insurance Plan	
	2022	2021
Accrued expenses and other liabilities	\$ (455)	\$ (489)
Long-term pension obligations	(3,563)	(4,742)
Total accrued cost	\$ (4,018)	\$ (5,231)

We have also recorded the following amounts to accumulated other comprehensive loss for the U.S. and non-U.S. pension plans, net of tax:

	<u>U.S. Pension Plans</u> Unrecognized Loss	<u>Non-U.S. Pension Plans</u> Unrecognized Loss
Balance at January 1, 2021	\$ 91,237	\$ 1,901
Amortization of retirement benefits, net of tax	(2,851)	(152)
Net actuarial gain	3,777	27
Settlement charges	(91,851)	—
Foreign exchange impact	—	27
Balance at January 1, 2022	\$ 312	\$ 1,803
Amortization of retirement benefits, net of tax	—	(155)
Net actuarial gain (loss)	(108)	132
Foreign exchange impact	—	(172)
Balance at December 31, 2022	\$ 204	\$ 1,608

We have recorded the following amounts to accumulated other comprehensive loss for the post-retirement life insurance plan, net of tax:

	<u>Unrecognized Gain</u>
Balance at January 1, 2021	\$ (51)
Amortization of retirement benefits, net of tax	—
Net actuarial loss	(58)
Balance at January 1, 2022	\$ (109)
Amortization of retirement benefits, net of tax	—
Net actuarial loss	(900)
Balance at December 31, 2022	\$ (1,009)

The accumulated actuarial gains and losses included in other comprehensive earnings are amortized in the following manner:

The component of unamortized net gains or losses related to our qualified pension plan is amortized based on the expected future life expectancy of the plan participants (estimated to be approximately 11 years at December 31, 2022), because substantially all of the participants in those plans are inactive. The component of unamortized net gains or losses related to our post-retirement life insurance plan is amortized based on the estimated remaining future service period of the plan participants (estimated to be approximately 3 years at December 31, 2022). The Company uses a market-related approach to value plan assets, reflecting changes in the fair value of plan assets over a five-year period. The variance resulting from the difference between the expected and actual return on plan assets is included in the amortization calculation upon reflection in the market-related value of plan assets.

The projected benefit obligation, accumulated benefit obligation and fair value of plan assets for those pension plans with accumulated benefit obligation in excess of fair value of plan assets is shown below:

	<u>As of December 31,</u>	
	<u>2022</u>	<u>2021</u>
Projected benefit obligation	\$ 2,961	\$ 3,343
Accumulated benefit obligation	\$ 2,585	\$ 2,965
Fair value of plan assets	\$ 1,377	\$ 1,421

Net pension expense includes the following components:

	Years Ended December 31,			Years Ended December 31,		
	U.S. Pension Plans			Non-U.S. Pension Plans		
	2022	2021	2020	2022	2021	2020
Service cost	\$ —	\$ —	\$ —	\$ 20	\$ 26	\$ 31
Interest cost	18	2,861	5,773	13	17	28
Expected return on plan assets ⁽¹⁾	(2,134)	(474)	(9,817)	(9)	(17)	(16)
Amortization of unrecognized loss	30	3,703	6,488	167	184	174
Settlement charges	—	126,269	—	—	—	—
Net expense	\$ (2,086)	\$ 132,359	\$ 2,444	\$ 191	\$ 210	\$ 221
Weighted-average actuarial assumptions ⁽²⁾						
Benefit obligation assumptions:						
Discount rate	5.04%	2.46%	2.26%	1.75%	0.63%	0.63%
Rate of compensation increase	N/A	N/A	N/A	5.00%	3.00%	3.00%
Pension income/expense assumptions:						
Discount rate	2.46%	2.10%	3.15%	0.63%	0.63%	0.63%
Expected return on plan assets ⁽¹⁾	N/A	1.44%	3.76%	0.63%	0.63%	0.63%
Rate of compensation increase	N/A	N/A	N/A	5.00%	3.00%	3.00%

(1) Expected return on plan assets is net of expected investment expenses and certain administrative expenses.

(2) During the fourth quarter of each year, we review our actuarial assumptions in light of current economic factors to determine if the assumptions need to be adjusted. 2020 assumptions reflect termination basis accounting for our Plan.

Net post-retirement expense includes the following components:

	Post-Retirement Life Insurance Plan		
	Years Ended December 31,		
	2022	2021	2020
Service cost	\$ 1	\$ 1	\$ 1
Interest cost	102	80	122
Amortization of unrecognized gain	—	—	(84)
Net expense	\$ 103	\$ 81	\$ 39
Weighted-average actuarial assumptions ⁽¹⁾			
Benefit obligation assumptions:			
Discount rate	5.11%	2.66%	2.27%
Rate of compensation increase	N/A	N/A	N/A
Pension income/post-retirement expense assumptions:			
Discount rate	2.66%	2.27%	3.09%
Rate of compensation increase	N/A	N/A	N/A

(1) During the fourth quarter of each year, we review our actuarial assumptions in light of current economic factors to determine if the assumptions need to be adjusted.

All pension plan assets were allocated to fixed income/debt securities as of December 31, 2021. Historically, we employed a liability-driven investment strategy whereby a mix of equity and fixed-income investments are used to pursue a de-risking strategy which over time seeks to reduce interest rate mismatch risk and other risks while achieving a return that matches or exceeds the growth in projected pension plan liabilities. Risk tolerance was established through careful consideration of plan liabilities and funded status. The investment portfolio primarily contained a diversified mix of equity and fixed-income investments. Other assets such as private equity were used modestly to enhance long-term returns while improving portfolio diversification. Investment risk was measured and monitored on an

ongoing basis through quarterly investment portfolio reviews, annual liability measurements, and asset/liability studies at regular intervals.

As a result of the termination of the Plan and final reversion activities in 2022, no assets remained in the Plan as of December 31, 2022.

The following table summarizes the fair values of our pension plan assets:

	<u>As of December 31,</u> <u>2021</u>
Equity securities - U.S. holdings ⁽¹⁾	\$ 8
Bond funds - other ⁽³⁾⁽⁴⁾	31,380
Cash and cash equivalents ⁽²⁾	19,415
Total fair value of plan assets	<u>\$ 50,803</u>

The fair values at December 31, 2021, are classified within the following categories in the fair value hierarchy:

	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Not Leveled	Total
Equity securities - U.S. holdings ⁽¹⁾	\$ 8	\$ —	\$ —	\$ —	\$ 8
Bond funds - other ⁽³⁾⁽⁴⁾	31,380	—	—	—	31,380
Cash and cash equivalents ⁽²⁾	19,415	—	—	—	19,415
Total	<u>\$ 50,803</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 50,803</u>

(1) Comprised of common stocks of companies in various industries. The Pension Plan fund manager may shift investments from value to growth strategies or vice-versa, from small cap to large cap stocks or vice-versa, in order to meet the Pension Plan's investment objectives, which are to provide for a reasonable amount of long-term growth of capital without undue exposure to volatility and protect the assets from erosion of purchasing power.

(2) Comprised of investment grade short-term investment and money-market funds.

(3) Comprised predominately of investment grade U.S. corporate bonds with various maturities and U.S. high-yield corporate bonds; emerging market debt (local currency sovereign bonds, U.S. dollar-denominated sovereign bonds and U.S. dollar-denominated corporate bonds); and U.S. bank loans.

(4) Comprised of investments that are measured at fair value using the NAV per share practical expedient. In accordance with the provisions of ASC 820-10, these investments have not been classified in the fair value hierarchy. The fair value amount not leveled is presented to allow reconciliation of the fair value hierarchy to total fund pension plan assets.

The pension plan assets recorded at fair value are measured and classified in a hierarchy for disclosure purposes consisting of three levels based on the observability of inputs available in the marketplace used to measure fair value as discussed below:

- **Level 1:** Fair value measurements that are based on quoted prices (unadjusted) in active markets that the pension plan trustees have the ability to access for identical assets or liabilities. Market price data generally is obtained from exchange or dealer markets.
- **Level 2:** Fair value measurements based on inputs other than quoted prices included in Level 1 that are observable for the asset, either directly or indirectly. Level 2 inputs include quoted prices for similar assets in active or inactive markets, and inputs other than quoted prices that are observable for the asset, such as interest rates and yield curves that are observable at commonly quoted intervals.
- **Level 3:** Fair value measurements based on valuation techniques that use significant inputs that are unobservable.

The table below reconciles the Level 3 partnership assets within the fair value hierarchy:

	<u>Amount</u>
Fair value of Level 3 partnership assets at January 1, 2021	\$ 6,792
Capital contributions	13
Realized and unrealized loss	(2,075)
Capital distributions	(4,730)
Fair value of Level 3 partnership assets at December 31, 2021	<u>\$ —</u>
Capital contributions	—
Realized and unrealized loss	—
Capital distributions	—
Fair value of Level 3 partnership assets at December 31, 2022	<u>\$ —</u>

The partnership fund manager used a market approach in estimating the fair value of the plan's Level 3 assets. The market approach estimates fair value by first determining the entity's earnings before interest, taxes, depreciation, and amortization and then multiplying that value by an estimated multiple. When establishing an appropriate multiple, the fund manager considered recent comparable private company transactions and multiples paid. The entity's net debt was then subtracted from the calculated amount to arrive at an estimated fair value for the entity.

We expect to make \$99 of contributions to the U.S. plans and \$220 of contributions to the non-U.S. plans during 2023.

Expected benefit payments under the defined benefit pension plans and the postretirement benefit plan, for the next five years subsequent to 2022 and in the aggregate for the following five years are as follows:

	U.S. Pension Plans	Non-U.S. Pension Plans	Post- Retirement Life Insurance Plan
2023	\$ 99	\$ 51	\$ 455
2024	95	64	425
2025	91	74	398
2026	88	82	373
2027	84	117	351
2028-2031	335	638	1,488
Total	\$ 792	\$ 1,026	\$ 3,490

Defined Contribution Plans

We sponsor a 401(k) plan that covers substantially all of our U.S. employees as well as offer similar defined contribution plans at certain foreign locations. Contributions and costs were generally determined as a percentage of the covered employee's annual salary. We ceased matching employee contributions in the second quarter of 2020 in light of COVID-19 concerns, and we reimplemented the match in February 2021. During 2022, our investment committee, in consultation with the plan's advisors, determined the 401(k) plan's position in CTS stock would be liquidated and funds would be reinvested in other investments. This was completed in the fourth quarter of 2022.

