

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, 2023.

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: 001-36102

Knowles Corporation

(Exact name of registrant as specified in its charter)

Delaware

90-1002689

(State or other jurisdiction of incorporation or organization)

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

1151 Maplewood Drive, Itasca, IL
(Address of Principal Executive Offices)

60143
(Zip Code)

(630) 250-5100

(Registrant's telephone number, including area code)

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

Title of each class	Trading symbol	Name of each exchange on which registered
Common stock, \$0.01 par value per share	KN	New York Stock Exchange

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

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

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

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

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

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

The aggregate market value of the voting and non-voting common stock held by non-affiliates of the registrant as of the close of business on June 30, 2023 was approximately \$ 1,610,000,000 . The number of outstanding shares of the registrant's common stock as of February 16, 2024 was 89,629,865 .

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the definitive Proxy Statement for the registrant's 2024 Annual Meeting of Stockholders have been incorporated by reference into Part III of this Annual Report on Form 10-K.

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PART I

ITEM 1. BUSINESS

Unless the context otherwise requires, references in this Annual Report on Form 10-K to "Knowles," the "Company," "we," "our," or "us" refer to Knowles Corporation and its consolidated subsidiaries.

Our Company

We are a market leader and global provider of high performance capacitors and radio frequency ("RF") filtering products, balanced armature speakers, advanced micro-acoustic microphones, and audio solutions serving the medtech, defense, electric vehicle, industrial, communications, consumer electronics markets. Our focus on the customer, combined with unique technology, proprietary manufacturing techniques, and global operational expertise, enables us to deliver innovative solutions across multiple applications. Knowles, founded in 1946 and headquartered in Itasca, Illinois, has approximately 7,100 employees at facilities located in 14 countries around the world.

Our Strategy

The Company is focused on delivering high value, differentiated solutions to a diverse set of end markets.

In the Precision Devices ("PD") segment, our high performance capacitors and RF filtering solutions enable some of the most demanding applications in the defense, medtech, and electric vehicle markets. The acquisition of Cornell Dubilier ("CD") on November 1, 2023 expands our portfolio offering to include high-performance film, electrolytic, and mica capacitors used in medtech, defense, and industrial electrification applications. Our capacitor portfolio includes products with highly specialized requirements, such as high voltage, high temperature, and high reliability. Additionally, we deliver RF filtering solutions across a broad range of applications and frequencies primarily serving the defense market. The combination of CD's broad selection of capacitors, coupled with our organic PD offerings, significantly expands our serviceable available market. We continue to focus on sales growth and improved margins by expanding our presence in profitable markets through strategic investments and acquisitions.

In the Medtech & Specialty Audio ("MSA") segment, our primary focus is to deliver high reliability and industry leading balanced armature speakers and microphones to leading hearing health manufacturers and premium audio markets. We work collaboratively with customers to ensure that our solutions meet their size, broad frequency response, and low power or custom acoustic module requirements. Our expertise in traditional hearing aids enables us to capitalize on emerging product spaces like Over the Counter ("OTC") hearing aids. We continue to focus on sales growth and improved margins by leveraging our core strengths in manufacturing and research and development.

In the Consumer MEMS Microphones ("CMM") segment, the Company benefits from the positive audio trends across a variety of consumer products. With products ranging from smartphones to headsets, and from smart speakers to household appliances, improved audio quality and voice-powered interactions have emerged as critical and necessary features. Across mobile, ear, computing, and Internet of Things ("IoT") markets, consumers want better audio performance and to engage with technology through natural, spoken commands, and original equipment manufacturers ("OEMs") are developing and deploying the technology to enable it. Our unique capabilities in MEMS microphones place us in a competitive position to enhance audio performance and enable voice input.

Our Business Segments

In 2022, we determined each operating segment represents a single reportable segment; since then, we have been reporting three segments. These segments were determined in accordance with Financial Accounting Standards Board Accounting Standards Codification 280 - Segment Reporting and are comprised of (i) PD, (ii) MSA, and (iii) CMM. The segments are aligned around similar product applications serving our key end markets to enhance focus on growth strategies. This change was made to enhance transparency into the Company's performance and to better align with how management reviews its financial results to drive business decision making. Prior period segment results and related disclosures have been conformed to reflect our current reportable segments.

Our reportable segments are as follows:

- **PD Segment**
Our PD segment specializes in the design and delivery of high performance capacitor products and RF solutions primarily serving the defense, medtech, electric vehicle, and industrial markets. PD has sales, support, and engineering facilities in North America, Europe, and Asia as well as manufacturing facilities in North America and Asia.
- **MSA Segment**
Our MSA segment designs and manufactures balanced armature speakers and microphones used in applications that serve the hearing health and premium audio markets. MSA has sales, support, and engineering facilities in North America, Europe, and Asia, as well as manufacturing facilities in Asia.
- **CMM Segment**
Our CMM segment designs and manufactures micro-electro-mechanical systems ("MEMS") microphones and audio solutions used in applications that primarily serve the ear, IoT, computing, and smartphones markets. CMM has sales, support, and engineering facilities in North America, Europe, and Asia, as well as manufacturing facilities in Asia.

We sell our products directly to OEMs, their contract manufacturers, suppliers, and through sales representatives and distributors worldwide.

Market Trends

In our PD segment, we sell high reliability, high voltage and high temperature ceramic, high-quality film, electrolytic, and mica capacitors, and electromagnetic interference filters across diverse end markets, including mission critical applications. Our products are designed to solve customer-specific challenges and our proprietary manufacturing processes provide advantages in speed, flexibility, and customization. Portions of this segment face much greater exposure to capital investment cycles and government spending, both direct and indirect, as some of these end markets are largely dependent on project upgrades, expansion, and government contracts. Excess customer and channel inventory has resulted in decreased demand for some of our products. The timing of defense projects has also influenced demand for certain products.

In our MSA segment, sales within the hearing aid market are largely driven by aging demographics, healthcare spending, increasing affluence in emerging markets, and government subsidies. Our microphones and balanced armature speakers are also utilized to produce high-definition audio for higher performance True Wireless Stereo ("TWS") applications. In addition, we expect to be able to capitalize on the emerging Over the Counter hearing aid product space, due to our expertise in traditional hearing aids.

In our CMM segment, voice has been embraced as a primary user interface across consumer electronic products. Voice assistants are proliferating throughout a variety of applications from smartphones to headsets, and from smart speakers to household appliances. Across ear, IoT, computing, and mobile markets, consumers want to engage with technology through natural spoken commands, and OEMs are developing and deploying the technology to enable it. Our unique capabilities in MEMS microphones and digital signal processing place us in a competitive position to enhance audio performance and enable voice input.

Geographic Trends

We strive to maintain our manufacturing facilities in close proximity to our direct customers. In PD, we operate 10 facilities in North America and 1 facility in Asia for the manufacturing of products that support our global customers, as well as their suppliers and contract manufacturers. In MSA, we currently operate 4 facilities in Asia to serve the leading hearing health manufacturers largely based in Europe, China, and North America. In CMM, we currently operate 3 facilities in Asia to serve the contract manufacturers who build OEM equipment on behalf of our end-customers. These contract manufacturers are largely based in China, Taiwan, India, Singapore, Indonesia, and Vietnam. Although end-user demand for consumer electronics and hearing aids is global and marketing activities occur globally, the majority of our manufacturing is located in China, Malaysia, and the Philippines.

Competitive Landscape

Success in the electronic components industry is primarily driven by innovation and flexibility as customers compete to gain a share of the growing consumer device market. We compete across consumer platforms to deliver superior acoustic performance through customized products. Our investments in research and development enable us to capture new design wins across consumer OEMs. Our ability to balance and shift between full and semi-automation is key to our ability to optimize our operations and operating expenses. Additionally, it is important for suppliers to have flexibility and quick time-to-market to meet clients' needs. Key competitors include:

- **PD** - Kyocera Corporation, Murata, Yageo Corporation, and TDK Corporation
- **MSA** - Sonion
- **CMM** - AAC Technologies, Goertek Inc., and Infineon Technologies

In the PD segment, the end markets tend to have less pricing pressure. We see a fragmented set of competitors across high end capacitors and filters for a diverse set of end markets including defense, medtech, industrial, electric vehicle, and communications. Our leading technology and our investments in research and development enable us to design products to solve customer-specific challenges. Our proprietary manufacturing processes provide advantages in speed, flexibility, and product customization.

In the MSA segment, our leading technology and our investments in research and development enable us to introduce new products focused on high reliability, size, broad frequency response, and low power. Our customers are adopting these high-value microphones and balanced armature speakers to improve the overall audio performance of their devices which in turn improves the end user experience. For products that were introduced in prior years, we strive to offset anticipated price erosion through bill of material cost reductions, productivity improvements, and equipment efficiency.

In the CMM segment, our investments in research and development enable us to introduce new products with improved features and performance in a highly competitive, technology-based industry. Our customers are adopting these high-value microphones to improve the overall audio performance of their products which in turn improves the end user experience. Typically, our new products have higher average selling prices than the products they are replacing. Once introduced, the price for these products trend lower, as is typical in the consumer electronics market. For products that were introduced in prior years, we strive to offset anticipated price erosion through bill of material cost reductions, productivity improvements, and equipment efficiency.

Customers, Sales, and Distribution

We serve customers in the medtech, defense, electric vehicle, industrial, communications, and consumer electronics markets. Our customers include some of the largest OEMs and operators in these markets. In addition, many of our OEM customers outsource to contract manufacturers. Other customers include global mobile phone manufacturers, hearing aid manufacturers, and many of the largest global contract manufacturing companies, particularly in China.

The Company's customers that accounted for 10% or more of total revenues were as follows:

	Revenues		
	Years Ended December 31,		
	2023	2022	2021
Apple Inc.	16 %	15 %	16 %
WS Audiology A/S	10 %	*	*

* Less than 10% of total revenues.

We manufacture and develop our products and maintain sales and technical customer support offices in North America, Europe, and Asia. We supplement our direct sales force with external sales representatives and distributors. We ship our products primarily from our global distribution center located in Penang, Malaysia or directly from certain manufacturing sites. Our worldwide sales force provides geographically specific support to our customers and specialized selling of product lines to various customer bases. For further detail and for additional disclosures regarding sales and long-lived assets by geographic location, see Note 18, Segment Information to our Consolidated Financial Statements under Item 8, "Financial Statements and Supplementary Data."

Raw Materials

We use a wide variety of raw materials, primarily metals, ceramic powder, and semi-processed or finished components. Commodity pricing for various metals, such as palladium, gold, brass, stainless steel, and copper, fluctuates. As a result, our operating results are exposed to such fluctuations. Although some cost increases may be recovered through increased prices to customers, if commodity prices trend upward, we attempt to control such costs through fixed-price contracts with suppliers and various other programs.

We rely on highly specialized suppliers or foundries for critical materials, components, or subassemblies that are used in our products which, in some cases, may be sole sourced from such suppliers or foundries or, such suppliers or foundries may also be a strategic supplier to one of our competitors or a customer. The loss of any single supplier has not had a material impact on operating profits. However, should an event occur which affects the ability or willingness of any supplier or foundry to continue to deliver materials or components to us in a timely manner, we may not be able to identify or qualify an alternative supplier in a timely manner which, in any such period and future periods, could have a material adverse impact on our results of operations. See Item 1A, Risk Factors for additional information regarding risks related to our business.

Research and Development

We concentrate our research and development efforts on the design and development of new products for each of our principal markets. We also fund certain other emerging product and technology opportunities. Our future success is highly dependent upon our ability to develop complex new products, transfer new products to volume production, introduce them into the marketplace in a timely fashion, and have them selected for design into our customers' products at competitive prices. Our future success may also depend on increasing content in our customers' products including assisting our customers with integration of our products and software into their new products and providing support from the concept stage through design, launch, and production ramp.

Intellectual Property and Intangible Assets

We rely on patent, copyright, trademark, and trade secret laws to protect our intellectual property, products, and technology. Our U.S. patents expire in calendar years 2024 through 2043. While our patents are an important element of our success, our business as a whole is not dependent on any one patent or group of patents. We do not anticipate any material effect on our business due to any patents expiring in 2024, and we continue to obtain new patents through our ongoing research and development. We have maintained U.S. federal trademark registrations for KNOWLES and Knowles logo designs, along with various other trademarks. These U.S. registrations may be renewed as long as the marks continue to be used in interstate commerce. We have also filed or obtained foreign registration for these marks in other countries or jurisdictions where we conduct, or anticipate conducting, international business. To complement our own research and development efforts, we have also licensed and expect to continue to license, a variety of intellectual property and technologies important to our business from third parties. See Item 1A, Risk Factors for additional information regarding risks related to our business.

Seasonality

Our PD segment is not typically subject to seasonality. Our MSA segment tends to have stronger revenues in the fourth quarter of each fiscal year, while our CMM segment, which serves the consumer electronics market, varies based on the timing of OEM product launches and can impact our quarterly revenues, earnings, and cash flow.

Human Capital Management

As of December 31, 2023, Knowles had approximately 7,100 employees at facilities located in 14 countries around the world. This includes employees from our newly acquired Cornell Dubilier business. Approximately 70% of our employees are located in Asia and approximately 68% of our employees globally identify as female. In the United States, approximately 44% of our employees identify as female and approximately 42% of our employees self-identified as belonging to a racial/ethnic minority group. We believe our success is dependent upon attracting, developing, and retaining high performing employees at all levels of the organization. An important component of achieving this goal is fostering a workplace environment that embraces diversity and inclusion. Our Chief Human Resources Officer is responsible for developing and executing on our human capital strategy, with oversight by the Compensation Committee of our Board of Directors. Our key initiatives with respect to human capital management include:

Recruitment, Training, and Development

We understand that our most important resource is our people. We utilize a variety of recruitment vehicles to source top talent. We are building relationships with organizations that support the advancement of underrepresented minority groups to sustain a pipeline of diverse talent for opportunities across our Company. We are also working to increase diversity within our professional and management positions and have implemented customized development programs to meet the unique needs of our employees' growth trajectories.

We also invest in the ongoing training and development of our employees by offering tuition and continuous education reimbursement, leveraging an e-learning platform, and implementing formal mentorship programs. Knowles has a formal Succession Planning initiative with the primary objective of identifying and developing our next generation leaders.

Our Chief Human Resources Officer annually reviews with the Board of Directors our overall talent management strategy and progress.

Commitment To Diversity, Inclusion, and Equality

We believe our diverse teams, with their unique ideas, thoughts, and perspectives, form the building blocks for our culture of innovation at Knowles. We strive to create and maintain a workplace environment that embraces the diversity of thoughts, ideas, beliefs, and experiences, brought by our team members. We recognize that nurturing an inclusive workplace enables us to attract, develop, and retain our team members regardless of their race, color, gender identity, language, national origin, religion, orientation, or age. To successfully execute on our strategy, we have established a Diversity and Inclusion Council comprised of employees from various areas of the Company along with members of senior management who serve as executive sponsors. The Council is tasked with advising the management team on concrete initiatives we can undertake as an organization to strengthen diversity and inclusion at the Company. Under the Council's leadership, we have commemorated and celebrated numerous diversity, cultural, and historical events throughout the year.

Knowles is also committed to the advancement of women in the workplace and gender diversity in engineering careers. We strive to be an employer of choice for women in engineering. We understand the importance of gender diversity and with it, the need for advancing women in Science, Technology, Engineering, and Mathematics ("STEM") careers. We continue to partner with local organizations to help bridge the gender gap in STEM and shape the next generation of women who aspire to be leaders in the new era of technology. For example, Knowles is the perennial sponsor of the University of Illinois at Chicago's ("UIC") Women in Engineering Summer Program. We have also supported UIC's women engineering students with programs such as academic scholarships, summer internship programs, mentorship programs, and full-time employment opportunities. Our goal is to build a pipeline of multi-generational talent and accelerate the development of women engineers into advanced technical and leadership positions at Knowles.

We have also worked to increase underrepresented groups in our candidate pool, among our new hires, and in leadership positions. For our 2023 summer internship program, 67% of our corporate intern class consisted of minority and/or women students, and 50% of our corporate tech interns were women. In addition, in 2023 approximately 37% of our new hires in the United States were women.

We are fully committed to supporting our communities and the advancement of underrepresented minority groups. In 2023, we continued our partnership with PEAK (Partnership to Educate and Advance Kids), a Chicago-based nonprofit that is focused on providing academically average students from the city's most challenging and under-served neighborhoods with financial, educational, and personal support through their high school years. Knowles has pledged \$10,000 annually to provide a PEAK student the opportunity to pursue a high-quality high school education. In addition, Knowles piloted the PEAK Student Tutoring Program, where our employees assist students with STEM-related subjects.

Providing a Competitive Total Rewards Program

To be able to attract and retain the best employees, Knowles provides a competitive total rewards program that incorporates our pay for performance philosophy. Our total rewards program includes market-competitive base pay, broad-based short-term and long-term incentive plans, healthcare benefits, retirement plans, paid time off, family leave, and employee assistance programs.

Fostering a Safe Work Environment

We believe it is important to provide a healthy and safe workplace for our employees. As part of our Environmental, Health, and Safety Policy, we train employees and managers on preventing work-related injuries and illnesses. In addition, our Environmental, Health & Safety ("EHS") Managers across the globe conduct regular reviews of key EHS performance indicators, which include the reporting and correction of any unsafe workplace behaviors, working conditions that could potentially lead to injury, or workplace incidents or illnesses that required first aid or other medical treatment.

Additional information regarding Knowles' activities related to its people and sustainability, as well as workforce diversity data, can be found in the Knowles 2023 Corporate Sustainability Report, which is located on our website. The contents of our website and our Corporate Sustainability Report are referenced for general information only and are not incorporated into this Annual Report on Form 10-K.

Other Information

The address of our principal executive offices is 1151 Maplewood Drive, Itasca, Illinois 60143. Our telephone number is 630-250-5100.

Our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and any amendments to these reports are available, free of charge, on the "Financial Information - SEC Filings" link on the Investor Relations section of our website, www.knowles.com. We post each of these reports on our website as soon as reasonably practicable after the report is filed with or furnished to the Securities and Exchange Commission ("SEC"). The SEC maintains a website that contains these reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC (www.sec.gov).

Our corporate governance policies, Code of Business Conduct, and Board committee charters and policies are also posted on the Investor Relations section of our website. The information contained in, and that can be accessed through our website is not incorporated into and does not form a part of this Annual Report on Form 10-K.

ITEM 1A. RISK FACTORS

Cautionary Statement Concerning Forward-Looking Statements

This Annual Report on Form 10-K contains certain statements regarding business strategies, market potential, future financial performance, future action, results, and any other statements that do not directly relate to any historical or current fact which are "forward-looking" statements within the meaning of the Securities Act of 1933, as amended (the "Securities Act"), the Exchange Act, and the Private Securities Litigation Reform Act of 1995. The words "believe," "expect," "anticipate," "project," "estimate," "budget," "continue," "could," "intend," "may," "plan," "potential," "predict," "seek," "should," "will," "would," "expect," "objective," "forecast," "goal," "guidance," "outlook," "effort," "target," and similar expressions, among others, generally identify forward-looking statements, which speak only as of the date the statements were made.

In particular, information included under the sections entitled "Business," "Risk Factors," and "Management's Discussion and Analysis of Financial Condition and Results of Operations" contain forward-looking statements.

Readers are cautioned that the matters discussed in these forward-looking statements are subject to risks, uncertainties, assumptions, and other factors that are difficult to predict and which could cause actual results to differ materially from those projected, anticipated, or implied in the forward-looking statements. Where, in any forward-looking statement, an expectation or belief as to future results or events is expressed, such expectation or belief is based on the current plans and expectations of management and expressed in good faith and believed to have a reasonable basis, but there can be no assurance that the expectation or belief will be achieved or accomplished. Many factors that could cause actual results or events to differ materially from those anticipated include those risks and uncertainties described below and elsewhere in this Annual Report on Form 10-K, including under the section entitled "Management's Discussion and Analysis of Financial Condition and Results of Operations." We caution you not to place undue reliance on these forward-looking statements, which speak only as of the date of this Annual Report on Form 10-K and Knowles does not assume any obligation to update any forward-looking statement as a result of new information, future events, or otherwise, except as required by applicable law. All forward-looking statements, expressed or implied, included in this Annual Report on Form 10-K are expressly qualified in their entirety by this cautionary statement. This cautionary statement should also be considered in connection with any subsequent written or oral forward-looking statements that we may make or persons acting on our behalf may issue.

You should consider each of the following factors as well as the other information in this Annual Report on Form 10-K, including our financial statements and the related notes, in evaluating our business and our prospects. The risks and uncertainties described below are not the only ones we face. In general, we are subject to the same general risks and uncertainties that impact many other companies such as general economic, industry, and/or market conditions and growth rates; possible future terrorist threats or armed conflicts and their effect on the worldwide economy; and changes in laws or accounting rules. Additional risks and uncertainties not presently known to us or that we currently consider immaterial may also impair our business operations. If any of these risks occur, our business and financial results could be harmed. In that case, the trading price of our common stock could decline.

Risks Related To Our Business

Deterioration of global economic conditions, an economic recession, periods of inflation, or economic uncertainty in key end-user markets may adversely affect customer orders as well as demand for our products.

Global economic conditions can be uncertain and volatile. Our business and results of operations have in the past been, and may continue to be, adversely affected by changes in global economic conditions including inflation, consumer spending rates, rising interest rates, the negative impacts caused by pandemics and public health crises, such as the COVID-19 pandemic, as well as the potential impacts of geopolitical uncertainties (including the ongoing conflict between Russia and Ukraine, and China-Taiwan relations). As global economic conditions continue to be volatile or economic uncertainty remains, trends in end-user consumer spending also remain unpredictable. Many of our customers purchase our products, particularly in our CMM and MSA segments, based on end-user demand from consumers. As a result, unfavorable economic conditions may lead our customers to delay or reduce purchases of our products.

Future events or factors, such as the outcome of our strategic alternatives review of the CMM segment which could result in either a sale or a restructuring of our CMM segment, or if there are changes to underlying assumptions used to calculate fair value, could result in additional impairment charges and a significant charge to earnings.

We hold significant amounts of goodwill, other intangible assets, and long-lived assets, and the balances of these assets could increase in the future if we acquire other businesses. At December 31, 2023, the balance of our goodwill, other intangible assets, and long-lived assets was \$918.6 million and the total market value of the Company's outstanding shares was \$1.6 billion. Under generally accepted accounting principles in the United States ("U.S. GAAP"), we review our goodwill, other intangible assets, and long-lived assets for impairment when events or changes in circumstances indicate the carrying value of such goodwill, other intangible assets, or long-lived assets may not be recoverable. In addition, we test goodwill and other indefinite-lived intangible assets for impairment annually. During the year ended December 31, 2022, we recorded impairment charges of \$470.9 million, related to goodwill impairment charges for the CMM segment. For additional detail, see Note 4. Impairment Charges to our Consolidated Financial Statements under Item 8, "Financial Statements and Supplementary Data."

Future events or factors considered a change in circumstances may occur which would adversely affect the fair value of the Company's assets and require impairment charges. Our pursuit of strategic alternatives for our CMM business may not result in the identification or consummation of any transaction or may result in the restructuring of the CMM business. Any potential transaction or a restructuring, and the related valuations, would be dependent upon a number of factors, some of which may be beyond our control, including, among others, market conditions, industry trends, the interest of third parties, and availability of financing to potential buyers on reasonable terms. Other factors that may be considered a change in circumstances, indicating that the carrying value of our goodwill, other intangible assets, or long-lived assets may not be recoverable, include, but are not limited to, a sustained decline in stock price and market capitalization, significant negative variances between actual and expected financial results, reduced future cash flow estimates, adverse changes in legal factors, failure to realize anticipated synergies from acquisitions, and slower growth rates in our industry. We may be required to record a significant charge to earnings in our financial statements during the period in which any impairment of our goodwill, other intangible assets, or long-lived assets is determined to exist, negatively impacting our results of operations. If our market capitalization was to fall below the book value of our total stockholders' equity for a sustained period, we may conclude that the fair value of certain of our intangible or long-lived assets is materially impaired. In this case, we would be required under U.S. GAAP to record a non-cash charge to our earnings which could have a material adverse effect on our business, results of operations, and financial condition.

We derive a significant portion of our revenues from a limited number of OEM customers. If revenues derived from these customers decrease or the timing of such revenues fluctuates, our operating results could be adversely affected.

Our CMM and MSA segments rely on a limited number of customers for a significant portion of their sales. Our CMM segment accounted for 36% of our consolidated revenues for fiscal 2023. For 2023, CMM's top five customers accounted for approximately 66% of its revenues. For the year ended December 31, 2023, Apple Inc. accounted for approximately 44% of CMM's revenues and 16% of consolidated company revenues. For 2023, MSA's top five customers accounted for approximately 80% of its revenues. For the year ended December 31, 2023, WS Audiology A/S accounted for approximately 32% of MSA's revenues and 10% of consolidated company revenues.

The loss of any one of our top customers or a reduction in the purchases of our products by such customers would reduce our total revenues and may have a material adverse effect on our operating results, and any delay of a significant volume of purchases by any one of our top customers, even if only temporary, would reduce our revenues in the period of the delay and may have a material adverse effect on our operating results. For example, in fiscal 2022 we experienced customer purchasing adjustments due to excess inventory in the supply chain, which were partially offset by financial incentives offered to customers during the fourth quarter. Further, concentration of market share among a few companies and the corresponding increase in purchasing power of these companies may result in lower prices for our products which, if not offset by a sufficient increase in the volume, or favorable changes in the mix, of purchases of our products, could have a material adverse effect on our revenues and margins. Further, the smartphone industry is also subject to intense competition that could result in decreased demand and/or declining average selling prices for our products and those of our OEM customers. In addition, the timing, volume, and mix of purchases by our significant customers may be impacted by the timing of such customers' new or next generation product introductions, and the timing of such introductions may have a material adverse effect on our operating results. Accordingly, if current market and industry dynamics continue, revenues, particularly for our CMM segment, will continue to depend largely upon, and be impacted by the timing, volume, and mix of future purchases by a limited number of our OEM customers.

We derive a substantial portion of our revenues from MEMS microphones and a significant reduction in our sales of MEMS microphones may significantly reduce our revenues and adversely impact our operating results.

Sales of MEMS microphones by our CMM and MSA segments accounted for approximately 44% of our consolidated revenues for fiscal 2023. We expect that a substantial portion of our revenues will continue to be attributable to sales of MEMS microphones and any weakening of demand, loss of market share, or other factors adversely affecting our levels and the timing of our sales of MEMS microphones, including our customers' product release cycles, market acceptance, product competition, the performance and reliability of our MEMS microphones, and economic and market conditions could cause our revenues to substantially decline, which may have a material adverse effect on our operating results. For example, during fiscal 2022, our CMM segment experienced weak demand for our MEMS microphones product line due to weak global demand for consumer electronics, COVID-19 related shutdowns in China, excess inventory in the supply chain, and our shift away from commoditized products.

We rely on highly specialized suppliers for a variety of highly engineered or specialized components, and other inputs for which we may not be able to readily identify alternatives or substitutes in the event of a supply disruption or capacity constraint at or by any of these suppliers, which could have a material adverse impact on our results of operations.

Certain of our businesses rely on highly specialized suppliers or foundries for critical materials, components, or subassemblies that are used in our products. In some cases, our suppliers or foundries are our sole source of supply, such as with our ASIC and MEMS foundry partners. Additionally, some of our suppliers or foundries are a strategic supplier to one of our competitors or a customer. Should an event occur which affects the ability or willingness of a key or sole supplier or foundry to continue to deliver materials or components to us in a timely manner, we may not be able to identify or qualify an alternative supplier in a timely manner which, in any such period and future periods, could have a material adverse effect on our results of operations. Potential events or occurrences which could cause business or supply disruptions or affect the ability or willingness of a supplier or foundry to continue to supply us include changes in market strategy, the acquisition of, sale, or other change in control or ownership structure of a supplier or foundry, strategic divestiture, bankruptcy, insolvency or other financial difficulties, business disruptions (including COVID-19-related supplier plant shutdowns or slowdowns, governmental regulatory and enforcement actions, and work stoppages), operational issues, or capacity constraints at a supplier or foundry.

An inability to offset erosion of average selling prices in our CMM segment adversely affected our gross margins.

Like most technology sectors, the smartphone industry has traditionally experienced an erosion of average selling prices due to a number of factors, including intense competition, component pricing trends, changes in demand mix, excess inventories, and rapid obsolescence resulting from technology advances. Within our CMM segment, while average selling prices vary significantly on a product to product basis, our strategy has been to offset price erosion by shifting our product mix to new, higher end or higher performance microphones and gradually shifting customers from analog microphones to higher value digital microphones. To offset average selling price erosion, we must either be successful with these initiatives or increase our selling prices. If we are unable to offset average selling price erosion, the average selling prices of our products may decrease and our future operating results may be materially adversely affected. For example, in fiscal year 2023, excess industry inventory and an inability to shift product mix, resulted in a decrease in average selling prices of our products.

If we are unsuccessful in implementing our investment and acquisition strategy, or integrating acquired companies, our business and financial results may be adversely effected.

We engage in strategic transactions and make strategic investments, including investments in emerging technology companies and intellectual property, which are focused on growth by positioning the Company for expansion into new markets, territories or technologies, exploiting new or growing customer or market opportunities, and developing new technologies and products. Such acquisitions and strategic investments naturally entail significant risks and uncertainties, some of which are beyond our control. To the extent we are successful in making acquisitions, such as our acquisition of Cornell Dubilier, we may not realize the expected benefits of our acquisitions or strategic transactions, or be able to retain those benefits even if realized. We may not, for example, be able to retain key employees, customers, or suppliers of acquired companies, derive value from acquired technology or assets and we may experience delays in achieving cost synergies or higher than expected costs in implementing them. In addition, due to our inexperience with certain adjacent or complimentary technologies and doing business in certain geographic regions that may be served by acquired businesses, we may underestimate the costs or overestimate the benefits that we expect to realize from such acquisitions or investments, and we may not achieve them. We cannot, therefore, provide assurance that each of our acquisitions or strategic investments will be accretive or generate anticipated financial returns. If, for any of these or for unforeseen reasons, our strategic acquisitions or investments fail to meet our expectations or forecasts, our business and results of operations may be materially adversely affected.

Our success depends on our ability to attract and retain key employees, and if we are unable to attract and retain such qualified employees, our business and our ability to execute our business strategies may be materially impaired.

Our future success depends largely on the continued service and efforts of our executive officers and other key management and technical personnel and on our ability to continue to identify, attract, retain, and motivate them, particularly in an environment of cost reductions and a general move toward more performance-based compensation for executives and key management.

Implementing our business strategy also requires specialized engineering and other talent, as our revenues are highly dependent on technological and product innovations. Competition for such experienced technical personnel in our industry and where we are located is intense, and we cannot assure that we can continue to recruit and retain such personnel. For example, there is substantial competition for experienced engineers in China and technical personnel in the U.S. and India, which may make it difficult for us to recruit and retain key employees. If we are unable to attract and retain such qualified employees, our business and our ability to execute our business strategies may be materially impaired.

We depend on the smartphone market for a significant portion of our revenues, the downturn in this market has significantly reduced our revenues and adversely impacted our operating results.

The smartphone market accounted for approximately 13% of our consolidated revenues for fiscal 2023. While other markets such as mobile headsets, computing, wearables, and IoT are gaining in significance within our CMM segment, we expect that a substantial portion of CMM segment revenues will continue to be attributable to the smartphone market, which is cyclical and characterized by continuous and rapid technological change, product obsolescence, price erosion, evolving standards, short product life cycles, and significant fluctuations in product supply and demand. The smartphone market has experienced and may continue to experience periodic downturns which may be characterized by diminished product demand, production overcapacity, high inventory levels, and accelerated erosion of average selling prices. For example, in fiscal 2022 global economic conditions and COVID-19 mitigation measures contributed to a decline in demand for smartphones in China, a geographic region with high concentrations of smartphone users, resulting in an adverse impact on our operating results. The decrease in demand for smartphones, particularly in China, continued through fiscal 2023. While our diversification strategy and increasing focus on other non-mobile markets has tempered the impact of the recent slowing of growth in this market, a continued significant downturn in the smartphone market could continue to have a material adverse effect on our business and operating results.

Our effective tax rate may fluctuate which will impact our future financial results.

Our effective tax rate is highly dependent upon the geographic composition of our worldwide earnings as we are subject to income taxes in both the U.S. and various foreign jurisdictions. Tax regulations governing each region, changes to those regulations, differing statutory tax rates, changes in the valuation of deferred tax assets, tax law, or rate changes could adversely affect our effective tax rate, and ultimately actual taxes payable.

The estimated effects of applicable tax laws, including current interpretation of the Tax Cuts and Jobs Act ("Tax Reform Act"), have been incorporated into our financial results. The U.S. Treasury Department, Internal Revenue Service ("IRS"), and other standard-setting bodies could interpret or issue future legislation or guidance which impact how provisions of the Tax Reform Act will be applied or otherwise administered that is different from our interpretation, which could have a material adverse impact on our effective tax rate as well as our future financial results and tax payments.

Further, our tax returns are subject to periodic reviews or audits by domestic and international authorities, and these audits may result in adjustments to our provision for taxes or allocations of income or deductions that result in tax assessments different from amounts that we have estimated. We regularly assess the likelihood of an adverse outcome resulting from these audits to determine the adequacy of our provision for taxes. There can be no assurance as to the outcome of these audits or that our tax provisions will not change materially or be adequate to satisfy any associated tax liability. If our effective tax rates were to increase or if our tax liabilities exceed our estimates and provisions for such taxes, our financial results could be adversely affected.

