CARPENTER TECHNOLOGY

2022

Annual Report on Form 10-K

AEROSPACE & DEFENSE | ENERGY | INDUSTRIAL & CONSUMER | MEDICAL | TRANSPORTATION

CARPENTER TECHNOLOGY STRATEGY

Distinctive product and process capabilities

Our driving force is to leverage our core technical strength in engineered materials and process capabilities to solve our customers' current and anticipated challenges.
We will grow in market segments where we can provide differentiated and value-added solutions to complex problems. We will solidify our position as the industry leader by being the preferred solutions provider and providing our customers a competitive advantage.

Areas of excellence

Technology development	• Respond quickly to customer technical questions • Rapidly translate customer needs into solutions • Develop proprietary and breakthrough products	• Establish and maintain process expertise and excellence • Capture internal "know-how"
Operational excellence	• Be safe and compliant • Practice system thinking • Develop and execute standard work • Identify and eliminate waste	• Employ root cause problem solving • Perform daily management • Control key process variables
Strategic marketing	• Think, act and execute in a future outcome manner • Translate broad strategies into actionable plans • Demonstrate market knowledge	• Segment and target markets based on potential value and growth • Provide timely customer solutions • Support the go-to-market approach and advantage
Talent engagement	• Acquire talent on an ongoing basis • Provide an attractive mix of rewards and recognition • Sustain a high-performance environment • Employ a living, strategic work plan	• Develop talent based upon criticality to the organization • Anticipate changing requirements of a shifting workforce and marketplace • Create compelling careers

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 June 30, 2022

OR

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

For the transition period from to

Commission File Number 1-5828

CARPENTER TECHNOLOGY CORPORATION

(Exact name of registrant as specified in its charter)

Delaware	**23-0458500**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
1735 Market Street, 15th Floor **Philadelphia, Pennsylvania**	**19103**
(Address of principal executive offices)	(Zip Code)

610-208-2000
(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, $5 Par Value	**CRS**	**New York Stock Exchange**

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

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

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

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

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

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

Large accelerated filer	☒		Accelerated filer	☐
Non-accelerated filer	☐	(Do not check if a smaller reporting company)	Smaller reporting company	☐
			Emerging growth company	☐

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

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

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

Yes ☐ **No** ☒

The aggregate market value of the registrants' voting common stock held by non-affiliates at December 31, 2021, was $1,408,968,374, based on the closing price per share of the registrant's common stock on that date of $29.19 as reported on the New York Stock Exchange.

As of August 9, 2022, 48,304,311 shares of the registrant's common stock were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Selected portions of the Company's fiscal year 2022 definitive Proxy Statement are incorporated by reference into Part III of this Report.

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PART I

Item 1. Business

(a) General Development of Business:

Carpenter Technology Corporation, founded in 1889, is engaged in the manufacturing, fabrication and distribution of specialty metals. As used throughout this report, unless the context requires otherwise, the terms "Carpenter", "Carpenter Technology", "Company", "Registrant", "Issuer", "we" and "our" refer to Carpenter Technology Corporation.

(b) Financial Information About Segments:

We are organized in two reportable business segments: Specialty Alloys Operations ("SAO") and Performance Engineered Products ("PEP"). See Note 20 to our consolidated financial statements included in Item 8. "Financial Statements and Supplementary Data" for additional segment reporting information.

(c) Narrative Description of Business:

(1) General:

We are a recognized leader in high-performance specialty alloy-based materials and process solutions for critical applications in the aerospace, defense, medical, transportation, energy, industrial and consumer end-use markets. We have evolved to become a pioneer in premium specialty alloys, including titanium, nickel, and cobalt, as well as alloys specifically engineered for additive manufacturing processes and soft magnetics applications. We have expanded our additive manufacturing capabilities to provide a complete "end-to-end" solution to accelerate materials innovation and streamline parts production.

Reportable Segments

The SAO segment is comprised of the Company's major premium alloy and stainless steel manufacturing operations. This includes operations performed at mills primarily in Reading and Latrobe, Pennsylvania and surrounding areas as well as South Carolina and Alabama. The combined assets of the SAO segment are managed in an integrated manner to optimize efficiency and profitability across the total system.

The PEP segment is comprised of the Company's differentiated operations. This segment includes the Dynamet titanium business, the Carpenter Additive business and the Latrobe and Mexico distribution businesses. Effective July 1, 2020, the Company's Carpenter Powder Products business was merged into the Carpenter Additive business. The Amega West business was also part of the PEP segment however, it was divested during the first quarter of fiscal year 2021. The businesses in the PEP segment are managed with an entrepreneurial structure to promote flexibility and agility to quickly respond to market dynamics.

(2) Raw Materials:

Our business depends on continued receipt of critical raw materials for our day to day operations. These raw materials include nickel, cobalt, chromium, manganese, molybdenum, titanium, iron and scrap containing the named alloys. Some of the sources of these raw materials, many of which are international, could be subject to potential interruptions of supply as a result of political events, labor unrest or other reasons. These potential interruptions could cause material shortages and affect availability and price. We have arrangements with certain vendors to provide consigned materials at our manufacturing facilities available for our consumption as necessary.

We have long-term relationships with major suppliers who provide availability of material at competitive prices. Purchase prices of certain raw materials have historically been volatile. We use pricing surcharges, indexing mechanisms, base price adjustments and raw material forward contracts to reduce the impact on our business of changing prices for the most significant of these materials. There can be delays between the time of the increase in the price of raw materials and the realization of the benefits of such mechanisms or actions that could have a short-term impact on our results and could affect the comparability of our results from period to period.

(3) Patents and Licenses:

We own a number of United States and international patents and have granted licenses under some of them. In addition, certain products that we produce are covered by patents held or owned by other companies from whom licenses have been obtained. The duration of a patent issued in the United States is between 14 and 20 years from the date of filing a patent application or issuance of the patent. The duration of a patent issued outside of the United States varies from country to country. Generally, patent licenses are structured to match the duration of the underlying patent. Although these patents and licenses are believed to be of value, we do not consider our business to be materially dependent upon any single such item or related group of such items.

(4) Seasonality of Business:

Our sales are normally influenced by seasonal factors. Historically, our sales in the first two fiscal quarters (the respective three months ending September 30 and December 31) are typically the lowest, principally because of annual plant vacation and maintenance shutdowns by us, as well as by many of our customers. However, the timing of major changes in the general economy or the markets for certain products can alter this historical pattern, such as the widespread economic impact of the global COVID-19 pandemic during fiscal years 2022 and 2021 and the third and fourth quarters of fiscal year 2020.

The chart below summarizes the percent of net sales by quarter for the past three fiscal years:

Quarter Ended	2022	2021	2020
September 30,	21 %	24 %	27 %
December 31,	23 %	23 %	26 %
March 31,	28 %	24 %	27 %
June 30,	28 %	29 %	20 %
	100 %	100 %	100 %

(5) Customers:

On a consolidated basis, we are not dependent upon a single customer, or very few customers, such that the loss of any one or more particular customers would have a materially adverse effect on our consolidated statement of operations. No single customer accounted for 10 percent or more of total net sales for the years ended June 30, 2022 and June 30, 2021. One customer, Howmet Aerospace Inc. (formerly Arconic Inc.), accounted for approximately 10 percent of net sales for the year ended June 30, 2020. For the year ended June 30, 2020, 90 percent of sales to Howmet Aerospace Inc. were reported by the SAO segment and 10 percent were reported by the PEP segment, respectively. No single customer accounted for 10 percent or more of the accounts receivable outstanding at June 30, 2022 or June 30, 2021. See Note 20 to our consolidated financial statements included in Item 8. "Financial Statements and Supplementary Data" for additional information.