Effective January 1, 2022, in connection with the U.S. Plan termination process, we amended our 401(k) plan and transitioned to a non-elective contribution for all U.S. employees that is also determined as a percentage of the covered employee's salary, provides for immediate vesting and is provided regardless of individual contribution plans. In addition, we began offering a Roth 401(k) option to employees.

Expenses related to defined contribution plans include the following:

	Years Ended December 31,		
	2022	2021	2020
401(k) and other defined contribution plan expense	\$ 3,878	\$ 3,242	\$ 1,636

NOTE 8 — Goodwill and Other Intangible Assets

Other Intangible Assets

Other intangible assets, net consist of the following components:

	As of December 31, 2022			Weighted Average Remaining Amortization Period (in years)
	Gross Carrying Amount	Accumulated Amortization	Net Amount	
Other intangible assets:				
Customer lists / relationships	\$ 148,899	\$ (59,603)	\$ 89,296	9.4
Technology and other intangibles	45,255	(26,498)	18,757	7.4
Other intangible assets, net	\$ 194,154	\$ (86,101)	\$ 108,053	8.2
Amortization expense for the year ended December 31, 2022		\$ 11,627		

	As of December 31, 2021		
	Gross Carrying Amount	Accumulated Amortization	Net Amount
Other intangible assets:			
Customer lists / relationships	\$ 96,889	\$ (49,213)	\$ 47,676
Technology and other intangibles	47,441	(25,229)	22,212
Other intangible assets, net	\$ 144,330	\$ (74,442)	\$ 69,888
Amortization expense for the year ended December 31, 2021		\$ 9,413	
Amortization expense for the year ended December 31, 2020		\$ 9,055	

The estimated amortization expense for the next five years and thereafter is as follows:

	Amortization expense
2023	\$ 11,161
2024	10,999
2025	10,610
2026	10,543
2027	10,484
Thereafter	54,256
Total future amortization expense	\$ 108,053

Goodwill

Changes in the net carrying amount of goodwill were as follows:

	Total
Goodwill as of December 31, 2020	\$ 109,497
Increase due to acquisition	430
Decrease from purchase accounting adjustments	(129)
Goodwill as of December 31, 2021	\$ 109,798
Increase due to acquisitions	42,541
Foreign exchange impact	22
Goodwill as of December 31, 2022	\$ 152,361

Refer to Note 3 - "Business Acquisitions" for further information on the increase due to acquisitions in 2022.

We performed our annual impairment test as of October 1, 2022, our measurement date, and concluded that there was no impairment in any of our reporting units. The fair value estimates used in the goodwill impairment analysis required significant judgment. The Company's fair value estimates for the purposes of determining the goodwill impairment charge are considered Level 3 fair value measurements. The fair value estimates were based on assumptions management believes to be reasonable, but that are inherently

uncertain, including estimates of future revenues and operating margins and assumptions about the overall economic climate and the competitive environment for the business.

NOTE 9 — Costs Associated with Exit and Restructuring Activities

Restructuring charges are reported as a separate line within operating earnings in the Consolidated Statements of Earnings (Loss). Total restructuring charges were:

	Years Ended December 31,		
	2022	2021	2020
Restructuring charges	\$ 1,912	\$ 1,687	\$ 1,830

September 2020 Plan

In September 2020, we initiated a restructuring plan focused on optimizing our manufacturing footprint and improving operational efficiency by better utilizing our systems capabilities. This plan includes transitioning certain administrative functions to a shared service center, realignment of manufacturing locations, and certain other efficiency improvement actions ("September 2020 Plan"). The restructuring cost of the September 2020 Plan is now estimated to be in the range of \$3,500 to \$4,500, including workforce reduction charges, building and equipment relocation charges, other contract and asset related costs. We have incurred \$2,059 in program costs to date. We recorded \$266 and \$662 in workforce reduction costs during the three and twelve months ended December 31, 2022. The total restructuring liability associated with these actions was \$634 as of December 30, 2022. There was no liability related to the September 2020 Plan as of December 31, 2021.

Other Restructuring Activities

From time to time we incur other restructuring activities that are not part of a formal plan. During the years ended December 31, 2022 and 2021, we incurred restructuring charges of \$1,250 and \$1,717, respectively, for exit and disposal activities at four sites, building and equipment relocation, and workforce reduction costs across the Company. The remaining restructuring liability associated with these actions was \$235 and \$962 at December 31, 2022 and December 31, 2021, respectively.

The following table displays the restructuring liability activity for all plans for the year ended December 31, 2022:

Restructuring liability at January 1, 2022	\$ 962
Restructuring charges	1,912
Cost paid	(2,003)
Other activities ⁽¹⁾	(2)
Restructuring liability at December 31, 2022	\$ 869

(1) Other charges include the effects of currency translation, non-cash asset write-downs, travel, legal and other charges.

The total liability of \$869 is included in accrued expenses and other liabilities at December 31, 2022.

NOTE 10 — Accrued Expenses and Other Liabilities

The components of accrued expenses and other liabilities are as follows:

	December 31,	
	2022	2021
Accrued product-related costs	\$ 2,368	\$ 3,188
Accrued income taxes	9,630	6,761
Accrued property and other taxes	2,142	2,370
Accrued professional fees	1,472	1,629
Accrued customer-related liabilities	2,837	3,254
Dividends payable	1,272	1,289
Remediation reserves	11,048	10,979
Derivative liabilities	357	437
Other accrued liabilities	4,196	6,811
Total accrued expenses and other liabilities	\$ 35,322	\$ 36,718

NOTE 11 — Contingencies

Certain processes in the manufacture of our current and past products create by-products classified as hazardous waste. We have been notified by the U.S. Environmental Protection Agency ("EPA"), state environmental agencies, and in some cases, groups of potentially responsible parties, that we may be potentially liable for environmental contamination at several sites currently and formerly owned or operated by us. Two of those sites, Asheville, North Carolina and Mountain View, California, are designated National Priorities List sites under the U.S. Environmental Protection Agency's Superfund program. We accrue a liability for probable remediation activities, claims and proceedings against us with respect to environmental matters if the amount can be reasonably estimated, and provide disclosures including the nature of a loss whenever it is probable or reasonably possible that a potentially material loss may have occurred but cannot be estimated. We record contingent loss accruals on an undiscounted basis.

A roll-forward of remediation reserves included in accrued expenses and other liabilities in the Consolidated Balance Sheets is comprised of the following:

	Years Ended December 31,		
	2022	2021	2020
Balance at beginning of period	\$ 10,979	\$ 10,642	\$ 11,444
Remediation expense	2,750	2,254	2,769
Remediation payments	(2,661)	(1,929)	(3,639)
Other activity ⁽¹⁾	(20)	12	68
Balance at end of the period	\$ 11,048	\$ 10,979	\$ 10,642

(1) Other activity includes currency translation adjustments not recorded through remediation expense

The Company operates under and in accordance with a federal consent decree, dated March 7, 2017, with the EPA for the CTS of Asheville, Inc. Superfund Site ("Site"). On February 8, 2023, the Company received a letter from the EPA (the "EPA Letter") seeking reimbursement of its past response costs and interest thereon relating to any release or threatened release of hazardous substances at the Site in the amount of \$9,955 from the three potentially responsible parties associated with the site, including the Company. The Company is analyzing its potential exposure for the costs sought in the EPA Letter and will respond thereto in due course; however, at this time, we are unable to reasonably estimate the liability from the EPA Letter, and therefore, we did not record an accrual for the EPA Letter in our December 31, 2022 financial statements.

Unrelated to the environmental claims described above, certain other legal claims are pending against us with respect to matters arising out of the ordinary conduct of our business.

We provide product warranties when we sell our products and accrue for estimated liabilities at the time of sale. Warranty estimates are forecasts based on the best available information and historical claims experience. We accrue for specific warranty claims if we believe that the facts of a specific claim make it probable that a liability in excess of our historical experience has been incurred and provide disclosures for specific claims whenever it is reasonably possible that a material loss may be incurred which cannot be estimated.

We cannot provide assurance that the ultimate disposition of environmental, legal, and product warranty claims will not materially exceed the amount of our accrued losses and adversely impact our consolidated financial position, results of operations, or cash flows. Our accrued liabilities and disclosures will be adjusted accordingly if additional information becomes available in the future.

NOTE 12 — Leases

We lease certain land, buildings and equipment under non-cancellable operating leases used in our operations. Operating lease assets represent our right to use an underlying asset for the lease term. Operating lease liabilities represent the present value of lease payments over the lease term, discounted using an estimate of our secured incremental borrowing rate because none of our leases contain a rate implicit in the lease arrangement.

The operating lease assets and liabilities are adjusted to include the impact of any lease incentives and non-lease components. We have elected not to separate lease and non-lease components, which include taxes and common area maintenance in some of our leases. Variable lease payments that depend on an index or a rate are included in lease payments using the prevailing index or rate in effect at lease commencement.

Options to extend or terminate a lease are included in the lease term when it is reasonably likely that we will exercise that option. We occasionally enter into short term operating leases with an initial term of twelve months or less. These leases are not recorded in the Consolidated Balance Sheets.

We determine if an arrangement is a lease or contains a lease at its inception, which normally does not require significant estimates or judgments. Our lease agreements do not contain any material residual value guarantees or material restrictive covenants and we currently have no material sublease agreements.

In accordance with FASB Staff Q&A - Topic 842 and Topic 840: *Accounting for Lease Concessions Related to the Effects of the COVID-19 Pandemic* ("FASB Staff Q&A") issued in April 2020, we elected to account for any lease concessions resulting directly from the COVID-19 pandemic as if the enforceable rights and obligations for the concessions existed in the respective contracts at lease inception and as such we will not account for any concession as a lease modification. Guidance from the FASB Staff Q&A provided methods to account for rent deferrals which include the option to treat the lease as if no changes to the lease contract were made or to treat deferred payments as variable lease payments. The FASB Staff Q&A allows entities to select the most practical approach and does not require the same approach be applied consistently to all leases. As a result, we have accounted for lease deferrals as if no changes to the lease contract were made and will continue to recognize lease expense, on a straight-line basis, during the deferral periods. During the year ended December 31, 2020, these rent concessions related to the COVID-19 pandemic were not material.