Moreover, tax rates and laws in the countries where we operate may change, or tax reforms may be enacted domestically or in foreign jurisdictions which may increase tax uncertainty and may adversely affect our liquidity, cash flows, and future reported financial results or our ability to continue to structure and conduct our business as is done currently. For example, many of the countries where we are subject to taxes, including the U.S., are independently evaluating their tax policy and we may see significant changes in legislation, treaties, and regulations concerning taxation. In addition, many countries have politically committed to proposed fundamental changes to the international corporate tax system, by the Organization for Economic Co-operation and Development's (the "OECD") Inclusive Framework on Base Erosion and Profit Shifting, including the potential implementation of a minimum tax on global income, amongst other proposals.

Our products are complex and could contain defects, which could result in material costs to us and harm our business, results of operations, and financial condition.

Our products are complex and could contain defects, which could result in material costs to us. Product development in the markets we serve is becoming more focused on audio signal processing for improved audio performance and to enable intelligent and more sophisticated audio solutions. The increasing complexity of our products increases the risk that we or our customers or end users could discover latent defects or subtle faults after significant volumes of product have been shipped. This could result in material costs and other adverse consequences to us including, but not limited to: loss of customers, reduced margins, damage to our reputation, a material product recall, replacement costs for product warranty and support, payments to our customers related to recall claims as a result of various industry or business practices, a delay in recognition or loss of revenues, loss of market share, or failure to achieve market acceptance, and a diversion of the attention of our engineering personnel from our product development efforts. In addition, any defects or other problems with our products could result in financial losses or other damages to our customers who could seek damages from us for their losses. A product liability or warranty claim brought against us, even if unsuccessful, would likely be time consuming and costly to defend. In particular, the sale of systems and components that are incorporated into smartphones for the global mobile phone industry involves a high degree of risk that such claims may be made. Due to the complex nature of our products, quality and reliability issues may be identified after significant volumes of a product have been shipped to a large customer. A warranty or product liability claim against us in excess of our available insurance coverage and established reserves, or a determination that we have liability or an obligation to cover the costs of a customer product recall, could have a material adverse effect on our business, results of operations, and financial condition.

In addition, our products are typically sold to customers at prices that are significantly lower than the cost of the customer's products in which they are incorporated. Given that a defect in one of our products could give rise to failures in the products that incorporate them, we may face claims for damages that are disproportionate to the revenues we receive from the products involved and because we are self-insured for matters relating to product quality a significant claim could have a material adverse effect on our financial condition. Moreover, to the extent a defect in one of our products is caused by a defective component supplied to us by a third party, we may, nonetheless, be liable to the customer and be unsuccessful in seeking indemnification from that third party.

We are subject to potentially material liability for breaches of confidentiality agreements with certain of our top customers.

We have entered into non-disclosure agreements with several of our top customers which require us not to disclose and to protect certain information regarding, among other things, aspects of those customers' businesses plans, products, and technology. These confidentiality agreements, in some cases, impose strict liability on us in the event of any breach of these agreements by us or our employees or agents and, should such a breach occur, any resulting damage award or settlement could have a material adverse effect on our operating results and financial condition.

Risks Related to Our Industry

Global markets for our products are highly competitive and subject to rapid technological change. If we are unable to develop new products and compete effectively in these markets, our financial condition and operating results could be materially adversely affected.

We compete in highly competitive, technology-based, industries that are highly dynamic as new technologies are developed and introduced. Our competitors may introduce products that are as or more technologically advanced than our products or launch new products faster than we can, which may result in a loss of market share or revenue by us. If we are unable to anticipate or match our competitors' development or launch of new products, identify customer needs and preferences on a timely basis, or successfully launch or ramp production of our new products, our business and operating results may be materially adversely affected.

We operate in the highly competitive smartphone industry, which requires us to invest significant capital in developing, qualifying, and ramping production of new products without any assurance of product sales. If our new products are not designed into a customer's product or qualified by a customer our operating results could be negatively impacted.

A significant portion of our consolidated revenues are derived from acoustic components and audio solutions that are required to go through extensive customer qualification processes before being selected by customers for inclusion in their end products. In order to meet the product launch schedules of our top customers, we may invest capital and devote substantial resources, including design, engineering, sales, marketing, and programming efforts, based on non-binding forecasts provided by these customers, without any assurance that our products will be designed into a customer's product or qualified by the customer. In such cases, if our product is not designed into or qualified by the customer, we may not recover or realize any return on the capital that we invested and our operating results may be materially adversely affected.

In addition, the time required and costs incurred by us to ramp-up production for new products can be significant. Certain non-recurring costs and expenditures for tooling and other equipment may not be reusable in manufacturing products for other customers or different products for the same customer. Product ramps typically involve greater volumes of scrap and risks to execution such as higher costs due to inefficiencies and delays in production, all of which can have a material adverse effect on our operating results.

Risks Related to Operating a Global Business

Our foreign operations and supply chain are each subject to various risks that could materially adversely impact our results of operations and financial condition.

Many of our manufacturing operations, research and development operations, vendors, and suppliers are located outside the United States and if we are unable to successfully manage the risks associated with our global operations, our results of operations and financial condition could be negatively impacted. These risks include:

- o labor unrest and strikes, particularly in Asia, where the majority of our manufacturing operations are located;
- o earthquakes, tsunamis, floods, and other natural disasters, or catastrophic events (which may occur with more frequency or greater intensity due to climate change), particularly in Asia, where the majority of our manufacturing operations and suppliers are located;
- o health crises, including epidemics and pandemics, such as the COVID-19 pandemic, and governmental responses thereto, including by resulting in quarantines, closures, or other disruptions;
- o acts of terrorism or armed conflicts;
- o political or economic instability;
- o government embargoes, trade restrictions, and import and export controls; and
- o transportation delays and interruptions.

Evolving social and environmental responsibility regulations, as well as demands from investors, customers and other stakeholders, could result in additional costs, harm to our reputation and a loss of customers.

Increasing focus on environmental, social, and governance ("ESG") responsibility, as well as customer and investor demands, may make our supply chain more complex and may adversely affect our relationships with customers and investors. Some of our customers have adopted, or may adopt, procurement policies that include ESG provisions or requirements that their suppliers should comply with, or they may seek to include such provisions or requirements in their procurement terms and conditions. Also, an increasing number of investors are requiring companies to disclose corporate ESG policies, practices, and metrics. Legal and regulatory requirements, as well as investor expectations, on corporate ESG practices and disclosure, are subject to change, can be unpredictable, and may be difficult and expensive for us to comply with, given the complexity of our supply chain and manufacturing. If we are unable to comply, or are unable to cause our suppliers or contract manufacturers to comply, with such policies or provisions or meet the requirements of our customers and our investors, a customer may stop purchasing products from us or an investor may sell their shares, which could have a material adverse effect on our results of operations and our reputation. In addition, we have publicly announced certain corporate responsibility goals, which reflect our current plans and aspirations based on known conditions. Any failure to achieve such goals (or achieve the goals within the set timeframe) or the perception by stakeholders of such failure may result in reputational or financial harm.

Global economic conditions and changes in U.S. and international trade policy could materially adversely impact our business, results of operations, and financial position.

In the past, the Company's business and operating results have been adversely affected by these global economic conditions and remain vulnerable to future adverse impacts. Any prolonged economic deceleration in China may have a material adverse effect on our sales to customers in China, our operating results, and our financial condition.

Political actions, including trade and/or national security protection policies, or other actions by governments, particularly the U.S. and Chinese governments, have in the past, currently are, and could in the future limit or prevent us from transacting business with certain of our customers or suppliers. The U.S. government has made statements and taken certain actions that have led to, and may lead to further, changes to U.S. and international export and import controls or trade policies, including tariffs affecting certain products exported by a number of U.S. trading partners, including China. In response, many of those trading partners, including China, have imposed or proposed new or higher tariffs on American products. In addition to tariffs, China has a stated policy of reducing its dependence on foreign manufacturers and technology companies. As a consequence of such policy, revenue for our PD segment has been adversely impacted and may continue to be adversely impacted. Additionally, there are risks that the Chinese government may, among other things, require the use of local suppliers, compel companies that do business in China to partner with local companies to conduct business, which may adversely impact our results of operations and financial condition. Given that the majority of our largest manufacturing facilities are located in China and Southeast Asia, trade policy changes in the United States, China, or other countries, such as tariffs and sanctions would present particular risks for us that could adversely impact our results of operations and financial condition. We cannot predict future foreign trade policy in the United States or other countries, the terms of any new or renegotiated trade agreements or treaties, or tariffs or the impact of such matters on our business. A trade war involving the United States is likely to negatively impact world trade and the world economy in various ways and, consequently, have a material adverse effect on our results of operations and financial condition. To the extent that tariffs, trade restrictions, or sanctions imposed by the United States or other countries increase the price of, affect customer demand for, affect our ability to supply our products, or create adverse tax consequences, in the United States or other countries, our business and our operating results may be adversely affected. As a result, changes in international trade policy, changes in trade agreements, the imposition of tariffs or sanctions by the United States or other countries could materially adversely affect our results of operations and our financial condition.

Changes to export restrictions and economic sanction laws may adversely affect our operating results.

As a global company headquartered in the U.S., we are subject to U.S. laws and regulations, including import, export, and economic sanction laws. These laws may include prohibitions on the sale or supply of certain products to embargoed or sanctioned countries, regions, governments, persons, and entities, may require an export license prior to the export of the controlled item, or may otherwise limit and restrict the export of certain products and technologies. Many of our customers and suppliers are foreign companies or have significant foreign operations. The imposition of new or additional economic and trade sanctions against our major customers or suppliers could result in our inability to sell to, and generate revenue from such customers or purchase materials from such suppliers. Although these restrictions and laws have not significantly restricted our operations in the past, there is a risk that they could do so in the future.

As a result of restrictive export laws, our customers may also develop their own solutions to replace our products or seek to obtain a greater supply of similar or substitute products from our competitors that are not subject to these restrictions, which could materially and adversely affect our business and results of operations.

In addition, our association with customers that are or become subject to U.S. regulatory scrutiny or export restrictions could subject us to actual or perceived reputational harm among current or prospective investors, suppliers or customers, customers of our customers, other parties doing business with us, or the general public. Any such reputational harm could result in the loss of investors, suppliers, or customers, which could harm our business, financial condition, operating results, or prospects.

Fluctuations in commodity prices and foreign currency rates could have a material adverse effect on our operating results and financial condition.

We use a wide variety of raw materials in our manufacturing operation and are exposed to market risks associated with changes in commodity prices. Changes in commodity prices (from tariffs or otherwise) cannot always be predicted, hedged, or offset with price increases to eliminate earnings volatility. As a result, significant changes in commodity prices, particularly for various precious metals, could have a substantial adverse effect on our financial condition and results of operations.

In addition, we conduct a significant amount of business outside the United States and adverse movements in currency exchange rates, particularly the Malaysian ringgit, the Chinese renminbi (yuan), and the Philippine peso, in any period or periods, could have a material adverse effect on our business and our operating results due to a number of factors, including, among others:

- o our products are manufactured and sold outside the United States which increases our net exposure to changes in foreign exchange rates;
- o our products, which are typically sold in U.S. dollars, may become less price-competitive outside the United States as a result of unfavorable foreign exchange rates;
- o certain of our revenues that are derived from customer sales denominated in foreign currencies could decrease;
- o our foreign suppliers may raise their prices if they are impacted by currency fluctuations, resulting in higher than expected costs and lower margins;
- o the cost of materials, products, services, and other expenses outside the United States could be materially impacted by a weakening of the U.S. dollar; and
- o a sustained weakening of the U.S. dollar for an extended period could have a material adverse impact on our operating results and financial position.

While we have entered and may in the future enter into derivative financial instruments in an effort to hedge our foreign currency exposure, we remain exposed to the economic risks of foreign currency fluctuations. See the "Risk Management" section of Item 7 for additional discussion of commodity price and foreign currency risks.

Risks Related to Intellectual Property and Cybersecurity

Our revenues and operating results could be materially adversely affected if we are unable to protect or obtain patent and other intellectual property rights or if intellectual property litigation is successful against us.

We employ various measures to maintain, protect, and defend our intellectual property, including enforcing our intellectual property rights in various jurisdictions and forums throughout the world. However, policing unauthorized use of our products, technologies, and proprietary information is difficult and time consuming and these measures may not prevent our intellectual property from being challenged, invalidated, copied, disclosed, stolen, or circumvented. If we fail to protect our proprietary rights, our competitors might gain access to our technology, which could adversely affect our ability to compete successfully in our markets and harm our operating results. We also may not be successful in litigation or other actions to enforce our intellectual property rights, particularly in countries where intellectual property rights are not highly developed or protected, particularly in Asia, where the majority of our manufacturing operations are located. Litigation, if necessary, may result in retaliatory legal proceedings alleging infringement by us of intellectual property owned by others. We have had and may in the future have difficulty in certain circumstances in protecting or enforcing our intellectual property rights, including collecting royalties for use of certain patents included in our patent portfolio in certain foreign jurisdictions due to, among other things: policies of foreign governments; challenges to our licensing practices under such jurisdictions' competition laws; failure of foreign courts to recognize and enforce judgments of contract breach and damages issued by courts in the United States; and/or challenges pending before foreign patent authorities as to the validity of our patents and those owned by competitors and other parties.

Our competitors or other third parties may also assert infringement or invalidity claims against us in the future. If one of our products is found to infringe on a third party's rights, we may have liability for damages arising out of past infringement and may need to seek a license to use such intellectual property going forward. If a license is not available or if we are unable to obtain a license on terms acceptable to us, we would either have to change our product so that it does not infringe or cease selling the product. Any of these events may have a material adverse effect on our business, operating results, and financial condition.

The expense of protecting, defending, and enforcing our intellectual property, or defending claims that our products, technology, or manufacturing processes infringe the intellectual property rights of others, can vary significantly period to period and, in any given period, could have a material adverse effect on our operating results.

Our business and operations could suffer in the event of security breaches, cybersecurity incident, other unauthorized disclosures, or network disruptions.

While we have taken and continue to actively take measures to protect the various proprietary information, algorithms, source code, and confidential data relating to both our and our customers' business and products that is stored on our computer networks, servers, and peripheral devices, as well as on servers owned or managed by third party vendors whom we leverage, such data and information remains vulnerable to cyber attacks, cyber breaches, theft, or other unauthorized access. These attacks are increasing in their frequency, sophistication, and intensity and are costly to protect against. In addition, many of the techniques used to obtain unauthorized access, including viruses, worms, and other malicious software programs, are difficult to anticipate until launched against a target and we may be unable to implement adequate preventative measures. If successful, such cyber attacks or unauthorized access could result in remedial and other expenses, loss of valuable intellectual property, disclosure of confidential customer or commercial data, disclosure of government classified information, or system disruptions and subject us to civil liability, fines or penalties, damage our brand and reputation or otherwise harm our business, any of which could be material. If any such security breaches occur, there is no assurance that it can be adequately addressed in a timely manner or that any resulting loss, cost, or damage will be recoverable through insurance, legal, or other processes.

Should any security breach result in the disclosure of certain of our customers' or business partners' confidential information, we may incur liability to such customers or business partners under confidentiality agreements that we are party to with such parties. In addition, delayed sales, lower margins, or lost customers resulting from security breaches or network disruptions could materially reduce our revenues, materially increase our expenses, damage our reputation, and have a material adverse effect on our stock price.

There is also a danger of industrial espionage, unauthorized disclosures, theft of information or assets (including source code), or damage to assets by people who have gained unauthorized access to the Company's facilities, systems, or information. Such breaches, misuse, or other disruptions could lead to unauthorized disclosure of confidential or proprietary information or improper usage or sale of the Company's products or intellectual property without compensation and theft, manipulation, and destruction of private and proprietary data, which could result in defective products, production downtimes, lost revenue, or damage to our reputation, and have a material adverse effect on our stock price.

Additionally, any disruption, termination, or substandard provision of our communication networks and IT systems, whether as a result of computer or telecommunication issues (including operational failures, computer viruses, or security breaches), localized conditions (such as power outage, fire, or explosion) or events or circumstances of broader geographic impact (such as earthquake, storm, flood, other natural disaster, epidemic, strike, act of war, civil unrest, or terrorist act), could materially affect our business by disrupting normal operations.

Global privacy legislation, enforcement, and policy activity are rapidly expanding and creating a complex data privacy environment. We are subject to many data privacy, data protection, and data breach notification laws and regulations in the United States and around the world. While we have taken measures to assess the requirements of, and to comply with data privacy legislation, there is the potential for fines and penalties, litigation, and reputational harm in the event of a data breach.

Risks Related to Our Indebtedness

Our credit agreement requires us to comply with certain financial covenants and our failure to comply could have a material adverse effect on our business, financial condition, and results of operations.

The credit agreement governing our revolving credit facility contains covenants requiring us to, among other things, maintain a minimum ratio of consolidated EBITDA to consolidated interest expense and a maximum ratio of consolidated total indebtedness to consolidated EBITDA. In the past, we have obtained amendments from the lenders under the credit agreement which have allowed us to comply with the financial covenants, but there can be no assurance that in the future the lenders will agree to such amendments, and our inability to comply with the covenants could result in an event of default which, if not cured or waived, could have a material adverse effect on our business, financial condition, and operating results.

There are risks associated with our indebtedness, which could have a material adverse effect on our financial condition.

Our outstanding indebtedness and any additional indebtedness we incur may have negative consequences, including:

- o requiring us to use cash to pay the principal of and interest on our indebtedness, thereby reducing the amount of cash flow available for other purposes;
- o limiting our ability to obtain additional financing for working capital, capital expenditures, acquisitions, stock repurchases, dividends, or other general corporate and other purposes;
- o limiting our flexibility in planning for, or reacting to, changes in our business and our industry; and
- o increasing our vulnerability to interest rate fluctuations to the extent a portion of our debt has variable interest rates.

Our ability to make payments of principal and interest on our indebtedness depends upon our future performance, which is subject to general economic conditions, industry cycles, and financial, business, and other factors, many of which are beyond our control. If we are unable to generate sufficient cash flow from operations in the future to service our debt, we may be required to, among other things: refinance or restructure all or a portion of our indebtedness; reduce or delay planned capital or operating expenditures; or sell selected assets. Such measures might not be sufficient to enable us to service our debt. In addition, any such financing, refinancing, or sale of assets might not be available on economically favorable terms or at all, and if prevailing interest rates at the time of any such financing and/or refinancing are higher than our current rates, interest expense related to such financing and/or refinancing would increase. If there are adverse changes in the ratings assigned to our debt securities by credit rating agencies, our borrowing costs, our ability to access debt in the future, and/or the terms of the financing could be adversely affected.

Risks Related to Our Corporate Governance and Common Stock

Our business could be negatively affected as a result of the actions of activist or hostile stockholders.

Our business could be negatively affected as a result of stockholder activism, which could cause us to incur significant expense, hinder execution of our business strategy, and impact the trading value of our securities. In the past, the Company has been the subject of shareholder activism, and we are subject to the risks associated with any future such activism. Stockholder activism, including potential proxy contests, requires significant time and attention by management and the Board of Directors, potentially interfering with our ability to execute our strategic plan. Additionally, such stockholder activism could give rise to perceived uncertainties as to our future direction, adversely affect our relationships with key executives and business partners, and make it more difficult to attract and retain qualified personnel. Also, we may be required to incur significant legal fees and other expenses related to activist stockholder matters. Any of these impacts could materially and adversely affect our business and operating results. Further, the market price of our common stock could be subject to significant fluctuation or otherwise be adversely affected by stockholder activism.

Certain provisions in our certificate of incorporation, by-laws, and Delaware law may prevent or delay an acquisition of the Company, which could decrease the trading price of our common stock.

Each of our certificate of incorporation, our by-laws, and Delaware law, as currently in effect, contain provisions that are intended to deter coercive takeover practices and inadequate takeover bids by making such practices or bids unacceptably expensive to the bidder and to encourage prospective acquirers to negotiate with our Board of Directors rather than to attempt a hostile takeover. These provisions include, among others:

- o the inability of our stockholders to call a special meeting or act by written consent;
- o rules regarding how stockholders may present proposals or nominate directors for election at stockholder meetings;
- o the right of our Board of Directors to issue preferred stock without stockholder approval; and
- o the ability of our directors, without a stockholder vote, to fill vacancies on our Board of Directors (including those resulting from an enlargement of the Board of Directors).

In addition, current Delaware law includes provisions which limit the ability of persons that, without prior board approval, acquire more than 15% of the outstanding voting stock of a Delaware corporation from engaging in any business combination with that corporation, including by merger, consolidation, or purchases of additional shares, for a three-year period following the acquisition by such persons of more than 15% of the corporation's outstanding voting stock.

In light of present circumstances, we believe these provisions taken as a whole protect our stockholders from coercive or otherwise unfair takeover tactics by requiring potential acquirers to negotiate with our Board of Directors and by providing our Board of Directors with more time to assess any acquisition proposal. These provisions are not intended to make us immune from takeovers or prevent changes in the composition of our Board of Directors. However, these provisions could delay or prevent an acquisition that our Board of Directors determines is not in the best interests of the Company and all of our stockholders.

Our stock price has been and may continue to be volatile and may fluctuate significantly which may adversely impact investor confidence and increase the likelihood of securities class action litigation.

Our common stock price has experienced substantial volatility in the past and may remain volatile in the future. During 2023, our closing stock price ranged from a high of \$20.04 per share to a low of \$12.98 per share. Volatility in our stock price can be driven by many factors including divergence between our actual or anticipated financial results and published expectations of analysts or the expectations of the market, market conditions in our industry, announcements that we, our competitors, our vendors, or our customers may make regarding their operating results, technological innovations, and the gain or loss of customers, or key opportunities. Our common stock is also included in certain market indices, and any change in the composition of these indices to exclude our company may adversely affect our stock price. Increased volatility in the financial markets and/or overall economic conditions may reduce the amounts that we realize in the future on our cash equivalents and/or marketable securities and may reduce our earnings as a result of any impairment charges that we record to reduce recorded values of marketable securities to their fair values.

Further, securities class action litigation is often brought against a public company following periods of volatility in the market price of its securities. Due to changes in our stock price, we may be the target of securities litigation in the future. Securities litigation could result in substantial uninsured costs and divert management's attention and our resources.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 1C. CYBERSECURITY

Risk Management and Strategy

As part of our overall risk management program, we have implemented processes to assess, identify, and manage the material risks facing the Company, including from cybersecurity threats. We designed and assess our cybersecurity risk management program based on the National Institute of Standards and Technology Cybersecurity Framework (the "NIST Cybersecurity Framework"). This does not imply compliance with specific technical standards, specifications or requirements of the NIST Cybersecurity Framework, but signifies its use as a guiding principle.

Our commitment extends to various programs and processes to stay informed about and monitor the prevention, detection, mitigation and remediation of cybersecurity incidents. This includes regular scans, penetration tests, and vulnerability assessments to identify any potential threats or vulnerabilities in our systems. We also conduct "tabletop" exercises to simulate cybersecurity incidents to enhance our readiness and resilience in the face of potential cybersecurity threats. These exercises are conducted at both the technical level and senior management level. We have engaged external service providers, where appropriate, including leading cybersecurity firms, to assess, test or otherwise assist with aspects of our security processes.

We have a well-defined cybersecurity incident response plan aimed at facilitating an effective response and handling of cybersecurity incidents. The incident response plan outlines roles and responsibilities, criteria for measuring the severity of a cybersecurity incident, and provides for Audit Committee and Board briefings as appropriate. We have also implemented controls and procedures that provide for the prompt escalation of certain cybersecurity incidents so that decisions regarding the public disclosure and reporting of such incidents can be made by management in a timely manner.

Our employees participate in a security awareness program, receiving training on identifying potential cybersecurity risks and safeguarding our resources and information. This training is reinforced by testing initiatives, including periodic phishing tests. We also assess the cybersecurity risks presented by third parties that could adversely impact our business in the event of a cybersecurity incident affecting those third-party systems. In addition, we maintain business continuity and disaster recovery plans, as well as cybersecurity insurance.

To date, we have not identified risks from cybersecurity threats, including as a result of any previous cybersecurity incidents, that have materially affected or are reasonably likely to materially affect our business strategy, results of operations, or financial condition. That said, while we continually work to safeguard the information systems we use, and the proprietary, confidential and personal information residing therein, and mitigate potential risks, there can be no assurance that such actions will be sufficient to prevent cybersecurity incidents or mitigate all potential risks to such systems, networks, and data or those of our third party providers. See "Item 1A. Risk Factors – Our business and operations could suffer in the event of security breaches, cybersecurity incident, other unauthorized disclosures, or network disruptions."

Governance

The Audit Committee of the Board of Directors considers cybersecurity risk and other information technology risk as part of its risk oversight function. Our head of Internal Audit reports directly to the Audit Committee and is responsible reviewing with the Committee our company-wide enterprise risk assessment, which includes an evaluation of cybersecurity risks and threats. In addition, the Audit Committee separately receives regular reports from our Vice President of Information Technology on, among other things, our cybersecurity risks and threats, the status of projects to strengthen our information security systems, and assessments of our security program. The Chair of the Audit Committee regularly reports to the full Board regarding its activities, including those related to our cybersecurity risk management program.

Our management team, led by our Vice President of Information Technology ("VP of IT"), has operational responsibility for our cybersecurity and information security framework and risk management. Our VP of IT has extensive cybersecurity knowledge and skills gained from over 20 years of experience in leading and managing global IT operations and security teams. In addition, our VP of IT has a Master of Science degree in Management of Information Systems from Rensselaer Polytechnic Institute. Our VP of IT is supported by a team of enterprise information system and security risk professionals. The VP of IT receives regular updates on cybersecurity matters, results of mitigation efforts, and cybersecurity incident response and remediation. He, in turn, provides regular updates on these matters to our Chief Financial Officer and our Chief Administrative Officer and works closely with our Legal department to oversee compliance with legal, regulatory, and contractual security requirements. In addition, in conjunction with Internal Audit, our VP of IT supervises any retained external cybersecurity consultants.

ITEM 2. PROPERTIES

Our corporate headquarters is located in Itasca, Illinois. Our material properties used in connection with manufacturing, sales, research and development, and corporate administrative operations, and the segments served at that facility, are as follows:

Location	Principal Function(s)	Owned or Leased	Segment	Square Footage (in thousands)
Suzhou, China	Manufacturing and administrative	Leased	PD, MSA, CMM	495
Cebu, the Philippines	Manufacturing and administrative	Owned	MSA	215
Penang, Malaysia	Manufacturing and administrative	Owned	MSA, CMM	187
Liberty, South Carolina	Manufacturing, sales, and administrative	Owned	PD	155
Cazenovia, New York	Manufacturing, research and development, sales, and administrative	Owned	PD	133
Mexicali, Baja California, Mexico	Manufacturing and administrative	Leased	PD	119
New Bedford, Massachusetts	Distribution center	Leased	PD	110
Itasca, Illinois	Corporate headquarters, research and development, sales, and administrative	Owned	PD, MSA, CMM	95

We believe that the owned and leased facilities we utilize are well-maintained and suitable for our operations.

ITEM 3. LEGAL PROCEEDINGS

For a discussion of contingencies related to legal proceedings, see [Note 15. Commitments and Contingent Liabilities](#) to our Consolidated Financial Statements under Item 8, "Financial Statements and Supplementary Data."

Except as otherwise noted above, there have been no material developments in legal proceedings.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

INFORMATION ABOUT OUR EXECUTIVE OFFICERS

The following sets forth information regarding our executive officers, as of February 21, 2024.

Name	Age	Position
Jeffrey S. Niew	57	President & Chief Executive Officer
John S. Anderson	60	Senior Vice President & Chief Financial Officer
Raymond D. Cabrera	57	Senior Vice President, Human Resources & Chief Administrative Officer
Daniel J. Giesecke	56	Senior Vice President & Chief Operating Officer
Robert J. Perna	60	Senior Vice President, General Counsel & Secretary

Jeffrey S. Niew has served as President & Chief Executive Officer since September 2013 and as a member of our Board of Directors since February 2014. From November 2011 until we were spun-off from Dover Corporation in February 2014, Mr. Niew served as a Vice President of Dover Corporation and as President and Chief Executive Officer of Dover Communication Technologies. Mr. Niew joined Knowles Electronics LLC ("Knowles Electronics") in May 2000 and became Chief Operating Officer in January 2007, President in January 2008, and President and Chief Executive Officer in February 2010. Prior to joining Knowles Electronics, Mr. Niew was employed by Littelfuse, Inc., from 1995 to 2000, where he held various positions in product management, sales, and engineering in the Electronic Products group and by Hewlett-Packard Company, from 1988 to 1994, where he served in various engineering and product management roles in the Optoelectronics Group in California.

John S. Anderson has served as Senior Vice President & Chief Financial Officer since December 2013. From January 2013 until we were spun-off from Dover Corporation in February 2014, Mr. Anderson served as Vice President and Chief Financial Officer of Dover Communication Technologies. Previously, Mr. Anderson served as Vice President and Chief Financial Officer of Dover Energy (August 2010 to January 2013) and Vice President and Chief Financial Officer of Dover Fluid Management (October 2009 to August 2010). Previous experience includes the roles of Corporate Controller and Director Financial Planning & Analysis for Sauer-Danfoss Inc. (October 2004 to October 2009) and Director of Finance and Controller for Borg Warner Turbo Systems GmbH (August 2002 to October 2004).

Raymond D. Cabrera has served as Senior Vice President, Human Resources & Chief Administrative Officer since February 2014. From November 2011 until we were spun-off from Dover Corporation in February 2014, Mr. Cabrera served as Vice President, Human Resources of Dover Communication Technologies. Previously, Mr. Cabrera served in the following capacities at Knowles: as Vice President, Human Resources and Chief Administrative Officer (January 2004 to November 2011), Vice President, Human Resources (March 2000 to January 2004), and Director, Human Resources (June 1997 to March 2000) of Knowles Electronics.

Daniel J. Giesecke has served as Senior Vice President & Chief Operating Officer since February 2014. From January 2012 until we were spun-off from Dover Corporation in February 2014, Mr. Giesecke served as Vice President, Global Operations of Dover Communication Technologies. Previously, Mr. Giesecke served as Vice President, Advanced Manufacturing Engineering, Knowles Electronics (February 2009 to January 2012), Senior Director, Advanced Manufacturing Engineering, Knowles Electronics (January 2008 to February 2009), Director of Engineering Operations, Knowles Electronics (November 2003 to January 2008), and various operations, supply chain, and engineering positions since he joined Knowles Electronics in 1995.

Robert J. Perna has served as Senior Vice President, General Counsel & Secretary since May 2019. Prior to joining Knowles, Mr. Perna served as Senior Vice President and Chief Legal Officer of The AZEK Company, a manufacturer of commercial and residential building products (November 2018 to April 2019) and as Senior Vice President, General Counsel and Secretary of Rockwell Collins, Inc., a leading producer of cabin interior, communications and aviation systems for the aerospace and defense industry (January 2014 to November 2018). In addition, he served as Vice President, General Counsel and Secretary at A. M. Castle & Co., a specialty metals and plastics distributor and value-added processor (November 2008 to January 2014) and held various in-house legal positions at CNH Global, Navistar International and GE Capital Rail Services.

PART II**ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS, AND ISSUER PURCHASES OF EQUITY SECURITIES****Market Information**

Our common stock is listed on the New York Stock Exchange ("NYSE") under the ticker symbol "KN".

Dividends

Since our common stock began trading on the NYSE, we have not paid cash dividends and we do not anticipate paying a cash dividend on our common stock in the immediate future. Any determination to pay dividends in the future will be at the discretion of our Board of Directors and will depend on many factors, such as our financial condition, earnings, capital requirements, debt service obligations, industry practice, legal requirements, regulatory constraints, and other factors that the Board of Directors deems relevant. Our ability to pay dividends will depend on our ongoing ability to generate cash from operations and access to the capital markets.

Holders

The number of holders of record of our common stock as of February 16, 2024 was approximately 707.

Recent Sales of Unregistered Securities

None.

Issuer Purchases of Equity Securities

On February 24, 2020, the Company announced that its Board of Directors had authorized a share repurchase program of up to \$100 million of the Company's common stock. On April 28, 2022, the Company announced that its Board of Directors had increased the authorization by up to \$150 million in additional aggregate value. The timing and amount of any shares repurchased will be determined by the Company based on its evaluation of market conditions and other factors, and will be made in accordance with applicable securities laws in either the open market or in privately negotiated transactions. The Company is not obligated to purchase any shares under the program, and the program may be suspended or discontinued at any time. The actual timing, number, and share price of shares repurchased will depend on a number of factors, including the market price of the Company's common stock, general market and economic conditions, and applicable legal requirements. Any shares repurchased will be held as treasury stock.