(6) Backlog:

As of June 30, 2022, we had a sales backlog of orders excluding surcharge, believed to be firm, of approximately $1,539.3 million, the majority of which is expected to be shipped within fiscal year 2023. Our backlog of orders excluding surcharge as of June 30, 2021, was approximately $529.3 million. This growing backlog is a result of the strong demand growth in all of our key end-use markets as recovery continues to ramp from the impacts of the COVID-19 pandemic.

(7) Competition:

We are leaders in specialty materials for critical applications with over 130 years of metallurgical and manufacturing expertise. Our business is highly competitive. We manufacture and supply materials to a variety of end-use market sectors and compete with various companies depending on the end-use market, product or geography. A significant portion of the products we produce are highly engineered materials for demanding applications. There are less than ten companies producing one or more similar products that we consider our major competitors for our high-value products used in demanding applications, particularly in our Aerospace and Defense and Energy end-use markets. These products are generally required to meet complex customer product specifications and often require the materials to be qualified prior to supplying the customer. Our experience, technical capabilities, product offerings and research and development efforts represent barriers to existing and potential competitors.

For other products, there are several dozen smaller producing companies and converting companies that are also competitors, as well as several hundred independent distributors of products similar to those distributed by us. Additionally, numerous foreign companies produce various specialty metal products similar to those produced by us. Furthermore, a number of different products may, in certain instances, be substituted for our finished products.

(8) Research, Product and Process Development:

Our expenditures for Company-sponsored research and development were $20.4 million, $19.7 million and $28.0 million in fiscal years 2022, 2021 and 2020, respectively. We believe that our ability to be an innovator in special material development and manufacturing processes has been and will continue to be an important factor in the success of the Company. Our worldwide staff of expert metallurgists, research and development scientists, engineers and service professionals work closely with our customers to identify and provide innovative solutions to specific product requirements.

(9) Environmental Regulations:

We are subject to various stringent federal, state, local and international environmental laws and regulations relating to pollution, protection of public health and the environment, natural resource damages and occupational safety and health. Management evaluates the liability for future environmental remediation costs on a quarterly basis. We accrue amounts for environmental remediation costs representing management's best estimate of the probable and reasonably estimable costs relating to environmental remediation. For further information on environmental remediation, see the Contingencies section included in Item 7. "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the notes to our consolidated financial statements included in Item 8. "Financial Statements and Supplementary Data".

Our costs of maintaining and operating environmental control equipment were $14.8 million, $14.9 million and $15.4 million for fiscal years 2022, 2021 and 2020, respectively. The capital expenditures for environmental control equipment were $1.1 million, $1.3 million and $0.1 million for fiscal years 2022, 2021 and 2020, respectively. We anticipate spending approximately $2.8 million on domestic environmental capital projects over the next five fiscal years. This includes approximately $1.4 million in fiscal year 2023. Due to the possibility of future regulatory developments, the amount of future capital expenditures may vary from these estimates.

(10) Human Capital Resources:

We maintain a high-performance work environment that is required to deliver mission-critical materials to our customers and an organizational culture that is devoted to exceptional customer service. We value our employees and help them build careers that are as resilient, innovative, and valuable as our work for our customers. We are committed to increasing employee engagement by leveraging the diversity and drive of our people, maximizing their talents, empowering them and supporting their career aspirations.

Health and Safety: Safety is our number one Core Value. We believe that a Zero Injury workplace is achievable and relentlessly pursue measures to increase safety and accountability for our employees. We are proactive in our approach to safety, working to eliminate hazards before causing injury or harm. We invest in our employees, supervisors and managers and engage them in finding workable solutions to achieve a Zero Injury Workplace.

Talent Acquisition: We are always looking for nimble, smart, growth-minded people – regardless of background – to help our organization continue to succeed. We are an employer of choice. We strive for our culture to be transparent, supportive of work/life balance, welcoming of diverse viewpoints, treating all with dignity and respect and supporting each individuals' needs for professional growth and development.

Performance Management: Our formalized bi-annual performance review process accelerates employee growth and development at every stage of the process: (1) objectives and goal setting, (2) ongoing performance check-ins and coaching, as well as (3) performance evaluation and review. We also have Structured Individual Development Plans to assist managers in effectively setting targeted development activities for their direct reports and aligning those activities with business priorities.

Engagement: We regularly conduct a company-wide Employee Engagement Survey to collect tangible data to make our Company even better. To ensure anonymity, we partner with an outside firm to collect and analyze the results. We make the survey available electronically and in hard copy format to make it as easy as possible for all our employees to participate, particularly our manufacturing teams. Our questions cover a wide variety of topics, including safety, culture, diversity, inclusion and belonging, leadership and career development.

Professional Development: Our employees enjoy a wide variety of rewards that assist with engagement and development. From traditional items such as compensation to less traditional aspects such as work-life balance, hybrid and remote work arrangements, future career opportunities, and innovative work.

Diversity and Inclusion: We have a culture that blends our different backgrounds, experiences and perspectives from all employees. Our commitment to diversity, inclusion, and belonging is real. We want all to feel welcomed. Everyone is treated equally with dignity and respect regardless of their race, age, gender identity, or sexual orientation. Our Diversity, Inclusion and Belonging Committee plays a critical role in advancing us to the next level of awareness and engagement.

Governance: Our policy is to comply with the letter and spirit of all laws that govern our operations and to adhere to the highest standards of business ethics. We implemented general legal and ethical guidelines in our "Code of Conduct". The guidelines apply to all employees and majority-owned affiliates, including subsidiaries, both in the United States and other countries.

As of June 30, 2022, our total workforce consisted of approximately 4,100 employees, which included 159 production employees in Washington, Pennsylvania, who are covered under a collective bargaining agreement which expires on August 31, 2022, and 401 employees in Latrobe, Pennsylvania who are covered under a collective bargaining agreement which expires on August 1, 2023. In July 2020, a union election was held involving 62 employees at our Franklin, Pennsylvania location and a majority of the employees voted for union representation. Negotiations with union representatives for an initial agreement are currently underway for this facility. We believe our relations with our employees are generally good.

(d) Financial information about foreign and domestic operations and export sales:

Sales outside of the United States, including export sales, were $656.4 million, $549.0 million and $787.7 million in fiscal years 2022, 2021 and 2020, respectively. Long-lived assets held outside of the United States were $15.7 million and $18.3 million as of June 30, 2022 and 2021, respectively. For further information on domestic and international sales, see Note 20 to our consolidated financial statements included in Item 8. "Financial Statements and Supplementary Data".