Components of lease expense for the years ended December 31, 2022, 2021, and 2020 were as follows:

	Years Ended December 31,		
	2022	2021	2020
Operating lease cost	\$ 4,997	\$ 5,144	\$ 4,763
Short-term lease cost	1,338	1,403	1,015
Total lease cost	<u>\$ 6,335</u>	<u>\$ 6,547</u>	<u>\$ 5,778</u>

Supplemental cash flow information related to leases was as follows:

	Years Ended December 31,		
	2022	2021	2020
Cash paid for amounts included in the measurement of lease obligations	\$ 5,163	\$ 3,666	\$ 4,654
Leased assets obtained in exchange for new operating lease obligations	\$ 5,990	\$ 1,253	\$ 1,678

Supplemental balance sheet information related to leases was as follows:

	As of December 31,	
	2022	2021
Operating lease obligations	\$ 3,936	\$ 3,393
Long-term operating lease obligations	21,754	21,354
Total lease liabilities	<u>\$ 25,690</u>	<u>\$ 24,747</u>
Weighted-average remaining lease terms (years)	6.46	7.21
Weighted-average discount rate	<u>6.08%</u>	<u>6.27%</u>

Remaining maturity of our existing lease liabilities as of December 31, 2022 is as follows:

	Operating Leases ⁽¹⁾
2023	\$ 5,357
2024	5,200
2025	4,669
2026	3,023
2027	2,888
Thereafter	11,422
Total	<u>\$ 32,559</u>
Less: interest	(6,869)
Present value of lease payments	<u>\$ 25,690</u>

⁽¹⁾ Operating lease payments include \$1,759 of payments related to options to extend lease terms that are reasonably expected to be exercised.

NOTE 13 — Debt

Long-term debt was comprised of the following:

	As of December 31,	
	2022	2021
Total credit facility availability	\$ 400,000	\$ 400,000
Balance outstanding	83,670	50,000
Standby letters of credit	1,640	1,740
Amount available, subject to covenant restrictions	\$ 314,690	\$ 348,260
Weighted-average interest rate	2.96%	1.16%

On December 15, 2021, we entered into a second amended and restated five-year credit agreement with a group of banks (the “Revolving Credit Facility”) to (i) increase the total credit facility to \$400,000 which may be increased by \$200,000 at the request of the Company, subject to the administrative agent's approval, (ii) extend the maturity of the Revolving Credit Facility from February 12, 2024 to December 15, 2026, (iii) replace LIBOR with SOFR as the primary reference rate used to calculate interest on the loans under the Revolving Credit Facility, (iv) increase available sublimits for letters of credit, and swingline loans as well as providing for additional alternative currency borrowing capabilities, and (v) modify the financial and non-financial covenants to provide the Company additional flexibility. This new unsecured credit facility replaced the prior \$300,000 unsecured credit facility, which would have expired February 12, 2024.

Borrowings in U.S. dollars under the Revolving Credit Facility bear interest, at a per annum rate equal to the applicable Term SOFR rate (but not less than 0.0%), plus the Term SOFR adjustment, and plus an applicable margin, which ranges from 1.00% to 1.75%, based on our net leverage ratio. Similarly, borrowings of alternative currencies under the Revolving Credit Facility bear interest equal to a defined risk-free reference rate, plus the applicable risk-free rate adjustment and plus an applicable margin, which ranges from 1.00% to 1.75%, based on our net leverage ratio.

The Revolving Credit Facility includes a swing line sublimit of \$20,000 and a letter of credit sublimit of \$20,000. We also pay a quarterly commitment fee on the unused portion of the Revolving Credit Facility. The commitment fee ranges from 0.175% to 0.25% based on our net leverage ratio.

The Revolving Credit Facility requires, in addition to customary representations and warranties, that we comply with a maximum net leverage ratio and a minimum interest coverage ratio. Failure to comply with these covenants could reduce the borrowing availability under the Revolving Credit Facility. We were in compliance with all debt covenants at December 31, 2022. The Revolving Credit Facility requires that we deliver quarterly financial statements, annual financial statements, auditor certifications, and compliance certificates within a specified number of days after the end of a quarter and year. Additionally, the Revolving Credit Facility contains restrictions limiting our ability to: dispose of assets; incur certain additional debt; repay other debt or amend subordinated debt instruments; create liens on assets; make investments, loans or advances; make acquisitions or engage in mergers or consolidations; engage in certain transactions with our subsidiaries and affiliates; and make stock repurchases and dividend payments.

We have debt issuance costs related to our long-term debt that are being amortized using the straight-line method over the life of the debt. Amortization expense was approximately \$194 for the year ended December 31, 2022, \$169 in 2021 and \$168 in 2020. These costs are included in interest expense in our Consolidated Statements of Earnings (Loss).

NOTE 14 — Derivative Financial Instruments

Our earnings and cash flows are subject to fluctuations due to changes in foreign currency exchange rates and interest rates. We selectively use derivative financial instruments including foreign currency forward contracts and interest rate swaps to manage our exposure to these risks.

The use of derivative financial instruments exposes the Company to credit risk, which relates to the risk of nonperformance by a counterparty to the derivative contracts. We manage our credit risk by entering into derivative contracts with only highly rated financial institutions and by using netting agreements.

The effective portion of derivative gains and losses are recorded in accumulated other comprehensive (loss) income until the hedged transaction affects earnings upon settlement, at which time they are reclassified to costs of goods sold or net sales. If it is probable that an anticipated hedged transaction will not occur by the end of the originally specified time period, we reclassify the gains or losses related to that hedge from accumulated other comprehensive (loss) income to other income (expense), net.

We assess hedge effectiveness qualitatively by verifying that the critical terms of the hedging instrument and the forecasted transaction continue to match, and that there have been no adverse developments that have increased the risk that the counterparty will default. No recognition of ineffectiveness was recorded in our Consolidated Statement of Earnings (Loss) for the year ended December 31, 2022.

Foreign Currency Hedges

We use forward contracts to mitigate currency risk related to a portion of our forecasted foreign currency revenues and costs. The currency forward contracts are designed as cash flow hedges and are recorded in the Consolidated Balance Sheets at fair value.

We continue to monitor the Company's overall currency exposure and may elect to add cash flow hedges in the future. At December 31, 2022, we had a net unrealized gain of \$915 in accumulated other comprehensive (loss) income, of which \$849 in gains are expected to be reclassified to earnings within the next 12 months. The notional amount of foreign currency forward contracts outstanding was \$30,033 at December 31, 2022.

Interest Rate Swaps

We use interest rate swaps to convert a portion of our revolving credit facility's outstanding balance from a variable rate of interest to a fixed rate.

As of December 31, 2022, we have agreements to fix interest rates on \$50,000 of long-term debt through December 2026. The difference to be paid or received under the terms of the swap agreements will be recognized as an adjustment to interest expense when settled.

These swaps are treated as cash flow hedges and consequently, the changes in fair value are recorded in other comprehensive (loss) income. The estimated net amount of the existing losses that are reported in accumulated other comprehensive (loss) income that are expected to be reclassified into earnings within the next twelve months is approximately \$1,561.

The location and fair values of derivative instruments designated as hedging instruments in the Consolidated Balance Sheets as of December 31, 2022, are shown in the following table:

	<u>As of December 31,</u>	
	<u>2022</u>	<u>2021</u>
Interest rate swaps reported in Other current assets	\$ 1,561	\$ —
Interest rate swaps reported in Other assets	\$ 1,434	\$ —
Interest rate swaps reported in Accrued expenses and other liabilities	\$ —	\$ (437)
Interest rate swaps reported in Other long-term obligations	\$ —	\$ (353)
Cross-currency swap reported in Accrued expenses and other liabilities	\$ (357)	\$ —
Foreign currency hedges reported in Other current assets	\$ 945	\$ 135

The Company has elected to net its foreign currency derivative assets and liabilities in the balance sheet in accordance with ASC 210-20 (*Balance Sheet, Offsetting*). On a gross basis, there were foreign currency derivative assets of \$1,090 and foreign currency derivative liabilities of \$145 at December 31, 2022.

The effect of derivative instruments on the Consolidated Statements of Earnings (Loss) is as follows:

	Years Ended December 31,		
	2022	2021	2020
Foreign Exchange Contracts:			
Amounts reclassified from AOCI to earnings:			
Net sales	\$ —	\$ —	\$ (128)
Cost of goods sold	924	1,384	(754)
Selling, general and administrative expense	—	—	(5)
Total amounts reclassified from AOCI to earnings	924	1,384	(887)
Gain recognized in other expense for hedge ineffectiveness	—	—	3
Total derivative gain (loss) on foreign exchange contracts recognized in earnings	\$ 924	\$ 1,384	\$ (884)
Interest Rate Swaps:			
Income (Expense) recorded in interest expense	\$ 77	\$ (744)	\$ (432)
Cross-Currency Swaps:			
Income recorded in interest expense	\$ 461	—	—
Total gains (losses) on derivatives	\$ 1,462	\$ 640	\$ (1,316)

Cross-Currency Swap

The Company has operations and investments in various international locations and is subject to risks associated with changing foreign exchange rates. As part of the strategy to limit foreign exchange exposure, the Company entered into a cross currency interest rate swap agreement on June 27, 2022 that synthetically swapped \$25,000 of variable rate debt to Krone denominated variable rate debt. Upon completion of the Ferroperm acquisition on June 30, 2022, the transaction was designated as a net investment hedge for accounting purposes and will mature on June 30, 2027. Accordingly, any gains or losses on this derivative instrument will be included in the foreign currency translation component of other comprehensive income until the net investment is sold, diluted or liquidated. Interest payments received for the cross-currency swap are excluded from the net investment hedge effectiveness assessment and are recorded in interest expense in the Condensed Consolidated Statements of Earnings. The assumptions used in measuring fair value of the cross currency-swap are considered level 2 inputs, which are based upon the Krone to United States Dollar exchange rate market. At December 31, 2022 we had a net unrealized loss of \$557 in accumulated other comprehensive (loss) income.

Prior to designation as a net investment hedge, a gain of \$111 was recorded in other expense within the Condensed Consolidated Statements of Earnings during the second quarter of 2022.