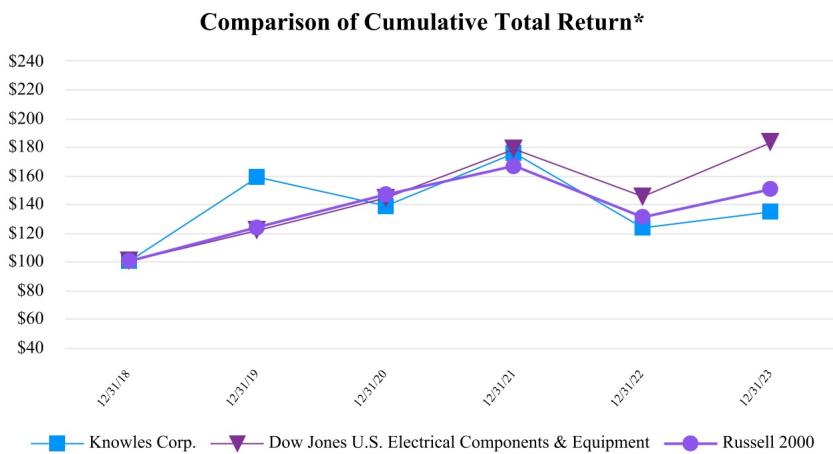
Below is a summary of share repurchases for the three months ended December 31, 2023:

(in millions, except share and per share amounts)

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Program	Approximate Dollar Value of Shares That May Yet Be Purchased Under The Program
November 2023	741,163	\$ 15.96	741,163	\$ 105.9
December 2023	480,280	\$ 17.05	480,280	\$ 97.7
Total Activity	1,221,443	\$ 16.39	1,221,443	

Performance Graph

This performance graph does not constitute soliciting material, is not deemed filed with the SEC, and is not incorporated by reference in any of our filings under the Securities Act or the Exchange Act, whether made before or after the date of this Annual Report on Form 10-K and irrespective of any general incorporation language in any such filing, except to the extent we specifically incorporate this performance graph by reference therein.



Data Source: NYSE

*Total return assumes reinvestment of dividends.

The graph assumes \$100 invested on December 31, 2018 in Knowles Corporation common stock, the Dow Jones U.S. Electrical Components & Equipment Index, and the Russell 2000 index.

ITEM 6. [RESERVED]

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The discussion and analysis presented below refer to and should be read in conjunction with our audited Consolidated Financial Statements and related notes under Item 8. "Financial Statements and Supplementary Data." The following discussion contains forward-looking statements. The matters discussed in these forward-looking statements are subject to risks, uncertainties, and other factors that could cause actual results to differ materially from those made, projected, or implied in the forward-looking statements. Factors that could cause or contribute to these differences include those discussed below and elsewhere in this Form 10-K, particularly in "Risk Factors" and "Cautionary Statement Concerning Forward-Looking Statements."

Management's discussion and analysis, which we refer to as "MD&A," of our results of operations, financial condition, and cash flows should be read together with the audited Consolidated Financial Statements and accompanying notes included under Item 8. "Financial Statements and Supplementary Data," to provide an understanding of our financial condition, changes in financial condition, and results of our operations. We believe the assumptions underlying the Consolidated Financial Statements are reasonable. However, the Consolidated Financial Statements included herein may not necessarily reflect our results of operations, financial position, and cash flows in the future.

Our Business

We are a market leader and global provider of high performance capacitors and radio frequency ("RF") filtering products, balanced armature speakers, advanced micro-acoustic microphones, and audio solutions, serving the medtech, defense, electric vehicle, industrial, communications, and consumer electronics markets. Our focus on the customer, combined with unique technology, proprietary manufacturing techniques, and global operational expertise, enables us to deliver innovative solutions across multiple applications. References to "Knowles," the "Company," "we," "our," or "us" refer to Knowles Corporation and its consolidated subsidiaries, unless the context otherwise requires.

Our Business Segments

In 2022, we determined each operating segment represents a single reportable segment; since then, we have been reporting three segments. These segments were determined in accordance with Financial Accounting Standards Board Accounting Standards Codification 280 - Segment Reporting and are comprised of (i) PD, (ii) MSA, and (iii) CMM. The segments are aligned around similar product applications serving our key end markets to enhance focus on end market growth strategies.

- **PD Segment**

Our PD segment specializes in the design and delivery of high performance capacitor products and RF solutions primarily serving the defense, medtech, electric vehicle, and industrial markets. PD has sales, support, and engineering facilities in North America, Europe, and Asia, as well as manufacturing facilities in North America and Asia.

- **MSA Segment**

Our MSA segment designs and manufactures microphones and balanced armature speakers used in applications that serve the hearing health and premium audio markets. MSA has sales, support, and engineering facilities in North America, Europe, and Asia, as well as manufacturing facilities in Asia.

- **CMM Segment**

Our CMM segment designs and manufactures micro-electro-mechanical systems ("MEMS") microphones and audio solutions used in applications that primarily serve the ear, Internet of Things ("IoT"), computing, and smartphone markets. CMM has sales, support, and engineering facilities in North America, Europe, and Asia, as well as manufacturing facilities in Asia.

We sell our products directly to original equipment manufacturers ("OEMs"), their contract manufacturers, suppliers, and through sales representatives and distributors worldwide.

Revenues for the year ended December 31, 2023 were significantly impacted by lower consumer electronic, industrial, communication, and distribution end market demand as a result of excess customer and channel inventory in the CMM and PD segments. Revenues for the year ended December 31, 2022 were significantly impacted by lower consumer electronics end market demand and an inventory correction in both consumer electronics and hearing health markets in the second half of 2022. As a result, the Company offered financial incentives to customers in the fourth quarter of 2022 for certain dual-sourced products. The additional revenues as a result of these financial incentives in the fourth quarter of 2022 were less than 2% of revenues for the year ended December 31, 2022.

Recent Developments

On September 18, 2023, we announced that we are reviewing strategic alternatives for the CMM business. This includes a range of possibilities, such as: a potential sale, restructuring the business, as well as continuing to operate the business as is. No assurance can be given that any transaction or other strategic outcomes will result from the review. Further, there can be no assurance that the outcome of the strategic alternative review will result in our being able to recover the carrying value of the CMM segment. We have not set a timetable for the conclusion of the strategic review and do not intend to comment on or provide updates regarding these matters unless and until we determine that further disclosure is appropriate or required.

On November 1, 2023, we acquired (i) all the issued and outstanding shares of Kaplan Electronics, Inc. and (ii) certain assets of Cornell Dubilier Electronics, Inc. and CD Aero, LLC (collectively, "Cornell Dubilier" or "CD") for aggregate consideration of \$259.8 million, which equated to a total fair value of consideration transferred of \$ 246.8 million. The acquired business is a manufacturer of film, electrolytic, and mica capacitors used in medtech, defense, and industrial electrification applications. The acquisition's operations are included in the PD segment. For additional information, refer to Note 3. Acquisitions to our Consolidated Financial Statements under Item 8, "Financial Statements and Supplementary Data."

For discussion related to the results of operations and changes in financial condition for the year ended December 31, 2022 compared to the year ended December 31, 2021, refer to Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations in our Annual Report on Form 10-K for the year ended December 31, 2022, which was filed with the SEC on February 9, 2023.

Non-GAAP Financial Measures

In addition to the GAAP financial measures included in this item, we have presented certain non-GAAP financial measures. We use non-GAAP measures as supplements to our GAAP results of operations in evaluating certain aspects of our business, and our executive management team and Board of Directors focus on non-GAAP items as key measures of our performance for business planning purposes. These measures assist us in comparing our performance between various reporting periods on a consistent basis, as these measures remove from operating results the impact of items that, in our opinion, do not reflect our core operating performance. We believe that our presentation of non-GAAP financial measures is useful because it provides investors and securities analysts with the same information that we use internally for purposes of assessing our core operating performance. The Company does not consider these non-GAAP financial measures to be a substitute for the information provided by GAAP financial results. For a reconciliation of these non-GAAP financial measures to the most directly comparable GAAP financial measures, see the reconciliation included herein.

Results of Operations for the Year Ended December 31, 2023 compared with the Year Ended December 31, 2022

(in millions, except per share amounts)	Years Ended December 31,		
	2023	2022	2021
Revenues	\$ 707.6	\$ 764.7	\$ 868.1
Gross profit	\$ 283.4	\$ 276.3	\$ 359.5
Non-GAAP gross profit	\$ 285.4	\$ 310.1	\$ 362.1
Earnings (loss) from continuing operations before interest and income taxes	\$ 50.4	\$ (414.3)	\$ 118.8
Adjusted earnings from continuing operations before interest and income taxes	\$ 105.8	\$ 142.4	\$ 174.3
(Benefit from) provision for income taxes	\$ (27.4)	\$ 11.9	\$ (45.6)
Non-GAAP provision for income taxes	\$ 18.2	\$ 19.2	\$ 19.8
Earnings (loss) from continuing operations	\$ 72.4	\$ (430.1)	\$ 150.2
Non-GAAP net earnings	\$ 82.2	\$ 119.3	\$ 146.9
Diluted earnings (loss) per share from continuing operations	\$ 0.79	\$ (4.69)	\$ 1.59
Non-GAAP diluted earnings per share	\$ 0.88	\$ 1.26	\$ 1.53

Revenues

Revenues for the year ended December 31, 2023 were \$707.6 million, compared with \$764.7 million for the year ended December 31, 2022, a decrease of \$57.1 million or 7.5%. CMM revenues decreased \$35.7 million, primarily due to weaker demand and lower average pricing on mature products shipped into the mobile market, partially offset by higher demand from ear, IoT, and compute markets. PD revenues decreased \$21.5 million, primarily due to lower demand from the industrial, communication, distribution, medtech, and defense markets as a result of continued demand weakness associated with excess customer and channel inventory and timing of shipments into the defense market, partially offset by our acquisition of CD. MSA revenues increased \$0.1 million, primarily due to higher shipping volumes into the premium audio market, partially offset by lower shipping volumes into the hearing health market as customers reduced their inventory levels. In addition, shipping volumes were unfavorably impacted earlier this year by financial incentives offered to customers resulting in higher shipping volumes in the fourth quarter of 2022.

Cost of Goods Sold

Cost of goods sold ("COGS") for the year ended December 31, 2023 was \$435.5 million, compared with \$455.7 million for the year ended December 31, 2022, a decrease of \$20.2 million or 4.4%. This decrease was primarily due to product cost reductions, lower shipping volumes, benefits of prior year restructuring actions, and favorable foreign currency exchange rate changes, partially offset by our acquisition of CD and lower factory capacity utilization.

Gain (Loss) on Sale of Fixed Assets

As a result of transitioning to our next generation of MEMS wafer manufacturing technology, we sold certain machinery and equipment related to the CMM segment during the year ended December 31, 2023 and recorded a gain of \$10.0 million. There was a \$0.5 million loss on the sale of unrelated equipment during the year ended December 31, 2022. For additional information, refer to Note 6. Property, Plant, and Equipment, net to our Consolidated Financial Statements.

Restructuring Charges

During the year ended December 31, 2023, we recorded a \$1.0 million gain on the sale of certain machinery and equipment that was previously written off through restructuring charges and a \$1.5 million reversal of restructuring charges related to changes in estimates, all within the CMM Segment. We also recorded restructuring charges of \$2.5 million for severance pay and benefits related to headcount reductions and for costs associated with transferring certain capacitors manufacturing to existing facilities to further optimize operations within the PD segment. In addition, we recorded \$1.4 million for severance pay and benefits related to headcount reductions within the CMM segment and \$0.8 million for Corporate charges during the year ended December 31, 2023. These actions resulted in a \$1.3 million credit within Gross profit and the remaining \$3.5 million of expense within Operating expenses. For additional information, refer to Note 10. Restructuring and Related Activities to our Consolidated Financial Statements.

During the year ended December 31, 2022, we committed to two restructuring programs within our CMM segment designed to rightsize manufacturing capacity and operating expenses in the MEMS microphones product line. These actions were taken in light of the current decline in demand and the reduction in the expected future growth for global consumer electronics. In addition, these restructuring programs further the Company's previously announced strategy to reduce exposure to commodity microphones and increase emphasis on high-value solutions. These actions resulted in the settlement of supplier obligations, non-cash fixed asset write-offs, and severance pay. We recorded restructuring charges of \$39.0 million related to these actions and \$0.6 million for other costs. In addition, we recorded restructuring charges of \$2.2 million to rationalize the Intelligent Audio product line workforce, which is also included within the CMM segment. As a result, we recorded total restructuring charges of \$32.2 million within Gross profit and \$9.6 million within Operating expenses. For additional information, refer to Note 10. Restructuring and Related Activities to our Consolidated Financial Statements.

Gross Profit and Non-GAAP Gross Profit

Gross profit for the year ended December 31, 2023 was \$283.4 million, compared with \$276.3 million for the year ended December 31, 2022, an increase of \$7.1 million or 2.6%. Gross profit margin (gross profit as a percentage of revenues) for the year ended December 31, 2023 was 40.1%, compared with 36.1% for the year ended December 31, 2022. The increase in gross profit was primarily due to lower restructuring charges, product cost reductions, benefits of prior year restructuring actions, the gain on sale of fixed assets, and favorable foreign currency exchange rate changes, partially offset by lower factory capacity utilization, lower average pricing on mature products shipped into the mobile market, lower shipping volumes, and unfavorable product mix. The increase in gross profit margin was primarily due to lower restructuring charges, product cost reductions, benefits of prior year restructuring actions, the gain on sale of fixed assets, and favorable foreign currency exchange rate changes, partially offset by lower factory capacity utilization, lower average pricing on mature products shipped into the mobile market, and unfavorable product mix.

Non-GAAP gross profit for the year ended December 31, 2023 was \$285.4 million, compared with \$310.1 million for the year ended December 31, 2022, a decrease of \$24.7 million or 8.0%. Non-GAAP gross profit margin (non-GAAP gross profit as a percentage of revenues) for the year ended December 31, 2023 was 40.3%, compared with 40.6% for the year ended December 31, 2022. The decrease in non-GAAP gross profit was primarily due to lower factory capacity utilization, lower average pricing on mature products shipped into the mobile market, lower shipping volumes, and unfavorable product mix, partially offset by product cost reductions, benefits of prior year restructuring actions, the gain on sale of fixed assets, and favorable foreign currency exchange rate changes. The decrease in non-GAAP gross profit margin was primarily due to lower factory capacity utilization, lower average pricing on mature products shipped into the mobile market, and unfavorable product mix, partially offset by product cost reductions, benefits of prior year restructuring actions, the gain on sale of fixed assets, and favorable foreign currency exchange rate changes.

Research and Development Expenses

Research and development expenses for the years ended December 31, 2023 and 2022 were \$78.5 million and \$81.7 million, respectively, a decrease of \$3.2 million or 3.9%. Research and development expenses as a percentage of revenues for the years ended December 31, 2023 and 2022 were 11.1% and 10.7%, respectively. The decrease in expenses was primarily driven by reduced spending in our CMM segment driven by the benefits of prior year restructuring actions, partially offset by increased development activities in our MSA and PD segments as we continue to shift our focus and spending to our higher margin businesses. In addition, our acquisition of the CD business increased expenses in our PD segment. The increase in expenses as a percentage of revenues was driven by our lower revenues.

Selling and Administrative Expenses

Selling and administrative expenses for the year ended December 31, 2023 were \$150.3 million, compared with \$128.9 million for the year ended December 31, 2022, an increase of \$21.4 million or 16.6%. Selling and administrative expenses as a percentage of revenues for the year ended December 31, 2023 and 2022 were 21.2% and 16.9%, respectively. The increase in expenses was primarily driven by higher professional service fees and our acquisition of CD. The increase in expenses as a percentage of revenues was driven by an increase in expenses and our lower revenues.

Impairment Charges

There were no impairment charges for the year ended December 31, 2023. Impairment charges for the year ended December 31, 2022 were \$470.9 million, related to goodwill impairment charges for the CMM reporting unit. For additional information related to these impairment charges, refer to Note 4, Impairment Charges to our Consolidated Financial Statements under Item 8, "Financial Statements and Supplementary Data."

Interest Expense, net

Interest expense, net for the year ended December 31, 2023 was \$5.4 million, compared with \$3.9 million for the year ended December 31, 2022, an increase of \$1.5 million or 38.5%. The increase was primarily due to imputed interest expense on our Seller Note in 2023, a higher outstanding revolving credit facility balance, and higher interest rates during the year ended December 31, 2023. For additional information on borrowings and interest expense, refer to Note 12, Borrowings to our Consolidated Financial Statements under Item 8, "Financial Statements and Supplementary Data."

Other Expense (Income), net

Other expense for the year ended December 31, 2023 was \$0.7 million, compared with income of \$0.5 million for the year ended December 31, 2022, a change of \$1.2 million. Expense in 2023 primarily represents unfavorable foreign currency exchange rate impacts. Income in 2022 primarily represents favorable impacts from foreign currency exchange rate changes, partially offset by an adjustment to pre-spin-off pension obligations.

(Benefit from) Provision for Income Taxes and Non-GAAP Provision for Income Taxes

The effective tax rate ("ETR") for the year ended December 31, 2023 was (60.9)% or a \$27.4 million tax benefit, compared with (2.8)% or a \$11.9 million tax provision for the year ended December 31, 2022. In 2023 the change in the ETR was primarily due to the impact of intangible property transfers and the release of a portion of the valuation allowance in the U.S., compared to the nondeductible goodwill impairment recorded during 2022. The change in ETR was also impacted by the mix of earnings and losses by taxing jurisdictions.

The non-GAAP ETR for the year ended December 31, 2023 was 18.1% or a \$18.2 million tax provision, compared with 13.9% or a \$19.2 million tax provision for the year ended December 31, 2022. The increase in the non-GAAP ETR was primarily due to lower pre-tax earnings and the loss of our Malaysian tax holiday.

Earnings (Loss) from Continuing Operations

Earnings from continuing operations for the year ended December 31, 2023 was \$72.4 million, compared with a loss of \$430.1 million for the year ended December 31, 2022, an increase of \$502.5 million. As described above, the increase is primarily due to impairment charges in 2022 that did not recur in 2023, higher gross profit, and a benefit from income taxes, partially offset by higher operating expenses.

Earnings (Loss) and Adjusted Earnings from Continuing Operations Before Interest and Income Taxes

Earnings before interest and income taxes from continuing operations ("EBIT") for the year ended December 31, 2023 was \$50.4 million, compared with a loss of \$414.3 million for the year ended December 31, 2022, an increase of \$464.7 million or 112.2%. EBIT margin (EBIT from continuing operations as a percentage of revenues) for the year ended December 31, 2023 was 7.1%, compared with (54.2)% for the year ended December 31, 2022. The change is primarily due to impairment charges recorded in 2022 that did not recur in 2023 and higher gross profit, partially offset by higher operating expenses.

Adjusted earnings before interest and income taxes ("Adjusted EBIT") from continuing operations for the year ended December 31, 2023 was \$105.8 million, compared with \$142.4 million for the year ended December 31, 2022, a decrease of \$36.6 million or 25.7%. Adjusted EBIT margin (adjusted EBIT from continuing operations as a percentage of revenues) for the year ended December 31, 2023 was 15.0%, compared with 18.6% for the year ended December 31, 2022. The decreases were primarily due to lower non-GAAP gross profit, partially offset by higher non-GAAP operating expenses.

Earnings from Discontinued Operations, net

There was no activity during 2023 or 2022.

Diluted Earnings (Loss) per Share from Continuing Operations and Non-GAAP Diluted Earnings per Share

Diluted earnings per share from continuing operations was \$0.79 for the year ended December 31, 2023, compared with a loss of \$4.69 for the year ended December 31, 2022, an increase of \$5.48. As described above, the change is primarily due to impairment charges recorded in 2022 that did not recur in 2023, higher gross profit, and a tax benefit in 2023, partially offset by higher selling and administrative expenses.

Non-GAAP diluted earnings per share for the year ended December 31, 2023 was \$0.88, compared with \$1.26 for the year ended December 31, 2022, a decrease of \$0.38. As described above, the decrease was primarily due to lower non-GAAP gross profit and higher non-GAAP operating expenses.

Reconciliation of GAAP Financial Measures to Non-GAAP Financial Measures ⁽¹⁾

<i>(in millions, except per share amounts)</i>	Years Ended December 31,		
	2023	2022	2021
Gross profit	\$ 283.4	\$ 276.3	\$ 359.5
Stock-based compensation expense	2.1	1.6	1.6
Restructuring charges	(1.3)	32.2	—
Production transfer costs ⁽²⁾	0.4	—	—
Acquisition-related costs ⁽³⁾	0.8	—	1.0
Non-GAAP gross profit	\$ 285.4	\$ 310.1	\$ 362.1
Earnings (loss) from continuing operations	\$ 72.4	\$ (430.1)	\$ 150.2
Interest expense, net	5.4	3.9	14.2
(Benefit from) provision for income taxes	(27.4)	11.9	(45.6)
Earnings (loss) from continuing operations before interest and income taxes	50.4	(414.3)	118.8
Stock-based compensation expense	29.0	28.6	32.1
Intangibles amortization expense	13.5	12.2	15.9
Impairment charges	—	470.9	4.0
Restructuring charges	2.2	41.8	0.5
Production transfer costs ⁽²⁾	0.4	—	—
Acquisition-related costs ⁽³⁾	9.4	—	1.5
Other ⁽⁴⁾	0.9	3.2	1.5
Adjusted earnings from continuing operations before interest and income taxes	\$ 105.8	\$ 142.4	\$ 174.3
Interest expense, net	\$ 5.4	\$ 3.9	\$ 14.2
Interest expense, net non-GAAP reconciling adjustments ⁽⁵⁾	—	—	6.6
Non-GAAP interest expense	\$ 5.4	\$ 3.9	\$ 7.6
(Benefit from) provision for income taxes	\$ (27.4)	\$ 11.9	\$ (45.6)
Income tax effects of non-GAAP reconciling adjustments ⁽⁶⁾	6	45.6	7.3
Non-GAAP provision for income taxes	\$ 18.2	\$ 19.2	\$ 19.8
Earnings (loss) from continuing operations	\$ 72.4	\$ (430.1)	\$ 150.2
Non-GAAP reconciling adjustments ⁽⁷⁾	55.4	556.7	55.5
Interest expense, net non-GAAP reconciling adjustments ⁽⁵⁾	—	—	6.6
Income tax effects of non-GAAP reconciling adjustments ⁽⁶⁾	45.6	7.3	65.4
Non-GAAP net earnings	\$ 82.2	\$ 119.3	\$ 146.9
Diluted earnings (loss) per share from continuing operations	\$ 0.79	\$ (4.69)	\$ 1.59
Earnings per share non-GAAP reconciling adjustment	0.09	5.95	(0.06)
Non-GAAP diluted earnings per share	\$ 0.88	\$ 1.26	\$ 1.53
Diluted average shares outstanding	91.6	91.7	94.7
Non-GAAP adjustment ⁽⁸⁾	2.3	2.9	1.1
Non-GAAP diluted average shares outstanding ⁽⁸⁾	93.9	94.6	95.8

(1) In addition to the GAAP financial measures included herein, Knowles has presented certain non-GAAP financial measures that exclude certain amounts that are included in the most directly comparable GAAP measures. Knowles believes that non-GAAP measures are useful as supplements to its GAAP results of operations to evaluate certain aspects of its operations and financial performance, and its management team primarily focuses on non-GAAP items in evaluating Knowles' performance for business planning purposes. Knowles also believes that these measures assist it with comparing its performance between various reporting periods on a consistent basis, as these measures remove from operating results the impact of items that, in Knowles' opinion, do not reflect its core operating performance. Knowles believes that its presentation of non-GAAP financial measures is useful because it provides investors and securities analysts with the same information that Knowles uses internally for purposes of assessing its core operating performance.

(2) Production transfer costs represent costs incurred to migrate manufacturing to facilities primarily within the United States. These amounts are included in the corresponding Gross profit and Earnings (loss) before interest and income taxes for each period presented.

(3) In 2023, these expenses are related to the acquisition of CD by the PD segment. In 2021, these expenses are related to the acquisition of IMC by the PD segment. These expenses principally include costs incurred by the Company to carry out these transactions as well as ongoing costs to facilitate integration.

(4) In 2023, Other expenses include non-recurring professional service fees related to an execution of a reorganization. In addition, Other expenses include the ongoing net lease cost (income) related to facilities not used in operations. In 2022, Other expenses represent an adjustment to pre-spin-off pension obligations of \$3.4 million, which was recorded during the second quarter of 2022 in the Other (income) expense, net line on the Consolidated Statements of Earnings, and the ongoing net lease cost related to facilities not used in operations. In 2021, Other expenses represent the ongoing net lease cost related to facilities not used in operations.

(5) Under GAAP in effect for the Company through 2021, certain convertible debt instruments that may be settled in cash (or other assets) upon conversion were required to be separately accounted for as liability (debt) and equity (conversion option) components of the instrument in a manner that reflected the issuer's nonconvertible debt borrowing rate. Accordingly, for GAAP purposes we were required to recognize imputed interest expense on the Company's \$172.5 million of convertible senior notes due November 1, 2021 that were issued in a private placement in May 2016. The imputed interest rate for the convertible notes was 8.12%, while the actual coupon interest rate of the notes was 3.25%. The difference between the imputed interest expense and the coupon interest expense was excluded from management's assessment of the Company's operating performance because management believes that this non-cash expense was not indicative of its core, ongoing operating performance.

(6) Income tax effects of non-GAAP reconciling adjustments are calculated using the applicable tax rates in the jurisdictions of the underlying adjustments. These adjustments include the impact of one-time tax benefits.

(7) The non-GAAP reconciling adjustments are those adjustments made to reconcile Earnings (loss) from continuing operations before interest and income taxes to Adjusted earnings from continuing operations before interest and income taxes.

(8) The number of shares used in the diluted per share calculations on a non-GAAP basis excludes the impact of stock-based compensation expense expected to be incurred in future periods and not yet recognized in the financial statements, which would otherwise be assumed to be used to repurchase shares under the GAAP treasury stock method. In addition, the Company entered into convertible note hedge transactions that expired in 2021 upon maturity of the convertible notes to offset any potential dilution from the convertible notes. Although the anti-dilutive impact of the convertible note hedges is not reflected under GAAP, the Company includes the anti-dilutive impact of the convertible note hedges in non-GAAP diluted average shares outstanding, if applicable.

Segment Results of Operations for the Year Ended December 31, 2023 Compared with the Year Ended December 31, 2022

Precision Devices

(in millions)	Years Ended December 31,					
	2023	Percent of Revenues	2022	Percent of Revenues	2021	Percent of Revenues
Revenues	\$ 221.4		\$ 242.9		\$ 201.1	
Earnings from continuing operations before interest and income taxes	\$ 25.0	11.3%	\$ 56.1	23.1%	\$ 43.7	21.7%
Stock-based compensation expense	3.5		2.6		2.7	
Intangibles amortization expense	7.5		5.8		5.0	
Restructuring charges	2.5		—		0.1	
Production transfer costs ⁽¹⁾	0.4		—		—	
Acquisition-related costs ⁽²⁾	1.6		—		1.0	
Other ⁽³⁾	—		3.4		—	
Adjusted earnings from continuing operations before interest and income taxes	<u>\$ 40.5</u>	<u>18.3%</u>	<u>\$ 67.9</u>	<u>28.0%</u>	<u>\$ 52.5</u>	<u>26.1%</u>

⁽¹⁾ Production transfer costs represent costs incurred to migrate manufacturing to existing facilities.

⁽²⁾ In 2023, these expenses are related to the acquisition of CD. In 2021, these expenses are related to the acquisition of IMC. These expenses principally include costs incurred by the Company to carry out these transactions as well as ongoing costs to facilitate integration.

⁽³⁾ 2022 expenses represent an adjustment to pre-spin-off pension obligations.

Revenues

PD revenues were \$221.4 million for the year ended December 31, 2023, compared with \$242.9 million for the year ended December 31, 2022, a decrease of \$21.5 million or 8.9%. Revenues decreased primarily due to lower demand from the industrial, communication, distribution, medtech, and defense markets, as a result of continued demand weakness associated with excess customer and channel inventory and timing of shipments into the defense market, partially offset by our acquisition of CD.

Earnings and Adjusted Earnings from Continuing Operations Before Interest and Income Taxes

PD EBIT from continuing operations was \$25.0 million for the year ended December 31, 2023, compared with \$56.1 million for the year ended December 31, 2022, a decrease of \$31.1 million or 55.4%. EBIT margin for the year ended December 31, 2023 was 11.3%, compared with 23.1% for the year ended December 31, 2022. The decreases were primarily due to lower revenues, lower gross profit margin, and increased operating expenses, partially offset by the absence of adjustments to pre-spin-off pension obligations in 2023. The gross profit margin decrease was primarily driven by lower factory capacity utilization, partially offset by product cost reductions and a decrease in precious metal costs.

PD Adjusted EBIT was \$40.5 million for the year ended December 31, 2023, compared with \$67.9 million for the year ended December 31, 2022, a decrease of \$27.4 million or 40.4%. Adjusted EBIT margin for the year ended December 31, 2023 was 18.3%, compared with 28.0% for the year ended December 31, 2022. The decreases were primarily due to lower revenues and non-GAAP gross profit margin. The non-GAAP gross profit margin decrease was primarily driven by lower factory capacity utilization, partially offset by product cost reductions and a decrease in precious metal costs.

MedTech & Specialty Audio

(in millions)	Years Ended December 31,					
	2023	Percent of Revenues	2022	Percent of Revenues	2021	Percent of Revenues
Revenues	\$ 230.0		\$ 229.9		\$ 231.3	
Earnings from continuing operations before interest and income taxes	\$ 85.2	37.0%	\$ 84.6	36.8%	\$ 77.0	33.3%
Stock-based compensation expense	3.5		2.9		2.4	
Restructuring charges	—		—		0.1	
Adjusted earnings from continuing operations before interest and income taxes	<u><u>\$ 88.7</u></u>	38.6%	<u><u>\$ 87.5</u></u>	38.1%	<u><u>\$ 79.5</u></u>	34.4%

Revenues

MSA revenues were \$230.0 million for the year ended December 31, 2023, compared with \$229.9 million for the year ended December 31, 2022, an increase of \$0.1 million. Revenues increased primarily due to higher shipping volumes into the premium audio market, partially offset by lower shipping volumes into the hearing health market as customers reduced their inventory levels. In addition, shipping volumes were unfavorably impacted earlier this year by financial incentives offered to customers resulting in higher shipping volumes in the fourth quarter of 2022.

Earnings and Adjusted Earnings from Continuing Operations Before Interest and Income Taxes

MSA EBIT from continuing operations was \$85.2 million for the year ended December 31, 2023, compared with \$84.6 million for the year ended December 31, 2022, an increase of \$0.6 million or 0.7%. EBIT margin for the year ended December 31, 2023 was 37.0%, compared with 36.8% for the year ended December 31, 2022. The increases were primarily due to higher gross profit margin, partially offset by higher operating expenses. The higher gross profit margin was driven by product cost reductions and favorable foreign currency exchange rates, partially offset by lower factory capacity utilization.

MSA Adjusted EBIT was \$88.7 million for the year ended December 31, 2023, compared with \$87.5 million for the year ended December 31, 2022, an increase of \$1.2 million or 1.4%. Adjusted EBIT margin for the year ended December 31, 2023 was 38.6%, compared with 38.1% for the year ended December 31, 2022. The increases were primarily due to higher non-GAAP gross profit margin, partially offset by higher non-GAAP operating expenses. The higher non-GAAP gross profit margin was driven by product cost reductions and favorable foreign currency exchange rates, partially offset by lower factory capacity utilization.

Consumer MEMS Microphones

<i>(in millions)</i>	Years Ended December 31,					
	2023	Percent of Revenues	2022	Percent of Revenues	2021	Percent of Revenues
Revenues	\$ 256.2		\$ 291.9		\$ 435.7	
Earnings (loss) from continuing operations before interest and income taxes	\$ 13.6	5.3%	\$ (504.5)	(172.8)%	\$ 60.0	13.8%
Stock-based compensation expense	6.2		6.2		7.5	
Intangibles amortization expense	6.0		6.4		10.9	
Impairment charges	—		470.9		4.0	
Restructuring charges	(1.1)		41.2		0.3	
Other ⁽¹⁾	(1.2)		(0.2)		1.4	
Adjusted earnings from continuing operations before interest and income taxes	\$ 23.5	9.2%	\$ 20.0	6.9%	\$ 84.1	19.3%

⁽¹⁾ Other represents the ongoing net lease (income) cost related to facilities not used in operations.

Revenues

CMM revenues were \$256.2 million for the year ended December 31, 2023, compared with \$291.9 million for the year ended December 31, 2022, a decrease of \$35.7 million or 12.2%. Revenues decreased primarily due to weaker demand and lower average pricing on mature products shipped into the mobile market, partially offset by higher demand from ear, IoT, and compute markets. In addition, shipping volumes were unfavorably impacted earlier this year by financial incentives offered to customers resulting in higher shipping volumes in the fourth quarter of 2022.

Earnings (Loss) and Adjusted Earnings from Continuing Operations Before Interest and Income Taxes

CMM EBIT from continuing operations was \$13.6 million for the year ended December 31, 2023, compared with a loss of \$504.5 million for the year ended December 31, 2022, an increase of \$518.1 million or 102.7%. EBIT margin for the year ended December 31, 2023 was 5.3%, compared to a loss of 172.8% for the year ended December 31, 2022. The increase was primarily due to impairment charges in 2022 that did not recur in 2023, higher gross margins, and lower operating expenses, partially offset by lower revenues. The higher gross profit margin was driven by lower restructuring charges, benefits of prior year restructuring actions, the gain on sale of fixed assets, product cost reductions, and favorable foreign currency exchange rates, partially offset by lower average pricing on mature products shipped into the mobile market, decreased factory capacity utilization, and unfavorable product mix.