(e) Available Information:

Our Board of Directors has adopted a Code of Ethics for the Chief Executive Officer and Chief Financial Officer of Carpenter Technology Corporation, which is also applicable to our other executive officers. There were no waivers of the Code of Ethics in fiscal year 2022. The Code of Ethics and any information regarding any waivers of the Code of Ethics are disclosed on Carpenter's website at www.carpentertechnology.com. Our annual reports on Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K, filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, are available free of charge through our website as soon as reasonably practicable after we electronically file such material with, or furnish such material to, the Securities and Exchange Commission ("SEC"). Our website and the content contained therein or connected thereto are not intended to be incorporated into this Annual Report on Form 10-K.

The SEC maintains an Internet site that contains reports, proxy and other information regarding issuers that file electronically. Such information can be accessed through the Internet at www.sec.gov.

Item 1A. Risk Factors

There are inherent risks and uncertainties associated with all businesses that could adversely affect operating performances or financial conditions. The following discussion outlines the risks and uncertainties that management believes are the most material to our business. However, these are not the only risks or uncertainties that could affect our business. Certain risks are associated specifically with our business, industry or customer base, while others have a broader effect.

Our results of operations have been adversely affected and could in the future be materially adversely impacted by the global COVID-19 pandemic.

The global spread of the COVID-19 pandemic has created significant economic volatility, uncertainty and disruption. The extent to which the COVID-19 pandemic will continue to impact our business, operations, financial results and financial position will depend on numerous evolving factors that we may not be able to accurately predict, including: the duration and scope of the pandemic; our continued efforts and the continued efforts by governmental authorities to mitigate the COVID-19 pandemic, such as travel bans, shelter in place orders and business closures, and the related impact on resource allocations and manufacturing and supply chains; the continued impact of the pandemic on economic activity and actions taken in response; the ongoing effect on our customers' demand for our goods and services and our vendors ability to supply us with raw materials; the continued impact of providing a safe working environment to our employees, our ability to sell and provide our goods and services, which may continue to be limited as a result of travel restrictions and people working from home; the ability of our customers to pay for our goods and services; and any further closures of our offices and facilities and our customers' offices and facilities. Customers may also slow down decision-making, delay planned work or seek to terminate existing agreements.

Cyber-attacks and other malicious internet-based activity continue to increase generally, and cloud-based platform providers of software and services have been targeted. Due to the COVID-19 pandemic, many of our employees have been working remotely, which may pose additional data security risks.

Management is actively monitoring the impact of the global situation on our financial condition, liquidity, operations, suppliers, industry, and workforce. Given the evolution of the COVID-19 pandemic and the global responses to curb its spread, we are not able to fully and precisely estimate the effects of the COVID-19 pandemic on our results of operations, financial condition, or liquidity in a particular future quarter or year. Any of these events could cause or contribute to the risks and uncertainties and could materially adversely affect our business, financial condition, results of operations and/or stock price.

The demand for certain products we produce may be cyclical.

Demand in our end-use markets can be cyclical in nature and sensitive to general economic conditions, competitive influences and fluctuations in inventory levels throughout the supply chain. As such, our results of operations, financial condition, cash flows and availability of credit could fluctuate significantly from period to period.

A significant portion of our sales represents products sold to customers in the commercial aerospace and defense and energy markets. The cyclicality of those markets can adversely affect our current business and our expansion objectives.

The commercial aerospace and defense market is historically cyclical due to both external and internal market factors. These factors include general economic conditions, airline profitability, consumer demand for air travel, varying fuel and labor costs, price competition and international and domestic political conditions such as military conflict and the threat of terrorism. The length and degree of cyclical fluctuation can be influenced by any one or combination of these factors and therefore are difficult to predict with certainty. A downturn in the commercial aerospace and defense industry would adversely affect the demand for our products and/or the prices at which we are able to sell our products; our results of operations and financial condition could be materially adversely affected.

The energy market has also been historically cyclical, principally as a result of volatile oil prices that impact demand for our products. Our future success requires us to, among other things, expand in key international energy markets by successfully adding to our customer base, distribution channels and product portfolio. The volatility of oil prices and other factors that contribute to the cyclicality of the energy market will impact our ability to expand successfully in this area and may adversely affect our results of operations and financial condition.

Any significant delay or inability to successfully expand our operations in a timely and cost-effective manner could materially adversely affect our business, financial condition and results of operations.

Over the last few years, we have undertaken capital projects associated with expanding our production capacity and capability. These projects place a significant demand on management and operational resources. Our success in expanding our operations in a cost-effective manner depends upon numerous factors including the ability of management to ensure the necessary resources are in place to properly execute these projects, our ability to obtain the necessary internal and customer qualifications to produce material from the facilities and our ability to operate the facilities to maximize the potential opportunities with minimal impacts to our existing operations. If we are not able to achieve the anticipated results from our capital expansion projects, or if we incur unanticipated delays, including those caused by COVID-19 disruptions, or excess costs, our results of operations and financial position may be materially adversely affected.

Periods of reduced demand and excess supply as well as the availability of substitute lower cost materials can adversely affect our ability to price and sell our products at the profitability levels we require to be successful.

Additional worldwide capacity and reduced demand for our products could significantly impact future worldwide pricing which would adversely impact our results of operations and financial condition. In addition, continued availability of lower cost, substitute materials may cause significant fluctuations in future results as our customers opt for a lower cost alternative.

We change prices on our products as we deem necessary. In addition to the above general competitive impact, other market conditions and various economic factors beyond our control can adversely affect the timing of our pricing actions. The effects of any pricing actions may be delayed due to long manufacturing lead times or the terms of existing contracts. There is no guarantee that the pricing actions we implement will be effective in maintaining the Company's profit margin levels.

We rely on third parties to supply certain raw materials and supplies that are critical to the manufacture of our products and we may not be able to access alternative sources of these raw materials if the suppliers are unwilling or unable to meet our demand.

Costs of certain critical raw materials, such as nickel, cobalt, chromium, manganese, molybdenum, titanium, iron and scrap containing these alloys have been volatile due to factors beyond our control. We expect to mitigate most of the adverse impact of rising raw material costs through raw material surcharges, indices to customers and raw material forward contracts, but changes in business conditions could adversely affect our ability to recover rapid increases in raw material costs and may adversely affect our results of operations.

In addition, the availability of critical raw materials and supplies is subject to factors that are not in our control. In some cases, these critical raw materials and supplies are purchased from suppliers operating in countries that may be subject to unstable political and economic conditions. At any given time, we may be unable to obtain an adequate supply of these critical raw materials and supplies on a timely basis, at prices and other terms acceptable to us, or at all.

If suppliers increase the price of critical raw materials or are unwilling or unable to meet our demand, we may not have alternative sources of supply. In addition, to the extent that we have quoted prices to customers and accepted customer orders for products prior to purchasing necessary raw materials, or have existing contracts, we may be unable to raise the price of products to cover all or part of the increased cost of the raw materials to our customers.

The manufacture of some of our products is a complex process and requires long lead times. As a result, we may experience delays or shortages in the supply of raw materials. If unable to obtain adequate and timely receipts of required raw materials, we may be unable to timely manufacture sufficient quantities of products. This could cause us to lose sales, incur additional costs, delay new product introductions or suffer harm to our reputation.

We provide benefits to active and retired employees throughout most of our Company, most of which are not covered by insurance; and thus, our financial condition can be adversely affected if our investment returns are insufficient to meet these obligations.