Derivative Contracts Not Designated as Hedges

In the second quarter of 2022, the Company used derivative contracts to manage foreign currency exchange risk related to funds to be used for the purchase price of the Ferroperm acquisition. These contracts were not designated as hedges and therefore changes in the fair values of these instruments were recognized directly in earnings. All contracts were settled in conjunction with the closing of the Ferroperm acquisition. As a result of these contracts, the Company recognized a \$1,776 loss in other expense in the Consolidated Statements of Earnings (Loss) in 2022.

NOTE 15 — Accumulated Other Comprehensive (Loss) Income

Shareholders' equity includes certain items classified as accumulated other comprehensive (loss) income ("AOCI") in the Consolidated Balance Sheets, including:

- **Unrealized gains (losses) on hedges** relate to interest rate swaps to convert a portion of our revolving credit facility's outstanding balance from a variable rate of interest into a fixed rate and foreign currency forward contracts used to hedge our exposure to changes in exchange rates affecting certain revenues and costs denominated in foreign currencies. These hedges are designated as cash flow hedges, and we have deferred income statement recognition of gains and losses until the hedged transactions occur, at which time amounts are reclassified into earnings. Further information related to our derivative financial instruments is included in Note 14, "Derivative Financial Instruments" and Note 18, "Fair Value Measurements".
- **Unrealized gains (losses) on pension obligations** are deferred from income statement recognition until the gains or losses are realized. Amounts reclassified to earnings from AOCI are included in net periodic pension income (expense). Further information related to our pension obligations is included in Note 7, "Retirement Plans".
- **Cumulative translation adjustment** relates to our non-U.S. subsidiary companies that have designated a functional currency other than the U.S. dollar. We are required to translate the subsidiary functional currency financial statements to U.S. dollars

using a combination of historical, period-end, and average foreign exchange rates. This combination of rates creates the foreign currency translation adjustment component of other comprehensive income.

The components of accumulated other comprehensive (loss) income for the year ended December 31, 2022 are as follows:

	As of December 31, 2021	Gain (Loss) Recognized in OCI	(Gain) Loss reclassified from AOCI to earnings	As of December 31, 2022
Changes in fair market value of derivatives:				
Gross	\$ (635)	\$ 5,547	\$ (1,001)	\$ 3,911
Income tax benefit (expense)	147	(1,276)	230	(899)
Net	(488)	4,271	(771)	3,012
Changes in unrealized pension cost:				
Gross	(2,744)	3,308	(1,743)	(1,179)
Income tax benefit (expense)	738	(760)	398	376
Net	(2,006)	2,548	(1,345)	(803)
Cumulative translation adjustment:				
Gross	(2,032)	(848)	—	(2,880)
Income tax benefit (expense)	—	—	—	—
Net	(2,032)	(848)	—	(2,880)
Total accumulated other comprehensive (loss) income	\$ (4,526)	\$ 5,971	\$ (2,116)	\$ (671)

The components of accumulated other comprehensive (loss) income for the year ended December 31, 2021 are as follows:

	As of December 31, 2020	Gain (Loss) Recognized in OCI	(Gain) Loss reclassified from AOCI to earnings	As of December 31, 2021
Changes in fair market value of derivatives:				
Gross	\$ (1,038)	\$ 1,043	\$ (640)	\$ (635)
Income tax (expense) benefit	240	(240)	147	147
Net	(798)	803	(493)	(488)
Changes in unrealized pension cost:				
Gross	(128,004)	(4,951)	130,211	(2,744)
Income tax (expense) benefit	34,917	1,139	(35,318)	738
Net	(93,087)	(3,812)	94,893	(2,006)
Cumulative translation adjustment:				
Gross	(2,036)	4	—	(2,032)
Income tax benefit (expense)	—	—	—	—
Net	(2,036)	4	—	(2,032)
Total accumulated other comprehensive (loss) income	\$ (95,921)	\$ (3,005)	\$ 94,400	\$ (4,526)

NOTE 16 — Shareholders' Equity

Share count and par value data related to shareholders' equity are as follows:

	As of December 31,	
	2022	2021
Preferred Stock		
Par value per share	No par value	No par value
Shares authorized	25,000,000	25,000,000
Shares outstanding	—	—
Common Stock		
Par value per share	No par value	No par value
Shares authorized	75,000,000	75,000,000
Shares issued	57,330,761	57,245,060
Shares outstanding	31,680,890	32,178,715
Treasury stock		
Shares held	25,649,871	25,066,345

On May 13, 2021, the Board of Directors approved a share repurchase program that authorizes the Company to repurchase up to \$50,000 of the Company's common stock. The repurchase program has no set expiration date and replaced the repurchase program approved by the Board of Directors on February 7, 2019. During the year ended December 31, 2022, 583,526 shares of common stock were repurchased for approximately \$21,447. Approximately \$19,767 is still available for future purchases under this program.

On February 9, 2023, the Board approved a new share repurchase program that authorizes the Company to repurchase up to \$50 million of its common stock. The repurchase program has no set expiration date and supersedes and replaces the repurchase program approved by the Board in May 2021.

A roll forward of common shares outstanding is as follows:

	As of December 31,	
	2022	2021
Balance at beginning of the year	32,178,715	32,276,787
Repurchases	(583,526)	(266,722)
Restricted stock unit issuances	85,701	168,650
Balance at end of period	31,680,890	32,178,715

NOTE 17 — Stock-Based Compensation

At December 31, 2022, we had five stock-based compensation plans: the Non-Employee Directors' Stock Retirement Plan ("Directors' Plan"), the 2004 Omnibus Long-Term Incentive Plan ("2004 Plan"), the 2009 Omnibus Equity and Performance Incentive Plan ("2009 Plan"), the 2014 Performance & Incentive Plan ("2014 Plan"), and the 2018 Equity and Incentive Compensation Plan ("2018 Plan"). Future grants can only be made under the 2018 Plan. The 2018 Plan allows for grants of stock options, stock appreciation rights, restricted stock, restricted stock units ("RSUs"), performance shares, performance units, and other stock awards subject to the terms of the 2018 Plan.

The following table summarizes the compensation expense included in selling, general and administrative expenses in the Consolidated Statements of Earnings (Loss) related to stock-based compensation plans:

	Years Ended December 31,		
	2022	2021	2020
Service-Based RSUs	\$ 2,834	\$ 2,714	\$ 2,601
Performance-Based RSUs	4,469	3,113	539
Cash-settled awards	423	278	277
Total	\$ 7,726	\$ 6,105	\$ 3,417
Income tax benefit	1,777	1,404	786
Net	\$ 5,949	\$ 4,701	\$ 2,631

The fair value of all equity awards that vested during the periods ended December 31, 2022, 2021, and 2020 were \$4,535, \$7,063, and \$5,680, respectively. We recorded a tax deduction related to equity awards that vested during the year ended December 31, 2022, in the amount of \$1,624.

The following table summarizes the unrecognized compensation expense related to non-vested RSUs by type and the weighted-average period in which the expense is to be recognized:

	Unrecognized compensation expense at December 31, 2022	Weighted- average period
Service-Based RSUs	\$ 2,003	1.26
Performance-Based RSUs	4,501	1.69
Total	\$ 6,504	1.56

We recognize expense on a straight-line basis over the requisite service period for each separately vesting portion of the award as if the award was, in substance, multiple awards.

The following table summarizes the status of these plans as of December 31, 2022:

	2018 Plan	2014 Plan	2009 Plan	2004 Plan	Directors' Plan
Awards originally available to be granted	2,500,000	1,500,000	3,400,000	6,500,000	N/A
Performance stock options outstanding	—	—	—	—	—
Maximum potential RSU and cash settled awards outstanding	724,769	35,100	30,000	14,545	4,722
Maximum potential awards outstanding	724,769	35,100	30,000	14,545	4,722
RSUs and cash settled awards vested and released	251,360	—	—	—	—
Awards available to be granted	1,523,871	—	—	—	—

Service-Based Restricted Stock Units

Service-based RSUs entitle the holder to receive one share of common stock for each unit when the unit vests. RSUs are issued to officers, key employees, and non-employee directors as compensation. Generally, the RSUs vest over a three-year period. RSUs granted to non-employee directors generally vest one year after being granted. Upon vesting, the non-employee directors elect to either receive the stock associated with the RSU immediately or defer receipt of the stock to a future date. The fair value of the RSUs is equivalent to the trading value of our common stock on the grant date.

A summary of RSU activity for the year ended December 31, 2022 is presented below:

	Units	Weighted Average Grant Date Fair Value	Weighted Average Remaining Contractual Term	Aggregate Intrinsic Value
Outstanding at January 1, 2022	283,216	\$ 24.91		
Granted	86,624	35.38		
Released	(79,563)	26.78		
Forfeited	(8,153)	30.46		
Outstanding at December 31, 2022	282,124	\$ 27.44	17.79	\$ 11,069
Releasable at December 31, 2022	135,467	\$ 20.73	30.35	\$ 5,340
		Years Ended December 31,		
		2022	2021	2020
Weighted-average grant date fair value		\$ 35.38	\$ 33.81	\$ 27.94
Intrinsic value of RSUs released		\$ 2,794	\$ 5,408	\$ 2,503

A summary of non-vested RSU activity for the year ended December 31, 2022 is presented below:

	RSUs	Weighted Average Grant Date Fair Value
Nonvested at January 1, 2022	150,549	\$ 31.42
Granted	86,624	35.38
Vested	(82,363)	31.73
Forfeited	(8,153)	30.46
Nonvested at December 31, 2022	146,657	\$ 33.64

Performance-Based Restricted Stock Units

We grant performance-based restricted stock unit awards ("PSUs") to certain executives and key employees. PSUs are usually awarded in the range from zero percent to 200% of a targeted number of shares. The award rate for the 2018-2020, 2019-2021, and 2020-2022 PSUs was dependent upon our achievement of sales growth targets, cash flow targets, and relative total shareholder return ("RTSR") using a matrix based on the percentile ranking of our stock price performance compared to a peer group over a three-year period. Other PSUs are granted from time to time based on other performance criteria. The initial fair value of the PSUs is equivalent to the trading value of our common stock on the grant date. The fair value is subsequently adjusted quarterly based on management's assessment of the Company's performance relative to the target number of shares performance criteria.