CMM Adjusted EBIT was \$23.5 million for the year ended December 31, 2023, compared with \$20.0 million for the year ended December 31, 2022, an increase of \$3.5 million or 17.5%. Adjusted EBIT margin for the year ended December 31, 2023 was 9.2%, compared with 6.9% for the year ended December 31, 2022. The increases were primarily due to higher non-GAAP gross profit margins and lower non-GAAP operating expenses, partially offset by lower revenues. The higher non-GAAP gross profit margin was driven by benefits of prior year restructuring actions, the gain on sale of fixed assets, product cost reductions, and favorable foreign currency exchange rates, partially offset by lower average pricing on mature products shipped into the mobile market, decreased factory capacity utilization, and unfavorable product mix.

Liquidity and Capital Resources

Historically, we have generated and expect to continue to generate positive cash flow from operations. Our ability to fund our operations and capital needs will depend on our ongoing ability to generate cash from operations and access to capital markets. We believe that our future cash flow from operations and access to capital markets will provide adequate resources to fund our working capital needs, capital expenditures, strategic investments, and share repurchases. We have secured a revolving line of credit in the United States from a syndicate of commercial banks to provide additional liquidity. Furthermore, if we were to require additional cash above and beyond our cash on the balance sheet, the free cash flow generated by the business, and availability under our revolving credit facility, we would most likely seek to raise long-term financing through the U.S. debt or bank markets.

Due to the global nature of our operations, a significant portion of our cash is generated and typically held outside the United States. Our cash and cash equivalents totaled \$87.3 million and \$48.2 million at December 31, 2023 and 2022, respectively. Of these amounts, cash held by our non-U.S. operations totaled \$71.8 million and \$40.0 million as of December 31, 2023 and 2022, respectively. To the extent we repatriate these funds to the U.S., we may be required to pay U.S. state income taxes and applicable foreign withholding taxes on those amounts during the period when such repatriation occurs. Management will continue to reassess our need to repatriate the earnings of our foreign subsidiaries.

On November 1, 2023, we acquired (i) all the issued and outstanding shares of Kaplan Electronics, Inc. and (ii) certain assets of Cornell Dubilier Electronics, Inc. and CD Aero, LLC (collectively, "Cornell Dubilier" or "CD") for aggregate consideration of \$259.8 million, which equated to a total fair value of consideration transferred of \$246.8 million. This acquisition's operations are included in the PD segment. For additional information, refer to Note 3. Acquisitions to our Consolidated Financial Statements under Item 8, "Financial Statements and Supplementary Data."

On September 25, 2023, the Company amended its Amended and Restated Credit Agreement (the "A&R Credit Agreement") to, among other things, (a) permit the Company in connection with the acquisition of Cornell Dubilier, to incur senior priority seller financing indebtedness (the "Seller Note") in an aggregate principal amount of \$122.9 million secured by certain assets (including equity interests) acquired in connection with such acquisition and the capital stock of Cornell Dubilier, LLC (the "Acquisition Assets"), which shall mature two years after the effective date of such Seller Note (the "Seller Note Maturity Date"), (b) extends the requirement to pledge the Acquisition Assets that would otherwise constitute collateral under the Credit Agreement to the date that is 90 days after the Seller Note Maturity Date, and (c) restricts, until the Seller Note Maturity Date, the amount of dispositions and investments from the Company and certain of its subsidiaries into Cornell Dubilier, LLC and the acquired subsidiaries that constitute Acquisition Assets from exceeding \$80.0 million in the aggregate. All other terms remain the same as the A&R Credit Agreement dated February 8, 2023.

On February 8, 2023, we entered into the A&R Credit Agreement that amends and restates the prior Credit Agreement (the "2020 Credit Agreement"), which provides for a senior secured revolving credit facility with borrowings in an aggregate principal amount at any time outstanding not to exceed \$400.0 million. As of December 31, 2023, outstanding borrowings under the Credit Facility were \$160.0 million. At any time during the term of the Credit Facility, we will be permitted to increase the commitments under the Credit Facility or to establish one or more incremental term loan facilities under the New Credit Facility in an aggregate principal amount not to exceed \$200.0 million for all such incremental facilities. Commitments under the Credit Facility will terminate, and loans outstanding thereunder will mature, on February 8, 2028. For additional information, refer to Note 12. Borrowings to our Consolidated Financial Statements.

On May 3, 2021, we acquired all of the outstanding shares of common stock of IMC for \$81.4 million. The acquired business provides RF filters to the defense, industrial, and communications markets. The acquisition's operations are included in the PD segment. For additional information, refer to Note 3. Acquisitions to our Consolidated Financial Statements under Item 8, "Financial Statements and Supplementary Data."

On February 24, 2020, we announced that our Board of Directors had authorized a share repurchase program of up to \$100 million of our common stock. On April 28, 2022, we announced that our Board of Directors had increased the authorization by up to \$150 million in additional aggregate value. At December 31, 2023, we have \$97.7 million remaining that may yet be purchased under our share repurchase program. The timing and amount of any shares repurchased will be determined by us based on our evaluation of market conditions and other factors, and will be made in accordance with applicable securities laws in either the open market or in privately negotiated transactions. We are not obligated to purchase any shares under the program, and the program may be suspended or discontinued at any time. The actual timing, number, and share price of shares repurchased will depend on a number of factors, including the market price of our common stock, general market and economic conditions, and applicable legal requirements. Any shares repurchased will be held as treasury stock. During the years ended December 31, 2023, 2022, and 2021 we repurchased 2,851,604, 2,339,045, and 2,139,413 shares of common stock, respectively, for a total of \$47.5 million, \$44.0 million, and \$44.5 million, respectively.

Cash flows from operating, investing, and financing activities as reflected in our Consolidated Statements of Cash Flows are presented on a consolidated basis (including discontinued operations). Cash flows are summarized in the following table:

(in millions)	Years Ended December 31,		
	2023	2022	2021
Net cash flows provided by (used in):			
Operating activities	\$ 122.7	\$ 86.3	\$ 182.1
Investing activities	(141.6)	(32.7)	(129.6)
Financing activities	58.2	(73.2)	(131.4)
Effect of exchange rate changes on cash and cash equivalents	(0.2)	(1.1)	—
Net increase (decrease) in cash and cash equivalents	\$ 39.1	\$ (20.7)	\$ (78.9)

Operating Activities

Cash provided by operating activities adjusts net earnings for certain non-cash items, including impairment charges, depreciation expense, amortization of intangible assets, stock-based compensation, changes in deferred income taxes, and the effects of changes in operating assets and liabilities. The increase in cash provided by operating activities in 2023 as compared to 2022 is primarily due to a reduction in working capital and lower incentive compensation payments in 2023, partially offset by payments for previously accrued expenses, including lease and restructuring liabilities. In addition, after adjusting for non-cash expense items, net earnings were lower due primarily to an increase in professional fees. The favorable changes in working capital in 2023 were primarily driven by an increase in accounts payable and a reduction in inventories.

Investing Activities

Cash used in investing activities is primarily used for acquisitions and capital expenditures. The cash used in investing activities during 2023 was primarily driven by the acquisition of CD, partially offset by proceeds from the sale of certain machinery and equipment. The 2023 and 2022 capital expenditures supported product innovation and cost savings. Capital expenditures were lower in 2023 as compared to 2022.

Our 2023 and 2022 capital expenditures as a percentage of revenues were 2.4% and 4.2%, respectively. In 2024, we expect capital expenditures to be in the range of 3.0% to 4.0% of revenues. We expect to fund these capital expenditures through our existing cash balances and cash flows from operating activities.

Financing Activities

Cash provided by financing activities during 2023 is primarily related to the \$115.0 million net borrowing of revolving credit facility, \$47.5 million of repurchases of common stock, and the \$6.2 million payment of taxes related to net share settlement of equity awards. Cash used in financing activities during 2022 was primarily related to the \$44.0 million of repurchases of common stock, \$25.0 million net repayment of revolving credit facility, and the \$6.9 million payment of taxes related to net share settlement of equity awards, partially offset by proceeds of \$7.5 million from the exercise of options.

Free Cash Flow

In addition to measuring our cash flow generation and usage based upon the operating, investing, and financing classifications included in the Consolidated Statements of Cash Flows, we also measure free cash flow and free cash flow as a percentage of revenues. Free cash flow is calculated as cash flow provided by operating activities less capital expenditures. Our management believes these measures are useful in measuring our cash generated from operations that is available to repay debt, fund acquisitions, and repurchase Knowles' common stock. Free cash flow and free cash flow as a percentage of revenues are not GAAP measures and may not be comparable to similarly titled measures used by other companies in our industry. As such, free cash flow and free cash flow as a percentage of revenues should not be considered in isolation from, or as an alternative to, any other liquidity measures determined in accordance with GAAP.

Our PD segment is not typically subject to seasonality. Our MSA segment tends to have stronger revenues in the fourth quarter of each fiscal year, while our CMM segment, which serves the consumer electronics market, varies based on the timing of OEM product launches and can impact our quarterly revenues, earnings, and cash flow.

The following table reconciles our free cash flow to cash flow provided by operating activities:

(in millions)	Years Ended December 31,		
	2023	2022	2021
Free Cash Flow			
Cash flow provided by operating activities	\$ 122.7	\$ 86.3	\$ 182.1
Less: Capital expenditures	(16.9)	(32.1)	(48.6)
Free cash flow	\$ 105.8	\$ 54.2	\$ 133.5
Free cash flow as a percentage of revenues	15.0 %	7.1 %	15.4 %

In 2023, we generated free cash flow of \$105.8 million, representing 15.0% of revenues, compared to free cash flow in 2022 of \$54.2 million, representing 7.1% of revenues. The increase in free cash flow in 2023 compared to 2022 was primarily due to a reduction in working capital, lower incentive compensation payments in 2023, and a decrease in capital expenditures, partially offset by payments for previously accrued expenses and an increase in professional fees.

Contingent Obligations

From time to time, we are involved in various legal proceedings and claims arising in the ordinary course of its business. Legal contingencies are discussed in Note 15. Commitments and Contingent Liabilities to our Consolidated Financial Statements under Item 8, "Financial Statements and Supplementary Data."

Contractual Obligations and Off-Balance Sheet Arrangements

A summary of our significant contractual obligations and commitments as of December 31, 2023 and the years when these obligations are expected to be due is as follows:

(in millions)	Total	Payments Due by Period			
		Less than 1 Year	1-3 Years	3-5 Years	More than 5 Years
Debt ⁽¹⁾	\$ 282.9	\$ 50.0	\$ 72.9	\$ 160.0	\$ —
Operating leases ⁽²⁾	14.5	5.5	5.7	3.1	0.2
Purchase obligations ⁽³⁾	67.8	67.8	—	—	—
Finance leases ⁽²⁾	2.3	1.6	0.6	0.1	—
Total obligations	\$ 367.5	\$ 124.9	\$ 79.2	\$ 163.2	\$ 0.2

⁽¹⁾ Relates to the maturity of indebtedness under our New Credit Facility and the Seller Note; does not give effect to any early repayment of or future amounts which may be drawn under the New Credit Facility.

⁽²⁾ Represents commitments related to operating and finance leases. See Note 8. Leases to our Consolidated Financial Statements under Item 8, "Financial Statements and Supplementary Data."

⁽³⁾ Represents off-balance sheet commitments for purchase obligations related to open purchase orders with our vendors.

Risk Management

We are exposed to certain market risks which exist as part of our ongoing business operations, including changes in currency exchange rates, the dependence on key customers, price volatility for certain commodities, and changes in interest rates. We do not engage in speculative or leveraged transactions and do not hold or issue financial instruments for trading purposes.

Foreign Currency Exposure

We conduct business through our subsidiaries in many different countries and fluctuations in currency exchange rates could have a significant impact on the reported results of operations, which are presented in U.S. dollars. A significant and growing portion of our products are manufactured in lower-cost locations and sold in various countries. Cross-border transactions, both with external parties and intercompany relationships, could result in increased foreign exchange exposures. A weakening of foreign currencies relative to the U.S. dollar would adversely affect the U.S. dollar value of the Company's foreign currency-denominated sales, but would be beneficial to the cost of materials, products, and services purchased overseas. A strengthening of foreign currencies relative to the U.S. dollar would positively affect the U.S. dollar value of the Company's foreign currency-denominated sales, but would have a negative effect on the cost of materials, products, and services purchased overseas. Our foreign currency exposure is primarily driven by changes in the Chinese renminbi (yuan), the Malaysian ringgit, the Philippine peso, and the Japanese yen. Based on our current sales and manufacturing activity, a sustained 10% weakening of the U.S. dollar for a period of one year would reduce our pre-tax earnings by approximately \$17.2 million, excluding the impact of our hedging program. See Note 11. Hedging Transactions and Derivative Instruments to our Consolidated Financial Statements under Item 8, "Financial Statements and Supplementary Data" for information on the Company's hedges of foreign currency exchange rate risk.

Dependence on Key Customers; Concentration of Credit

The loss of any key customer and our inability to replace revenues provided by a key customer may have a material adverse effect on our business and financial condition. For the years ended December 31, 2023, 2022, and 2021, Apple Inc. accounted for approximately 16%, 15%, and 16% of our total revenues, respectively. For the years ended December 31, 2023, WS Audiology A/S accounted for approximately 10% of our total revenues. No other customer accounted for more than 10% of total revenues during these periods. If a key customer fails to meet payment obligations, our operating results and financial condition could be adversely affected.

Commodity Pricing

We use a wide variety of raw materials, primarily metals and semi-processed or finished components, which are generally available from a number of sources. While the required raw materials are generally available, commodity pricing for various precious metals, such as palladium, gold, brass, stainless steel, and copper, fluctuates. As a result, our operating results are exposed to such fluctuations. Although some cost increases may be recovered through increased prices to customers if commodity prices trend upward, we also attempt to control such costs through fixed-price contracts with suppliers and various other programs through our global supply chain activities.

Interest Rates

Borrowings under our New Credit Facility are at variable interest rates. A hypothetical 100 basis point increase in interest rates affecting our external variable rate borrowings as of December 31, 2023 would increase our annual interest expense by approximately \$2.7 million.

Critical Accounting Estimates

Our Consolidated Financial Statements are based on the application of GAAP. GAAP requires the use of estimates, assumptions, judgments, and subjective interpretations of accounting principles that have an impact on the assets, liabilities, revenues, and expense amounts we report. These estimates can also affect supplemental information contained in our public disclosures, including information regarding contingencies, risk, and our financial condition. The significant accounting policies used in the preparation of our Consolidated Financial Statements are discussed in Note 1, Summary of Significant Accounting Policies to the Consolidated Financial Statements under Item 8, "Financial Statements and Supplementary Data." The accounting assumptions and estimates discussed in the section below are those that we consider most critical to an understanding of our financial statements because they inherently involve significant judgments and estimates. By their nature, these judgments and estimates are subject to an inherent degree of uncertainty. Although we believe our use of estimates and underlying accounting assumptions conforms to GAAP and is consistently applied, actual results could differ from our estimates. We review valuations based on estimates for reasonableness on a consistent basis.

Revenue Recognition: Revenue is recognized when control of the promised goods or services is transferred to the customer in an amount that reflects the consideration we expect to be entitled to in exchange for those goods or services. The terms of a contract or historical business practice can give rise to variable consideration, including customer discounts, rebates, and returns. We estimate variable consideration using either the expected value or most likely amount method. We include amounts in the transaction price to the extent it is probable that a significant reversal of revenue will not occur in a subsequent reporting period. Our estimates of variable consideration are based on all reasonably available information (historical, current, and forecasted). Rebates are recognized over the contract period based on expected revenue levels. Estimation of variable consideration requires judgment and actual results may differ from estimated amounts, which could result in adjustments to revenue.

Inventories: Inventories are stated at the lower of cost or net realizable value, determined on the first-in, first-out ("FIFO") basis. The value of inventory may decline as a result of surplus inventory, price reductions, or technological obsolescence. It is our policy to carry reserves against the carrying value of inventory when items have no future demand (obsolete inventory) and additionally, where inventory items on hand have demand, yet have insufficient forecasted activity to consume the entire stock within a reasonable period. We recognize reserves against the carrying value of such at-risk inventory items after considering the nature of the risk and any mitigating factors. These estimates require judgment with respect to forecasted future demand and market conditions. Additional reserves could be required if actual demand and market conditions differ from our estimates.

Goodwill: The Company tests goodwill for impairment annually as of October 1, or more frequently if there are events or circumstances indicating it is more likely than not that the carrying value of individual reporting units may exceed their respective fair values. Recoverability of goodwill is measured at the reporting unit level. The Company's three reporting units are PD, MSA, and CMM. The impairment assessment compares the fair value of each reporting unit to its carrying value. Impairment is measured as the amount by which the carrying value of a reporting unit exceeds its fair value.

During the second quarter of 2022, the Company identified a triggering event requiring an interim impairment assessment for the CMM reporting unit, which resulted in a goodwill impairment charge of \$239.8 million. This triggering event occurred due to the identification of a rapid decline in current demand and a reduction in the expected future growth rate for global consumer electronics, which resulted in reductions to forecasted revenue and terminal growth rates and profit margins. During the fourth quarter of 2022, the Company identified an additional triggering event requiring an impairment assessment of the CMM reporting unit, which resulted in a goodwill impairment charge of \$231.1 million. This triggering event occurred due to the identification of further declines in forecasted demand for global consumer electronics in the near term, resulting in reductions to forecasted revenue and profit margins. In addition, the Company's assumptions for weighted average cost of capital and income tax rates increased as a result of rising interest rates and not satisfying certain tax holiday conditions. No goodwill impairment charges were recorded during the years ended December 31, 2023 or 2021.

Fair value was estimated using a discounted cash flow model that included market participant assumptions, forecasted future cash flows based on historical performance and future estimated results, determination of appropriate discount rates, and other assumptions which were considered reasonable in the discounted cash flow analysis. Significant assumptions used in the model included forecasted revenue and terminal growth rates, profit margins, income tax rates, capital expenditures, working capital requirements, and the Company's weighted average cost of capital. The fair value measurements for reporting units are based on significant unobservable inputs.

Fair value measurements require considerable judgment and are sensitive to changes in underlying assumptions. As a result, there can be no assurance that estimates and assumptions made for purposes of the impairment assessment will prove to be an accurate prediction of the future. Potential circumstances that could have a negative effect on the fair value of our reporting units include, but are not limited to, lower than forecasted revenue and terminal growth rates, decreased profit margins, higher income taxes, increased capital expenditures, higher working capital requirements, and changes in the weighted average cost of capital. A reduction in the estimated fair value of the reporting units including due to the potential sale or restructuring of the CMM business, could trigger an impairment in the future.

As of December 31, 2023, the carrying value of goodwill was \$540.7 million, of which \$270.2 million relates to the CMM reporting unit. As of the 2023 fair value measurement date, the estimated fair value of the CMM reporting unit exceeded the carrying value by approximately 7%.

The Company cannot predict the occurrence of certain events or changes in circumstances that might adversely affect the carrying value of goodwill. We continue to monitor the evolving macroeconomic landscape. Changes in interest and income tax rates could impact the weighted average cost of capital used in our estimates of fair value for our reporting units.

Holding all other assumptions used in the 2023 fair value measurement constant, changes in the assumptions below would reduce fair value of the CMM reporting unit and result in impairment charges of approximately:

1% increase in the weighted-average cost of capital	\$	11.2
1% reduction in revenue growth	\$	8.8
1% reduction in EBITDA margin	\$	—

The MSA and PD reporting units comprised the remaining goodwill at December 31, 2023. As of the 2023 fair value measurement date the estimated fair value of each of these reporting units exceeded the carrying values by at least 180%. Excluding the CMM reporting unit, holding all other assumptions used in the 2023 fair value measurement constant, a 1% increase in the weighted-average cost of capital, a 1% reduction in revenue growth, or a 1% reduction in EBITDA margin assumption for our MSA and PD reporting units would not result in any impairment.

Other Intangible and Long-Lived Assets: Long-lived assets and intangible assets with determinable lives are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. If an indicator of impairment exists for any grouping of assets, an estimate of undiscounted future cash flows is produced and compared to its carrying value. If an asset is determined to be impaired, the loss is measured by the excess of the carrying amount of the asset over its fair value as determined by an estimate of discounted future cash flows. We recorded impairment charges of \$4.0 million during the year ended December 31, 2021, related to facilities in our Intelligent Audio product line. Estimation of future cash flows requires judgment and actual results may differ from estimated amounts, which could result in impairment charges in the future. No impairment of other intangible or long-lived assets was recorded for the years ended December 31, 2023 and 2022.

Income Taxes: We use judgment in determining our provision for income taxes, including our assessment of the need for a valuation allowance against our deferred tax assets and our determination of whether tax positions will be sustained on examination by taxing authorities based on the technical merits of the positions. To the extent that the final outcome of these matters is different than the amounts recorded, such differences will affect the provision for income taxes in the period in which such determination is made and could have a material impact on our financial condition and operating results.

A valuation allowance is recorded to reduce deferred tax assets to the net amount that is more likely than not to be realized. The need to establish valuation allowances for deferred tax assets is assessed at each reporting date. In assessing the requirement for, and amount of, a valuation allowance in accordance with the more-likely-than-not standard, we give appropriate consideration to all positive and negative evidence related to the realization of the deferred tax assets. This assessment considers, among other matters, the nature, frequency, and severity of current and cumulative losses, forecasts of future profitability, the duration of statutory carryforward periods, our experience with operating loss and tax credit carryforwards not expiring unused, and tax planning strategies.

At December 31, 2023, consistent with the above process, we evaluated the need for a valuation allowance against our deferred tax assets for U.S. foreign tax credits and certain of our U.S. state tax attributes and determined that it was more likely than not that the deferred tax assets for these attributes would be realized. As a result, we recognized an income tax benefit of \$15.1 million related to the reversal of our deferred tax asset valuation allowance during the fourth quarter of 2023.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

The information required by this section is incorporated by reference to the section "Risk Management," included in Item 7 of this Annual Report on Form 10-K.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

**INDEX TO CONSOLIDATED FINANCIAL STATEMENTS AND
FINANCIAL STATEMENT SCHEDULE**

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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of Knowles Corporation

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Knowles Corporation and its subsidiaries (the "Company") as of December 31, 2023 and 2022, and the related consolidated statements of earnings, comprehensive earnings, stockholders' equity and cash flows for each of the three years in the period ended December 31, 2023, including the related notes and schedule of valuation and qualifying accounts for each of the three years in the period ended December 31, 2023 appearing under Item 8 (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2023, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2023 and 2022, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2023 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2023, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control Over Financial Reporting, appearing under Item 9A. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

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

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

As described in Management's Report on Internal Control over Financial Reporting, management has excluded Cornell Dubilier from its assessment of internal control over financial reporting as of December 31, 2023 because it was acquired by the Company in a purchase business combination during 2023. We have also excluded Cornell Dubilier from our audit of internal control over financial reporting. Cornell Dubilier is a wholly-owned subsidiary whose total assets and total revenues excluded from management's assessment and our audit of internal control over financial reporting represent 19.4% and 2.9%, respectively, of the related consolidated financial statement amounts as of and for the year ended December 31, 2023.

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 (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) 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 (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

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

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that (i) relate to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Goodwill Impairment Assessment – Consumer MEMS Microphones (CMM) Reporting Unit

As described in Notes 1 and 7 to the consolidated financial statements, the Company's consolidated goodwill balance was \$540.7 million as of December 31, 2023, of which the goodwill associated with the CMM reporting unit was \$270.2 million. Management performs the annual impairment assessment in the fourth quarter of each year on October 1, or more frequently if there are events or circumstances indicating the carrying value of individual reporting units may exceed their respective fair values on a more likely than not basis. Fair value is estimated using a discounted cash flow model. Significant assumptions used in the model included forecasted revenue and terminal growth rates, profit margins, income tax rates, capital expenditures, working capital requirements, and the weighted average cost of capital.

The principal considerations for our determination that performing procedures relating to the goodwill impairment assessment of the CMM reporting unit is a critical audit matter are (i) the significant judgment by management when developing the fair value estimate of the CMM reporting unit; (ii) a high degree of auditor judgment, subjectivity, and effort in performing procedures and evaluating management's significant assumptions related to forecasted revenue, the terminal growth rate, profit margins, and the weighted average cost of capital; and (iii) the audit effort involved the use of professionals with specialized skill and knowledge.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management's goodwill impairment assessment, including controls over the valuation of the CMM reporting unit. These procedures also included, among others (i) testing management's process for developing the fair value estimate of the CMM reporting unit; (ii) evaluating the appropriateness of the discounted cash flow model used by management; (iii) testing the completeness and accuracy of the underlying data used in the discounted cash flow model; and (iv) evaluating the reasonableness of the significant assumptions used by management related to forecasted revenue, the terminal growth rate, profit margins, and the weighted average cost of capital. Evaluating management's assumptions related to forecasted revenue and profit margins involved evaluating whether the assumptions used by management were reasonable considering (i) the current and past performance of the CMM reporting unit; (ii) the consistency with external market and industry data; and (iii) whether the assumptions were consistent with evidence obtained in other areas of the audit. Professionals with specialized skill and knowledge were used to assist in evaluating (i) the appropriateness of the discounted cash flow model and (ii) the reasonableness of the terminal growth rate and weighted average cost of capital assumptions.

Acquisition of Cornell Dubilier - Valuation of Customer Relationships

As described in Note 3 to the consolidated financial statements, on November 1, 2023, the Company acquired all the issued and outstanding shares of Kaplan Electronics, Inc. and certain assets of Cornell Dubilier Electronics, Inc. and CD Aero, LLC (collectively "Cornell Dubilier") for aggregate consideration of \$259.8 million, which included customer relationships recorded at \$82.7 million. The fair value for customer relationships was determined using the multi-period excess earnings method under the income approach. Significant assumptions used in assessing the fair value of customer relationships included forecasted revenue and terminal growth rates, profit margins, customer attrition rates, and discount rates.

The principal considerations for our determination that performing procedures relating to the valuation of customer relationships acquired in the acquisition of Cornell Dubilier is a critical audit matter are (i) the significant judgment by management when developing the fair value estimate of the customer relationships acquired; (ii) a high degree of auditor judgment, subjectivity, and effort in performing procedures and evaluating management's significant assumptions related to forecasted revenue, profit margins, and discount rates; and (iii) the audit effort involved the use of professionals with specialized skill and knowledge.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to the acquisition accounting, including controls over the valuation of the customer relationships acquired. These procedures also included, among others (i) reading the purchase agreement; (ii) testing management's process for developing the fair value estimate of the customer relationships acquired; (iii) evaluating the appropriateness of the multi-period excess earnings method used by management; (iv) testing the completeness and accuracy of the underlying data used in the multi-period excess earnings method; and (v) evaluating the reasonableness of the significant assumptions used by management related to forecasted revenue, profit margins, and discount rates. Evaluating management's assumptions related to forecasted revenue and profit margins involved evaluating whether the assumptions used by management were reasonable considering (i) the current and past performance of the Cornell Dubilier business; (ii) the consistency with external market and industry data; and (iii) whether the assumptions were consistent with evidence obtained in other areas of the audit. Professionals with specialized skill and knowledge were used to assist in evaluating (i) the appropriateness of the multi-period excess earnings method and (ii) the reasonableness of the discount rate assumption.

/s/ PricewaterhouseCoopers LLP
Chicago, Illinois
February 21, 2024

We have served as the Company's auditor since 2013.

KNOWLES CORPORATION
CONSOLIDATED STATEMENTS OF EARNINGS
(in millions, except per share amounts)

	Years Ended December 31,		
	2023	2022	2021
Revenues	\$ 707.6	\$ 764.7	\$ 868.1
Cost of goods sold	435.5	455.7	508.6
(Gain) loss on sale of fixed assets	(10.0)	0.5	—
Restructuring charges - cost of goods sold	(1.3)	32.2	—
Gross profit	283.4	276.3	359.5
Research and development expenses	78.5	81.7	92.8
Selling and administrative expenses	150.3	128.9	146.4
Impairment charges	—	470.9	4.0
Restructuring charges	3.5	9.6	0.5
Operating expenses	232.3	691.1	243.7
Operating earnings (loss)	51.1	(414.8)	115.8
Interest expense, net	5.4	3.9	14.2
Other expense (income), net	0.7	(0.5)	(3.0)
Earnings (loss) before income taxes and discontinued operations	45.0	(418.2)	104.6
(Benefit from) provision for income taxes	(27.4)	11.9	(45.6)
Earnings (loss) from continuing operations	72.4	(430.1)	150.2
Earnings from discontinued operations, net	—	—	0.2
Net earnings (loss)	\$ 72.4	\$ (430.1)	\$ 150.4
Earnings (loss) per share from continuing operations:			
Basic	\$ 0.80	\$ (4.69)	\$ 1.63
Diluted	\$ 0.79	\$ (4.69)	\$ 1.59
Earnings per share from discontinued operations:			
Basic	\$ —	\$ —	\$ —
Diluted	\$ —	\$ —	\$ —
Net earnings (loss) per share:			
Basic	\$ 0.80	\$ (4.69)	\$ 1.63
Diluted	\$ 0.79	\$ (4.69)	\$ 1.59
Weighted-average common shares outstanding:			
Basic	90.9	91.7	92.3
Diluted	91.6	91.7	94.7

See accompanying Notes to Consolidated Financial Statements

KNOWLES CORPORATION
CONSOLIDATED STATEMENTS OF COMPREHENSIVE EARNINGS
(in millions)

	Years Ended December 31,		
	2023	2022	2021
Net earnings (loss)	\$ 72.4	\$ (430.1)	\$ 150.4
Other comprehensive (loss) earnings, net of tax			
Foreign currency translation	(6.1)	(23.2)	(3.6)
Employee benefit plans:			
Actuarial (losses) gains and prior service costs arising during period	(0.4)	0.3	4.3
Amortization or settlement of actuarial losses and prior service costs	0.5	0.5	0.7
Net change in employee benefit plans	0.1	0.8	5.0
Changes in fair value of cash flow hedges:			
Unrealized net (losses) gains arising during period	(3.9)	(2.8)	0.3
Net losses (gains) reclassified into earnings	2.2	3.5	(1.6)
Total cash flow hedges	(1.7)	0.7	(1.3)
Other comprehensive (loss) earnings, net of tax	(7.7)	(21.7)	0.1
Comprehensive earnings (loss)	\$ 64.7	\$ (451.8)	\$ 150.5

See accompanying Notes to Consolidated Financial Statements

KNOWLES CORPORATION
CONSOLIDATED BALANCE SHEETS
(in millions, except share and per share amounts)

	December 31, 2023	December 31, 2022
Current assets:		
Cash and cash equivalents	\$ 87.3	\$ 48.2
Receivables, net of allowances of \$ 0.2 and \$ 1.1	135.3	134.7
Inventories, net	196.4	169.5
Prepaid and other current assets	9.8	10.0
Total current assets	428.8	362.4
Property, plant, and equipment, net	175.4	161.8
Goodwill	540.7	471.0
Intangible assets, net	189.4	85.1
Operating lease right-of-use assets	13.1	12.6
Other assets and deferred charges	115.4	91.0
Total assets	<u><u>\$ 1,462.8</u></u>	<u><u>\$ 1,183.9</u></u>
Current liabilities:		
Current maturities of long-term debt	\$ 47.1	\$ —
Accounts payable	51.3	41.4
Accrued compensation and employee benefits	33.0	26.9
Operating lease liabilities	5.1	8.4
Other accrued expenses	25.0	19.9
Federal and other taxes on income	3.1	2.5
Total current liabilities	164.6	99.1
Long-term debt	224.1	45.0
Deferred income taxes	0.7	0.9
Long-term operating lease liabilities	8.2	7.2
Other liabilities	31.1	38.8
Commitments and contingencies (Note 15)		
Stockholders' equity:		
Preferred stock - \$ 0.01 par value; 10,000,000 shares authorized; none issued	—	—
Common stock - \$ 0.01 par value; 400,000,000 shares authorized; 97,297,703 and 89,092,871 shares issued and outstanding at December 31, 2023, respectively, and 96,431,604 and 91,078,376 shares issued and outstanding at December 31, 2022, respectively	1.0	1.0
Treasury stock - at cost; 8,204,832 and 5,353,228 shares at December 31, 2023 and 2022, respectively	(151.2)	(103.3)
Additional paid-in capital	1,689.9	1,665.5
Accumulated deficit	(375.8)	(448.2)
Accumulated other comprehensive loss	(129.8)	(122.1)
Total stockholders' equity	1,034.1	992.9
Total liabilities and stockholders' equity	<u><u>\$ 1,462.8</u></u>	<u><u>\$ 1,183.9</u></u>

See accompanying Notes to Consolidated Financial Statements

KNOWLES CORPORATION
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(in millions, except share amounts)