We have obligations to provide substantial benefits to active and retired employees, and most of the associated costs are paid by the Company and are not covered by insurance. In addition, certain employees are covered by defined benefit pension plans, with the majority of our plans covering employees in the United States. Benefits accrued to eligible participants of our largest qualified defined benefit pension plan and certain non-qualified pension plans were frozen effective December 31, 2016. Many domestic and international competitors do not provide defined benefit plans and/or retiree health care plans, and other international competitors operate in jurisdictions with government sponsored health care plans that may offer them a cost advantage. A decline in the value of plan investments in the future, an increase in costs or liabilities or unfavorable changes in laws or regulations that govern pension plan funding could materially change the timing and amount of required pension funding. A requirement to accelerate or increase pension contributions in the future could have a material adverse effect on our results of operations, cash flows and financial condition.

The extensive environmental, health and safety regulatory regimes applicable to our manufacturing operations create potential exposure to significant liabilities.

The nature of our manufacturing business subjects our operations to numerous and varied federal, state, local and international laws and regulations relating to pollution, protection of public health and the environment, natural resource damages and occupational safety and health. We have used, and currently use and manufacture, substantial quantities of substances that are considered hazardous, extremely hazardous or toxic under worker safety and health laws and regulations. Although we implement controls and procedures designed to reduce continuing risk of adverse impacts and health and safety issues, we could incur substantial cleanup costs, fines and civil or criminal sanctions, third party property damage or personal injury claims as a result of violations, non-compliance or liabilities under these regulatory regimes required at our facilities.

We have environmental remediation liabilities at some of our owned operating facilities and have been designated as a potentially responsible party ("PRP") with respect to certain third party Superfund or similar waste disposal sites and other third party owned sites. Additionally, we have been notified that we may be a PRP with respect to other Superfund sites as to which no proceedings have been instituted against us. From time to time, we are a party to lawsuits and other proceedings involving alleged violations of, or liabilities arising from, environmental laws.

When our liability is probable and we can reasonably estimate our costs, we record environmental liabilities in our financial statements. However, in many cases, we are not able to determine whether we are liable, or if liability is probable, in order to reasonably estimate the loss or range of loss which could result from such environmental liabilities. Estimates of our liability remain subject to additional uncertainties, including the nature and extent of site contamination, available remediation alternatives, the extent of corrective actions that may be required, and the number and financial condition of other PRPs, as well as the extent of their responsibility for the remediation. We adjust our accruals to reflect new information as appropriate. Future adjustments could have a material adverse effect on our results of operations in a given period, but we cannot reliably predict the amounts of such future adjustments. Future developments, administrative actions or liabilities relating to environmental matters could have a material adverse effect on our financial condition, cash flows or results of operations.

Our manufacturing processes, and the manufacturing processes of many of our suppliers and customers, are energy intensive and generate carbon dioxide and other "Greenhouse Gases", and pending legislation or regulation of Greenhouse Gases, if enacted or adopted in an onerous form, could have a material adverse impact on our results of operations, financial condition and cash flows.

Political and scientific debates related to the impacts of greenhouse gas emissions on the global climate are prevalent. Regulation or some form of legislation aimed at reducing the greenhouse gas emissions is currently being considered both in the United States and globally. As a specialty alloy manufacturer, we will be affected, both directly and indirectly, if climate change legislation, such as use of a "cap and trade" system, is enacted and implemented. Such legislation could have a material adverse impact on our results of operations, financial condition and cash flows.

Product liability and product quality claims could adversely affect our operating results.

We produce ultra high-strength, high temperature and corrosion-resistant alloys designed for our customers' demanding applications particularly in our Aerospace and Defense, Medical and Energy end-use markets. Failure of the materials that are included in our customers' applications could give rise to substantial product liability claims. There can be no assurance that our insurance coverage will be adequate or continue to be available on terms acceptable to us. We have a complex manufacturing process necessary to meet our customers' stringent product specifications. We are also required to adhere to various third party quality certifications and perform sufficient internal quality reviews to ensure compliance with established standards. If we fail to meet the customer specifications for their products, we may be subject to product quality costs and claims. These costs are generally not insured. The impacts of product liability and quality claims could have a material adverse impact on our results of operations, financial condition and cash flows.

Our business subjects us to risks of litigation claims, as a routine matter, and this risk increases the potential for a loss that might not be covered by insurance.

Litigation claims relate to the conduct of our currently and formerly owned businesses, including claims pertaining to product liability, commercial disputes, employment actions, employee benefits, compliance with domestic and international laws and regulations, personal injury, patent infringement and tax issues. Due to the uncertainties of litigation, we can give no assurance that we will prevail on claims made against us in the lawsuits that we currently face or that additional claims will not be made against us in the future. The outcome of litigation cannot be predicted with certainty, and some of these lawsuits, claims or proceedings may be determined adversely to us. The resolution in any reporting period of one or more of these matters could have a material adverse effect on our results of operations for that period. We can give no assurance that any other matters brought in the future will not have a material adverse effect on our results of operations, financial condition and cash flows.

A portion of our workforce is covered by collective bargaining agreements and union attempts to organize our other employees may cause work interruptions or stoppages.

Approximately 159 production employees at our Dynamet business unit located in Washington, Pennsylvania are covered by a collective bargaining agreement. This agreement expires August 31, 2022. Approximately 401 production employees at our Latrobe business unit located in Latrobe, Pennsylvania are covered by a collective bargaining agreement which expires August 1, 2023. In July 2020, a union election was held involving 62 employees at our Franklin, Pennsylvania location and a majority of the employees voted for union representation. Negotiations with union representatives for an initial agreement are currently in process for this facility. There can be no assurance that we will succeed in concluding collective bargaining agreements with the unions to replace those that expire which could result in work interruptions and stoppages. From time to time, the employees at our manufacturing facility in Reading, Pennsylvania, participate in election campaigns or union organizing attempts. There is no guarantee that future organization attempts will not result in union representation.

Our manufacturing processes are complex and depend upon critical, high cost equipment for which there may be only limited or no production alternatives.

It is possible that we could experience prolonged periods of reduced production due to unplanned equipment failures, and we could incur significant repair or replacement costs in the event of those failures. It is also possible that operations could be disrupted due to other unforeseen circumstances such as power outages, explosions, fires, floods, accidents and severe weather conditions. We must make regular, substantial capital investments and changes to our manufacturing processes to lower production costs, improve productivity, manufacture new or improved products and remain competitive. We may not be in a position to take advantage of business opportunities or respond to competitive pressures if we fail to update, replace or make additions to our equipment or our manufacturing processes in a timely manner. The cost to repair or replace much of our equipment or facilities would be significant. We cannot be certain that we will have sufficient internally generated cash or acceptable external financing to make necessary capital expenditures in the future.

A significant portion of our manufacturing and production facilities are located in Reading and Latrobe, Pennsylvania and Athens, Alabama, which increases our exposure to significant disruption to our business as a result of unforeseeable developments in these geographic areas.

It is possible that we could experience prolonged periods of reduced production due to unforeseen catastrophic events occurring in or around our manufacturing facilities in Reading and Latrobe, Pennsylvania and Athens, Alabama. As a result, we may be unable to shift manufacturing capabilities to alternate locations, accept materials from suppliers, meet customer shipment needs or address other severe consequences that may be encountered. Our financial condition, cash flows and results of operations could be materially adversely affected.