A summary of PSU activity for the year ended December 31, 2022 is presented below:

	Units	Weighted Average Grant Date Fair Value	Weighted Average Remaining Contractual Term	Aggregate Intrinsic Value
Outstanding at January 1, 2022	237,767	\$ 31.35		
Granted	84,852	37.15		
Added by performance factor	5,136	29.50		
Released	(51,848)	30.64		
Forfeited	(15,601)	31.83		
Outstanding at December 31, 2022	260,306	\$ 33.30	1.84	\$ 10,261
Releasable at December 31, 2022	—	\$ —		\$ —

The following table summarizes each grant of performance awards outstanding at December 31, 2022:

Description	Grant Date	Vesting Year	Vesting Dependency	Target Units Outstanding	Maximum Number of Units to be Granted
2020 - 2022 QTI Performance RSUs	September 24, 2019	2022	50% EBITDA growth, 50% Sales growth 25% RTSR, 40% sales growth,	1,750	3,500
2020 - 2022 Performance RSUs	February 6, 2020	2022	35% operating cash flow 25% RTSR, 40% sales growth,	59,475	118,950
2021 - 2023 Performance RSUs	Varies	2023	35% operating cash flow 35% RTSR, 35% sales growth,	67,569	135,138
2022 - 2024 Performance RSUs	February 10, 2022	2024	30% operating cash flow Cumulative revenues of \$750 million over a trailing four-quarter period	77,862	155,724
Focus 2025 Performance RSUs	Varies	2024		53,650	53,650
Total				260,306	466,962

Cash-Settled Restricted Stock Units

Cash-Settled RSUs entitle the holder to receive the cash equivalent of one share of common stock for each unit when the unit vests. These RSUs are issued to key employees residing in foreign locations as direct compensation. Generally, these RSUs vest over a three-year period. Cash-settled RSUs are classified as liabilities and are remeasured at each reporting date until settled. At December 31, 2022, and 2021, we had 46,641 and 32,085 cash-settled RSUs outstanding, respectively. At December 31, 2022, and 2021, liabilities of \$566 and \$400, respectively were included in accrued expenses and other liabilities on our Consolidated Balance Sheets.

NOTE 18 — Fair Value Measurements

The table below summarizes the financial assets and liabilities that were measured at fair value on a recurring basis as of December 31, 2022 and the gain recorded during the year ended December 31, 2022:

	Asset (Liability) Carrying Value at December 31, 2022	Quoted Prices in Active Markets for Identical (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Gain for Year Ended December 31, 2022
Interest rate swap	\$ 2,995	\$ —	\$ 2,995	\$ —	\$ 77
Foreign currency hedges	\$ 945	\$ —	\$ 945	\$ —	\$ 924
Cross-currency swap	\$ (357)	\$ —	\$ (357)	\$ —	\$ 461
Qualified replacement plan assets	\$ 15,249	\$ 15,249	\$ —	\$ —	\$ —

The table below summarizes the financial assets that were measured at fair value on a recurring basis as of December 31, 2021 and the (loss) recorded during the year ended December 31, 2021:

	(Liability) Asset Carrying Value at December 31, 2021	Quoted Prices in Active Markets for Identical (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	(Loss) Gain for Year Ended December 31, 2021
Interest rate swap	\$ (790)	\$ —	\$ (790)	\$ —	\$ (744)
Foreign currency hedges	\$ 135	\$ —	\$ 135	\$ —	\$ 1,384
Contingent consideration	\$ (1,200)	\$ —	\$ —	\$ (1,200)	\$ —

We use interest rate swaps to convert a portion of our Revolving Credit Facility's outstanding balance from a variable rate of interest into a fixed rate and foreign currency forward contracts to hedge the effect of foreign currency changes on certain revenues and costs denominated in foreign currencies. In addition, the Company entered into a cross currency swap agreement in order to manage its exposure to changes in interest rates related to foreign debt. These derivative financial instruments are measured at fair value on a recurring basis.

The fair value of our interest rate swaps, and foreign currency hedges were measured using standard valuation models using market-based observable inputs over the contractual terms, including forward yield curves, among others. There is a readily determinable market for these derivative instruments, but that market is not active and therefore they are classified within Level 2 of the fair value hierarchy. The QRP assets consist of investment funds maintained for future contributions to the Company's U.S. 401(k) program. The investments are Level 1 marketable securities and are recorded in Other Assets on our Condensed Consolidated Balance Sheets. Refer to Note 7 - "Retirement Plans" for further information on the QRP.

The fair value of the contingent consideration required significant judgment. The Company's fair value estimates used in the contingent consideration valuation are considered Level 3 fair value measurements. The fair value estimates were based on assumptions management believes to be reasonable, but that are inherently uncertain, including estimates of future revenues and timing of events and activities that are expected to take place.

A roll-forward of the contingent consideration is as follows:

	<u>Contingent Consideration</u>
Balance at December 31, 2021 in accrued expenses and other liabilities	\$ 1,200
Settled in cash	(1,050)
Change in fair value	(150)
Balance at December 31, 2022 in accrued expenses and other liabilities	<u>\$ —</u>

Our long-term debt consists of debt outstanding under the Revolving Credit Facility which is recorded at its carrying value. There is a readily determinable market for our long-term debt and it is classified within Level 2 of the fair value hierarchy as the market is not deemed to be active. The fair value of long-term debt approximates carrying value and was determined by valuing a similar hypothetical coupon bond and attributing that value to our long-term debt under the Revolving Credit Facility.

NOTE 19 — Income Taxes

Earnings (Loss) before income taxes consist of the following:

	<u>Years Ended December 31,</u>		
	<u>2022</u>	<u>2021</u>	<u>2020</u>
U.S.	\$ 1,005	\$ (128,699)	\$ (7,101)
Non-U.S.	79,732	67,819	52,580
Total	<u>\$ 80,737</u>	<u>\$ (60,880)</u>	<u>\$ 45,479</u>

Significant components of income tax provision/(benefit) are as follows:

	<u>Years Ended December 31,</u>		
	<u>2022</u>	<u>2021</u>	<u>2020</u>
Current:			
U.S.	\$ 1,365	\$ 36	\$ 211
Non-U.S.	19,305	11,932	11,275
Total Current	<u>20,670</u>	<u>11,968</u>	<u>11,486</u>
Deferred:			
U.S.	249	(35,979)	(2,815)
Non-U.S.	243	4,997	2,122
Total Deferred	<u>492</u>	<u>(30,982)</u>	<u>(693)</u>
Total provision for income taxes	<u>\$ 21,162</u>	<u>\$ (19,014)</u>	<u>\$ 10,793</u>

Significant components of our deferred tax assets and liabilities are as follows:

	As of December 31,	
	2022	2021
Post-retirement benefits	\$ 947	\$ 1,226
Inventory reserves	251	69
Loss carry-forwards	4,547	5,070
Credit carry-forwards	10,467	19,665
Accrued expenses	4,543	4,917
Research and development expenditures	19,448	19,226
Operating lease liabilities	5,865	5,643
Stock compensation	2,426	1,970
Foreign exchange loss	2,075	2,052
Other	835	769
Gross deferred tax assets	<u>51,404</u>	<u>60,607</u>
Depreciation and amortization	23,067	13,386
Pensions	—	10,958
Qualified replacement plan	3,507	—
Operating lease assets	5,531	5,307
Subsidiaries' unremitted earnings	2,562	1,947
Other	900	—
Gross deferred tax liabilities	<u>35,567</u>	<u>31,598</u>
Net deferred tax assets	15,837	29,009
Deferred tax asset valuation allowance	(8,386)	(9,489)
Total net deferred tax assets	<u>\$ 7,451</u>	<u>\$ 19,520</u>

The deferred tax assets and deferred tax liabilities, classified as non-current, are as follows below:

	As of December 31,	
	2022	2021
Non-current deferred tax assets	\$ 23,461	\$ 25,414
Non-current deferred tax liabilities	\$ (16,010)	\$ (5,894)
Total net deferred tax assets	<u>\$ 7,451</u>	<u>\$ 19,520</u>

At each reporting date, we weigh all available positive and negative evidence to assess whether it is more-likely-than-not that the Company's deferred tax assets, including deferred tax assets associated with accumulated loss carryforwards and tax credits in the various jurisdictions in which it operates, will be realized. As of December 31, 2022, and 2021, we recorded deferred tax assets related to certain U.S. state and non-U.S. income tax loss carryforwards of \$4,547 and \$5,070, respectively, and U.S. and non-U.S. tax credits of \$10,467 and \$19,665, respectively. The deferred tax assets expire in various years primarily between 2023 and 2042.

Generally, we assess if it is more-likely-than-not that our net deferred tax assets will be realized during the available carry-forward periods. As a result, we have determined that valuation allowances of \$8,386 and \$9,489 should be provided for certain deferred tax assets at December 31, 2022, and 2021, respectively. As of December 31, 2022, the valuation allowances relate to certain U.S. state and non-U.S. loss carry-forwards and certain U.S. state tax credits that management does not anticipate will be utilized.

A valuation allowance of \$172 was recorded in 2022 against the U.S. federal foreign tax credit carryforwards of \$362. These credits begin to expire in varying amounts between 2028 and 2032. No valuation allowance was recorded in 2022 against the U.S. federal research and development tax credits of \$8,082. These credits begin to expire in varying amounts between 2023 and 2042. We assessed the anticipated realization of those tax credits utilizing future taxable income projections. Based on those projections, management believes it is more-likely-than-not that we will realize the benefits of these credit carryforwards.

The following table reconciles taxes at the U.S. federal statutory rate to the effective income tax rate:

	Years Ended December 31,		
	2022	2021	2020
Taxes at the U.S. statutory rate	21.0%	21.0%	21.0%
State income taxes, net of federal income tax benefit	0.2%	4.3%	(0.1)%
Non-U.S. earnings taxed at rates different than the U.S. statutory rate	(3.2)%	3.1%	(0.9)%
Foreign source earnings, net of associated foreign tax credits	(0.6)%	0.1%	(0.7)%
Benefit of tax credits	(0.2)%	0.8%	(0.7)%
Non-deductible expenses	2.6%	(1.6)%	(0.5)%
Stock compensation - excess tax benefits	(0.2)%	0.7%	(0.1)%
Adjustment to valuation allowances	1.4%	(3.1)%	1.6%
Change in unrecognized tax benefits	(0.1)%	0.4%	(0.7)%
Impacts of unremitted foreign earnings	2.7%	(4.5)%	5.2%
Release of disproportionate tax effects of OCI	—	8.8%	—
Excise tax paid upon U.S. pension termination	1.8%	—	—
Other	0.8%	1.2%	(0.4)%
Effective income tax rate	26.2%	31.2%	23.7%

In 2020, the Company began the termination of the U.S.-based pension plan. As a result of the final settlement of the pension liability in 2021, we reclassified the disproportionate tax effect related to the pension plan of \$5,375 that was previously recorded in accumulated other comprehensive loss to income tax expense. In 2022, the remaining assets of the pension plan were liquidated and reverted back to CTS. These funds are subject to both income and excise taxes. The excise taxes of \$6,803 are nondeductible for U.S. tax purposes. Further information related to our pension terminations is included in Note 7 – "Retirement Plans."