	Common Stock		Treasury Stock		Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
	Shares Issued	Amount	Shares	Amount				
Balance at January 1, 2021	92,689,912	\$ 0.9	(1,078,363)	\$ (16.2)	1,587.8	(168.5)	(100.5)	\$ 1,303.5
Net earnings	—	—	—	—	—	150.4	—	150.4
Other comprehensive earnings, net of tax	—	—	—	—	—	—	0.1	0.1
Repurchase of common stock	—	—	(2,139,413)	(44.5)	—	—	—	(44.5)
Stock-based compensation expense	—	—	—	—	32.1	—	—	32.1
Exercise of stock options	1,540,314	0.1	—	—	25.5	—	—	25.6
Conversion of convertible senior notes	—	—	363,579	5.9	(5.9)	—	—	—
Exercise of convertible note hedges	—	—	(363,601)	(7.6)	7.6	—	—	—
Restricted and performance stock unit settlement, net of tax	882,552	—	—	—	(7.7)	—	—	(7.7)
Balance at December 31, 2021	95,112,778	\$ 1.0	(3,217,798)	\$ (62.4)	1,639.4	(18.1)	(100.4)	\$ 1,459.5
Net loss	—	—	—	—	—	(430.1)	—	(430.1)
Other comprehensive loss, net of tax	—	—	—	—	—	—	(21.7)	(21.7)
Repurchase of common stock	—	—	(2,339,045)	(44.0)	—	—	—	(44.0)
Stock-based compensation expense	—	—	—	—	28.6	—	—	28.6
Exercise of stock options	643,911	—	—	—	7.5	—	—	7.5
Exercise of warrants	—	—	203,615	3.1	(3.1)	—	—	—
Restricted and performance stock unit settlement, net of tax	674,915	—	—	—	(6.9)	—	—	(6.9)
Balance at December 31, 2022	96,431,604	\$ 1.0	(5,353,228)	\$ (103.3)	1,665.5	(448.2)	(122.1)	\$ 992.9
Net earnings	—	—	—	—	—	72.4	—	72.4
Other comprehensive loss, net of tax	—	—	—	—	—	—	(7.7)	(7.7)
Repurchase of common stock	—	—	(2,851,604)	(47.5)	—	—	—	(47.5)
Excise tax on repurchase of common stock	—	—	—	(0.4)	—	—	—	(0.4)
Stock-based compensation expense	—	—	—	—	29.0	—	—	29.0
Exercise of stock options	195,170	—	—	—	1.6	—	—	1.6
Restricted and performance stock unit settlement, net of tax	670,929	—	—	—	(6.2)	—	—	(6.2)
Balance at December 31, 2023	97,297,703	\$ 1.0	(8,204,832)	\$ (151.2)	1,689.9	(375.8)	(129.8)	\$ 1,034.1

See accompanying Notes to Consolidated Financial Statements

KNOWLES CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in millions)

	Years Ended December 31,		
	2023	2022	2021
Operating Activities			
Net earnings (loss)	\$ 72.4	\$ (430.1)	\$ 150.4
Adjustments to reconcile net earnings (loss) to cash from operating activities:			
Depreciation and amortization	46.5	53.9	62.5
Stock-based compensation	29.0	28.6	32.1
Impairment charges	—	470.9	4.0
Non-cash restructuring charges	(1.8)	13.5	—
Non-cash interest expense and amortization of debt issuance costs	2.0	0.7	8.0
Deferred income taxes	(40.3)	1.6	(61.2)
(Gain) loss on sale or disposal of fixed assets	(10.0)	0.5	—
Other, net	(0.9)	(5.9)	—
Changes in assets and liabilities (excluding effects of foreign exchange):			
Receivables, net	12.7	11.1	(12.3)
Inventories, net	11.5	(22.8)	(20.7)
Prepaid and other current assets	(0.4)	2.0	(2.9)
Accounts payable	6.2	(41.2)	17.2
Accrued compensation and employee benefits	4.0	(15.0)	11.9
Other accrued expenses	(2.0)	(0.3)	1.8
Accrued taxes	(0.4)	1.3	(1.1)
Other non-current assets and non-current liabilities	(5.8)	17.5	(7.6)
Net cash provided by operating activities	122.7	86.3	182.1
Investing Activities			
Acquisitions of businesses (net of cash acquired)	(136.9)	(0.7)	(78.5)
Acquisition of asset	(0.3)	—	—
Capital expenditures	(16.9)	(32.1)	(48.6)
Proceeds from the sale of property, plant, and equipment	12.5	0.1	0.6
Purchase of investments	(0.4)	(0.4)	(3.5)
Proceeds from the sale of investments	0.4	0.4	0.4
Net cash used in investing activities	(141.6)	(32.7)	(129.6)
Financing Activities			
Borrowings under revolving credit facility	150.0	23.0	70.0
Payments under revolving credit facility	(35.0)	(48.0)	—
Principal payments on convertible senior notes	—	—	(172.5)
Repurchase of common stock	(47.5)	(44.0)	(44.5)
Tax on stock option exercises and restricted and performance stock unit vesting	(6.2)	(6.9)	(7.7)
Proceeds from exercise of stock-based awards	1.6	7.5	25.6
Payments of debt issuance costs	(2.2)	—	—
Payments of finance lease obligations	(2.5)	(4.8)	(2.3)
Net cash provided by (used in) financing activities	58.2	(73.2)	(131.4)
Effect of exchange rate changes on cash and cash equivalents	(0.2)	(1.1)	—
Net increase (decrease) in cash and cash equivalents	39.1	(20.7)	(78.9)
Cash and cash equivalents at beginning of period	48.2	68.9	147.8
Cash and cash equivalents at end of period	\$ 87.3	\$ 48.2	\$ 68.9
Supplemental information - cash paid during the year for:			
Income taxes	\$ 10.6	\$ 6.2	\$ 16.1
Interest	\$ 5.4	\$ 3.6	\$ 7.4

See accompanying Notes to Consolidated Financial Statements

1. Summary of Significant Accounting Policies

Background - Knowles Corporation (NYSE:KN) is a market leader and global provider high performance capacitors and radio frequency ("RF") products, balanced armature speakers, advanced micro-acoustic microphones, and audio solutions, serving the medtech, defense, electric vehicle, industrial, communications, and consumer electronics markets. The Company uses its leading position in SiSonic™ micro-electro-mechanical systems ("MEMS") microphones and strong capabilities in audio processing technologies to optimize audio systems and improve the user experience across consumer applications. Knowles is also a leader in hearing health acoustics, high performance capacitors, and RF solutions for a diverse set of markets. The Company's focus on the customer, combined with its unique technology, proprietary manufacturing techniques, and global operational expertise, enable the Company to deliver innovative solutions across multiple applications. References to "Knowles," "the Company," "we," "our," and "us" refer to Knowles Corporation and its consolidated subsidiaries.

On November 1, 2023, we completed the acquisition of Cornell Dubilier ("CD"), a manufacturer of film, electrolytic, and mica capacitors used in medtech, military, and industrial electrification applications. On May 3, 2021, the Company acquired all of the outstanding shares of common stock of Integrated Microwave Corporation ("IMC"), a manufacturer of RF filters. Both acquisitions were integrated into the Precision Devices segment. See Note 3. Acquisitions for additional information related to these transactions.

On February 24, 2020, the Company announced that its Board of Directors had authorized a share repurchase program of up to \$ 100 million of the Company's common stock. On April 28, 2022, we announced that our Board of Directors had increased the authorization by up to \$ 150 million in additional aggregate value. The timing and amount of any shares repurchased will be determined by the Company based on its evaluation of market conditions and other factors, and will be made in accordance with applicable securities laws in either the open market or in privately negotiated transactions. The Company is not obligated to purchase any shares under the program, and the program may be suspended or discontinued at any time. The actual timing, number, and share price of shares repurchased will depend on a number of factors, including the market price of the Company's common stock, general market and economic conditions, and applicable legal requirements. Any shares repurchased will be held as treasury stock. During the years ended December 31, 2023, 2022, and 2021, we repurchased 2,851,604 , 2,339,045 , and 2,139,413 shares of common stock, respectively, for a total of \$ 47.5 million, \$ 44.0 million, and \$ 44.5 million, respectively.

Financial Statement Presentation - The Consolidated Financial Statements included in this Annual Report on Form 10-K are presented in conformity with U.S. generally accepted accounting principles ("U.S. GAAP").

Use of Estimates - The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the amounts reported in the accompanying financial statements and disclosures. These estimates may be adjusted due to changes in future economic, industry, or customer financial conditions, as well as changes in technology or demand. Estimates are used in accounting for, among other items, inventory reserves, restructuring reserves, warranty reserves, pension and post-retirement plans, stock-based compensation, useful lives for depreciation and amortization of long-lived assets, future cash flows associated with impairment testing for goodwill, indefinite-lived intangible assets and other long-lived assets, deferred tax assets, uncertain income tax positions, changes in tax laws, and contingencies. Management uses historical experience and all available information to make these estimates. Actual results may ultimately differ from estimates, although management does not believe such differences would materially affect the financial statements in any individual year. Estimates and assumptions are periodically reviewed and the effects of revisions are reflected in the Consolidated Financial Statements in the period that they are determined.

Cash and Cash Equivalents - Cash and cash equivalents include cash on hand, demand deposits, and temporary cash investments with original maturities less than three months.

Allowance for Doubtful Accounts – The Company maintains allowances for estimated losses as a result of customers' inability to make required payments. Management evaluates the aging of the accounts receivable balances, the financial condition of its customers, historical trends, relevant forecasts, and the time outstanding of specific balances to estimate the amount of accounts receivable that may not be collected in the future and records the appropriate provision.

Inventories – Inventories are stated at the lower of cost or net realizable value, determined on the first-in, first-out ("FIFO") basis. The value of inventory may decline as a result of surplus inventory, price reductions, or technological obsolescence. It is the Company's policy to carry reserves against the carrying value of inventory when items have no future demand (obsolete inventory) and additionally, where inventory items on hand have demand, yet have insufficient forecasted activity to consume the entire stock within a reasonable period. The Company recognizes reserves against the carrying value of such at-risk inventory items after considering the nature of the risk and any mitigating factors.

Property, Plant, and Equipment - Property, plant, and equipment includes the historic cost of land, buildings, equipment, and significant improvements to existing plant and equipment or, in the case of acquisitions, a fair market value appraisal of such assets completed at the time of acquisition. Property, plant, and equipment also includes the cost of purchased software. Expenditures for maintenance, repairs, and minor renewals are expensed as incurred. When property or equipment is sold or otherwise disposed of, the related cost and accumulated depreciation is removed from the respective accounts, and the gain or loss realized on disposition is reflected in earnings. The Company historically depreciates its assets on a straight-line basis over their estimated useful lives as follows: buildings and improvements 5 to 31.5 years; machinery and equipment 1.5 to 7 years; furniture and fixtures 2 to 5 years; vehicles 3 to 5 years; and software 3 to 5 years.

Leases - The Company determines whether an arrangement is a lease at contract inception. Lease liabilities and right-of-use assets are recognized on the lease commencement date based on the net present value of fixed lease payments over the lease term. The Company includes options to extend or terminate a lease within the lease term when it is reasonably certain the option will be exercised. Leases with an initial term of 12 months or less are not recorded on the Consolidated Balance Sheets. Lease liabilities represent an obligation to make lease payments arising from a lease while right-of-use assets represent a right to use an underlying asset during the lease term. Right-of-use assets include prepaid fixed lease payments and exclude lease incentives. As the Company's leases do not have a readily determinable implicit rate, the Company uses its incremental borrowing rate to determine the present value of fixed lease payments based on information available at the lease commencement date.

Fixed lease expense for operating leases and right-of-use asset amortization for finance leases are generally recognized on a straight-line basis over the lease term. Variable lease payments, such as payments based on an index rate or usage, are expensed as incurred and excluded from lease liabilities and right-of-use assets. The Company combines lease components and nonlease components such as maintenance into a single lease component, which results in the capitalization of all fixed payments within lease liabilities and right-of-use assets.

Derivative Instruments - The Company uses derivative financial instruments to hedge its exposure to foreign currency exchange rate risk. The Company does not enter into derivative financial instruments for speculative purposes and does not have a material portfolio of derivative financial instruments. Derivative financial instruments used for hedging purposes must be designated and effective as a hedge of the identified risk exposure at inception of the contract. The Company recognizes all derivatives as either assets or liabilities on the Consolidated Balance Sheets and measures those instruments at fair value. For derivatives designated as cash flow hedges, the effective portion of changes in the fair value of the derivatives is recorded as a component of other comprehensive earnings and subsequently recognized in net earnings when the hedged items impact earnings.

Goodwill and Indefinite-Lived Intangible Assets - Goodwill represents the excess of purchase consideration over the fair value of the net assets of businesses acquired. Goodwill and certain other intangible assets deemed to have indefinite lives are not amortized. Instead, goodwill and indefinite-lived intangible assets are tested for impairment at least annually, or more frequently if there are events or circumstances indicating the carrying value of individual reporting units or assets may exceed their respective fair values on a more likely than not basis. The Company performs its annual impairment assessment in the fourth quarter of each year on October 1.

Recoverability of goodwill is measured at the reporting unit level. The Company has three reporting units - Precision Devices ("PD"), MedTech & Specialty Audio ("MSA"), and Consumer MEMS Microphones ("CMM.") The goodwill balances associated with PD, MSA, and CMM were \$ 132.8 million, \$ 137.7 million, and \$ 270.2 million, respectively, as of December 31, 2023. As discussed in Note 18. Segment Information, in the fourth quarter of 2022, the Company determined that each of its three operating segments represents a single reportable segment (compared to the two reportable segments disclosed previously). The Company had no change in its reporting units as a result of the change in its reportable segments.

The impairment assessment compares the fair value of each reporting unit to its carrying value. Impairment is measured as the amount by which the carrying value of a reporting unit exceeds its fair value. Fair value is estimated using a discounted cash flow model that includes the Company's market participant assumptions, forecasted future cash flows based on historical performance and future estimated results, determinations of appropriate discount rates, and other assumptions which are considered reasonable and inherent in the discounted cash flow analysis. Significant assumptions used in the model included forecasted revenue and terminal growth rates, profit margins, income tax rates, capital expenditures, working capital requirements, and the Company's weighted average cost of capital. These assumptions require significant judgment and actual results may differ from estimated amounts.

For the impairment testing conducted as of October 1, 2023, the fair value of the PD and MSA reporting units exceeded their carrying values by at least 180 % and the fair value of the CMM reporting unit exceeded its carrying value by approximately 7 %. The CMM reporting unit recorded goodwill impairment charges totaling \$ 470.9 million for the year ended December 31, 2022 (see Note 4. Impairment Charges). No goodwill impairment charges were recorded for any reporting unit for the years ended December 31, 2023 or 2021.

Potential circumstances that could have a negative effect on the fair value of our reporting units include, but are not limited to, lower than forecasted revenue and terminal growth rates, decreased profit margins, higher income taxes, increased capital expenditures, higher working capital requirements, and changes in the weighted average cost of capital. A reduction in the estimated fair value of the reporting units including due to the potential sale or restructuring of the CMM business, could trigger an impairment in the future. The Company cannot predict the occurrence of certain events or changes in circumstances that might adversely affect the carrying value of goodwill and intangible assets.

In testing its indefinite-lived trademarks for impairment, the Company uses a relief from royalty method to calculate and compare the fair value of the intangible asset to its carrying value. This method estimates the fair value of trademarks by calculating the present value of royalty income that could hypothetically be earned by licensing the trademark to a third party. Any excess of carrying value over the estimated fair value is recognized as an impairment loss. No impairment of indefinite-lived trademarks was indicated for the years ended December 31, 2023, 2022, or 2021.

See Note 7. Goodwill and Other Intangible Assets for additional information on goodwill and indefinite-lived intangible assets.

Other Intangible and Long-Lived Assets - Other intangible assets with determinable lives consist primarily of customer relationships, developed technology, and trademarks, which are amortized over estimated useful lives typically ranging from 5 to 15 years.

Long-lived assets and intangible assets with determinable lives are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. If an indicator of impairment exists for any grouping of assets, an estimate of undiscounted future cash flows is produced and compared to its carrying value. If an asset is determined to be impaired, the loss is measured by the excess of the carrying amount of the asset over its fair value as determined by an estimate of discounted future cash flows.

The Company recorded impairment charges for its long-lived assets of \$ 4.0 million during the year ended December 31, 2021. There were no impairments of long-lived assets recorded during the years ended December 31, 2023 and 2022. See Note 4. Impairment Charges for additional details.

Other Assets and Deferred Charges - Investments in mutual funds of \$ 6.2 million and \$ 5.0 million are included in Other assets and deferred charges as of December 31, 2023 and 2022, respectively. These investments are carried at fair value based on quoted prices for identical assets in active markets, resulting in classification within Level 1 of the fair value hierarchy. Gains and losses related to the investments are recorded within the Consolidated Statements of Earnings as a component of Other (income) expense, net. Other assets and deferred charges also include non-current deferred tax assets.

Foreign Currency - Assets and liabilities of non-U.S. subsidiaries, where the functional currency is not the U.S. dollar, are translated into U.S. dollars at year-end exchange rates. Revenue and expense items are translated using weighted-average exchange rates. Foreign currency translation gains and losses are included as a component of Accumulated other comprehensive loss. Assets and liabilities of an entity that are denominated in currencies other than an entity's functional currency are re-measured into the functional currency using end of period exchange rates or historical rates where applicable to certain balances. Gains and losses related to these re-measurements are recorded within the Consolidated Statements of Earnings as a component of Other (income) expense, net.

Revenue Recognition - Revenue is recognized when control of the promised goods or services is transferred to the customer in an amount that reflects the consideration the Company expects to be entitled to in exchange for those goods or services. The majority of the Company's revenue is generated through the manufacture and sale of a broad range of specialized products and components. For product and component sales, each good sold to a customer typically represents a distinct performance obligation. The Company's performance obligation to provide goods to a customer is typically satisfied at a point in time upon completion of the shipping process as indicated by the terms of the contract, at which point control is transferred to the customer and revenue is recognized. The Company has no significant arrangements with multiple performance obligations. Remaining performance obligations consist of the aggregate amount of the total transaction price that is unsatisfied or partially satisfied. As of December 31, 2023 and 2022, our total remaining performance obligations were immaterial. The Company recognizes sales-based royalty revenue under third-party license agreements as the related sales are made by licensees.

The terms of a contract or historical business practice can give rise to variable consideration, including customer discounts, rebates, and returns. The Company estimates variable consideration using either the expected value or most likely amount method. We include amounts in the transaction price to the extent it is probable that a significant reversal of revenue will not occur in a subsequent reporting period. Our estimates of variable consideration are based on all reasonably available information (historical, current, and forecasted). Rebates are recognized over the contract period based on expected revenue levels. Sales discounts and rebates totaled \$4.8 million, \$4.4 million, and \$5.0 million for the years ended December 31, 2023, 2022, and 2021, respectively. Returns and allowances totaled \$4.3 million, \$7.1 million, and \$4.3 million for the years ended December 31, 2023, 2022, and 2021, respectively.

The Company accounts for shipping and handling activities that occur after control of the related good transfers to the customer as fulfillment activities rather than evaluating such activities as performance obligations. As a result, all shipping and handling costs related to contracts with customers are recognized in the Cost of goods sold line on the Consolidated Statements of Earnings. Additionally, the Company applies the practical expedient allowing incremental costs of obtaining a contract to be expensed as incurred if the amortization period of the resulting asset would have been less than one year. These costs primarily consist of sales commissions and the Company has no such significant costs exceeding the one year limit for applying the practical expedient.

Receivables, net from contracts with customers were \$129.2 million and \$125.7 million as of December 31, 2023 and 2022, respectively. See Note 18. Segment Information for disclosures regarding the disaggregation of revenues.

Stock-Based Compensation – The principal awards issued under the stock-based compensation plans include stock options, restricted stock units ("RSUs"), and performance share units ("PSUs"). The cost for such awards is measured at the grant date based on the fair value of the award. The value of the portion of the award that is expected to ultimately vest is generally recognized as expense on a straight-line basis, generally over the explicit service period and is included in Cost of goods sold, Research and development expenses, and Selling and administrative expenses in the Consolidated Statements of Earnings, depending on the functional area of the underlying employees. At the time of grant, the Company estimates forfeitures, based on historical experience, in order to estimate the portion of the award that will ultimately vest.

The Company uses the Black-Scholes valuation model to estimate the fair value of stock options granted to employees. The fair value of each RSU granted is equal to the share price at the date of the grant. The fair value of each PSU is determined using a Monte Carlo simulation. The cost related to PSUs with performance conditions is recognized based on the expected attainment of performance targets. Changes in estimates for performance conditions that impact the number of shares expected to vest are recognized prospectively through cumulative adjustments. The cost for PSUs is recognized regardless of the expected attainment of market conditions as the grant date fair value considers the range of possible stock price and total shareholder return outcomes. See Note 14. Equity Incentive Program for additional information related to the Company's stock-based compensation.

Income Taxes - The Company records a provision for income taxes for the anticipated tax consequences of the reported results of operations using the asset and liability method. Under this method, the Company recognizes deferred tax assets and liabilities for the expected future tax consequences of temporary differences between the financial reporting and tax bases of assets and liabilities, as well as for operating loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using the tax rates that are expected to apply to taxable income for the years in which those tax assets and liabilities are expected to be realized or settled. The Company offsets and presents deferred tax liabilities and assets, as well as any related valuation allowance, as a single non-current amount on the Consolidated Balance Sheets on a jurisdictional basis. The Company's policy is to release income tax effects from accumulated other comprehensive loss in the period the underlying item expires.

The Company establishes valuation allowances for its deferred tax assets if, based on all available positive and negative evidence, it is more likely than not that some portion or all of the deferred tax assets will not be realized. In making such assessments, significant weight is given to evidence that can be objectively verified. The assessment of the need for a valuation allowance requires considerable judgment on the part of management with respect to the benefits that could be realized from future taxable income, as well as other positive and negative factors. Management considers the scheduled reversal of deferred tax liabilities, projected future taxable income, and tax-planning strategies in making this assessment.

The Company recognizes tax benefits from uncertain tax positions only if it believes that it is more likely than not that the tax position will be sustained on examination by the taxing authorities based on the technical merits of the position. Adjustments are made to these reserves when facts and circumstances change, such as the closing of a tax audit or the refinement of an estimate. To the extent that the final tax outcome of these matters is different than the amounts recorded, such differences will affect the provision for income taxes in the period in which such determination is made and could have a material impact on the Company's financial condition and operating results. The provision for income taxes includes the effects of any reserves that are believed to be appropriate, as well as the related net interest and penalties.

Research and Development Costs - Research and development costs, including qualifying engineering costs, are expensed when incurred.

Non-cash Investing Activities - Purchases of property, plant, and equipment included in accounts payable were \$ 1.1 million at both December 31, 2023 and 2022, and \$ 5.4 million at December 31, 2021. These non-cash amounts are not reflected as Capital expenditures within investing activities of the Consolidated Statements of Cash Flows for the respective periods.

The Company completed an asset acquisition in 2023 for a total purchase price of approximately \$ 2.0 million, including contingent consideration with an estimated fair value of \$ 1.7 million. This non-cash amount is not reflected in "Acquisition of asset" within Investing Activities on the Consolidated Statements of Cash Flows for the year ended December 31, 2023. See also Note 7. Goodwill and Other Intangible Assets.

Recently Issued Accounting Standards

In November 2023, the FASB issued ASU 2023-07 to expand reportable segment disclosure requirements. This guidance requires that a public entity disclose, on an annual and interim basis, significant segment expenses that are regularly provided to the chief operating decision maker ("CODM") and included within each reported measure of segment profit or loss. All annual disclosures about a reportable segment's profit or loss and assets currently required by ASC 280 must also be disclosed in interim periods. Additionally, this standard requires that a public entity disclose the title and position of the CODM and an explanation of how the CODM uses the reported measure(s) of segment profit or loss in assessing segment performance and deciding how to allocate resources. This standard is effective for the Company beginning with its annual reporting for the year ended December 31, 2024 and its interim reporting for the three months ended March 31, 2025. Early adoption is permitted. The standard requires adoption on a retrospective basis for all prior periods presented in the financial statements. The Company does not expect the adoption of this standard to have a significant impact upon the financial statements.

In December 2023, the FASB issued ASU 2023-09 to enhance the transparency of income tax disclosures. This guidance requires that public business entities disclose, on an annual basis, specific categories in the rate reconciliation and provide additional information for reconciling items that meet a quantitative threshold. A public business entity is required to provide an explanation, if not otherwise evident, of the individual reconciling items disclosed, such as the nature, effect, and underlying causes and the judgment used in categorizing the reconciling items. This guidance also requires that all entities disclose, on an annual basis, the amount of income taxes paid (net of refunds received) disaggregated by federal, state, and foreign taxes and the amount of income taxes paid (net of refunds received) disaggregated by those individual jurisdictions equal to or greater than 5 percent of the total. This standard is effective for the Company for its annual reporting for the year ended December 31, 2025. Early adoption is permitted. The standard requires adoption on a prospective basis, although retrospective adoption is permitted. The Company does not expect the adoption of this standard to have a significant impact upon the financial statements.

2. Disposed and Discontinued Operations

Management and the Board of Directors periodically conduct strategic reviews of the Company's businesses.

On July 7, 2016, the Company completed the sale of its speaker and receiver product line ("Speaker and Receiver Product Line") for \$ 45.0 million in cash, less purchase price adjustments for a net amount received of \$ 40.6 million.

In accordance with ASC 205-20, Presentation of Financial Statements – Discontinued Operations, the results of operations and financial positions of the Speaker and Receiver Product Line have been reclassified to discontinued operations for all periods presented as these disposals represent strategic shifts that had a major effect on the Company's results of operations.

During the year ended December 31, 2021, the Company recorded tax benefits for refunds of \$ 0.2 million received during 2021 related to the Speaker and Receiver Product Line.

3. Acquisitions

Cornell Dubilier

On November 1, 2023, the Company acquired (i) all the issued and outstanding shares of Kaplan Electronics, Inc. and (ii) certain assets of Cornell Dubilier Electronics, Inc. and CD Aero, LLC (collectively, "Cornell Dubilier" or "CD") for aggregate consideration of \$ 259.8 million, which equated to a total fair value of consideration transferred of \$ 246.8 million. This purchase price of \$ 246.8 million consisted of \$ 136.9 million in cash payments and an interest-free seller note (the "Seller Note") with a fair value of \$ 109.9 million. The Seller Note consists of aggregate principal amounts of \$ 122.9 million with \$ 50.0 million maturing on November 1, 2024 and \$ 72.9 million maturing on November 1, 2025 and is secured by certain assets (including equity interests) acquired in connection with the acquisition (see also Note 12, Borrowings). During the year ended December 31, 2023, the Company incurred costs related to this transaction totaling \$ 7.8 million, which are reflected within "Selling and administrative expenses" in the Consolidated Statement of Earnings.

CD is a manufacturer of film, electrolytic, and mica capacitors used in medtech, defense, and industrial electrification applications. The transaction was accounted for as a business combination under Accounting Standards Codification 805. The Company has substantially completed the purchase price allocation for the acquisition of CD. As additional information is obtained about the net assets acquired within the measurement period (not to exceed one year from the date of acquisition), including finalization of asset appraisals, the Company will refine its estimates of the purchase price allocation.

The table below represents a preliminary allocation of the purchase price to net assets acquired as of November 1, 2023:

(in millions)

Receivables	\$	13.4
Inventories		41.6
Property, plant, and equipment		31.8
Customer relationships		82.7
Developed technology		19.1
Trademarks		14.0
Operating lease right-of-use assets		3.4
Other assets and deferred charges		1.0
Goodwill		69.6
Current liabilities assumed	(11.3)
Deferred income taxes		(15.8)
Long-term operating lease liabilities		(2.7)
Total purchase price	\$	246.8

The fair value for customer relationships was determined using the multi-period excess earnings method under the income approach. This method reflects the present value of expected future cash flows less charges representing the contribution of other assets to those cash flows. The fair value for developed technology and trademarks was determined using the relief from royalty method under the income approach. The fair value measurements of the intangible assets are based on significant unobservable inputs, and thus represent Level 3 inputs. Significant assumptions used in assessing the fair values of customer relationships, developed technology, and trademarks include forecasted revenue and terminal growth rates, profit margins, customer attrition rates, royalty rates, and discount rates. The weighted-average discount rates applied to expected future cash flows to reflect the risks related to intangible assets identified in connection with the CD acquisition were as follows:

Customer relationships	22.8 %
Developed technology	20.2 %
Trademarks	20.1 %

The customer relationships, developed technology, and trademarks identified will be amortized on a straight-line basis over their estimated useful lives. The weighted-average useful lives assigned to these assets were as follows:

Customer relationships	10 years
Developed technology	9 years
Trademarks	14 years

The excess of the total purchase price over the total fair value of the identifiable assets and liabilities was recorded as goodwill. The goodwill recognized is primarily attributable to synergies expected to be realized on this transaction and the assembled workforce. Of the total goodwill of \$ 69.6 million recognized for this transaction, approximately \$ 26.8 million is tax deductible. All goodwill related to CD has been allocated to the PD segment, which is the segment expected to benefit from the acquisition.

The Company believes the fair values assigned to intangible assets are based on reasonable assumptions and estimates that approximate the amounts a market participant would pay for these intangible assets as of the acquisition date. Actual results could differ materially from these estimates.

Impact of CD Acquisition and Pro-Forma Summary

Included in the Consolidated Statements of Earnings are CD's revenues and loss before income taxes of \$ 20.2 million and \$ 1.1 million, respectively, from the date of acquisition through December 31, 2023. The \$ 1.1 million loss before income taxes includes employee retention and intangible asset amortization expense of \$ 1.0 million and \$ 1.6 million, respectively.

The following unaudited pro-forma summary presents consolidated financial information as if CD had been acquired on January 1, 2022. The unaudited pro-forma financial information is based on historical results of operations and financial positions of the Company and CD. The pro-forma earnings are adjusted to reflect the comparable impact of depreciation and amortization expense resulting from the fair value measurement of tangible and intangible assets, nonrecurring deal-related costs, employee retention, inventory step-up charges, and interest expense on borrowings to fund the acquisition.

The unaudited pro-forma financial information does not necessarily represent the results that would have occurred had the acquisition occurred on January 1, 2022. In addition, the unaudited pro-forma information should not be deemed to be indicative of future results.

(in millions)	Years Ended December 31,	
	2023	2022
Revenues:		
As reported	\$ 707.6	\$ 764.7
Pro-forma	815.9	915.8
Earnings from continuing operations:		
As reported	\$ 72.4	\$ (430.1)
Pro-forma	69.8	(445.8)
Basic earnings per share from continuing operations:		
As reported	\$ 0.80	\$ (4.69)
Pro-forma	0.77	(4.86)
Diluted earnings per share from continuing operations:		
As reported	\$ 0.79	\$ (4.69)
Pro-forma	0.76	(4.86)

Integrated Microwave Corporation

On May 3, 2021, the Company acquired all of the outstanding shares of common stock of Integrated Microwave Corporation ("IMC") for \$ 81.4 million. During the first quarter of 2022, the Company recorded a purchase price adjustment of \$ 0.7 million that was paid during the second quarter of 2022. The adjustment, which did not impact the Consolidated Statements of Earnings, resulted in an increase to goodwill of \$ 0.7 million. The acquired business provides RF filters to the defense, industrial, and communications markets. The transaction was accounted for under the acquisition method of accounting and the results of operations are included in the Consolidated Financial Statements from the date of acquisition in the Precision Devices ("PD") segment. Included in the Consolidated Statements of Earnings are IMC's revenues and loss before income taxes of \$ 11.2 million and \$ 0.3 million, respectively, from the date of acquisition through December 31, 2021.

The table below represents the allocation of the purchase price to net assets acquired as of May 3, 2021:

(in millions)

Cash	\$ 2.2
Receivables	3.0
Inventories	2.6
Property, plant, and equipment	8.3
Customer relationships	27.7
Developed technology	5.2
Trademarks and other amortized intangible assets	1.6
Goodwill	32.0
Assumed current liabilities	(1.2)
Total purchase price	\$ 81.4

The fair value for customer relationships was determined using the multi-period excess earnings method under the income approach. This method reflects the present value of expected future cash flows less charges representing the contribution of other assets to those cash flows. The fair value for developed technology was determined using the relief from royalty method under the income approach. The fair value measurements of intangible assets are based on significant unobservable inputs, and thus represent Level 3 inputs. Significant assumptions used in assessing the fair values of customer relationships and developed technology include forecasted revenue growth rates, profit margins, customer attrition rates, royalty rates, and discount rates. Discount rates of 13.0% and 14.0% were applied to the expected future cash flows to reflect the risk related to customer relationships and developed technology, respectively. Customer relationships and developed technology will be amortized on a straight-line basis over estimated useful lives of 8 years and 10 years, respectively.

The excess of the total purchase price over the total fair value of the identifiable assets and liabilities was recorded as goodwill. The goodwill recognized is primarily attributable to synergies and the assembled workforce. All of the goodwill resulting from this acquisition is tax deductible. Goodwill has been allocated to the PD segment, which is the segment expected to benefit from the acquisition.

The Company believes the fair values assigned to intangible assets are based on reasonable assumptions and estimates that approximate the amounts a market participant would pay for these intangible assets as of the acquisition date. Actual results could differ materially from these estimates.

Pro-forma financial information has not been provided as the acquisition did not have a material impact on the Consolidated Statements of Earnings.

4. Impairment Charges

Goodwill Impairment

The Company tests goodwill for impairment at least annually as of October 1, or more frequently if there are events or circumstances indicating the carrying value of individual reporting units may exceed their respective fair values on a more likely than not basis.

During the second quarter of 2022, the Company identified a triggering event requiring an interim impairment assessment for the CMM reporting unit, which resulted in a goodwill impairment charge of \$ 239.8 million. The triggering event occurred due to the identification of a rapid decline in current demand and a reduction in the expected future growth rate for global consumer electronics, which resulted in reductions to forecasted revenue and terminal growth rates and profit margins.