We rely on third parties to supply energy consumed at each of our energy-intensive production facilities.

The prices for and availability of electricity, natural gas, oil and other energy resources are subject to volatile market conditions. These market conditions often are affected by political and economic factors beyond our control. Disruptions or lack of availability in the supply of energy resources could temporarily impair the ability to operate our production facilities. Further, increases in energy costs, or changes in costs relative to energy costs paid by competitors, have affected and may continue to adversely affect our profitability. To the extent that these uncertainties cause suppliers and customers to be more cost sensitive, increased energy prices may have an adverse effect on our results of operations, financial condition and cash flows.

We consider acquisitions, joint ventures and other business combination opportunities, as well as possible business unit dispositions, as part of our overall business strategy, that involve uncertainties and potential risks that we cannot predict or anticipate fully.

From time to time, management holds discussions with management of other companies to explore such aforementioned opportunities. As a result, the relative makeup of the businesses comprising our Company is subject to change. Acquisitions, joint ventures and other business combinations involve various inherent risks. Such risks include difficulties in integrating the operations, technologies, products and personnel of the acquired companies, diversion of management's attention from existing operations, difficulties in entering markets in which we have limited or no direct prior experience, dependence on unfamiliar supply chains, insufficient revenues to offset increased expenses associated with acquisitions, loss of key employees of the acquired companies, inaccurate assessment of undisclosed liabilities, difficulties in realizing projected efficiencies, synergies and cost savings, and increases in our debt or limitation on our ability to access additional capital when needed.

Regulations related to conflict minerals could adversely impact our business.

The SEC has promulgated final rules mandated by the Dodd-Frank Act regarding disclosure of the use of tin, tantalum, tungsten and gold, known as conflict minerals, in products manufactured by public companies. These rules require due diligence to determine whether such minerals originated from the Democratic Republic of the Congo (the "DRC") or an adjoining country and whether such minerals helped finance the armed conflict in the DRC. The Company timely filed its latest annual conflict minerals report required by the rules on May 27, 2022. There are costs associated with complying with these disclosure requirements going forward, including costs to determine the origin of conflict minerals used in our products. In addition, the implementation of these rules could adversely affect the sourcing, supply and pricing of materials used in our products. Also, we may face disqualification as a supplier for customers and reputational challenges if the due diligence procedures we continue to implement do not enable us to verify the origins for all conflict minerals or to determine that such minerals are DRC conflict-free.

Our business may be impacted by external factors that we may not be able to control.

War, civil conflict, terrorism, natural disasters and public health issues including domestic or international pandemics have caused and could cause damage or disruption to domestic or international commerce by creating economic or political uncertainties. Additionally, the volatility in the financial markets could negatively impact our business. These events could result in a decrease in demand for our products, affect the availability of credit facilities to us, our customers or other members of the supply chain necessary to transact business, make it difficult or impossible to deliver orders to customers or receive materials from suppliers, affect the availability or pricing of energy sources or result in other severe consequences that may or may not be predictable. As a result, our business, financial condition and results of operations could be materially adversely affected.

Our international operations and global sales expose us to various risks including the impact of tariffs, which may adversely affect our business.

Risks associated with international operations include without limitation: political and economic instability, including weak conditions in the world's economies; difficulty in collecting accounts receivable; unstable or unenforced export controls; changes in legal and regulatory requirements; policy changes affecting the markets for our products; changes in duties, quotas, tariffs and taxes; changes in taxation including the ability to repatriate earnings; and exchange rate fluctuations (which may affect sales to international customers and the value of profits earned on international sales when converted into U.S. dollars). In addition, we will need to invest in building our capabilities and infrastructure to meet our international growth goals. Any of these factors could materially adversely affect our results for the period in which they occur.

Significant changes to United States and international trade policies continue to emerge and activity levels have increased with regard to new import and export tariffs, retaliatory tariffs, and quotas; modifications to international trade policy; the withdrawal from or renegotiation of certain trade agreements; and other changes. These changes could materially adversely impact our business or require us to make changes to our current business practices or supply chain.

We value most of our inventory using the LIFO method, which could be repealed resulting in adverse effects on our cash flows and financial condition.

The cost of our inventories is primarily determined using the Last-In, First-Out ("LIFO") method. Under the LIFO inventory valuation method, changes in the cost of raw materials and production activities are recognized in cost of sales in the current period even though these materials and other costs may have been incurred at significantly different values due to the length of time of our production cycle. Generally, in a period of rising prices, LIFO recognizes higher costs of goods sold, which both reduces current income and assigns a lower value to the year-end inventory. From time to time, there have been proposals aimed at repealing the election to use the LIFO method for income tax purposes. According to these proposals, generally taxpayers that currently use the LIFO method would be required to revalue their LIFO inventory to its First-In, First-Out ("FIFO") value. As of June 30, 2022, if the FIFO method of inventory had been used instead of the LIFO method, our inventories would have been approximately $427.2 million higher. This increase in inventory would result in a one-time increase in taxable income which may be taken into account over the following several taxable years. The repeal of the LIFO method could result in a substantial tax liability which could adversely impact our cash flows and financial condition.

We depend on the retention of key personnel.

Much of our future success depends on the continued service and availability of skilled personnel, including members of our executive management team, management, metallurgists and production positions. The loss of key personnel could adversely affect our ability to perform until suitable replacements are found.

Cybersecurity attacks and other security breaches or failures in functionality of our information technology ("IT") and computer systems could adversely impact our financial condition and results of operations and compromise the integrity of confidential data.

Management relies extensively on IT infrastructure, including hardware, networks, software, people and processes, to provide useful information to conduct our business and support assessments and conclusions about operating performance. Our inability to produce relevant and/or reliable measures of operating performance in an efficient, cost-effective and well-controlled fashion may have significant negative impacts on our future operations. In addition, any material failure, interruption of service, or compromised data security could adversely affect our operations. Security breaches in our IT could result in theft, destruction, loss, misappropriation or release of confidential data or intellectual property which could adversely impact our future results.

We are regularly the target of attempted cyber and other security threats and must continuously monitor and develop our IT networks and infrastructure to prevent, detect, address and mitigate the risk of unauthorized access, misuse, computer viruses and other events that could have a security impact. Cybersecurity attacks are evolving in both frequency and sophistication and could be made by both internal and external individuals or groups with an extensive range of motives. If we are unable to prevent cybersecurity attacks and other information security breaches, we may encounter significant disruptions in our operations which could adversely impact our business, financial condition and results of operations or result in the unauthorized disclosure of confidential information. Such breaches may also harm our reputation, result in financial losses or subject us to litigation or other costs or penalties.

The carrying value of goodwill and other long-lived assets may not be recoverable.

Goodwill and other long-lived assets including property, plant and equipment, software and other intangible assets are recorded at fair value on the date of acquisition. We review these assets at least annually for impairment. Impairment may result from, among other things, deterioration in performance, adverse market conditions, adverse changes in applicable laws or regulations and a variety of other factors. Any future impairment of goodwill or other long-lived assets could have a material adverse effect on our results of operations.

Our ability to produce timely and accurate financial statements may be impacted if we fail to maintain an effective system of disclosure controls and internal control over financial reporting.