Following the enactment of the 2017 Tax Cut and Jobs Act ("Tax Act") and the associated one-time transition tax, in general, repatriation of foreign earnings to the U.S. can be completed with no incremental U.S. tax. However, there are limited other taxes that continue to apply such as foreign withholding and certain state taxes. The Company records a deferred tax liability for the estimated foreign earnings and state tax cost associated with the undistributed foreign earnings that are not permanently reinvested. In 2020 the Company made the decision to no longer permanently reinvest the earnings of its Taiwan subsidiary.

The Tax Act also includes provisions for Global Intangible Low-Taxed Income ("GILTI") wherein taxes on foreign income are imposed in excess of a deemed return on tangible assets of foreign corporations. We elected to recognize the tax on GILTI as an expense in the period the tax is incurred.

We recognize the financial statement benefit of a tax position when it is more-likely-than-not, based on its technical merits, that the position will be sustained upon examination. A tax position that meets the more-likely-than-not threshold is then measured to determine the amount of benefit to be recognized in the financial statements. As of December 31, 2022, we have approximately \$2,079 of unrecognized tax benefits, which if recognized, would impact the effective tax rate. We anticipate reducing our unrecognized tax benefits by approximately \$222 in the next 12 months.

A reconciliation of the beginning and ending unrecognized tax benefits is provided below:

	As of December 31,	
	2022	2021
Balance at January 1	\$ 2,196	\$ 3,128
Increase related to current year tax positions	48	70
Decrease related to prior year tax positions	(165)	(237)
Decrease related to lapse in statute of limitation	—	(125)
Decrease related to settlements with taxing authorities	—	(640)
Balance at December 31	\$ 2,079	\$ 2,196

Our continuing practice is to recognize interest and/or penalties related to unrecognized tax benefits as income tax expense. As of December 31, 2022, and 2021, \$39 and \$39, respectively, of interest and penalties were accrued.

We are subject to taxation in the U.S., various states, and in non-U.S. jurisdictions. Our U.S. income tax returns are primarily subject to examination from 2019 through 2021; however, U.S. tax authorities also have the ability to review prior tax years to the extent loss carryforwards and tax credit carryforwards are utilized. The open years for the non-U.S. tax returns range from 2013 through 2021 based on local statutes.

NOTE 20 — Geographic Data

Financial information relating to our operations by geographic area were as follows:

Net Sales	Years Ended December 31,		
	2022	2021	2020
United States	\$ 326,561	\$ 297,322	\$ 241,823
China	115,980	106,700	88,129
Singapore	48,288	37,742	31,985
Czech Republic	35,990	36,252	27,143
Taiwan	30,199	27,768	21,849
Other non-U.S.	29,851	7,141	13,137
Consolidated net sales	\$ 586,869	\$ 512,925	\$ 424,066

Sales are attributed to countries based upon the origin of the sale.

Long-Lived Tangible Assets	Years Ended December 31,	
	2022	2021
United States	\$ 32,694	\$ 37,409
China	28,255	30,461
Mexico	17,050	13,311
Czech Republic	8,519	9,728
Taiwan	6,446	5,679
Other non-U.S.	4,336	288
Consolidated long-lived assets	\$ 97,300	\$ 96,876

CTS CORPORATION

SCHEDULE II — VALUATION AND QUALIFYING ACCOUNTS

(in thousands)	Balance at Beginning of Period	Charged to Expense	Charged to Other Accounts	Write-offs / Recoveries	Balance at End of Period
Year ended December 31, 2022 Allowance for credit losses	\$ 1,657	\$ 97	\$ (22)	\$ (496)	\$ 1,236
Year ended December 31, 2021 Allowance for credit losses	\$ 764	\$ 1,020	\$ 4	\$ (131)	\$ 1,657
Year ended December 31, 2020 Allowance for credit losses	\$ 261	\$ 513	\$ 152	\$ (162)	\$ 764

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

Not applicable.

Item 9A. Controls and Procedures

(a) Evaluation of Disclosure and Controls

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended) as of the end of the period covered by this Annual Report on Form 10-K. Based on that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures as of the end of the period covered by this Annual Report on Form 10-K were effective in providing reasonable assurance that information required to be disclosed by us in reports that we file or submit under the Securities Exchange Act of 1934, as amended, is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission's rules and forms, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosures.

Our management, including our Chief Executive Officer and Chief Financial Officer, does not expect that our disclosure controls and procedures or our internal controls will prevent all error and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, within CTS Corporation have been detected.

(b) Management's Annual Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rule 13a-15(f) of the Securities Exchange Act of 1934 as amended (the "Exchange Act")). Our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2022. In making this assessment, our management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") in *Internal Control—Integrated Framework* (2013 framework). We have excluded from the scope of our assessment of internal control over financial reporting the operations and related assets of TEWA Temperature Sensors SP. Zo.o. and Ferroperm Piezoceramics A/S, which we acquired in 2022. At December 31, 2022 and for the period from acquisitions through December 31, 2022, total assets and revenues subject to our internal control over financial reporting represented 15% of our consolidated total assets and 4% of our consolidated total net revenues.

Based on our assessment under the framework in *Internal Control—Integrated Framework* (2013 framework), our management concluded that our internal control over financial reporting was effective as of December 31, 2022. The effectiveness of our internal control over financial reporting as of December 31, 2022 has been audited by Grant Thornton LLP, an independent registered public accounting firm, as stated in their report that is included herein.

(c) Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting for the quarter ended December 31, 2022 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Shareholders
CTS Corporation

Opinion on internal control over financial reporting

We have audited the internal control over financial reporting of CTS Corporation (an Indiana corporation) and subsidiaries (the “Company”) as of December 31, 2022, based on criteria established in the 2013 *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2022, based on criteria established in the 2013 *Internal Control—Integrated Framework* issued by COSO.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (“PCAOB”), the consolidated financial statements of the Company as of and for the year ended December 31, 2022, and our report dated February 24, 2023 expressed an unqualified opinion on those financial statements.

Basis for opinion

The Company’s management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management’s Annual Report on Internal Control Over Financial Reporting (“Management’s Report”). 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.

Our audit of, and opinion on, the Company’s internal control over financial reporting does not include the internal control over financial reporting of TEWA Temperature Sensors SP. Zo.o. and Ferroperm Piezoceramics A/S, both wholly-owned subsidiaries, whose combined financial statements reflect total assets and revenues constituting 15 and 4 percent, respectively, of the related consolidated financial statement amounts as of and for the year ended December 31, 2022. As indicated in Management’s Report, TEWA Temperature Sensors SP. Zo.o. and Ferroperm Piezoceramics A/S were both acquired during 2022. Management’s assertion on the effectiveness of the Company’s internal control over financial reporting excluded internal control over financial reporting of both TEWA Temperature Sensors SP. Zo.o. and Ferroperm Piezoceramics A/S.

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/ GRANT THORNTON LLP
Chicago, Illinois
February 24, 2023

Item 9B. Other Information

Not applicable.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

Please see Part I, Item 1 of this Annual Report on Form 10-K for information about our executive officers, which is incorporated by reference herein. Information with respect to Directors and Corporate Governance may be found in our definitive proxy statement to be delivered to shareholders in connection with our 2023 Annual Meeting of Shareholders. Such information is incorporated herein by reference.

Item 11. Executive Compensation

Information with respect to this item may be found in our definitive proxy statement to be delivered to shareholders in connection with our 2023 Annual Meeting of Shareholders. Such information is incorporated herein by reference.

EQUITY COMPENSATION PLAN INFORMATION

The following table provides information about shares of CTS common stock that could be issued under all of our equity compensation plans as of December 31, 2022:

Plan Category	(a) Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants and Rights ⁽²⁾	(b) Weighted- Average Exercise Price of Outstanding Options, Warrants and Rights	(c) Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column(a)) ⁽³⁾
Equity compensation plans approved by security holders	979,568	\$ 30.20	1,523,871
Equity compensation plans not approved by security holders ⁽¹⁾	4,722	—	—
Total	984,290		1,523,871

- (1) In 1990, we adopted the Stock Retirement Plan for Non-Employee Directors. Prior to December 1, 2004, we annually credited an account for each non-employee director with 800 CTS common stock units. We also annually credited each deferred stock account with an additional number of CTS common stock units representing the amount of dividends which would have been paid on an equivalent number of shares of CTS common stock for each quarter during the preceding calendar year. As of December 1, 2004, this plan was amended to preclude crediting any additional CTS common stock units under the plan. Upon retirement, a participating non-employee director is entitled to receive one share of CTS common stock for each CTS common stock unit in his deferred stock account. On December 31, 2022, the deferred stock accounts contained a total of 4,722 CTS common stock units.
- (2) Based on achievement of the maximum targets for performance-based equity grants. As a result, this aggregate reported number may overstate actual dilution. The weighted-average exercise price disclosed in column (b) does not take either the deferred stock account holdings or these performance-based equity grants into account.
- (3) All of these shares may be issued with respect to award vehicles other than just stock options or stock appreciation rights or other rights to acquire shares.

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

Information with respect to this item may be found in our definitive proxy statement to be delivered to shareholders in connection with our 2023 Annual Meeting of Shareholders. Such information is incorporated herein by reference.

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

Information with respect to this item may be found in our definitive proxy statement to be delivered to shareholders in connection with our 2023 Annual Meeting of Shareholders. Such information is incorporated herein by reference.