Additionally, during the fourth quarter of 2022, the Company identified another triggering event requiring an impairment assessment of the CMM reporting unit, which resulted in a goodwill impairment charge of \$ 231.1 million. This triggering event occurred due to the identification of further declines in forecasted demand for global consumer electronics, resulting in reductions to forecasted revenue and profit margins. In addition, the Company's assumptions for weighted average cost of capital and income tax rates increased as a result of rising interest rates and not satisfying certain tax holiday conditions. The goodwill impairment charges are presented within Impairment charges in Operating expenses on the Consolidated Statements of Earnings. No goodwill impairment charges were recorded during the years ended December 31, 2023 or 2021.

Fair value was estimated using a discounted cash flow model that included the Company's market participant assumptions, forecasted future cash flows based on historical performance and future estimated results, determinations of appropriate discount rates, and other assumptions which were considered reasonable and inherent in the discounted cash flow analysis. The fair value estimate was based on known or knowable information at the assessment date. Significant assumptions used in the model included forecasted revenue and terminal growth rates, profit margins, income tax rates, capital expenditures, working capital requirements, and the Company's weighted average cost of capital. The fair value measurements for reporting units are based on significant unobservable inputs, and thus represent Level 3 inputs.

Fair value measurements require considerable judgment and are sensitive to changes in underlying assumptions. As a result, there can be no assurance that estimates and assumptions made for purposes of the impairment assessment will prove to be an accurate prediction of the future. Potential circumstances that could have a negative effect on the fair value of our reporting units include, but are not limited to, lower than forecasted revenue and terminal growth rates, decreased profit margins, higher income taxes, increased capital expenditures, higher working capital requirements, and changes in the weighted average cost of capital. A reduction in the estimated fair value of the reporting units, including as a result of our strategic alternative review, could trigger an impairment in the future.

Long-Lived Asset Impairment

The Company evaluates long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. The Company vacated its leased facility in Mountain View, California, resulting in its classification as a separate asset group. This facility was previously used by the Intelligent Audio product line, which is included within the CMM segment. Based on an assessment of market conditions, in particular the impact of the COVID-19 pandemic, the Company determined that the carrying amount of the asset group was not recoverable through undiscounted future cash flows, which included estimated sublease proceeds. The fair value of the operating lease right-of-use asset was determined by an estimate of discounted future cash flows that included estimated sublease proceeds and the determination of an appropriate discount rate based on market participant assumptions. The fair value measurements of operating lease right-of-use assets are based on significant unobservable inputs, and thus represent Level 3 inputs. During the third quarter of 2021, the Company determined that the remaining carrying amount of the asset group was not recoverable through undiscounted future cash flows, which included estimated sublease proceeds, due to the prolonged impact of the COVID-19 pandemic on market conditions. Based on the excess of the carrying amount of the asset group over its fair value, the Company recorded an impairment loss of \$ 3.2 million within Impairment charges in Operating expenses during the year ended December 31, 2021.

The Company entered into an operating lease for a research and development facility in Santa Clara, California during the first quarter of 2020 that did not commence until the second quarter of 2021. Upon commencement, the Company recognized operating lease liabilities of \$ 4.0 million and right-of-use assets of \$ 2.4 million. During the third quarter of 2021, the Company determined that the remaining carrying amount of the operating lease right-of-use asset was not recoverable through undiscounted future cash flows, which included estimated sublease proceeds, due to the prolonged impact of the COVID-19 pandemic on market conditions. Based on the excess of the carrying amount of the operating lease right-of-use asset over its fair value, the Company recorded an impairment loss of \$ 0.8 million within Impairment charges in Operating expenses during the year ended December 31, 2021.

If actual results differ from estimated amounts, additional impairment charges may be recorded in the future.

5. Inventories, net

The following table details the major components of inventories, net:

(in millions)	December 31, 2023	December 31, 2022
Raw materials	\$ 140.3	\$ 116.1
Work in progress	36.7	28.3
Finished goods	63.0	62.8
Subtotal	240.0	207.2
Less reserves	(43.6)	(37.7)
Total	\$ 196.4	\$ 169.5

6. Property, Plant, and Equipment, net

The following table details the major components of property, plant, and equipment, net:

(in millions)	December 31, 2023	December 31, 2022
Land	\$ 14.3	\$ 12.5
Buildings and improvements	122.5	114.6
Machinery, equipment, and other	518.2	531.2
Subtotal	655.0	658.3
Less accumulated depreciation	(479.6)	(496.5)
Total	\$ 175.4	\$ 161.8

Depreciation expense totaled \$ 33.0 million, \$ 41.7 million, and \$ 46.6 million for the years ended December 31, 2023, 2022, and 2021, respectively.

During the year ended December 31, 2023, the Company entered into an agreement to sell certain of its machinery and equipment related to the CMM segment to a third party for total proceeds of \$ 11.4 million, which were received in their entirety in the second quarter of 2023. The Company transferred control of assets with a fair value of approximately \$ 11.2 million to the buyer during the year ended December 31, 2023, resulting in a gain on sale of approximately \$ 11.0 million. These gains on sale are reflected in the Consolidated Statements of Earnings as follows:

(in millions)	Year Ended December 31, 2023
Gain on sale of fixed assets	\$ (10.0)
Restructuring charges - cost of goods sold	(1.0)
Total	\$ (11.0)

See also Note 10. Restructuring and Related Activities.

The Company has deferred the remaining sale proceeds related to this agreement of approximately \$ 0.2 million until it completes the transfer of control of the remaining assets to the buyer. This liability is included in "Other accrued expenses" on the Consolidated Balance Sheet as of December 31, 2023.

7. Goodwill and Other Intangible Assets

The changes in the carrying value of goodwill by reportable segment for the years ended December 31, 2023 and 2022 are as follows:

(in millions)	Precision Devices	MedTech & Specialty Audio	Consumer MEMS Microphones	Total
Balance at January 1, 2022	\$ 62.5	\$ 137.7	\$ 741.1	\$ 941.3
Impairment charges ⁽¹⁾	—	—	(470.9)	(470.9)
Purchase price adjustment	0.7	—	—	0.7
Foreign currency translation	—	—	(0.1)	(0.1)
Balance at December 31, 2022	63.2	137.7	270.1	471.0
Acquisition	69.6	—	—	69.6
Foreign currency translation	—	—	0.1	0.1
Balance at December 31, 2023	\$ 132.8	\$ 137.7	\$ 270.2	\$ 540.7

⁽¹⁾ During the year ended December 31, 2022 the Company recorded total goodwill impairment charges of \$ 470.9 million. See Note 4. Impairment Charges for more information.

The gross carrying value and accumulated amortization for each major class of intangible assets are as follows:

(in millions)	December 31, 2023		December 31, 2022	
	Gross Carrying Amount	Accumulated Amortization	Gross Carrying Amount	Accumulated Amortization
Amortized intangible assets:				
Trademarks	\$ 16.0	\$ 1.2	\$ 2.0	\$ 0.8
Customer relationships	121.1	16.0	36.4	10.3
Developed technology	64.5	27.4	45.4	20.1
Other	2.4	2.0	2.4	1.9
Total	204.0	46.6	86.2	33.1
Unamortized intangible assets:				
Trademarks	32.0		32.0	
Total intangible assets, net	\$ 189.4		\$ 85.1	

In connection with the acquisition of CD in 2023, the Company recognized customer relationships of \$ 82.7 million, developed technology of \$ 19.1 million, and trademarks of \$ 14.0 million. See also Note 3. Acquisitions.

The Company completed an asset acquisition in 2023. In connection with this acquisition, the Company recognized customer relationships with a fair value of approximately \$ 2.0 million, reflecting cash paid of \$ 0.3 million and contingent consideration with an estimated fair value of \$ 1.7 million. These customer relationships have an estimated useful life of 7 years.

As of December 31, 2023, the weighted average remaining useful lives for the amortizable intangible assets are: trademarks at 13.8 years, customer relationships at 9.1 years, developed technology at 6.5 years, and other at 7.3 years. The weighted average remaining useful life in total for all amortizable intangible assets was 8.9 years as of December 31, 2023.

Total amortization expense for the years ended December 31, 2023, 2022, and 2021 was \$ 13.5 million, \$ 12.2 million, and \$ 15.9 million, respectively. Amortization expense for the next five years and thereafter, based on current definite-lived intangible balances, is estimated to be as follows:

(in millions)		
2024		\$ 23.1
2025		22.5
2026		16.6
2027		16.6
2028		15.8
2029 and thereafter		62.8
Total		\$ 157.4

8. Leases

The Company has leases for manufacturing, sales, support, and engineering facilities, certain manufacturing and office equipment, and vehicles. The majority of the leases have remaining terms of 1 to 7 years, some of which include options to extend the leases for up to 6 years, and some of which include options to terminate the leases within 1 year. The lease agreements do not contain any material residual value guarantees or material restrictive covenants. The Company subleases certain facilities to third parties.

The following table details the components of lease cost:

(in millions)	Years Ended December 31,		
	2023	2022	2021
Operating lease cost ⁽¹⁾	\$ 7.9	\$ 8.2	\$ 9.9
Finance lease cost:			
Amortization of right-of-use assets	2.3	2.3	2.3
Interest on lease liabilities	0.2	0.3	0.4
Sublease income	(3.3)	(3.5)	(3.0)
Total lease cost	\$ 7.1	\$ 7.3	\$ 9.6

⁽¹⁾ Includes short-term and variable lease costs, which were immaterial.

The components of lease cost other than Interest on lease liabilities are presented within the Cost of goods sold, Research and development expenses, and Selling and administrative expenses lines on the Consolidated Statements of Earnings based on the use of the underlying assets. Interest on lease liabilities is presented within the Interest expense, net line on the Consolidated Statements of Earnings.

The following table presents supplemental balance sheet information related to finance leases:

(in millions)	Balance Sheet Line	December 31, 2023	December 31, 2022
Finance lease right-of-use assets	Property, plant, and equipment, net	\$ 3.4	\$ 5.3
Current finance lease liabilities	Other accrued expenses	\$ 1.6	\$ 2.5
Long-term finance lease liabilities	Other liabilities	0.6	1.4
Total finance lease liabilities		\$ 2.2	\$ 3.9

The following table presents supplemental cash flow information related to leases:

(in millions)	Years Ended December 31,		
	2023	2022	2021
Cash paid for amounts included in the measurement of lease liabilities:			
Operating cash flows from operating leases	\$ 9.1	\$ 12.4	\$ 10.2
Operating cash flows from finance leases	0.2	0.3	0.4
Financing cash flows from finance leases	2.5	4.8	2.3
Lease liabilities arising from obtaining right-of-use assets:⁽²⁾			
Operating leases	\$ 2.6	\$ 2.0	\$ 6.5
Finance leases	0.7	0.4	0.3

⁽²⁾ Does not include operating lease liabilities of \$ 3.4 million and finance lease liabilities of \$ 0.1 million obtained in the acquisition of CD. See Note 3. Acquisitions for more information.

The following table details weighted-average remaining lease terms and discount rates:

	December 31, 2023	December 31, 2022
Weighted-average remaining lease term (in years):		
Operating leases	3.3	2.5
Finance leases	2.5	2.2
Weighted-average discount rate:		
Operating leases	5.0 %	3.4 %
Finance leases	5.6 %	5.3 %

The following table details maturities of lease liabilities as of December 31, 2023:

(in millions)	Operating Leases	Finance Leases
2024	\$ 5.5	\$ 1.6
2025	3.3	0.4
2026	2.4	0.2
2027	2.1	0.1
2028	1.0	—
2029 and thereafter	0.2	—
Total lease payments	14.5	2.3
Less interest	(1.2)	(0.1)
Present value of lease liabilities	<u>\$ 13.3</u>	<u>\$ 2.2</u>

9. Other Accrued Expenses and Other Liabilities

The following table details the major components of other accrued expenses:

(in millions)	December 31, 2023	December 31, 2022
Restructuring and exit costs	\$ 8.5	\$ 4.0
Sales volume rebates	3.6	4.0
Accrued taxes other than income taxes	2.4	1.8
Accrued insurance	2.0	1.6
Current finance lease liabilities	1.6	2.5
Current hedging liability	0.7	0.8
Warranty	0.7	0.4
Other	5.5	4.8
Total	\$ 25.0	\$ 19.9

The following table details the major components of other liabilities:

(in millions)	December 31, 2023	December 31, 2022
Deferred compensation, including defined benefit plans	\$ 13.6	\$ 12.9
Restructuring and exit costs	10.7	18.7
Unrecognized tax benefits	2.3	2.5
Unearned/deferred revenue	1.7	2.5
Long-term finance lease liabilities	0.6	1.4
Long-term hedging liability	0.4	—
Other	1.8	0.8
Total	\$ 31.1	\$ 38.8

Warranty Accruals

Estimated warranty program claims are provided for at the time of sale. Amounts provided for are based on historical costs and adjusted for new claims. The changes in the carrying amount of product warranties were as follows:

(in millions)	Years Ended December 31,		
	2023	2022	2021
Beginning balance, January 1	\$ 0.4	\$ 0.5	\$ 0.4
Provision for warranties	0.5	0.6	1.0
Settlements made	(0.4)	(0.5)	(0.9)
Other adjustments, including currency translation ⁽¹⁾	0.2	(0.2)	—
Ending balance, December 31	\$ 0.7	\$ 0.4	\$ 0.5

⁽¹⁾ Other activity during 2023 includes \$ 0.3 million of reserves assumed by the Company with the acquisition of CD within the PD segment.

10. Restructuring and Related Activities

Restructuring and related activities are designed to better align the Company's operations with current market conditions through targeted facility consolidations, headcount reductions, and other measures to further optimize operations.

During the year ended December 31, 2023, the Company recorded restructuring charges within the PD segment of \$ 2.5 million for severance pay and benefits related to headcount reductions and for costs associated with transferring certain capacitors manufacturing to existing facilities to further optimize operations. The Company also recorded \$ 1.4 million for severance pay and benefits related to headcount reductions within the Consumer MEMS Microphones segment and \$ 0.8 million for Corporate charges during the year ended December 31, 2023.

During the year ended December 31, 2023, the Company recorded gains of \$ 1.0 million for the sale of certain machinery and equipment that was previously written off through restructuring charges within the Consumer MEMS Microphones segment. The Company also recorded a \$ 1.5 million reversal of restructuring charges within the Consumer MEMS Microphones segment as a result of changes in estimates.

The Company recorded a \$ 1.3 million credit for the aforementioned restructuring charges within Gross profit and the remaining \$ 3.5 million of expense within Operating expenses for the year ended December 31, 2023.

During the year ended December 31, 2022, the Company restructured its MEMS microphones product line through two restructuring programs, which are included within the CMM segment. These actions resulted in the settlement of supplier obligations, non-cash fixed asset write-offs, and severance pay. During the year ended December 31, 2022, the Company recorded restructuring charges of \$ 39.0 million related to this action, including \$ 21.1 million for the settlement of supplier obligations, \$ 13.5 million in fixed asset write-off costs, and \$ 4.4 million in severance pay and benefits.

In addition, during the year ended December 31, 2022, the Company recorded restructuring charges of \$ 2.2 million for severance pay and benefits to rationalize the Intelligent Audio product line workforce, which is included within the CMM segment, and \$ 0.6 million for other costs.

The Company recognized \$ 32.2 million of the aforementioned restructuring charges within Gross profit and the remaining \$ 9.6 million within Operating expenses for year ended December 31, 2022.

During the year ended December 31, 2021, the Company recorded restructuring charges within Operating expenses of \$ 0.5 million. These charges were primarily for actions associated with the Intelligent Audio product line, which is included within the CMM segment.

The following table details restructuring charges incurred by reportable segment for the periods presented:

(in millions)	Years Ended December 31,		
	2023	2022	2021
Precision Devices	\$ 2.5	\$ —	\$ 0.1
MedTech & Specialty Audio	—	—	0.1
Consumer MEMS Microphones	(1.1)	41.2	0.3
Corporate	0.8	0.6	—
Total	\$ 2.2	\$ 41.8	\$ 0.5

The following table details the Company's severance and other restructuring accrual activity:

(in millions)	Severance Pay and Benefits	Contract Termination and Other Costs		Total
		\$	0.7	
Balance at January 1, 2021	\$ 1.9	\$ 0.7	\$ 2.6	
Restructuring charges	0.5	—	—	0.5
Payments	(2.0)	(0.7)	(2.7)	
Balance at December 31, 2021	0.4	—	—	0.4
Restructuring charges	6.6	35.2	41.8	
Payments	(6.2)	(1.6)	(7.8)	
Other, including foreign currency ⁽¹⁾	0.1	(11.8)	(11.7)	
Balance at December 31, 2022	0.9	21.8	22.7	
Restructuring charges	4.7	(2.5)	2.2	
Payments	(4.3)	(3.1)	(7.4)	
Other, including foreign currency ⁽²⁾	1.1	0.6	1.7	
Balance at December 31, 2023	<u>\$ 2.4</u>	<u>\$ 16.8</u>	<u>\$ 19.2</u>	

⁽¹⁾ Other activity during 2022 includes the non-cash disposal of fixed assets of \$ 13.5 million within the MEMS microphones product line.

⁽²⁾ Other activity during 2023 includes \$ 1.1 million of reserves assumed by the Company with the acquisition of CD within the PD segment.

The severance and restructuring accruals are recorded in the following line items on the Consolidated Balance Sheets:

(in millions)	December 31, 2023	December 31, 2022
Other accrued expenses	\$ 8.5	\$ 4.0
Other liabilities	10.7	18.7
Total	<u>\$ 19.2</u>	<u>\$ 22.7</u>

11. Hedging Transactions and Derivative Instruments

The Company is affected by changes in certain market conditions. These changes in market conditions may adversely impact the Company's financial performance and are referred to as "market risks." The Company uses derivatives as a risk management tool to mitigate the potential impact of certain market risks, which are primarily foreign currency risk related to ongoing business operations.

Cash Flow Hedging

The Company uses cash flow hedges to minimize the variability in cash flows of assets, liabilities, or forecasted transactions caused by fluctuations in foreign currency exchange rates. These derivatives, which are designated cash flow hedges, are carried at fair value. The changes in their fair values are recorded to Accumulated Other Comprehensive Income (Loss) ("AOCI") and reclassified in current earnings when the hedge contract matures or becomes ineffective.

To manage its exposure to foreign currency exchange rates, the Company has entered into currency deliverable forward contracts. These derivative instruments allow the Company to hedge portions of its forecasted funding needs, which are generally expected to occur within the next twelve months and are denominated in currencies other than the U.S. dollar. The Company maintains a foreign currency cash flow hedging program primarily to reduce the risk that the net U.S. dollar cash inflows and non-U.S. dollar net cash outflows will be adversely affected by changes in foreign currency exchange rates. At December 31, 2023 and 2022, the notional value of the derivatives related to currency forward contracts, principally the Chinese yuan, Malaysian ringgit, Philippine peso, and Japanese yen, was \$ 49.2 million and \$ 68.0 million, respectively. The Company presents the impact of foreign exchange contracts qualifying as cash flow hedges within the Cost of goods sold line on the Consolidated Statements of Earnings, which is the same line used to present the earnings effect of the hedged item.

Economic (Non-Designated) Hedging

In addition to derivative instruments that are designated and qualify for hedge accounting, the Company also uses certain derivatives as economic hedges of foreign currency risk. Although these derivatives were not designated and/or did not qualify for hedge accounting, they are effectively economic hedges. The changes in fair value of these economic hedges are immediately recognized in earnings.

The Company uses foreign currency economic hedges to offset the earnings impact that fluctuations in foreign currency exchange rates have on certain monetary assets and liabilities denominated in non-functional currencies. The Company does not enter into these hedges for speculative reasons. These derivatives are carried at fair value with changes in fair value immediately recognized in earnings within Other (income) expense, net. In addition, these derivative instruments minimize the impact of exchange rate movements on the Company's balance sheet, as the gains or losses on these derivatives are intended to offset gains and losses from the reduction of the hedged assets and liabilities. At December 31, 2023 and 2022, the notional value of the derivatives related to economic hedging was \$ 111.7 million and \$ 86.3 million, respectively.

The notional amounts of the derivative financial instruments do not necessarily represent amounts exchanged by the parties and, therefore, are not a direct measure of our exposure to the financial risks described above. The amounts exchanged are calculated by reference to the notional amounts and by other terms of the derivatives, such as foreign currency exchange rates or other financial indices. The Company does not view the fair values of its derivatives in isolation, but rather in relation to the fair values or cash flows of the underlying hedged transactions or other exposures. Virtually all of our derivatives are straightforward over-the-counter instruments with liquid markets.

Fair Value Measurements

All derivatives are carried at fair value on the Company's Consolidated Balance Sheets. ASC 820, Fair Value Measurement, establishes a fair value hierarchy that requires the Company to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. A financial instrument's categorization within the hierarchy is based on the lowest level of input that is significant to the fair value measurement. ASC 820 establishes three levels of inputs that may be used to measure fair value as follows:

Level 1 - Quoted prices (unadjusted) in active markets for identical assets or liabilities.

Level 2 - Observable inputs other than quoted prices included in Level 1, such as quoted prices in active markets for similar assets and liabilities, quoted prices for identical or similar assets or liabilities in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of assets or liabilities.

Level 3 - Unobservable inputs for which little or no market data exists, therefore requiring an entity to develop its own assumptions.

The Company determines the fair values of its derivatives based on standard valuation models or observable market inputs such as quoted market prices or foreign currency exchange rates; therefore, the Company classifies the derivatives within Level 2 of the valuation hierarchy.

The fair values of derivative instruments held by the Company are as follows (in millions):

Hedge Type	Contract Type	Balance Sheet Line	Derivative Assets (Liabilities)	
			December 31, 2023	December 31, 2022
Derivatives designated as hedging instruments				
Cash flow hedges	Foreign exchange contracts	Prepaid and other current assets	\$ 0.4	\$ 1.1
Cash flow hedges	Foreign exchange contracts	Other assets and deferred charges	—	1.3
Cash flow hedges	Foreign exchange contracts	Other accrued expenses	(0.7)	(0.8)
Cash flow hedges	Foreign exchange contracts	Other liabilities	(0.4)	—
Derivatives not designated as hedging instruments				
Economic hedges	Foreign exchange contracts	Prepaid and other current assets	0.1	0.6
Economic hedges	Foreign exchange contracts	Other accrued expenses	(0.1)	—

The pre-tax amount of unrealized (loss) gain recognized in accumulated other comprehensive loss on derivatives designated as hedging instruments is as follows (in millions):

Hedge Type	Contract Type	Years Ended December 31,		
		2023	2022	2021
Cash flow hedges	Foreign exchange contracts	\$ (5.0)	\$ (3.4)	\$ 0.5

The table above excludes a tax benefit of \$ 1.1 million and \$ 0.6 million for the years ended December 31, 2023 and 2022, respectively, and tax expense of \$ 0.2 million for the year ended December 31, 2021.

The pre-tax impact of derivatives on the Consolidated Statements of Earnings is as follows (in millions):

Hedge Type	Contract Type	Years Ended December 31,					
		2023		2022		2021	
		Cost of goods sold	Other expense (income), net	Cost of goods sold	Other expense (income), net	Cost of goods sold	Other expense (income), net
Total amounts per Consolidated Statements of Earnings		\$ 435.5	\$ 0.7	\$ 455.7	\$ (0.5)	\$ 508.6	\$ (3.0)

Effect of derivatives designated as hedging instruments

Amount of loss (gain) reclassified from accumulated other comprehensive loss into earnings:

Cash flow hedges	Foreign exchange contracts	2.7	—	4.5	—	(2.1)	—
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Effect of derivatives not designated as hedging instruments

Amount of loss (gain) recognized in earnings:

Economic hedges	Foreign exchange contracts	—	3.3	—	1.0	—	(1.4)
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12. Borrowings

Borrowings (net of debt issuance costs, debt discount, and amortization) consist of the following:

(in millions)	December 31, 2023	December 31, 2022
\$400.0 million Revolving Credit Facility	\$ 160.0	\$ 45.0
Seller Note	111.2	—
Total	271.2	45.0
Less current maturities of Seller Note	47.1	—
Total long-term debt	\$ 224.1	\$ 45.0

Total debt principal payments over the next five years are as follows:

(in millions)	2024	2025	2026	2027	2028
2024	\$ 50.0				
2025		72.9			
2026			—		
2027				—	
2028					160.0

Revolving Credit Facility

On February 8, 2023, the Company entered into an Amended and Restated Credit Agreement (the "A&R Credit Agreement") that amends and restates the prior Credit Agreement, dated September 4, 2020, and provides for a senior secured revolving credit facility with borrowings in an aggregate principal amount at any time outstanding not to exceed \$ 400.0 million (the "Credit Facility"). The A&R Credit Agreement, among other things, extends the maturity date of the Credit Facility from January 2, 2024 to February 8, 2028, replaces the London Inter-Bank Offered Rate ("LIBOR") with the Term Secured Overnight Financing Rate ("Term SOFR") as a reference rate available for borrowings, amends the minimum Interest Coverage Ratio, and amends certain other financial covenants with which the Company must comply, as described below.

On September 25, 2023, the Company amended its A&R Credit Agreement to, among other things, (a) permit the Company in connection with the acquisition of CD, to incur senior priority seller financing indebtedness (the "Seller Note") in an aggregate principal amount of \$ 122.9 million secured by certain assets (including equity interests) acquired in connection with such acquisition and the capital stock of Cornell Dubilier, LLC (the "Acquisition Assets"), which shall mature two years after the effective date of such Seller Note (the "Seller Note Maturity Date"), (b) extends the requirement to pledge the Acquisition Assets that would otherwise constitute collateral under the Credit Agreement to the date that is 90 days after the Seller Note Maturity Date, and (c) restricts, until the Seller Note Maturity Date, the amount of dispositions and investments from the Company and certain of its subsidiaries into Cornell Dubilier, LLC and the acquired subsidiaries that constitute Acquisition Assets from exceeding \$ 80.0 million in the aggregate. All other terms remain the same as the A&R Credit Agreement dated February 8, 2023.

Up to \$ 100.0 million of the Credit Facility will be available in Euro, Pounds Sterling, and other currencies requested by the Company and up to \$ 50.0 million of the Credit Facility will be made available in the form of letters of credit. Undrawn amounts under the Credit Facility accrue a commitment fee at a per annum rate of 0.225 % to 0.350 %, based on a leverage ratio grid.

At any time during the term of the Credit Facility, the Company will be permitted to increase the commitments under the Credit Facility or to establish one or more incremental term loan facilities under the Credit Facility in an aggregate principal amount not to exceed the sum of \$ 200.0 million, plus additional amounts, so long as the senior secured leverage ratio does not exceed 2.00 to 1.00.

The A&R Credit Agreement includes requirements, to be tested quarterly, that the Company maintains (i) a minimum ratio of Consolidated EBITDA to consolidated cash interest expense of 3.00 to 1.00, (the "Interest Coverage Ratio"), (ii) a ratio of total indebtedness, minus netted cash in an aggregate amount not to exceed \$50.0 million, to Consolidated EBITDA of 3.75 to 1.00 (the "Total Net Leverage Ratio"), and (iii) a maximum ratio of senior net secured indebtedness to Consolidated EBITDA of 3.25 to 1.00 (the "Senior Secured Net Leverage Ratio"). For these ratios, Consolidated EBITDA and consolidated interest expense are calculated using the most recent four consecutive fiscal quarters in a manner defined in the A&R Credit Agreement. At December 31, 2023, the Company was in compliance with these covenants and it expects to remain in compliance with all of its debt covenants over the next twelve months.

The interest rates under the A&R Credit Facility will be, at the Borrowers' option (1) (A) in the case of borrowings denominated in U.S. dollars Term SOFR, (B) in the case of borrowings denominated in Sterling, Daily Simple Sonia, or (C) for borrowings denominated in Euro, EURIBOR, in each case, plus the rates per annum determined from time to time based on the total net leverage ratio of the Company as of the end of and for the most recent period of four fiscal quarters for which financial statements have been delivered (the "Applicable Margin"); or (2) in the case of borrowings denominated in U.S. dollars, alternate base rate ("ABR") (as defined in the A&R Credit Agreement) plus the Applicable Margin. The Applicable Margin for Term SOFR, Daily Simple Sonia, or EURIBOR could range from 1.50 % to 2.50 % while the Applicable Margin for ABR could range from 0.50 % to 1.50 %.

The weighted-average interest rate on the Company's borrowings under the Credit Facility and the 2020 Credit Facility was 6.55 %, 3.21 %, and 2.25 % for the years ended December 31, 2023, 2022, and 2021, respectively. The weighted-average commitment fee on the revolving lines of credit was 0.23 % for the years ended December 31, 2023 and 2022 and 0.26 % for the years ended December 31, 2021.

Seller Note

On November 1, 2023, the Company completed the acquisition of CD for a total purchase price of \$ 246.8 million. This acquisition was funded by borrowings on the Revolving Credit Facility and an interest-free note from the seller with aggregate principal payments of \$ 122.9 million (the "Seller Note"). The Seller Note is due and payable in cash with \$ 50.0 million maturing on November 1, 2024 and \$ 72.9 million maturing on November 1, 2025. On the acquisition date, the Company recorded the Seller Note at its present value of \$ 109.9 million by discounting the future principal payments using an imputed rate of interest of approximately 7.1 % in accordance with accounting guidance in ASC 835, Interest. The Company recognized imputed interest expense on the Seller Note of approximately \$ 1.3 million for the year ended December 31, 2023.

The Seller Note is secured by certain assets (including equity interest) acquired in connection with the acquisition. The Seller Note includes Knowles Capital Holdings, Inc. and Knowles Intermediate PD Holdings, LLC as borrowers, which jointly and severally agree to pay James P. Kaplan, as representative of the sellers of Cornell Dubilier, the principal amount of \$ 122.9 million as described above. The Seller Note is not interest-bearing except at such time as an event of default has occurred, upon which and during the continuance of an event of default, all overdue principal will accrue interest at 2.0% per annum plus the SOFR-based rate otherwise applicable under the Company's existing credit facility. The Seller Note is subject to customary conditions and events of default and the secured nature of the Seller Note is supported by a Security Agreement.

Interest expense and interest income for the years ended December 31, 2023, 2022, and 2021 were as follows:

(in millions)	Years Ended December 31,		
	2023	2022	2021
Interest expense	\$ 7.4	\$ 4.3	\$ 14.4
Interest income	(2.0)	(0.4)	(0.2)
Interest expense, net	\$ 5.4	\$ 3.9	\$ 14.2

Warrants

In the second quarter of 2016, the Company entered into warrant transactions, whereby the Company sold warrants to acquire shares of the Company's common stock at a strike price of \$ 21.1050 per share (the "Warrants"). The Company received aggregate proceeds of \$ 39.1 million from the sale of the Warrants. The Warrants were separate transactions entered into by the Company, and were not part of the Notes, and were accounted for as part of additional paid-in capital.

The Warrants expired during the first quarter of 2022, which resulted in the Company delivering 0.2 million shares of its common stock held in treasury. Settlement of the Warrants resulted in a \$ 3.1 million decrease in treasury stock, which was measured based on the acquisition cost of the delivered shares determined on a first-in, first-out ("FIFO") basis, offset by an equivalent decrease in additional paid-in capital with no net impact to equity.

13. Income Taxes

The components of earnings (loss) before income taxes and discontinued operations were:

(in millions)	Years Ended December 31,		
	2023	2022	2021
Domestic	\$ (120.4)	\$ (410.1)	\$ 15.5
Foreign	165.4	(8.1)	89.1
Total earnings (loss) before income taxes and discontinued operations	\$ 45.0	\$ (418.2)	\$ 104.6

Income tax (benefit) expense for the years ended December 31, 2023, 2022, and 2021 is comprised of the following:

(in millions)	Years Ended December 31,		
	2023	2022	2021
Current:			
U.S. Federal	\$ 1.8	\$ 1.2	\$ 0.4
State and local	0.3	0.6	0.3
Foreign	12.1	5.5	14.8
Total current tax expense	\$ 14.2	\$ 7.3	\$ 15.5
Deferred:			
U.S. Federal	\$ (39.9)	\$ 3.0	\$ (57.1)
State and local	(2.5)	(0.3)	(2.6)
Foreign	0.8	1.9	(1.4)
Total deferred tax (benefit) expense	\$ (41.6)	\$ 4.6	\$ (61.1)
Total income tax (benefit) expense	\$ (27.4)	\$ 11.9	\$ (45.6)

The reconciliation of income tax (benefit) expense at the U.S. Federal income tax rate to the Company's actual income tax (benefit) expense was as follows:

	Years Ended December 31,		
	2023	2022	2021
Income tax expense (benefit) at U.S. federal statutory income tax rate	\$ 9.4	\$ (87.8)	\$ 22.0
State and local taxes, net of Federal income tax benefit	(2.1)	0.6	0.3
Foreign operations tax effect	4.2	6.4	3.5
Research and experimentation tax credits	(2.9)	(3.4)	(4.0)
Valuation allowance	(14.4)	0.8	(59.7)
Tax incentives	(1.7)	(1.3)	(1.2)
Tax contingencies	(0.2)	(1.1)	0.6
Tax holiday	(0.8)	(0.4)	(10.6)
Foreign taxes	0.2	1.1	1.0
Non-deductible and non-taxable interest	(1.5)	0.2	(0.2)
Stock-based compensation	3.7	1.8	5.1
Impact of intangible property transfers	(26.6)	—	—
Other, principally non-tax deductible items	1.6	2.5	1.3
Goodwill impairment	—	90.6	—
Global low tax and foreign derived intangible income	4.3	0.1	(2.5)
Foreign currency adjustments	—	—	(0.7)
Prior period items	(0.6)	1.8	(0.5)
Total income tax (benefit) expense	\$ (27.4)	\$ 11.9	\$ (45.6)

The Company's effective tax rate has been favorably impacted by three tax holidays – two holidays granted to us by Malaysia, one which would have been effective through December 31, 2026 and the other which expired on July 31, 2021, and a tax holiday granted by China (the "Hi-Tech Rate"). Each of the tax holidays is subject to the Company's satisfaction of certain conditions. As a result of the rapid decline in current demand for global consumer electronics during 2022, we did not satisfy all of the conditions of our tax holiday in Malaysia that was in effect January 1, 2022. As such, we are not including this tax holiday benefit in our 2023 or 2022 effective tax rate. Our 2021 effective tax rate includes the benefit for the Malaysian tax holidays that were in effect during 2021.