We are subject to the reporting requirements of the Sarbanes-Oxley Act of 2002 ("Sarbanes-Oxley"). Sarbanes-Oxley requires, among other things, that we maintain effective disclosure controls and procedures and internal control over financial reporting. We are also required to make a formal assessment and provide an annual management report on the effectiveness of our internal control over financial reporting, which must be attested to by our independent registered public accounting firm. In order to maintain the effectiveness of our disclosure controls and procedures and internal control over financial reporting, we have expended, and anticipate that we will continue to expend, resources, including accounting-related costs and management oversight.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

The principal locations of our primary domestic integrated mills in our SAO segment are located in Reading and Latrobe, Pennsylvania and Athens, Alabama. In addition, SAO manufactures bar products in Orwigsburg, Pennsylvania and Elyria, Ohio and operates a mini-mill in Hartsville, South Carolina, manufacturing bar and wire products. The principal locations for the PEP businesses include titanium alloy production facilities located in Washington, Pennsylvania and Clearwater, Florida and a powder products manufacturing facility in Athens, Alabama. The PEP segment includes one owned service center in White House, Tennessee. Properties also include domestic leased warehouses and service centers located in Washington, Pennsylvania; Vienna, Ohio and Chicago, Illinois.

The Reading, Hartsville, Washington, Orwigsburg, Elyria, Latrobe, and Athens facilities are owned. The Clearwater facility is owned, but the land is leased.

We also own or lease manufacturing facilities, distribution centers, service centers and sales offices in a number of foreign countries, including Belgium, Canada, China, Mexico, Singapore, Sweden, Taiwan and the United Kingdom.

Our corporate offices, located in Philadelphia, Pennsylvania, and Raleigh, North Carolina, are leased.

Our plants, customer service centers and distribution centers were acquired or leased at various times over several years. There is an active maintenance program to ensure a safe operating environment and to keep facilities in good condition. In addition, we have an active capital spending program to replace equipment as needed to keep it technologically competitive on a worldwide basis. We believe our facilities are in good condition and suitable for our business needs.

Item 3. Legal Proceedings

From time to time, we are a party to lawsuits and other proceedings involving alleged violations of, or liabilities arising from, environmental laws. We have environmental remediation liabilities at some of our owned operating facilities and have been designated as a PRP with respect to certain third party Superfund or similar waste disposal sites and other third party owned sites. Additionally, we have been notified that we may be a PRP with respect to other Superfund sites as to which no proceedings have been instituted against us. Estimates of the amount and timing of future costs of environmental remediation requirements are inherently imprecise because of the continuing evolution of environmental laws and regulatory requirements, the availability and application of technology, the identification of currently unknown remediation sites and the allocation of costs among the PRPs. Based upon information currently available, such future costs are not expected to have a material effect on our financial position, results of operations or cash flows over the long-term. However, such costs could be material to our financial position, results of operations or cash flows in a particular future quarter or year.

In addition, from time to time, we are a party to certain routine claims and legal actions and other contingent liabilities incident to the normal course of business which pertain to litigation, product claims, commercial disputes, employment actions, employee benefits, compliance with domestic and foreign laws and regulations, personal injury claims, patent infringement and tax issues. Based on information currently available, the ultimate resolution of our known contingencies, individually or in the aggregate and including the matters described in Note 13 to the consolidated financial statements in this Form 10-K, is not expected to have a material adverse effect on our financial position, cash flows or results of operations. However, there can be no assurance that an increase in the scope of pending matters or that any future lawsuits, claims, proceedings or investigations will not be material to our financial position, results of operations or cash flows in a particular future quarter or year.

See the "Contingencies" section included in Item 7. "Management's Discussion and Analysis of Financial Condition and Results of Operation", and the "Contingencies and Commitments" section included in Note 13 to our consolidated financial statements included in Item 8. "Financial Statements and Supplementary Data", included in this Form 10-K, the contents of which are incorporated by reference to this Item 3.

Item 4. Mine Safety Disclosures

Not applicable.

Item 4A. Executive Officers of the Registrant

Listed below are the names of our corporate executive officers, including those required to be listed as executive officers for SEC purposes, each of whom assumes office after the annual organization meeting of the Board of Directors which immediately follows the Annual Meeting of Stockholders.

Tony R. Thene was appointed President and Chief Executive Officer effective July 1, 2015. Mr. Thene joined Carpenter Technology in January 2013 and served as the Senior Vice President and Chief Financial Officer. Prior to joining Carpenter Technology, Mr. Thene was employed for 23 years by Alcoa Inc., a leading producer of primary and fabricated aluminum, holding various management positions.

Timothy Lain was appointed Senior Vice President and Chief Financial Officer effective August 11, 2020. Mr. Lain joined Carpenter Technology in June 2007. From June 2013 to September 2018 he served as the Vice President-Controller and Chief Accounting Officer. He served as the Vice President and Chief Financial Officer from September 2018 until August 2020. Prior to joining the Company, Mr. Lain served as Audit Director at McGladrey & Pullen LLP, a certified public accounting firm.

James D. Dee was appointed Senior Vice President, General Counsel and Secretary effective August 11, 2020. Mr. Dee served as Vice President, General Counsel and Secretary from September 2010 until August 2020. Mr. Dee joined Carpenter Technology from C&D Technologies where he last served as Senior Vice President, General Counsel, Secretary and Chief Administrative Officer. Prior to his tenure at C&D Technologies, Mr. Dee was employed by the law firm of Montgomery, McCracken, Walker & Rhodes, LLP. Mr. Dee also worked 16 years at SPS Technologies, Inc., where he last served as Vice President, General Counsel and Secretary.

Brian Malloy was appointed Senior Vice President and Group President of Carpenter Technology's Specialty Alloys Operations (SAO) segment effective April 25, 2022. Mr. Malloy served as Senior Vice President and Group President of Carpenter Technology's Performance Engineered Products (PEP) segment from February 2022 until April 2022; Mr. Malloy assumed interim leadership of the PEP business segment in July of 2021, while serving as Senior Vice President and Chief Commercial Officer, the role he held since August of 2020. Mr. Malloy joined Carpenter Technology in August 2015 as Vice President, Sales & Customer Service for SAO. He served as Vice President and Chief Commercial Officer from March 2016 until August 2020. Prior to joining Carpenter Technology, Mr. Malloy worked for Global Precision Tubes where he was the Senior Vice President & Chief Strategy Officer. During Mr. Malloy's two years in this role, he was responsible for business development, strategy and the commercial organizations. Mr. Malloy's previous experience includes key roles at Alcoa, Inc., where his last position was Vice President, Commercial for Industrial Gas Turbines in the Power and Propulsion business unit.

David Graf was appointed Vice President and Group President of Carpenter Technology’s PEP business effective April 25, 2022. Mr. Graf leads the PEP segment’s portfolio of businesses (Carpenter Additive, Dynamet and Carpenter Distribution). Mr. Graf previously served as Vice President and Group President of SAO from July 2021 until April 2022. He also held the role of Vice President - Chief Technology Officer from September 2018 until July 2021, where he led the Company’s Research & Development (R&D) and Quality organizations, as well as the Carpenter Additive business unit. Prior to joining Carpenter Technology in September 2018, Mr. Graf worked for W.R. Grace, a global leader in the development and manufacture of products and technologies used in energy, refining, polyolefins, plastics, petrochemical, and other chemical manufacturing applications. During his eight years with Grace, he served as the Global R&D Director, as well as the General Manager Americas and Vice President Global Marketing for Specialty Catalysts in addition to the integration leader for a strategic acquisition. Prior to that, Mr. Graf worked for The Dow Chemical Company for 12 years in a variety of R&D leadership roles.