Item 14. Principal Accountant Fees and Services

Information with respect to the aggregate fees billed to us by our principal accountant, Grant Thornton LLP (PCAOB ID No. 248), may be found in our definitive proxy statement to be delivered to shareholders in connection with our 2023 Annual Meeting of Shareholders. Such information is incorporated herein by reference.

PART IV

Item 15. Exhibits and Financial Statements Schedules

(a) (1) Financial Statements

The financial statements are filed as part of this Annual Report on Form 10-K under “Item 8. Financial Statements and Supplementary Data.”

(a) (2) Financial Statement Schedule:

Schedule II: Valuation and Qualifying Accounts and Reserves

Other schedules have been omitted because they are not applicable, or the required information is shown in the Consolidated Financial Statements or Notes thereto.

(a) (3) Exhibits

All references to documents filed pursuant to the Securities Exchange Act of 1934, including Forms 10-K, 10-Q and 8-K, were filed by CTS, File No. 1-4639.

- (3)(i) [Amended and Restated Articles of Incorporation \(incorporated by reference to Exhibit 3 to the Current Report on Form 8-K, filed with the SEC on June 3, 2022\).](#)
- (3)(ii) [Amended Bylaws \(incorporated herein by reference to Exhibit 3 to the Current Report on Form 8-K, filed with the SEC on November 22, 2022\).](#)
- (4)(1) [Description of Securities Registered under Section 12 of the Securities Exchange Act of 1934](#)
- (10)(a) [CTS Corporation Stock Retirement Plan for Non-Employee Directors, effective April 30, 1990, as amended \(incorporated by reference to Exhibit \(10\)\(a\) to the Quarterly Report on Form 10-Q for the quarter ended March 30, 2003, filed with the SEC on April 23, 2003\).*](#)
- (10)(b) [Amendment to the CTS Corporation Stock Retirement Plan for Non-Employee Directors, dated as of December 1, 2004 \(incorporated by reference to Exhibit \(10\)\(j\) to the Annual Report on Form 10-K for the year ended December 31, 2004, filed with the SEC on March 4, 2005\).](#)
- (10)(c) [Prototype Individual Excess Benefit Retirement Plan \(incorporated by reference to Exhibit 10\(d\) to the Quarterly Report on Form 10-Q for the quarter ended September 30, 2007, filed with the SEC on October 24, 2007\).*](#)
- (10)(d) [CTS Corporation Executive Severance Policy, effective as of September 10, 2009 \(incorporated by reference to Exhibit 10 to the Quarterly Report on Form 10-Q for the quarter ended September 27, 2009, filed with the SEC on October 28, 2009\).*](#)
- (10)(e) [Prototype Change in Control Agreement \(incorporated by reference to Exhibit 10\(x\) to the Annual Report on Form 10-K for the year ended December 31, 2011, filed with the SEC on February 24, 2012\).*](#)
- (10)(f) [First Amendment to the CTS Corporation Executive Severance Policy \(incorporated by reference to Exhibit 10\(b\) to the Quarterly Report on Form 10-Q for the quarter ended March 31, 2013, filed with the SEC on April 25, 2013\).*](#)
- (10)(g) [CTS Corporation 2014 Performance and Incentive Compensation Plan \(incorporated by reference to Exhibit 10.1 to the Form 8-K, filed with the SEC on May 22, 2014\).*](#)
- (10)(h) [Credit Agreement Between CTS Corporation and CTS International B.V. and BMO Harris Bank N.A. dated February 12, 2019 \(incorporated by reference to Exhibit 10.1 to the Form 8-K filed with the SEC on February 15, 2019\).](#)
- (10)(i) [Credit Agreement by and among CTS Corporation, the Lenders from time to time parties thereto, and BMO Harris Bank N.A. as L/C Issuer and Administrative Agent dated December 15, 2021 \(incorporated by reference to Exhibit 10.1 to the Form 8-K filed with the SEC on December 17, 2021\).](#)
- (10)(j) [CTS Corporation Pension Plan Exhibit \(Amended and Restated Effective As of July 1, 2015\) \(incorporated by reference to Exhibit 10\(s\) to the Form 10-K filed with the SEC on February 23, 2018\).](#)
- (10)(k) [Amendment to the CTS Corporation Pension Plan \(Amended and Restated Effective as of July 1, 2015\) as of October 6, 2016, \(incorporated by reference to Exhibit 10\(t\) to the Form 10-K filed with the SEC on February 23, 2018\).](#)

- (10)(l) [Amendment to the CTS Corporation Pension Plan \(Amended and Restated Effective as of July 1, 2015\) as of June 26, 2017, \(incorporated by reference to Exhibit 10\(u\) to the Form 10-K filed with the SEC on February 23, 2018\).](#)
 - (10)(m) [Amendment to the CTS Corporation Pension Plan \(Amended and Restated Effective as of July 1, 2015\) as of September 22, 2017, \(incorporated by reference to Exhibit 10\(v\) to the Form 10-K filed with the SEC on February 23, 2018\).](#)
 - (10)(n) [Amendment to the CTS Corporation Pension Plan \(Amended and Restated Effective as of July 1, 2015\) as of June 28, 2018, \(incorporated by reference to Exhibit 10.1 to Form 10-Q filed with the SEC on July 31, 2020\).](#)
 - (10)(o) [Amendment to the CTS Corporation Pension Plan \(Amended and Restated Effective as of July 1, 2015\) as of June 1, 2020, \(incorporated by reference to Exhibit 10.1 to Form 10-Q filed with the SEC on July 31, 2020\).](#)
 - (10)(p) [CTS Corporation Director and Officer Indemnification Agreement \(incorporated by reference to Exhibit 10.1 to the Form 8-K, filed with the SEC on February 18, 2015\)](#)
 - (10)(q) [CTS Corporation 2018 Equity and Incentive Compensation Plan \(incorporated by reference to Exhibit 10.1 to the Form 8-K, filed with the SEC on May 22, 2018\).](#)
 - (21) [Subsidiaries.](#)
 - (23) [Consent of Grant Thornton LLP.](#)
 - (31)(a) [Certification pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.](#)
 - (31)(b) [Certification pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.](#)
 - (32)(a) [Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.](#)
 - (32)(b) [Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.](#)
- 101 The following financial statements from the Company's Annual Report on Form 10-K for the year ended December 31, 2022, formatted in Inline XBRL: (i) Consolidated Statements of Earnings (Loss), (ii) Consolidated Statements of Comprehensive Earnings, (iii) Consolidated Balance Sheets, (iv) Consolidated Statements of Cash Flows, (v) Consolidated Statements of Stockholders' Equity and (vi) Notes to Consolidated Financial Statements, tagged as blocks of text and including detailed tags.
- 104 The cover page from the Company's Annual Report on Form 10-K for the year ended December 31, 2022, formatted in Inline XBRL

* *Management contract or compensatory plan or arrangement.*

Item 16. Form 10-K Summary

None.

DESCRIPTION OF SECURITIES REGISTERED UNDER SECTION 12 OF THE SECURITIES EXCHANGE ACT OF 1934

The following is a summary of the terms and provisions of the common stock, without par value (the “Common Stock”), of CTS Corporation, an Indiana corporation (“CTS” or the “Company”), and is qualified by reference to the Company’s Amended and Restated Articles of Incorporation (the “Articles of Incorporation”) and Amended and Restated Bylaws (the “Bylaws”), which are incorporated by reference herein and attached as exhibits to the Company’s most recent Annual Report on Form 10-K filed with the Securities and Exchange Commission, and to applicable provisions of Indiana law.

The Company’s authorized capital stock is comprised of 100,000,000 shares, consisting of 75,000,000 shares of Common Stock and 25,000,000 shares of preferred stock.

Common Stock

The holders of Common Stock are entitled to one vote for each share of Common Stock held of record on all matters submitted to a vote of the Company’s shareholders. The holders of Common Stock have no conversion, preemptive, subscription or redemption rights. All outstanding shares of Common Stock are duly authorized, validly issued, fully paid and nonassessable.

Upon satisfaction of CTS’ obligations to holders of any preferred stock, the holders of Common Stock may receive dividends when declared by the Company’s board of directors. If CTS liquidates, dissolves or winds-up its business, holders of Common Stock will share equally in the assets remaining after the Company pays all of its creditors and satisfies all of its obligations to holders of preferred stock.

Preferred Stock

The Company’s board of directors can, without the approval of shareholders, issue one or more series of preferred stock. The Company’s board of directors can determine the number of shares of each series and the rights, preferences and limitations of each series, including dividend rights, voting rights, conversion rights, redemption rights and any liquidation preferences and the terms and conditions of issue. In some cases, the issuance of preferred stock could delay, defer or prevent a change in control of CTS and make it harder to remove present management, without further action by its shareholders. Under some circumstances, the issuance of preferred stock could also decrease the amount of earnings and assets available for distribution to holders of Common Stock if CTS liquidates or dissolves and could also restrict or limit dividend payments to holders of Common Stock.

Indiana Business Corporation Law, Articles of Incorporation and Bylaws

General

In general, the Articles of Incorporation and the Bylaws provide that:

- the board of directors fixes the number of directors within a specified range of not less than three nor more than 15 directors;
- the existing directors will fill any vacancy or newly created directorship with a new director; and
- only the chairman of the board, the board of directors or the president may call a meeting of the board of directors.

CTS is an Indiana corporation and is subject to the Indiana Business Corporation Law. Under the laws of Indiana, the Articles of Incorporation generally can be amended only with the approval of the Company's board of directors and its shareholders. The Articles of Incorporation and the Bylaws provide that the Bylaws may be amended by either the board of directors or the Company's shareholders.

Provisions of the Indiana Business Corporation Law, the Articles of Incorporation and the Bylaws may discourage or make more difficult the acquisition of control of CTS through a tender offer, open market purchase, proxy contest or otherwise. These provisions are intended to discourage or may have the effect of discouraging certain types of coercive takeover practices and inadequate takeover bids and to encourage persons seeking to acquire control of CTS first to negotiate with it. CTS' management believes that the foregoing measures, many of which are substantially similar to the takeover-related measures in effect for many other publicly-held companies, provide benefits by enhancing CTS' ability to negotiate with a person making an unfriendly or unsolicited proposal to take over or restructure CTS. CTS believes that these benefits outweigh the disadvantages of discouraging these proposals because, among other things, negotiation of these proposals could result in an improvement of their terms.