The Hi-Tech Rate is a preferential tax rate for high technology enterprises for Chinese tax purposes that is effective for the Company's annual tax filings 2021 through 2023. This benefit is being reflected as a tax holiday in the effective tax rate. We expect to continue to satisfy the conditions for the Hi-Tech Rate. If the Company fails to satisfy such conditions, the Company's effective tax rate may be adversely impacted.

The continuing operations benefit of incentives for the years ending December 31, 2023, 2022, and 2021 is estimated to be \$ 1.1 million, \$ 0.8 million, and \$ 10.7 million, respectively. The continuing operations benefit of tax holidays on a basic per share basis for the years ending December 31, 2023 and 2022 was \$ 0.01 . The continuing operations benefit of tax holidays on a basic per share basis for the years ending December 31, 2021 was \$ 0.12 .

The components of the Company's deferred tax assets and liabilities included the following:

(in millions)	December 31, 2023	December 31, 2022
Deferred tax assets:		
Accrued compensation, principally post-retirement, and other employee benefits	\$ 13.2	\$ 11.0
Accrued expenses	5.2	4.4
Accrued interest	0.4	1.5
Net operating loss and other carryforwards	67.4	68.0
Inventories, principally due to reserves for financial reporting purposes and capitalization for tax purposes	8.2	8.2
Unremitted earnings of non-U.S. subsidiaries	0.7	2.0
Intangible assets, principally due to different tax and financial reporting bases	23.3	6.9
Plant and equipment, principally due to differences in depreciation	10.0	13.8
Total gross deferred tax assets	128.4	115.8
Valuation allowance	(25.5)	(39.7)
Total deferred tax assets	\$ 102.9	\$ 76.1
Deferred tax liabilities:		
Other liabilities	\$ (4.0)	\$ (2.2)
Total gross deferred tax liabilities	(4.0)	(2.2)
Net deferred tax asset	\$ 98.9	\$ 73.9
Classified as follows in the Consolidated Balance Sheets:		
Other assets and deferred charges (non-current deferred tax assets)	\$ 99.6	\$ 74.8
Deferred income taxes (non-current deferred tax liabilities)	(0.7)	(0.9)
Net deferred tax asset	\$ 98.9	\$ 73.9

The Company recorded valuation allowances of \$ 25.5 million and \$ 39.7 million at December 31, 2023 and 2022, respectively, against deferred tax assets from continuing operations as the Company believes it is more likely than not that these assets will not be realized. At December 31, 2023, we recognized an income tax benefit of \$ 15.1 million related to the reversal of the deferred tax asset valuation allowance on our U.S. foreign tax credits and certain U.S. state tax attributes. The Company routinely reviews the future realization of deferred tax assets based on projected future reversal of taxable temporary differences, available tax planning strategies, and projected future taxable income. Management believes that it is more likely than not that the Company will realize the benefits of the remaining deferred tax assets.

At December 31, 2023, the Company had \$ 3.8 million of U.S. federal net operating losses that are available, of which \$ 2.1 million will expire in the next 6 to 10 years, and of which \$ 1.7 million will expire in the next 11 to 20 years. There are \$ 3.2 million of domestic State net operating losses that are available between 2027 and 2043. There are \$ 5.2 million of non-U.S. net operating loss carryforwards, of which \$ 0.3 million will expire in the next 5 years; \$ 4.1 million will expire in the next 11 to 20 years; \$ 0.7 million can be carried forward indefinitely; and \$ 0.1 million is a capital loss carried forward indefinitely.

The Company has \$ 24.3 million of U.S. federal research and development credits that begin to expire in 2024 and \$ 15.1 million of foreign tax credits that begin to expire in 2027. In addition, the Company has \$ 15.7 million of state credits, of which \$ 2.0 million will expire between 2024 and 2038 if unused, and \$ 13.7 million can be carried forward indefinitely.

As of December 31, 2023, the Company has approximately \$ 1.4 billion of undistributed earnings in its foreign subsidiaries. Approximately \$ 0.3 billion of these earnings are no longer considered permanently reinvested. The incremental tax cost to repatriate these earnings to the U.S. is immaterial. The Company has not provided for deferred taxes on approximately \$ 1.1 billion of undistributed earnings from non-U.S. subsidiaries which are indefinitely reinvested in operations. If these earnings were distributed, they would likely not be subject to U.S. federal income tax because they were previously taxed under the Tax Reform Act. We would likely be required to accrue and pay U.S. state and local taxes and withholding taxes payable to various countries. It is not practical to determine the income tax liability that would be payable if such earnings were not reinvested indefinitely.

Unrecognized Tax Benefits

The Company records interest and penalties associated with unrecognized tax benefits as a component of income tax expense. During the years ended December 31, 2023, 2022, and 2021, the Company recorded interest expense resulting in insignificant balances. The Company recorded penalty expense during the years ended December 31, 2022, and 2021 resulting in accrued penalties of \$ 0.1 million, and \$ 0.3 million, respectively, which were included in Other liabilities on the Consolidated Balance Sheets. During the year ended December 31, 2023, the Company recorded no penalty expense

The Company's tax returns are routinely audited by the tax authorities in the relevant jurisdictions. For tax years before 2020, the Company is no longer subject to U.S. federal income tax examination. For tax years before 2016, the Company's Malaysian principal subsidiary is no longer subject to examination. Included in the balance of total unrecognized tax benefits at December 31, 2023 are potential benefits of \$ 2.3 million, which if recognized, would affect the effective rate on earnings from continuing operations. Given the Company's current valuation allowance position, no benefit is expected to result from the reversal of any uncertain tax position associated with the acquired attributes.

Unrecognized tax benefits at January 1, 2021	\$	10.2
Reductions for tax positions of prior years		(0.3)
Settlements		(0.4)
Unrecognized tax benefits at December 31, 2021	\$	9.5
Reductions as a result of a lapse in statute of limitations		(1.3)
Foreign exchange fluctuations		(0.1)
Unrecognized tax benefits at December 31, 2022	\$	8.1
Reductions as a result of a lapse in statute of limitations		(0.3)
Foreign exchange fluctuations		0.2
Unrecognized tax benefits at December 31, 2023	\$	8.0

14. Equity Incentive Program

The Company maintains equity compensation plans that provide for the issuance of Knowles stock to directors, executive officers, and other employees. The maximum number of shares available for issuance under the plans is 16.1 million, of which 7.1 million were available for future awards at December 31, 2023.

The following table summarizes the stock-based compensation expense recognized by the Company for the periods presented:

(in millions)	Years Ended December 31,		
	2023	2022	2021
Pre-tax stock-based compensation expense			
Cost of goods sold	\$ 2.1	\$ 1.6	\$ 1.6
Research and development expenses	5.9	5.6	5.5
Selling and administrative expenses	21.0	21.4	25.0
Total pre-tax stock-based compensation expense	29.0	28.6	32.1
Tax benefit	3.3	4.4	5.1
Total stock-based compensation expense, net of tax	\$ 25.7	\$ 24.2	\$ 27.0

Compensation expense for stock-based awards is measured based on the fair value of the awards as of the date the stock-based awards are granted and adjusted to the estimated number of awards that are expected to vest. Forfeitures are estimated based on historical experience at the time of grant and revised in subsequent periods if actual forfeitures differ from those estimates. Compensation costs for stock-based awards are amortized over their service period.

Stock Options and SSARs

The fair value of stock options granted by the Company was estimated on the date of grant using a Black-Scholes option-pricing model based on the assumptions shown in the table below. No stock options were granted during the year ended December 31, 2023.

	Years Ended December 31,	
	2022	2021
Risk-free interest rate	0.85 %	0.06 %
Dividend yield	— %	— %
Expected life (years)	4.5	4.5
Volatility	34.3 %	36.0 %
Fair value at date of grant	\$ 6.29	\$ 6.14 to \$ 6.31

Expected volatilities are based on the historical volatility of the Company's stock. The risk-free interest rate is based on U.S. government issues with a remaining term equal to the expected life of the stock options. The expected term is the period over which our employees are expected to hold their options. It is based on the simplified method from the SEC's safe harbor guidelines. The Company does not currently anticipate paying dividends over the expected term.

The exercise price per share for the stock options granted by the Company was equal to the closing price of Knowles' stock on the NYSE on the date of the grant. The period during which options granted by the Company were exercisable was fixed by Knowles' Compensation Committee of the Board of Directors at the time of grant. Generally, stock options vest one-third on each of the first three anniversaries of the grant date and expire seven years from the grant date.

The following table summarizes the Company's stock-settled stock appreciation right ("SSAR") and stock option activity for the year ended December 31, 2023.

	SSARs				Stock Options				Weighted-Average Remaining Contractual Term (Years)
	Number of Shares	Weighted-Average Exercise Price	Aggregate Intrinsic Value	Weighted-Average Remaining Contractual Term (Years)	Number of Shares	Weighted-Average Exercise Price	Aggregate Intrinsic Value	Weighted-Average Remaining Contractual Term (Years)	
(in millions, except share and per share amounts)									
Outstanding at December 31, 2022	223,564	\$ 23.92	—	—	2,703,424	\$ 16.28	—	—	—
Exercised	—	—	—	—	(536,771)	12.47	—	—	—
Forfeited	—	—	—	—	(12,684)	20.97	—	—	—
Expired	(223,564)	23.92	—	—	(49,613)	19.49	—	—	—
Outstanding at December 31, 2023	—	\$ —	\$ —	—	0.0	2,104,356	\$ 17.15	\$ 3.3	2.3
Exercisable at December 31, 2023	—	\$ —	\$ —	—	0.0	1,947,845	\$ 16.84	\$ 3.3	2.0

The aggregate intrinsic value in the table above represents the difference between the Company's closing stock price on December 31, 2023 and the exercise price of each SSAR and stock option, multiplied by the number of in-the-money awards.

There was no unrecognized compensation expense related to SSARs at December 31, 2023. Unrecognized compensation expense related to stock options not yet exercisable at December 31, 2023 was \$ 0.4 million. This cost is expected to be recognized over a weighted-average period of 0.8 years.

Other information regarding the exercise of SSARs and stock options is listed below:

(in millions)	Years Ended December 31,		
	2023	2022	2021
SSARs			
Aggregate intrinsic value of SSARs exercised	\$ —	\$ 0.1	\$ 0.1
Stock Options			
Cash received by Knowles for exercise of stock options	\$ 1.6	\$ 7.5	\$ 25.6
Aggregate intrinsic value of stock options exercised	2.9	6.0	6.6
Tax benefit from stock options exercised	0.6	1.2	1.2

RSUs

The following table summarizes the Company's RSU activity for the year ended December 31, 2023:

	Share units	Weighted-average grant date fair value
Unvested at December 31, 2022	1,880,521	\$ 19.96
Granted	1,267,642	18.78
Vested ⁽¹⁾	(901,320)	19.40
Forfeited	(171,836)	19.82
Unvested at December 31, 2023	2,075,007	\$ 19.49

⁽¹⁾ The number of RSUs vested includes shares that the Company withheld on behalf of employees to satisfy statutory tax withholding requirements.

RSUs vest based on the passage of time. Generally, RSUs have a three year vesting schedule and vest one-third on each of the first three anniversaries of the grant date. The fair value of RSUs vested during the year ended December 31, 2023 was \$ 15.8 million. At December 31, 2023, \$ 21.5 million of unrecognized compensation expense related to RSUs is expected to be recognized over a weighted-average period of 1.5 years.

PSUs

The Company grants PSUs to senior management. In each case, the awards will cliff vest three years following the grant date. PSUs will be settled in shares of the Company's common stock. Depending on the Company's overall performance relative to the applicable measures, the size of the PSU awards are subject to adjustment, up or down, resulting in awards at the end of the performance period that can range from 0 % to 225 % of target. The Company will ratably recognize the expense over the applicable service period for each grant of PSUs and adjust the expense for the expected achievement of performance conditions as appropriate. The fair value of PSUs is determined by using a Monte Carlo simulation. For the awards granted in February 2023, 2022, and 2021, the number of PSUs that may be earned and vest is based on total shareholder return ("TSR") relative to the component companies of the Russell 2000 Index over a three-year performance period.

The COVID-19 pandemic brought on unique and unprecedented challenges to the Company, particularly in the hearing health and medtech markets. Many of the Company's executive compensation programs were affected, including outstanding PSU awards. Due to the impact of the COVID-19 pandemic on the Company's overall business performance, effective February 8, 2021, the Company's Compensation Committee approved certain modifications to PSUs granted in February 2018, 2019, and 2020.

For the awards granted in February 2018 (the "2018 PSUs"), the number of PSUs that may be earned and vest was originally based on the Company's revenues and stock price performance over a three-year performance period. The modified award was based on the Company's revenues and stock price performance over three separate one-year performance periods to isolate the impact of the COVID-19 pandemic on the Company's fiscal 2020 performance. In addition, the performance periods corresponding to fiscal 2018 and 2019 were weighted at 25% each while the performance period corresponding to fiscal 2020 was weighted at 50%, given the impact of fiscal 2020 performance on shareholders. Service conditions were not modified. The modification of the 2018 PSUs affected nine employees and resulted in total incremental compensation expense of \$ 3.9 million, which was recognized in the first quarter of 2021 as there was no remaining service period. In February 2021, the 2018 PSUs were converted from 329,092 PSUs to 190,544 shares of common stock based on achievement of the modified conditions.

For the awards granted in February 2019 (the "2019 PSUs"), the number of PSUs that may be earned and vest was originally based on the Company's revenues and TSR relative to the component companies of the S&P Semiconductor Select Industry Index over a three-year performance period. The modified award was based on the Company's revenues and TSR relative to the component companies of the S&P Semiconductor Select Industry Index over three separate one-year performance periods to isolate the impact of the COVID-19 pandemic on the Company's fiscal 2020 performance. Each period was weighted equally, as the Company expected to face challenges related to the COVID-19 pandemic in fiscal 2021. Service conditions were not modified. The modification of the 2019 PSUs affected eight employees and resulted in total incremental compensation expense of \$ 2.4 million, which was recognized over the remaining service period. Incremental compensation expense was subject to adjustment for the achievement of the performance condition based on fiscal 2021 revenues. In February 2022, the 2019 PSUs were converted from 227,812 PSUs to 150,811 shares of common stock based on achievement of the modified conditions.

For the awards granted in February 2020 (the "2020 PSUs"), the number of PSUs that may be earned and vest was originally based on TSR relative to the component companies of the S&P Semiconductor Select Industry Index over a three-year performance period. The modified award replaces the S&P Semiconductor Select Industry Index with the Russell 2000 Index. The Company is a member of the Russell 2000 Index, which represents a broader, more diversified index that better aligns with the Company's strategy. Service conditions were not modified. The modification of the 2020 PSUs affected eight employees and resulted in total incremental compensation expense of \$ 4.7 million, which will be recognized over the remaining service period. In February 2023, the 2020 PSUs were converted from 261,770 PSUs to 120,677 shares of common stock based on achievement of the modification conditions.

The following table summarizes the Company's PSU activity for the year ended December 31, 2023:

	Share units	Weighted-average grant date fair value
Unvested at December 31, 2022	833,589	\$ 25.12
Granted	330,055	29.35
Vested ⁽¹⁾	(261,770)	16.14
Forfeited	(37,125)	29.20
Unvested at December 31, 2023	<u><u>864,749</u></u>	<u><u>\$ 29.28</u></u>

⁽¹⁾ The number of PSUs vested includes shares that the Company withheld on behalf of employees to satisfy statutory tax withholding requirements.

The fair value of PSUs vested during the year ended December 31, 2023 was \$ 2.3 million. At December 31, 2023, \$ 9.9 million of unrecognized compensation expense related to PSUs is expected to be recognized over a weighted-average period of 1.2 years.

15. Commitments and Contingent Liabilities

From time to time, the Company is involved in various legal proceedings and claims arising in the ordinary course of its business. The majority of these claims and proceedings relate to commercial, warranty, employment, and intellectual property matters. Although the ultimate outcome of any legal proceeding or claim cannot be predicted with certainty, based on present information, including management's assessment of the merits of the particular claim, the Company believes that the disposition of these legal proceedings or claims, individually or in the aggregate, after taking into account recorded accruals and the availability and limits of insurance coverage, will not have a material adverse effect on its cash flow, results of operations, or financial condition.

The Company owns many patents and other intellectual property pertaining to its products, technology, and manufacturing processes. Some of the Company's patents have been and may continue to be infringed upon or challenged by others. In appropriate cases, the Company has taken and will take steps to protect and defend its patents and other intellectual property, including through the use of legal proceedings in various jurisdictions around the world. Such steps have resulted in and may continue to result in retaliatory legal proceedings, including litigation or other legal proceedings in various jurisdictions and forums around the world alleging infringement by the Company of patents owned by others. The costs of investigations and legal proceedings relating to the enforcement and defense of the Company's intellectual property may be substantial. Additionally, in multi-forum disputes, the Company may incur adverse judgments with regard to certain claims in certain jurisdictions and forums while still contesting other related claims against the same opposing party in other jurisdictions and forums.

Intellectual Property Infringement Claims

The Company may, on a limited customer specific basis, provide contractual indemnities for certain losses that arise out of claims that its products infringe on the intellectual property of others. It is not possible to determine the maximum potential amount under these indemnification agreements due to the unique facts and circumstances involved in each particular agreement. Historically, the Company has not made significant payments under such indemnity arrangements. The Company's legal accruals associated with these indemnity arrangements were not significant at December 31, 2023 and 2022.

16. Employee Benefit Plans

Knowles sponsors its own defined contribution plans. The Company's expense relating to defined contribution plans was \$ 7.1 million, \$ 6.9 million, and \$ 6.2 million for the years ended December 31, 2023, 2022, and 2021, respectively.

Knowles sponsors four defined benefit pension plans to certain non-U.S. employees. The two plans in the U.K. and the plan in Taiwan are closed to new participants; however, all active participants in these plans continue to accrue benefits. The plan in the Philippines is open to new participants. These plans are considered direct obligations of the Company and have been recorded within the accompanying Consolidated Financial Statements.

Non-U.S. Defined Benefit Pension Plans***Obligations and Funded Status***

The following tables summarize the balance sheet impact, including the benefit obligations, assets, and funded status associated with the Company's four defined benefit plans for non-U.S. participants at December 31, 2023 and 2022.

	December 31,	
(in millions)	2023	2022
Change in benefit obligation:		
Benefit obligation at beginning of year	\$ 41.8	\$ 69.5
Service cost	0.2	0.3
Interest cost	2.0	1.1
Benefits paid	(3.1)	(1.9)
Actuarial loss gain ⁽¹⁾	0.4	(23.5)
Plan amendments	—	0.2
Currency translation and other ⁽²⁾	2.2	(3.9)
Benefit obligation at end of year	<u>43.5</u>	<u>41.8</u>
Change in plan assets:		
Fair value of plan assets at beginning of year	41.3	69.3
Actual return on plan assets	1.8	(20.1)
Company contributions	1.0	1.2
Benefits paid	(3.1)	(1.9)
Currency translation and other	2.1	(7.2)
Fair value of plan assets at end of year	<u>43.1</u>	<u>41.3</u>
Funded status	<u><u>\$ (0.4)</u></u>	<u><u>\$ (0.5)</u></u>
Amounts recognized in the Consolidated Balance Sheets consist of:		
Other assets and deferred charges	\$ 3.4	\$ 3.4
Other liabilities	(3.8)	(3.9)
Funded status	<u><u>\$ (0.4)</u></u>	<u><u>\$ (0.5)</u></u>
Accumulated other comprehensive loss:		
Net actuarial losses	\$ 18.1	\$ 17.9
Prior service cost	1.2	1.2
Deferred taxes	(2.9)	(2.7)
Total accumulated other comprehensive loss, net of tax	<u>16.4</u>	<u>16.4</u>
Accumulated benefit obligation	<u><u>\$ 42.7</u></u>	<u><u>\$ 41.1</u></u>

⁽¹⁾ The net actuarial gains during the year ended December 31, 2022 primarily related to changes in the discount rates for the U.K. plans.

⁽²⁾ The Company recorded an increase in liabilities of \$ 3.4 million related to pre-spin-off pension obligations during the year ended December 31, 2022.

Pension plans with projected benefit obligations in excess of plan assets consisted of the following at December 31, 2023 and 2022:

	December 31,	
(in millions)	2023	2022
Projected benefit obligation	\$ 25.1	\$ 24.5
Fair value of plan assets	21.3	20.6

Pension plans with accumulated benefit obligations in excess of plan assets consisted of the following at December 31, 2023 and 2022:

(in millions)	December 31,		
	2023	2022	2021
Accumulated benefit obligation	\$ 24.9	\$ 24.5	\$ 24.5
Fair value of plan assets	21.3	20.6	—

Net Periodic Benefit Cost (Income)

Components of the net periodic benefit cost (income) were as follows:

(in millions)	Years Ended December 31,		
	2023	2022	2021
Service cost	\$ 0.2	\$ 0.3	\$ 0.3
Interest cost	2.0	1.1	0.9
Expected return on plan assets	(2.1)	(2.6)	(2.8)
Amortization of prior service cost	0.1	—	—
Amortization of recognized actuarial loss	0.5	0.5	0.8
Other ⁽¹⁾	—	3.4	—
Total net periodic benefit cost (income)	\$ 0.7	\$ 2.7	\$ (0.8)

⁽¹⁾ The Company recorded an adjustment of \$ 3.4 million related to pre-spin-off pension obligations during the year ended December 31, 2022.

The components of net periodic benefit cost (income) other than service cost are presented in the Other (income) expense, net line on the Consolidated Statements of Earnings. The service cost component is presented within the Cost of goods sold, Research and development expenses, and Selling and administrative expenses lines on the Consolidated Statements of Earnings based on the nature of services performed by the related employees.

Assumptions

The Company determines actuarial assumptions on an annual basis. The actuarial assumptions used for the Company's four defined benefit plans for non-U.S. participants will vary depending on the applicable country and as such, the tables below include these assumptions by country, as well as in total.

The assumptions used in determining the benefit obligations were as follows:

	December 31,	
	2023	2022
Discount rate		
Philippines	6.20 %	7.50 %
Taiwan	1.50 %	1.75 %
United Kingdom	4.60 %	4.84 %
Weighted-average	4.47 %	4.71 %
Average wage increase		
Philippines	4.00 %	4.00 %
Taiwan	4.00 %	4.00 %
United Kingdom	4.20 %	4.35 %
Weighted-average	4.17 %	4.30 %

The assumptions used in determining the net periodic benefit cost (income) were as follows:

	Years Ended December 31,		
	2023	2022	2021
Discount rate			
Philippines	7.50 %	5.25 %	4.00 %
Taiwan	1.75 %	0.75 %	0.25 %
United Kingdom	4.84 %	1.84 %	1.28 %
Weighted-average	4.71 %	1.83 %	1.27 %
Average wage increase			
Philippines	4.00 %	4.00 %	4.00 %
Taiwan	4.00 %	4.00 %	4.00 %
United Kingdom	4.35 %	4.65 %	4.20 %
Weighted-average	4.30 %	4.59 %	4.18 %
Expected return on plan assets			
Philippines	7.50 %	5.90 %	*
Taiwan	1.75 %	4.00 %	3.50 %
United Kingdom	5.17 %	4.15 %	4.34 %
Weighted-average	5.00 %	4.15 %	4.32 %

* The Philippines plan was unfunded at the beginning of 2021; therefore, no assumption for the expected return on plan assets was made at that time.

The Company's discount rate assumptions are determined by developing yield curves based on high quality corporate bonds with maturities matching the plans' expected benefit payment streams. The plans' expected cash flows are then discounted by the resulting year-by-year spot rates.

Plan Assets

The primary financial objective of the plans is to secure participant retirement benefits. Accordingly, the key objective in the plans' financial management is to promote stability and, to the extent appropriate, growth in the funded status. Related and supporting financial objectives are established in conjunction with a review of current and projected plan financial requirements.

As it relates to the funded defined benefit pension plans, the Company's funding policy is consistent with the funding requirements of applicable local non-U.S. laws. The Company is responsible for overseeing the management of the investments of the plans' assets and otherwise ensuring that the plans' investment programs are in compliance with applicable local law, other relevant legislation, and related plan documents. Where relevant, the Company has retained professional investment managers to manage the plans' assets and investment process. The investment managers, in executing their investment processes, have the authority and responsibility to select appropriate investments in the asset classes specified by the terms of their applicable prospectus or investment manager agreements with the plans.

The assets of the plans are invested to achieve an appropriate return for the plans consistent with a prudent level of risk. The asset return objective is to achieve, as a minimum over time, the passively managed return earned by market index funds, weighted in the proportions outlined by the asset class exposures identified in the plans' strategic allocation. The expected return on plan assets assumptions are developed through analysis of historical market returns, statistical analysis, current market conditions, and the past experience of plan asset investments.

Fair Value Measurements

The fair values of plan assets by asset category within the ASC 820 hierarchy were as follows at December 31, 2023 and 2022:

(in millions)	December 31, 2023						December 31, 2022					
	Level 1	Level 2	Level 3	Total Fair Value	Level 1	Level 2	Level 3	Total Fair Value				
Asset category:												
Fixed income investments	\$ 3.5	\$ 17.8	\$ —	\$ 21.3	\$ 3.3	\$ 16.7	\$ —	\$ 20.0				
Common stock funds	—	6.3	—	6.3	—	6.1	—	6.1				
Real estate funds	—	4.1	—	4.1	—	4.1	—	4.1				
Cash and equivalents	1.7	—	—	1.7	1.4	—	—	1.4				
Other	3.4	6.3	—	9.7	4.1	5.6	—	9.7				
Total	\$ 8.6	\$ 34.5	\$ —	\$ 43.1	\$ 8.8	\$ 32.5	\$ —	\$ 41.3				

See Note 11, Hedging Transactions and Derivative Instruments for additional information on the fair value hierarchy. There were no significant transfers between Level 1 and Level 2 assets during the years ended December 31, 2023 and 2022.

Fixed income investments include government and municipal securities and corporate bonds, which are valued based on yields currently available on comparable securities of issuers with similar credit ratings.

Common stock funds consist of mutual funds and collective trusts. Mutual funds are valued by obtaining quoted prices from nationally recognized securities exchanges. Collective trusts are valued using Net Asset Value (the "NAV") as of the last business day of the year. The NAV is based on the underlying value of the assets owned by the fund minus its liabilities and then divided by the number of shares outstanding. The value of the underlying assets is based on quoted prices in active markets.

The methods described above may produce a fair value calculation that may not be indicative of net realizable value or reflective of future fair values. Furthermore, while the Company believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different fair value measurement at the reporting date.

Future EstimatesBenefit Payments

Estimated future benefit payments to retirees, which reflect expected future service, are as follows:

(in millions)	\$	2.2
2024	\$ —	2.2
2025	\$ —	2.4
2026	\$ —	2.6
2027	\$ —	2.9
2028	\$ —	2.6
2029-2033	\$ —	13.5

Contributions

Generally, annual contributions are made at such times and in such amounts as required by law and agreed with the trustees of the non-U.S. defined benefit plans. The Company estimates it will pay \$ 1.0 million during the year ended December 31, 2024 related to contributions to these plans. This amount may vary based on updated funding agreements with the trustees of these plans.

17. Other Comprehensive Earnings

The amounts recognized in other comprehensive (loss) earnings were as follows:

(in millions)	Year Ended December 31, 2023		
	Pre-tax	Tax	Net of tax
Foreign currency translation	\$ (6.1)	\$ —	\$ (6.1)
Employee benefit plans	(0.1)	0.2	0.1
Changes in fair value of cash flow hedges	(2.3)	0.6	(1.7)
Total other comprehensive loss	\$ (8.5)	\$ 0.8	\$ (7.7)
Year Ended December 31, 2022			
(in millions)	Pre-tax	Tax	Net of tax
Foreign currency translation	\$ (23.2)	\$ —	\$ (23.2)
Employee benefit plans	1.4	(0.6)	0.8
Changes in fair value of cash flow hedges	1.1	(0.4)	0.7
Total other comprehensive loss	\$ (20.7)	\$ (1.0)	\$ (21.7)
Year Ended December 31, 2021			
(in millions)	Pre-tax	Tax	Net of tax
Foreign currency translation	\$ (3.6)	\$ —	\$ (3.6)
Employee benefit plans	6.6	(1.6)	5.0
Changes in fair value of cash flow hedges	(1.6)	0.3	(1.3)
Total other comprehensive earnings	\$ 1.4	\$ (1.3)	\$ 0.1

The following table summarizes the changes in balances of each component of accumulated other comprehensive loss, net of tax during the years ended December 31, 2023 and 2022:

(in millions)	Cash flow hedges	Employee benefit plans	Cumulative foreign currency translation adjustments	Total
	\$ 0.3	\$ (17.1)	\$ (83.6)	\$ (100.4)
Balance at January 1, 2022	\$ 0.3	\$ (17.1)	\$ (83.6)	\$ (100.4)
Other comprehensive earnings (loss), net of tax	0.7	0.8	(23.2)	(21.7)
Balance at December 31, 2022	1.0	(16.3)	(106.8)	(122.1)
Other comprehensive (loss) earnings, net of tax	(1.7)	0.1	(6.1)	(7.7)
Balance at December 31, 2023	\$ (0.7)	\$ (16.2)	\$ (112.9)	\$ (129.8)

The following table summarizes the amounts reclassified from accumulated other comprehensive loss to earnings:

(in millions)	Statement of Earnings Line	Years Ended December 31,		
		2023	2022	2021
Pension and post-retirement benefit plans:				
Amortization or settlement of actuarial losses and prior service costs	Other expense (income), net	\$ 0.6	\$ 0.6	\$ 0.9
Tax	(Benefit from) provision for income taxes	(0.1)	(0.1)	(0.2)
Net of tax		\$ 0.5	\$ 0.5	\$ 0.7
Cash flow hedges:				
Net losses (gains) reclassified into earnings	Cost of goods sold	\$ 2.7	\$ 4.5	\$ (2.1)
Tax	(Benefit from) provision for income taxes	(0.5)	(1.0)	0.5
Net of tax		\$ 2.2	\$ 3.5	\$ (1.6)

18. Segment Information

The Company determines its operating segments consistent with the manner in which it manages its operations and evaluates performance for internal review and decision making. These operating segments were determined in accordance with ASC 280, Segment Reporting. The Company's operating segments engage in business activities from which they earn revenues and incur expenses, have discrete financial information available, and whose financial results are regularly reviewed and used by the chief operating decision maker to evaluate segment performance, allocate resources, and determine management incentive compensation. In November 2022, the Company determined each operating segment represents a single reportable operating segment, as described below:

- PD Segment

Our PD segment specializes in the design and delivery of high performance capacitor products and RF solutions for technically demanding applications. Our high performance capacitor products are used in applications such as power supplies and medical implants, which sell to a diverse set of customers for mission critical applications across the defense, medtech, industrial, electric vehicle, and communications markets. Our RF solutions solve a broad range of frequency filtering challenges for our customers, who use them in satellite communications and radar systems for defense applications. PD has sales, support, and engineering facilities in North America, Europe, and Asia as well as manufacturing facilities in North America and Asia.

- MSA Segment

Our MSA segment designs and manufactures innovative audio products, including microphones and balanced armature speakers used in applications that serve the hearing health and premium audio markets. MSA has sales, support, and engineering facilities in North America, Europe, and Asia, as well as manufacturing facilities in Asia.

- CMM Segment

Our CMM segment designs and manufactures innovative audio products, including MEMS and audio solutions used in applications that serve the mobile, True Wireless Stereo ("TWS"), Internet of Things ("IoT"), and computing markets. CMM has sales, support, and engineering facilities in North America, Europe, and Asia, as well as manufacturing facilities in Asia.