Name	Age	Position	Assumed Present Position
Tony R. Thene	61	President and Chief Executive Officer	July 2015
Timothy Lain	50	Senior Vice President and Chief Financial Officer	August 2020
James D. Dee	65	Senior Vice President, General Counsel and Secretary	August 2020
Brian J. Malloy	55	Senior Vice President and Group President SAO Segment	April 2022
David Graf	52	Vice President and Group President PEP Segment	April 2022

PART II

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

Our common stock is listed on the New York Stock Exchange ("NYSE") and traded under the symbol "CRS". The following table sets forth, for the periods indicated, the high and low prices for our common stock as reported by the NYSE:

	Fiscal Year 2022		Fiscal Year 2021	
Period Ended:	**High**	**Low**	**High**	**Low**
September 30,	$ 41.29	$ 30.22	$ 25.44	$ 17.60
December 31,	$ 35.14	$ 26.93	$ 29.97	$ 15.90
March 31,	$ 43.20	$ 27.56	$ 48.06	$ 27.92
June 30,	$ 44.96	$ 26.62	$ 49.20	$ 37.30
Annual June 30,	$ 44.96	$ 26.62	$ 49.20	$ 15.90

The range of our common stock price on the NYSE from July 1, 2022 to August 9, 2022 was $24.76 to $35.17. The closing price of the common stock was $33.67 on August 9, 2022.

We have paid quarterly cash dividends on our common stock since 1906. We paid a quarterly dividend of $0.20 per share of common stock during each quarter of fiscal years 2022 and 2021, respectively.

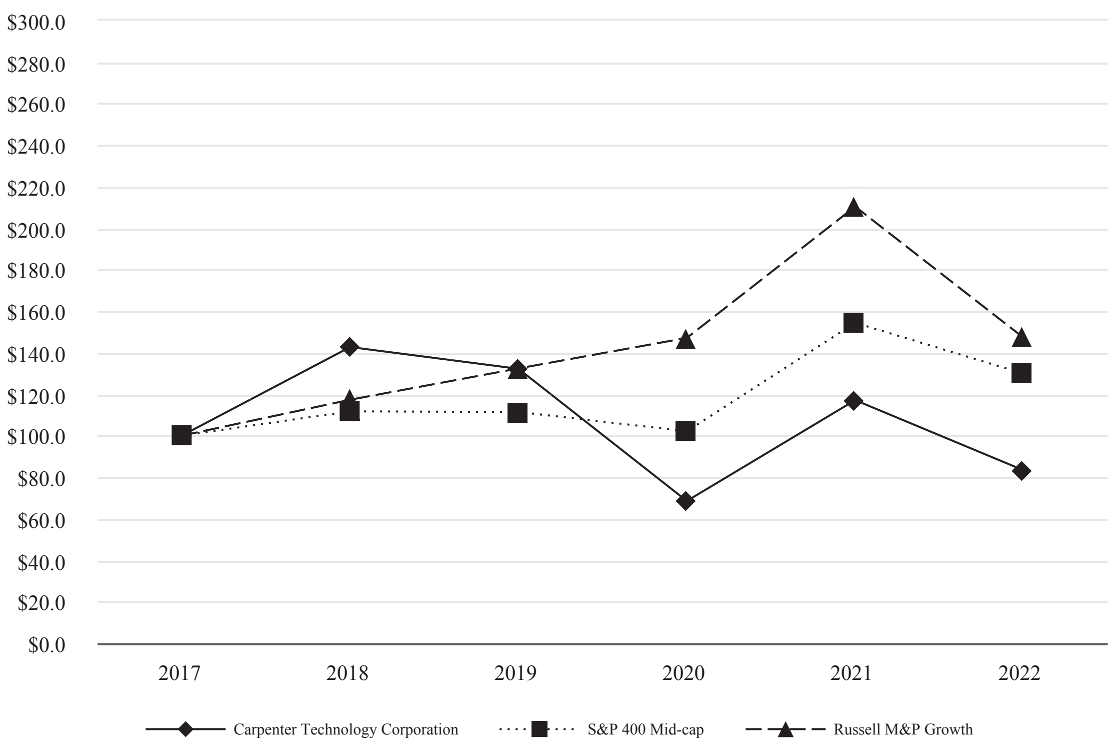
As of August 9, 2022, there were 1,722 common stockholders of record.

Information regarding Securities Authorized for Issuance under Equity Compensation Plans is set forth in Item 12 hereto "Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters".

Cumulative Total Stockholder Return

The graph below compares the cumulative total stockholder return on our common stock to the cumulative total return of the S&P MidCap 400 Index, the most widely used index for mid-sized companies, and our Peer Group for fiscal year ended June 30, 2022, and prior four fiscal years. The cumulative total return assumes an investment of $100 on June 30, 2017 and the reinvestment of any dividends during the period. Our Peer Group consists of the companies in the Russell RSCC Materials & Processing Growth Index. We believe the companies included in our Peer Group, taken as a whole, provide a more meaningful comparison in terms of product offerings, markets served, competition and other relevant factors. The total stockholder return for the peer group is weighted according to the respective issuer's stock market capitalization at the beginning of each period.

COMPARISON OF 5 YEAR CUMULATIVE TOTAL RETURN*
Among Carpenter Technology Corporation, the S&P Midcap 400 Index, and the Russell Materials & Processing Growth Index



* $100 invested on June 30, 2017 in stock or index, including reinvestment of dividends. Fiscal years ending June 30.

Data Sourced from Bloomberg

	2017	2018	2019	2020	2021	2022
Carpenter Technology Corporation	$ 100.00	$ 142.70	$ 132.20	$ 68.50	$ 117.10	$ 83.30
S&P Midcap 400	$ 100.00	$ 111.70	$ 111.40	$ 102.10	$ 154.40	$ 129.90
Russell Materials & Processing Growth	$ 100.00	$ 117.30	$ 132.40	$ 147.10	$ 210.40	$ 147.20

Issuer Purchases of Equity Securities

During the fourth quarter of fiscal year 2022, employees surrendered 4,053 shares to the Company, at an average purchase price of $38.15, for the payment of the minimum tax liability withholding obligations upon the vesting of shares of restricted stock. We do not consider this a share buyback program.

Item 6.

Reserved.

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

Background and General

Our discussions below in this Item 7 should be read in conjunction with our consolidated financial statements, including the notes thereto, included in this annual report on Form 10-K.