Provisions of the Indiana Business Corporation Law, in addition to provisions of the Articles of Incorporation and the Bylaws, address corporate governance issues, including the rights of shareholders. Some of these provisions could hinder management changes while others could have anti-takeover effect. Certain key provisions are summarized below.

Bylaw Provisions

The Indiana Business Corporation Law permits the board of directors to issue rights, options or warrants for the purchase of shares or other securities of a corporation or any successor in interest. It also permits the board of directors to adopt procedures restricting transactions which would result in a "change of control" as defined therein. Article XXI of the Bylaws provides that the CTS board of directors may include provisions in the terms of those rights, options or warrants that, in any transaction or proposed transaction that would result in a change in control if consummated, require the approval of the "continuing directors" of the corporation for the redemption or exchange of the rights, options or warrants or the amendment of the corresponding contracts, warrants or instruments. The period requiring this approval may not exceed three years after the later of the time that (i) the "continuing directors" no longer constitute the majority of the directors of the corporation and (ii) there is an "interested shareholder." Under the Bylaws, a "continuing director" is defined as a director who (i) is not an "interested shareholder" or any affiliate, associate, representative or nominee of an "interested

shareholder” or any affiliate of an “interested shareholder” and is either a member of the CTS board of directors as of the date of issuance of the rights, options or warrants or subsequently becomes a member of the CTS board of directors if his or her election or nomination was approved or recommended by a majority of the CTS board of directors (including a majority of continuing directors then on the CTS board of directors and excluding any member whose election resulted from any actual or threatened proxy or other election contest).

Under Chapter 43 of the Indiana Business Corporation Law, an “interested shareholder” is defined as any person that is (i) the beneficial owner of 10% or more of the voting power of the corporation or (ii) an affiliate or associate of the corporation and at any time within the five years preceding the date in question was the beneficial owner of 10% or more of the voting power of the corporation at that time.

Indiana Business Corporation Law

Chapter 43 of the Indiana Business Corporation Law restricts certain “business combinations,” including mergers, sale of assets, recapitalization and reverse stock splits with interested shareholders. Under Chapter 43, a corporation cannot engage in any business combination with an interested shareholder within five years of the date the person became an interested shareholder unless the corporation's board of directors approves, in advance of the person becoming an interested shareholder, either the business combination or the purchase of shares that made the person an interested shareholder. In the absence of the board's approval, a corporation may engage in a business combination with an interested shareholder after the date that is five years after the date the person became an interested shareholder if either the disinterested shareholders approve the business combination (but they cannot do so until five years after the date the person became an interested shareholder) or among other things, the consideration to be received by the disinterested shareholders in the business combination, which must be in cash or the same form as the interested shareholder used to acquire the largest number of the shareholder's shares, is at least equal to the higher of the highest price paid for shares by the interested shareholder or the highest market value per share on either the date of the business combination or the date the person became an interested shareholder.

Chapter 42 of the Indiana Business Corporation Law also contains provisions regulating “control share acquisitions,” which are transactions causing the voting power of any person acquiring beneficial ownership of shares of a public corporation in Indiana to meet or exceed certain threshold voting percentages (20%, 33% or 50%). Shares acquired in a control share acquisition have no voting rights unless the voting rights are granted by a majority vote of all outstanding shares other than those held by the acquiring person or any officers or employee-directors of the corporation. As permitted under the Indiana Business Corporation Law, pursuant to the Bylaws, CTS has opted out of Chapter 42 for all control share acquisitions after March 3, 1987. However, the CTS board of directors may amend the Bylaws so that Chapter 42 would apply.

The Indiana Business Corporation Law specifically authorizes directors, in considering whether an action is for the best interest of a corporation, to consider the effects of any corporate action on shareholders, employees, suppliers and customers of the corporation, communities in which offices or other facilities of the corporation are located and any other factors the directors

consider pertinent. Under the Indiana Business Corporation Law, directors may be held personally liable for breaches of their duties as directors only if their actions constitute willful misconduct or if they recklessly disregard their duties.

CTS CORPORATION AND SUBSIDIARIES

As of December 31, 2022

CTS Corporation (Registrant), an Indiana corporation

<u>Subsidiary:</u>	<u>Jurisdiction</u>
CTS Corporation	Delaware
CTS Automotive Holdings, L.L.C.	Delaware
CTS Advanced Materials, L.L.C.	Delaware
CTS Electronic Components, Inc.	Delaware
LTB Investment Corporation	Delaware
Filter Sensing Technologies, Inc.	Delaware
Tusonix, LLC.	Arizona
CTS Electronic Components (California), Inc.	California
CTS Printex, Inc.	California
CTS Automotive, L.L.C.	Illinois
CTS Automotive Holdings 2, L.L.C.	Illinois
CTS SRL-CV Holdings 1, L.L.C.	Illinois
CTS Valpey Corporation	Maryland
Dynamics Corporation of America	New York
CTS Czech Republic S.R.O.	Czech Republic
CTS Europe GmbH	Germany
CTS Electronic Hong Kong Limited	Hong Kong Special Administrative Region of the People's Republic of China
CTS India Private Limited	India
CTS Japan, Inc.	Japan
CTS Electro de Mexico S. DE R.L. DE C.V.	Mexico
CTS International B.V.	The Netherlands
CTS Overseas Holdings B.V.	The Netherlands
CTS (Tianjin) Electronics Co., Ltd.	People's Republic of China
CTS (Zhongshan) Technology Co. Ltd.	People's Republic of China
CTS of Canada Co.	Province of Nova Scotia (Canada)
CTS of Canada Holding Co.	Province of Nova Scotia (Canada)
CTS of Canada GP, Ltd.	Province of Ontario (Canada)
CTS of Canada L.P.	Province of Ontario (Canada)
CTS Components Taiwan, Ltd.	Republic of China
CTS Electro de Matamoros, S de R.L. de C.V.	Mexico
Technologia Mexicana, S de R.L. de C.V.	Mexico
CTS of Panama, S de R.L.	Republic of Panama
CTS Singapore Pte. Ltd.	Republic of Singapore
CTS Corporation U.K. Limited	Scotland
CTS Corporation Denmark A/S	Denmark
Ferroperm Piezoceramics A/S	Denmark
CTS Ceramics Czech Republic S.R.O.	Czech Republic
MAQ Holdings PTE. Ltd.	Republic of Singapore
Quality Thermistor, Inc.	Idaho
Tecate Assembly Services, Inc.	Idaho
Tecate Investments, LLC	Delaware
Tecate Holdings, LLC	Delaware

TEWA Sensors LLC
Componentes de Calidad, S. de R.L. de C.V.
Sensor Scientific, Inc
Sensor Scientific Phils., Inc
CTS NA Services, S. de R.L. de C.V.
TEWA Temperature Sensors sp. zo.o

Utah
Mexico
New Jersey
Republic of Philippines
Mexico
Poland

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We have issued our reports dated February 24, 2023, with respect to the consolidated financial statements and internal control over financial reporting included in the Annual Report of CTS Corporation on Form 10-K for the year ended December 31, 2022. We consent to the incorporation by reference of said reports in the Registration Statements of CTS Corporation on Forms S-8 (File No. 333-226371, File No. 333-198235, File No. 333-159542, File No. 333-116287, and File No. 333-62202).

/s/ GRANT THORNTON LLP

Chicago, Illinois

February 24, 2023

CERTIFICATION

I, Kieran O’Sullivan, certify that:

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

Date: February 24, 2023	<i>/s/ Kieran O’Sullivan</i>
	Kieran O’Sullivan
	Chairman, President and Chief Executive Officer

CERTIFICATION

I, Ashish Agrawal, certify that:

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

Date: February 24, 2023		<i>/s/Ashish Agrawal</i>
		Ashish Agrawal
		Vice President and Chief Financial Officer

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the annual report of CTS Corporation (the Company) on Form 10-K for the year ended December 31, 2022, as filed with the Securities and Exchange Commission on the date hereof (the Report), the undersigned officer of the Company certifies, pursuant to 18 U.S.C. ss. 1350, as adopted pursuant to ss. 906 of the Sarbanes-Oxley Act of 2002, that:

- (1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: February 24, 2023	/s/ Kieran O'Sullivan
	Kieran O'Sullivan
	Chairman, President and Chief Executive Officer

A signed original of this written statement required by Section 906 has been provided to CTS Corporation and will be retained by CTS Corporation and furnished to the Securities and Exchange Commission or its staff upon request.

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the annual report of CTS Corporation (the Company) on Form 10-K for the year ended December 31, 2022, as filed with the Securities and Exchange Commission on the date hereof (the Report), the undersigned officer of the Company certifies, pursuant to 18 U.S.C. ss. 1350, as adopted pursuant to ss. 906 of the Sarbanes-Oxley Act of 2002, that:

- (1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: February 24, 2023	<i>/s/Ashish Agrawal</i>
	Ashish Agrawal
	Vice President and Chief Financial Officer

A signed original of this written statement required by Section 906 has been provided to CTS Corporation and will be retained by CTS Corporation and furnished to the Securities and Exchange Commission or its staff upon request.

Board of Directors

Donna M. Costello ^{(a)(b)}
Former Chief Financial Officer of
C&D Technologies, Inc.

Ye Jane Li ^{(c)(d)}
Strategic Advisor of Diversis
Capital, LLC

Robert A. Profusek ^{(b)(c)}
Partner and Chair of the Global
Mergers and Acquisitions
Practice of Jones Day

Alfonso G. Zulueta ^{(a)(c)}
Former President of Eli Lilly
International

William S. Johnson ^{(a)(b)(d)}
Former Executive Vice President
and Chief Financial Officer of
Cabot Microelectronics
Corporation (n/k/a CMC
Materials, Inc.)

Kieran M. O'Sullivan ^(d)
Chairman, President and Chief
Executive Officer

Randy L. Stone ^{(c)(d)}
Former President of DuPont's
Mobility and Materials Division

- (a) Audit Committee
- (b) Compensation and Talent Committee
- (c) Nominating, Governance and Sustainability Committee
- (d) Technology and Transactions Committee

Executive Officers

Kieran M. O'Sullivan
Chairman, President and
Chief Executive Officer

Martin Baumeister
Senior Vice President

Ashish Agrawal
Vice President and
Chief Financial Officer

Michael E. Murray
Senior Vice President

Scott L. D'Angelo
Vice President, General
Counsel and Secretary