Information regarding the Company's reportable segments is as follows:

(in millions)	Years Ended December 31,		
	2023	2022	2021
Revenues:			
Precision Devices	\$ 221.4	\$ 242.9	\$ 201.1
MedTech & Specialty Audio	230.0	229.9	231.3
Consumer MEMS Microphones	256.2	291.9	435.7
Total revenues	\$ 707.6	\$ 764.7	\$ 868.1
Earnings (loss) from continuing operations before interest and income taxes:			
Precision Devices	\$ 25.0	\$ 56.1	\$ 43.7
MedTech & Specialty Audio	85.2	84.6	77.0
Consumer MEMS Microphones	13.6	(504.5)	60.0
Total segments	123.8	(363.8)	180.7
Corporate expense / other	73.4	50.5	61.9
Interest expense, net	5.4	3.9	14.2
Earnings (loss) before income taxes and discontinued operations	45.0	(418.2)	104.6
(Benefit from) provision for income taxes	(27.4)	11.9	(45.6)
Earnings (loss) from continuing operations	\$ 72.4	\$ (430.1)	\$ 150.2
Depreciation and amortization:			
Precision Devices	\$ 15.8	\$ 13.8	\$ 13.3
MedTech & Specialty Audio	8.2	8.1	6.3
Consumer MEMS Microphones	20.3	29.5	39.9
Corporate	2.2	2.5	3.0
Total	\$ 46.5	\$ 53.9	\$ 62.5
Capital expenditures:			
Precision Devices	\$ 7.6	\$ 7.4	\$ 5.6
MedTech & Specialty Audio	4.6	7.3	11.6
Consumer MEMS Microphones	4.7	17.2	29.2
Corporate	—	0.2	2.2
Total	\$ 16.9	\$ 32.1	\$ 48.6
Research and development:			
Precision Devices	\$ 13.8	\$ 12.3	\$ 10.5
MedTech & Specialty Audio	18.2	16.9	16.1
Consumer MEMS Microphones	46.1	52.4	65.7
Corporate	0.4	0.1	0.5
Total	\$ 78.5	\$ 81.7	\$ 92.8

Information regarding assets of the Company's reportable segments:

(in millions)	Total Assets	
	December 31, 2023	2022
recision Devices	\$ 577.9	275.7
ledTech & Specialty Audio	351.1	358.1
onsumer MEMS Microphones	530.0	547.3
orporate / eliminations	3.8	2.8
otal	\$ 1,462.8	1,183.9

The following table details revenues by geographic location. Revenues are attributed to regions based on the location of the Company's direct customer, which in some instances is an intermediary and not necessarily the end user. Long-lived assets are comprised of net property, plant, and equipment and operating lease right-of-use assets. These assets have been classified based on the geographic location of where they reside. The Company's businesses are based primarily in Asia, North America, and Europe.

(in millions)	Revenues			Long-Lived Assets	
	Years Ended December 31,			December 31,	
	2023	2022	2021	2023	2022
asia	\$ 426.1	471.3	611.5	91.9	110.5
United States	161.4	174.3	153.2	90.1	60.5
urope	101.5	104.4	93.5	3.7	2.4
ther Americas	7.1	7.5	5.5	2.8	1.0
ther	11.5	7.2	4.4	—	—
otal	\$ 707.6	764.7	868.1	188.5	174.4

The Company's customers that accounted for 10% or more of total revenues were as follows:

	Revenues		
	Years Ended December 31,		
	2023	2022	2021
Apple Inc.	16 %	15 %	16 %
WS Audiology A/S	10 %	*	*

* Less than 10% of total revenues.

19. Earnings per Share

Basic and diluted earnings per share were computed as follows:

	Years Ended December 31,		
	2023	2022	2021
<i>(in millions, except per share amounts)</i>			
Earnings (loss) from continuing operations	\$ 72.4	\$ (430.1)	\$ 150.2
Earnings from discontinued operations, net	—	—	0.2
Net earnings (loss)	\$ 72.4	\$ (430.1)	\$ 150.4
Basic earnings (loss) per common share:			
Earnings (loss) from continuing operations	\$ 0.80	\$ (4.69)	\$ 1.63
Earnings from discontinued operations, net	—	—	—
Net earnings (loss)	\$ 0.80	\$ (4.69)	\$ 1.63
Weighted-average shares outstanding	90.9	91.7	92.3
Diluted earnings (loss) per common share:			
Earnings (loss) from continuing operations	\$ 0.79	\$ (4.69)	\$ 1.59
Earnings from discontinued operations, net	—	—	—
Net earnings (loss)	\$ 0.79	\$ (4.69)	\$ 1.59
Diluted weighted-average shares outstanding	91.6	91.7	94.7

For the years ended December 31, 2023, 2022, and 2021, the weighted-average number of anti-dilutive potential common shares for stock-based awards excluded from the calculation of diluted earnings per share above was 1.9 million, 3.4 million, and 0.7 million, respectively.

SCHEDULE II
VALUATION AND QUALIFYING ACCOUNTS
Years Ended December 31, 2023, 2022, and 2021

Allowance for Doubtful Accounts (in millions)	Balance at Beginning of Year	Charged to Cost and Expense ⁽¹⁾	Accounts Written Off	Balance at End of Year
Year Ended December 31, 2023				
Allowance for Doubtful Accounts	\$ 1.1	—	(0.9)	\$ 0.2
Year Ended December 31, 2022				
Allowance for Doubtful Accounts	\$ 0.2	1.0	(0.1)	\$ 1.1
Year Ended December 31, 2021				
Allowance for Doubtful Accounts	\$ 1.6	(0.2)	(1.2)	\$ 0.2

⁽¹⁾ Net of recoveries on previously reserved or written-off balances.

Deferred Tax Valuation Allowance (in millions)	Balance at Beginning of Year	Additions	Reductions	Balance at End of Year
Year Ended December 31, 2023				
Deferred Tax Valuation Allowance	\$ 39.7	0.9	(15.1)	\$ 25.5
Year Ended December 31, 2022				
Deferred Tax Valuation Allowance	\$ 39.1	0.6	—	\$ 39.7
Year Ended December 31, 2021				
Deferred Tax Valuation Allowance	\$ 98.0	—	(58.9)	\$ 39.1

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

(a) Evaluation of Disclosure Controls and Procedures

We conducted an evaluation, under the supervision and with the participation of management, including the chief executive officer ("CEO") and chief financial officer ("CFO"), of the effectiveness of the Company's disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) as of December 31, 2023.

These disclosure controls and procedures are designed to ensure that information required to be disclosed in our reports that are filed or submitted under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms. Our disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that this information is accumulated and communicated to management, including the principal executive and principal financial officers, or persons performing similar functions, as appropriate, to allow timely decisions regarding required disclosure.

Based on the evaluation, the CEO and CFO have concluded that these disclosure controls and procedures were effective as of December 31, 2023.

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

Our management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act). Under management's supervision, an evaluation of the effectiveness of the Company's internal control over financial reporting was conducted based on the criteria set forth in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). Based on our evaluation under the framework in *Internal Control - Integrated Framework* (2013) issued by the COSO, our management concluded that our internal control over financial reporting was effective as of December 31, 2023.

The Company acquired Cornell Dubilier ("CD") in November 2023; therefore, as permitted by the SEC, we excluded CD from the scope of our management's assessment of the effectiveness of internal controls over financial reporting as of December 31, 2023. The total assets and revenues of CD represented 19.4% and 2.9%, respectively, of the related consolidated financial statement amounts as of and for the year ended December 31, 2023.

PricewaterhouseCoopers LLP, the Company's independent registered public accounting firm, has audited the effectiveness of the Company's internal control over financial reporting as of December 31, 2023, as stated in their report which appears herein.

(c) Changes in Internal Control Over Financial Reporting

There has been no change in our internal control over financial reporting that occurred during the fourth quarter of 2023 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

(d) Inherent Limitations on Effectiveness of Controls

Our management, including the CEO and CFO, do not expect that our disclosure controls or our internal control over financial reporting will prevent or detect all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. The design of a control system must reflect the fact that the benefits of controls must be considered relative to their costs. Further, because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, will be detected. These inherent limitations include the realities that judgments in decision making can be faulty and that breakdowns can occur because of simple error or mistake. Controls can also be circumvented by the individual acts of some persons, by intentionally falsified documentation, by collusion of two or more individuals within Knowles or third parties, or by management override of the controls. The design of any system of controls is based in part on certain assumptions about the likelihood of future events and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Projections of any evaluation of controls effectiveness to future periods are subject to risks. Over time, controls may become inadequate because of changes in conditions or deterioration in the degree of compliance with policies or procedures.

ITEM 9B. OTHER INFORMATION

Director and Officer Trading Plans and Arrangements

During the quarter ended December 31, 2023, no director or officer adopted or terminated any Rule 10b5-1 trading arrangement or non-Rule 10b5-1 trading arrangement.

ITEM 9C. DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

Not applicable.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS, AND CORPORATE GOVERNANCE

The information with respect to the directors and the board committees of the Company and other corporate governance matters required to be included pursuant to this Item 10 will be included in the section entitled "Proposal 1 - Election of Directors" of the Proxy Statement for its 2024 Annual Meeting of Stockholders (the "2024 Proxy Statement") that will be filed with the SEC pursuant to Rule 14a-6 under the Exchange Act in accordance with applicable SEC deadlines and is incorporated in this Item 10 by reference.

The information with respect to the executive officers of the Company required to be included pursuant to this Item 10 is included under the caption "Information about our Executive Officers" in Part I of this Form 10-K and is incorporated in this Item 10 by reference.

Item 405 of Regulation S-K calls for disclosure of any known late filing or failure by an insider to file a report required by Section 16(a) of the Exchange Act. To the extent disclosure for delinquent reports is made, it can be found under the caption "Delinquent Section 16(a) Reports" in our 2024 Proxy Statement and is incorporated in this Item 10 by reference.

The Company has adopted a Code of Business Conduct that applies to all directors, officers, and employees, including its principal executive officer, principal financial officer, principal accounting officer, and controller. A copy of this Code of Business Conduct can be found on our website at <https://investor.knowles.com/governance/governance-documents>. In the event of any amendment to, or waiver from, the Code of Business Conduct affecting our principal executive officer, principal financial officer, principal accounting officer, or controller, we will publicly disclose the amendment or waiver by posting the information on our website or filing a Form 8-K with the SEC.

On October 27, 2022, the Board of Directors of the Company adopted the Fourth Amended and Restated By-Laws of the Company which, among other things, replaced the existing procedural mechanics for stockholder nominations of directors and submissions of stockholder proposals (other than proposals to be included in the Company's proxy statement pursuant to Rule 14a-8 under the Securities Exchange Act of 1934, as amended (the "Exchange Act")) at stockholder meetings with enhanced procedural mechanics, including, without limitation, to require additional disclosures from nominating or proposing stockholders, proposed nominees and other persons associated with nominating or proposing stockholders and to address matters relating to Rule 14a-19 under the Exchange Act (the "Universal Proxy Rules") (e.g., providing the Company a remedy if a stockholder fails to satisfy the requirements of the Universal Proxy Rules, requiring nominating stockholders to make a representation as to whether they intend to use the Universal Proxy Rules, requiring stockholders intending to use the Universal Proxy Rules to notify the Company of any change in such intent within two business days and to provide reasonable evidence of the satisfaction of the requirements of the Universal Proxy Rules at least five business days before the applicable meeting, etc.).

ITEM 11. EXECUTIVE COMPENSATION

The information with respect to executive compensation and the compensation committee required to be included pursuant to this Item 11 will be included in our 2024 Proxy Statement under the headings "Executive Compensation" and "Directors' Compensation" and is incorporated in this Item 11 by reference.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information regarding security ownership of certain beneficial owners and management that is required to be included pursuant to this Item 12 will be included in our 2024 Proxy Statement under the heading "Security Ownership of Certain Beneficial Owners and Management" and is incorporated into this Item 12 by reference.

Equity Compensation Plans

We currently maintain equity compensation plans that provide for the issuance of Knowles stock to directors, executive officers, and other employees. The following table sets forth information regarding outstanding restricted stock units, SSARs, performance share units, stock options, and shares available for future issuance under these plans as of December 31, 2023:

Plan Category	(a)	(b)	(c)
	Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants, and Rights ⁽¹⁾	Weighted-Average Exercise Price of Outstanding Options, Warrants, and Rights	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column (a)) ⁽²⁾
Equity compensation plans approved by stockholders	5,044,112	\$ 17.15	7,103,156
Equity compensation plans not approved by stockholders	—	—	—
Total	5,044,112	\$ 17.15	7,103,156

⁽¹⁾ Column (a) consists of shares issuable pursuant to outstanding restricted stock units, SSARs, performance share units, and stock option awards under the Company's 2018 Equity and Cash Incentive Plan, 2016 Equity and Cash Incentive Plan, and 2014 Equity and Cash Incentive Plan. No further awards may be made under the 2014 Equity and Cash Incentive Plan or the 2016 Equity and Cash Incentive Plan. Restricted stock units and performance share units are not reflected in the weighted-average exercise price in column (b).

⁽²⁾ Column (c) consists of shares available for future issuance under the 2018 Equity and Cash Incentive Plan. The 2018 Equity and Cash Incentive Plan provides for stock options and SSAR grants, restricted stock awards, restricted stock unit awards, unrestricted stock awards, performance share awards, cash performance awards, and deferred stock units. Shares subject to stock options and SSARs will reduce the shares available for awards under the 2018 Equity and Cash Incentive Plan by one share for every one share granted. Performance share awards, restricted stock, unrestricted stock, restricted stock units that are settled in shares of common stock, and deferred stock units will reduce the shares available for awards under the 2018 Equity and Cash Incentive Plan by 1.75 shares for every one share awarded. Cash performance awards do not count against the pool of available shares. The number of shares earned when an award is exercised, vested, or is paid out will count against the pool of available shares, including shares withheld to pay taxes or an option's exercise price. Shares subject to an award under the 2018 Equity and Cash Incentive Plan, 2016 Equity and Cash Incentive Plan, and the 2014 Equity and Cash Incentive Plan that are canceled, terminated, forfeited, or that expire will be available for reissuance under the 2018 Equity and Cash Incentive Plan.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by this Item 13 will be included in our 2024 Proxy Statement under the headings "Corporate Governance" and "Procedures for Approval of Related Person Transactions" and is incorporated in this Item 13 by reference.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by this Item 14 will be included in our 2024 Proxy Statement under the caption "Proposal 2 - Ratification of the Appointment of Independent Registered Public Accounting Firm" and is incorporated in this Item 14 by reference.

PART IV**ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES**

a) The following documents are filed as part of this report:

(1) Financial Statements:

- The financial statements are set forth under "Item 8. Financial Statements and Supplementary Data" of this Form 10-K.

(2) Financial Statement Schedules:

- The following financial statement schedule is set forth under "Item 8. Financial Statements and Supplementary Data" of this Form 10-K. All other schedules have been omitted because they are not required, are not applicable or the required information is included in the financial statements or the notes thereto.
- Schedule II - Valuation and Qualifying Accounts

(3) Exhibits

Exhibit Number	Description	Incorporated by Reference				
		Form	File No.	Date of Filing	Exhibit Number	Filed Herewith
3.1	Restated Certificate of Incorporation of Knowles Corporation	10-Q	001-36102	7/30/2019	3.1	
3.2	Fourth Amended and Restated By-Laws of Knowles Corporation	8-K	001-36102	10/27/2022	3.1	
4.1	Description of Securities	10-K	001-36102	2/9/2023	4.1	
10.1†	Knowles Corporation Senior Executive Change-in-Control Severance Plan	8-K	001-36102	5/1/2020	10.4	
10.2†	Knowles Corporation Executive Severance Plan	8-K	001-36102	5/1/2020	10.3	
10.3†	2014 Equity and Cash Incentive Plan	8-K	001-36102	2/28/2014	10.4	
10.4†	Form of Restricted Stock Unit Award Agreement	8-K	001-36102	3/7/2014	10.1	
10.5†	Form of Award Grant Letter for Restricted Stock Units	10	001-36102	11/15/2013	10.8	
10.6†	Form of Award Grant Letter for Restricted Stock	10	001-36102	11/15/2013	10.9	
10.7†	Form of Award Grant Letter for Stock Settled Appreciation Rights	10	001-36102	11/15/2013	10.10	
10.8†	Form of Stock Option Award Agreement	8-K	001-36102	3/7/2014	10.2	
10.9†	Form of Replacement SSAR Award Agreement	8-K	001-36102	3/7/2014	10.3	
10.10†	Form of Replacement Restricted Stock Unit Award Agreement	8-K	001-36102	3/7/2014	10.4	
10.11†	Nonemployee Director Deferral Program	10-K	001-36102	3/28/2014	10.5.7	
10.12†	Executive Deferred Compensation Plan	8-K	001-36102	2/28/2014	10.6	
10.13†	Executive Officer Annual Incentive Plan	8-K	001-36102	2/28/2014	10.5	
10.14†	First Amendment, dated as of May 4, 2015, to the Knowles Corporation 2014 Equity and Cash Incentive Plan	10-K	001-36102	2/19/2016	10.17	
10.15†	Knowles Corporation 2016 Equity and Cash Incentive Plan, incorporated herein by reference to Appendix B to the Registrant's Definitive Proxy Statement	DEF 14A	001-36102	3/15/2016	Appendix B	
10.16†	Form of Restricted Stock Unit Award Agreement dated May 2, 2016	10-Q	001-36102	8/9/2016	10.15	
10.17†	Form of Stock Option Award Agreement dated May 2, 2016	10-Q	001-36102	8/9/2016	10.16	

<u>10.18†</u>	<u>Addendum to Stock Option Agreement and Restricted Stock Award Agreement for Non-U.S Employees dated May 2, 2016</u>	10-Q	001-36102	8/9/2016	10.17
<u>10.19†</u>	<u>Amendment Number Two to the Knowles Corporation 2014 Equity and Cash Incentive Plan, dated November 18, 2016</u>	10-K	001-36102	2/21/2017	10.36
<u>10.20†</u>	<u>Amendment Number One to the Knowles Corporation 2016 Equity and Cash Incentive Plan, dated November 18, 2016</u>	10-K	001-36102	2/21/2017	10.37
<u>10.21†</u>	<u>Form of Restricted Stock Unit Award Agreement, dated November 17, 2016</u>	10-K	001-36102	2/21/2017	10.38
<u>10.22†</u>	<u>Form of Stock Option Award Agreement, dated November 17, 2016</u>	10-K	001-36102	2/21/2017	10.39
<u>10.23†</u>	<u>Form of Performance Share Unit Award Agreement dated February 16, 2017</u>	10-Q	001-36102	4/28/2017	10.1
<u>10.24</u>	<u>Amended and Restated Credit Agreement dated as of February 8, 2023, among Knowles Corporation, JPMorgan Chase Bank, N.A. and the other lenders thereto</u>	8-K	001-36102	2/9/2023	10.1
<u>10.25</u>	<u>Amendment No. 1 to Amended and Restated Credit Agreement dated as of September 25, 2023, among Knowles Corporation, JP Morgan Chase Bank N.A., and the other lenders party thereto</u>	8-K	001-36102	9/28/2023	10.1
<u>10.25†</u>	<u>Knowles Corporation Nonemployee Director Deferral Program</u>	10-Q	001-36102	10/30/2017	10.2
<u>10.26†</u>	<u>Knowles Corporation 2018 Equity and Cash Incentive Plan</u>	DEF 14A	001-36102	3/14/2018	Appendix B
<u>10.27†</u>	<u>Amended and Restated Knowles Corporation 2018 Equity and Cash Incentive Plan</u>	8-K	001-36102	5/1/2020	10.1
<u>10.28†</u>	<u>Form of Performance Award Agreement</u>	10-Q	001-36102	4/30/2018	10.1
<u>10.29†</u>	<u>Form of Restricted Stock Unit Award Agreement</u>	10-Q	001-36102	7/30/2018	10.1
<u>10.30†</u>	<u>Form of Stock Option Award Agreement</u>	10-Q	001-36102	7/30/2018	10.2
<u>10.31†</u>	<u>Form of Performance Award Agreement</u>	10-Q	001-36102	7/30/2018	10.3
<u>10.32†</u>	<u>Knowles Corporation Deferred Compensation Plan</u>	8-K	001-36102	11/04/2019	10.1
<u>10.33†</u>	<u>Form of Non-Employee Director Restricted Stock Unit Award Agreement</u>	8-K	001-36102	5/1/2020	10.2
<u>10.34</u>	<u>Purchase and Sale Agreement dated September 15, 2023, among Knowles Corporation, Knowles Capital Holdings, Inc., Knowles Intermediate PD Holdings, LLC, Cornell Dubilier Electronics, Inc., CD Aero, LLC, Kaplan Electronics, Inc. and the Sellers' Representative, Shareholders and Guarantors party thereto</u>	8-K	001-36102	9/21/2023	10.1
<u>10.35</u>	<u>Amendment to Purchase Agreement dated November 1, 2023, by and among Knowles Capital Holdings, Inc. and Knowles Intermediate PD Holdings, LLC and James Kaplan, in his capacity as Sellers' Representative</u>	10-Q	001-36102	11/2/2023	10.2
<u>10.35</u>	<u>Secured Promissory Note issued by Knowles Capital Holdings, Inc. and Knowles Intermediate PD Holdings, LLC to James P. Kaplan on November 1, 2023</u>	10-Q	001-36102	11/2/2023	10.4
<u>10.36</u>	<u>Guarantee and Collateral Agreement dated as of November 1, 2023, among Knowles Corporation, as Guarantor, Knowles Capital Holdings, Inc. and Knowles Intermediate Holdings, Inc. as Grantors and James P. Kaplan, as Sellers' Representative</u>	10-Q	001-36102	11/2/2023	10.5
<u>21.1</u>	<u>Subsidiaries of Knowles Corporation</u>				X
<u>23.1</u>	<u>Consent of PricewaterhouseCoopers LLP</u>				X
<u>24.1</u>	<u>Power of Attorney (included on the Signature page of this Annual Report on Form 10-K)</u>				X

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31.1	Certificate of Principal Executive Officer Required Under Section 302 of the Sarbanes-Oxley Act of 2002	X
31.2	Certificate of Principal Financial Officer Required Under Section 302 of the Sarbanes-Oxley Act of 2002	X
32.1	Joint Certificate of the Principal Executive Officer and Principal Financial Officer Required Under Section 906 of the Sarbanes-Oxley Act of 2002	X
97.1	Knowles Corporation Policy on Recoupment of Incentive Compensation	X
101	The following materials from the Knowles Corporation Annual Report on Form 10-K for the year ended December 31, 2023 formatted in inline XBRL (eXtensible Business Reporting Language): (i) Consolidated Statements of Earnings, (ii) Consolidated Statements of Comprehensive Earnings, (iii) Consolidated Balance Sheets, (iv) Consolidated Statements of Equity, (v) Consolidated Statements of Cash Flows and (vi) Notes to the Consolidated Financial Statements	X
104	Cover Page Interactive Data File (embedded within Inline XBRL documents and included in Exhibit 101)	X

† Indicates the exhibit is a management contract or compensatory plan or arrangement

ITEM 16. FORM 10-K SUMMARY

None.

SIGNATURES

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

KNOWLES CORPORATION

/s/ JEFFREY S. NIEW

Jeffrey S. Niew

President and Chief Executive Officer

Date: February 21, 2024

POWER OF ATTORNEY

Know all persons by these presents, that each person whose signature appears below constitutes and appoints Jeffrey S. Niew, John S. Anderson and Robert J. Perna, and each of them, as such person's true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for such person and in such person's name, place and stead, in any and all capacities, to sign any and all amendments to this report, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as such person might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or any of them or their or such person's substitute or substitutes, may lawfully do or cause to be done by virtue thereof.

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

Signature	Title	Date
/s/ JEFFREY S. NIEW Jeffrey S. Niew	Chief Executive Officer, President and Director (Principal Executive Officer)	February 21, 2024
/s/ JOHN S. ANDERSON John S. Anderson	Senior Vice President and Chief Financial Officer (Principal Financial Officer)	February 21, 2024
/s/ AIR A. BASTARRICA, JR. Air A. Bastarrica, Jr.	Vice President, Controller (Principal Accounting Officer)	February 21, 2024
/s/ DONALD MACLEOD Donald Macleod	Chairman, Board of Directors	February 21, 2024
/s/ KEITH L. BARNES Keith L. Barnes	Director	February 21, 2024
/s/ ERANIA BRACKETT Erania Brackett	Director	February 21, 2024
/s/ DANIEL J. CROWLEY Daniel J. Crowley	Director	February 21, 2024
/s/ DIDIER HIRSCH Didier Hirsch	Director	February 21, 2024
/s/ YE JANE LI Ye Jane Li	Director	February 21, 2024
/s/ CHERYL SHAVERS Cheryl Shavers	Director	February 21, 2024
/s/ MICHAEL S. WISHART Michael S. Wishart	Director	February 21, 2024

List of Subsidiaries

Company Name	Where Incorporated
Domestic	
CD Snow Hill, LLC	Delaware
Cornell Dubilier Property Corp.	South Carolina
Cornell Dubilier, LLC	Delaware
Cornell-Dubilier Acquisition Corp.	Delaware
Cornell-Dubilier Marketing, Inc.	Delaware
Illinois Capacitor International, Inc.	Illinois
Illinois Capacitor, Inc.	Illinois
Integrated Microwave Corporation	California
Knowles Capital Holdings, Inc.	Delaware
Knowles Cazenovia Inc.	Delaware
Knowles Electronics Holdings, Inc.	Delaware
Knowles Electronics PD, Inc.	Delaware
Knowles Electronics, LLC	Delaware
Knowles Intermediate Holding, Inc.	Delaware
Novacap, LLC	Delaware
Sensor Platforms, Inc.	Delaware
Foreign	
Audience Communications Systems India Private Limited	India
Audience International, Inc.	Cayman Islands
Audience Singapore Pte. Ltd.	Singapore
C.D. Electronica de Mexico, S.A. de C.V	Mexico
CD SG Pte. Ltd.	Singapore
Illinois Capacitor (HK) Limited	Hong Kong
Johanson Dominicana S.A.S.	Dominican Republic
KEP (Philippines) Reality Corporation ("LandCo")	Philippines
Knowles (UK) Limited	United Kingdom
Knowles Distribution Sdn. Bhd.	Malaysia
Knowles Electronics (Malaysia) Sdn. Bhd.	Malaysia
Knowles Electronics (Philippines) Corporation	Philippines
Knowles Electronics (Shanghai) Co., Ltd.	China
Knowles Electronics (Shanghai) Co., Ltd. Beijing Branch	China
Knowles Electronics (Shanghai) Co., Ltd. Shenzhen Branch	China
Knowles Electronics (Suzhou) Co., Ltd.	China
Knowles Electronics GmbH	Switzerland
Knowles Electronics Denmark ApS	Denmark
Knowles Electronics Japan, K.K.	Japan
Knowles Electronics Singapore Pte Ltd	Singapore
Knowles Electronics Taiwan, Ltd.	Taiwan
Knowles Europe	United Kingdom
Knowles GmbH	Switzerland
Knowles IPC (M) Sdn. Bhd.	Malaysia
Knowles Korea Yuhan Hoesa	South Korea
Knowles Luxembourg International S.à.r.l	Luxembourg
Knowles Luxembourg S.à.r.l	Luxembourg
Revod (Philippines) Holdings Corporation	Philippines

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statement on Form S-8 (No. 333-194262, 333-205690, 333-211156, 333-224638, and 333-238253) of Knowles Corporation of our report dated February 21, 2024 relating to the financial statements, financial statement schedule, and the effectiveness of internal control over financial reporting, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP
Chicago, Illinois
February 21, 2024

**CERTIFICATION PURSUANT TO RULE 13a-14(a) AND RULE 15d-14(a)
OF THE SECURITIES EXCHANGE ACT OF 1934**

I, Jeffrey S. Niew, certify that:

1. I have reviewed this Annual Report on Form 10-K of Knowles 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;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of 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 the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 21, 2024

/s/ JEFFREY S. NIEW

Name: Jeffrey S. Niew

Title: President and Chief Executive Officer
(Principal Executive Officer)

**CERTIFICATION PURSUANT TO RULE 13a-14(a) AND RULE 15d-14(a)
OF THE SECURITIES EXCHANGE ACT OF 1934**

I, John S. Anderson, certify that:

1. I have reviewed this Annual Report on Form 10-K of Knowles 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;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of 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 the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 21, 2024

/s/ JOHN S. ANDERSON

Name: John S. Anderson

Title: Senior Vice President & Chief Financial Officer

(Principal Financial Officer)

**JOINT 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 Knowles Corporation (the "Company") on Form 10-K for the year ended December 31, 2023 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), we, Jeffrey S. Niew and John S. Anderson, the Principal Executive and Financial Officers of the Company, certify, pursuant to and for purposes of 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.

/s/ JEFFREY S. NIEW

Name: Jeffrey S. Niew

Title: President and Chief Executive Officer

(Principal Executive Officer)

Date: February 21, 2024

/s/ JOHN S. ANDERSON

Name: John S. Anderson

Title: Senior Vice President & Chief Financial Officer

(Principal Financial Officer)

Date: February 21, 2024

**KNOWLES CORPORATION
POLICY ON RECOUPMENT OF INCENTIVE
COMPENSATION**

Except as provided in this policy, the Compensation Committee of the Board of Directors (the "Committee") of Knowles Corporation (the "Company") shall, to the extent legally permitted, require the return, repayment or forfeiture of any performance-based cash or equity incentive compensation payment or award ("Covered Compensation") made, granted or vested to any Executive Officer (as defined below) during the 3 fiscal years immediately preceding the date:

- (1) the Company is required to prepare an accounting restatement due to the material noncompliance of the Company with any financial reporting requirement under the securities laws, including any required accounting restatement to correct an error in previously issued financial statements that is material to the previously issued financial statements, or that would result in a material misstatement if the error were corrected in the current period or left uncorrected in the current period (a "Restatement") upon which the payment or the grant or vesting of the award was predicated; and
- (2) a lower payment or award would have been made to the Executive Officer, or an award granted to the Executive Officer would have vested at a lower level, based upon such Restatement.

In each such instance, the amount required to be returned, repaid or forfeited shall be (a) the amount by which the Executive Officer's payment, award or level of vesting for the relevant period exceeded the lower payment, award or level of vesting that would have been made, granted or determined based on the restated financial results, without regard to any taxes paid, or (b) for any incentive compensation payment, award or level of vesting that is based on stock price or total stockholder return, the amount based on a reasonable estimate of the effect of the Restatement on the stock price or total stockholder return upon which the payment, award or level of vesting of incentive compensation was based. In addition to these amounts that will be required to be returned, repaid or forfeited, the Committee may, in its discretion, require, to the extent legally permitted, that additional amounts of Covered Compensation be returned, repaid or forfeited.

Notwithstanding the foregoing, the Committee shall not be required to seek or require the return, repayment or forfeiture of any performance-based cash or equity incentive compensation payment or award to any Executive Officer where the Committee, in its discretion, determines that it would be impracticable to do so because either: (1) after the Company has made a reasonable attempt to recover such erroneously awarded compensation, documented such reasonable attempt(s) to recover, and provided that documentation to the NYSE, the Committee determines that the direct expenses to third parties to effect the return, repayment or forfeiture of any such performance-based compensation will exceed the amounts to be recovered from any Executive Officer, or (2) recovery from a tax-qualified retirement plan would likely cause such plan to fail to meet the statutory requirements for tax exemption.

In addition, the Committee may, in its discretion, require the return, repayment or forfeiture of any Covered Compensation from any Executive Officer when there has not been a Restatement if the Committee determines in its sole discretion, exercised in good faith, that the Executive Officer has: (1) engaged conduct that constitutes willful misconduct, dishonesty, or gross negligence in the performance of their duties; (2) engaged in conduct which is demonstrably and materially injurious to the Company, or that materially harms the reputation, good will, or business of the Company, or otherwise achieves general notoriety and which is scandalous, immoral or illegal; (3) been convicted of, or entered a plea of nolo contendere (or a similar plea) to, a crime that constitutes a felony, or crime that constitutes a misdemeanor involving moral turpitude, dishonesty or fraud; (4) been found liable in any Securities and Exchange Commission or other civil or criminal securities law action; or (5) violated the Company's Code of Conduct.¹

For purposes of this Policy, the term "Executive Officer" means: (i) all current or former persons who are or were designated by the Board of Directors as "officers" for purposes of Section 16 under the Securities Exchange Act of 1934, as amended ("Section 16 Officers") and (ii) all current and former direct reports to the Chief Executive Officer ("Senior Executive Team Members"), who served as a Section 16 Officer or Senior Executive Team Member at any time during the performance period associated with any performance-based compensation that the Committee is seeking to recover or forfeit in accordance with this policy. Executive Officers shall each be subject to the recoupment provisions of this Policy regardless of the existence of or their role in, any fault, misconduct, or negligence with regard to the Restatement.

No current or former Executive Officer shall be eligible for indemnification from the Company or recovery under any insurance policy maintained by the Company for any performance-based compensation that the Committee recoups or forfeits under this Policy. In addition, the Company may not enter into any indemnification arrangement with any current or former Executive Officer which avoids or nullifies the recovery or forfeiture of performance-based compensation which the Committee is required to recover, recoup or forfeit under this Policy.

The Committee shall make all determinations regarding the application and operation of this Policy in its sole discretion, and all such determinations shall be final and binding. Notwithstanding the foregoing, the Committee may amend or change the terms of this Policy at any time for any reason, including as required to comply with the rules of the SEC and the NYSE implementing Section 954 of the Dodd-Frank Wall Street Reform and Consumer Protection Act. Further, the exercise by the Committee of any rights pursuant to this Policy shall be without prejudice to any other rights that the Company or the Committee may have with respect to any Executive Officer subject to this Policy.

This policy is effective May 2, 2023 (the "Effective Date").

¹ The provisions of this paragraph are not required by the SEC's clawback rules, however institutional investors are increasingly interested in seeing enhanced clawbacks that include these types of provisions. The suggested language here is based on the definition of "Cause" in our Executive Severance Plans.