We are a producer and distributor of premium specialty alloys, including titanium alloys, powder metals, stainless steels, alloy steels, and tool steels. We are a recognized leader in high-performance specialty alloy-based materials and process solutions for critical applications in the aerospace, defense, medical, transportation, energy, industrial and consumer markets. We have evolved to become a pioneer in premium specialty alloys, including titanium, nickel, and cobalt, as well as alloys specifically engineered for additive manufacturing ("AM") processes and soft magnetics applications. We have expanded our AM capabilities to provide a complete "end-to-end" solution to accelerate materials innovation and streamline parts production. We primarily process basic raw materials such as nickel, cobalt, titanium, manganese, chromium, molybdenum, iron scrap and other metal alloying elements through various melting, hot forming and cold working facilities to produce finished products in the form of billet, bar, rod, wire and narrow strip in many sizes and finishes. We also produce certain metal powders and parts. Our sales are distributed directly from our production plants and distribution network as well as through independent distributors. Unlike many other specialty steel producers, we operate our own worldwide network of service and distribution centers. These service centers, located in the United States, Canada, Mexico, Europe and Asia allow us to work more closely with customers and to offer various just-in-time stocking programs.

As part of our overall business strategy, we have sought out and considered opportunities related to strategic acquisitions and joint collaborations as well as possible business unit dispositions aimed at broadening our offering to the marketplace. We have participated with other companies to explore potential terms and structures of such opportunities and expect that we will continue to evaluate these opportunities.

While we prepare our financial statements in accordance with U.S. generally accepted accounting principles ("U.S. GAAP"), we also utilize and present certain financial measures that are not based on or included in U.S. GAAP (we refer to these as "Non-GAAP financial measures"). Please see the section "Non-GAAP Financial Measures" below for further discussion of these financial measures, including the reasons why we use such financial measures and reconciliations of such financial measures to the nearest U.S. GAAP financial measures.

Business Trends

Selected financial results for the past three fiscal years are summarized below:

($ in millions, except per share data)	Years Ended June 30, 2022	2021	2020
Net sales	$ 1,836.3	$ 1,475.6	$ 2,181.1
Net sales excluding surcharge revenue (1)	$ 1,400.0	$ 1,252.8	$ 1,828.7
Operating (loss) income	$ (24.9)	$ (248.6)	$ 25.3
Adjusted operating (loss) income (1)	$ (34.0)	$ (105.5)	$ 166.9
Net (loss) income	$ (49.1)	$ (229.6)	$ 1.5
Diluted (loss) earnings per share	$ (1.01)	$ (4.76)	$ 0.02
Adjusted diluted (loss) earnings per share (1)	$ (1.06)	$ (2.01)	$ 2.36
Purchases of property, plant, equipment and software	$ 91.3	$ 100.5	$ 171.4
Free cash flow (1)	$ (122.3)	$ 132.0	$ 21.8
Pounds sold (in thousands) (2)	188,112	169,706	231,736

(1) See the section "Non-GAAP Financial Measures" below for further discussion of these financial measures.

(2) Pounds sold data includes Specialty Alloys Operations segment and Dynamet and Additive businesses from the Performance Engineered Products segment.

Our sales are across diverse end-use markets. The table below summarizes our sales by end-use market over the past three fiscal years:

	Years Ended June 30, 2022		2021		2020	
($ in millions)	Dollars	% of Total	Dollars	% of Total	Dollars	% of Total
Aerospace and Defense	$ 790.2	43 %	$ 710.9	48 %	$ 1,313.7	60 %
Medical	212.3	12 %	143.5	10 %	197.0	9 %
Transportation	178.3	10 %	144.5	10 %	132.1	6 %
Energy	113.0	6 %	87.8	6 %	135.4	6 %
Industrial and Consumer	417.2	23 %	292.1	20 %	296.0	14 %
Distribution	125.3	6 %	96.8	6 %	106.9	5 %
Total net sales	$ 1,836.3	100 %	$ 1,475.6	100 %	$ 2,181.1	100 %

Impact of Raw Material Prices and Product Mix

We value most of our inventory utilizing the LIFO inventory costing methodology. Under the LIFO inventory costing method, changes in the cost of raw materials and production activities are recognized in cost of sales in the current period even though these materials may have been acquired at potentially significantly different values due to the length of time from the acquisition of the raw materials to the sale of the processed finished goods to the customers. In a period of rising raw material costs, the LIFO inventory valuation normally results in higher cost of sales. Conversely, in a period of decreasing raw material costs, the LIFO inventory valuation normally results in lower cost of sales.

The volatility of the costs of raw materials has impacted our operations over the past several years. We, and others in our industry, generally have been able to pass cost increases on major raw materials through to our customers using surcharges that are structured to recover increases in raw material costs. Generally, the formula used to calculate a surcharge is based on published prices of the respective raw materials for the previous month which correlates to the prices we pay for our raw material purchases. However, a portion of our surcharges to customers may be calculated using a different surcharge formula or may be based on the raw material prices at the time of order, which creates a lag between surcharge revenue and corresponding raw material costs recognized in cost of sales. The surcharge mechanism protects our net income on such sales except for the lag effect discussed above. However, surcharges have had a dilutive effect on our gross margin and operating margin percentages as described later in this report.

Approximately 40 percent of our net sales are sales to customers under firm price sales arrangements. Firm price sales arrangements involve a risk of profit margin fluctuations, particularly when raw material prices are volatile. In order to reduce the risk of fluctuating profit margins on these sales, we enter into commodity forward contracts to purchase certain critical raw materials necessary to produce the related products sold. Firm price sales arrangements generally include certain annual purchasing commitments and consumption schedules agreed to by the customers at selling prices based on raw material prices at the time the arrangements are established. If a customer fails to meet the volume commitments (or the consumption schedule deviates from the agreed-upon terms of the firm price sales arrangements), the Company may need to absorb the gains or losses associated with the commodity forward contracts on a temporary basis. Gains or losses associated with commodity forward contracts are reclassified to earnings/loss when earnings are impacted by the hedged transaction. Because we value most of our inventory under the LIFO costing methodology, changes in the cost of raw materials and production activities are recognized in cost of sales in the current period attempting to match the most recently incurred costs with revenues. Gains and/or losses on the commodity forward contracts are reclassified from other comprehensive loss together with the actual purchase price of the underlying commodities when the underlying commodities are purchased and recorded in inventory. To the extent that the total purchase price of the commodities, inclusive of the gains or losses on the commodity forward contracts, are higher or lower relative to the beginning of year costs, our cost of goods sold reflects such amounts. Accordingly, the gains and/or losses associated with commodity forward contracts may not impact the same period that the firm price sales arrangements revenue is recognized, and comparisons of gross profit from period to period may be impacted. These firm price sales arrangements are expected to continue as we look to strengthen our long-term customer relationships by expanding, renewing and, in certain cases, extending to a longer term, our customer long-term arrangements.

We produce hundreds of grades of materials, with a wide range of pricing and profit levels depending on the grade. In addition, our product mix within a period is subject to the fluctuating order patterns of our customers as well as decisions we may make on participation in certain products based on available capacity including the impacts of capacity commitments we may have under existing customer agreements. While we expect to see positive contribution from a more favorable product mix in our margin performance over time, the impact by period may fluctuate, and period to period comparisons may vary.

Net Pension Benefit

Net pension benefit, as we define it below, includes the net periodic benefit costs related to both our pension and other postretirement plans. The net periodic benefit costs are determined annually based on beginning of year balances and are recorded ratably throughout the fiscal year, unless a significant re-measurement event occurs.

During the fiscal year ended June 30, 2021, we evaluated the need for settlement accounting under Accounting Standards Codification ("ASC') 715-30-35-82 based on the higher than normal lump-sum payments made during fiscal year 2021 in our largest defined benefit plan. We determined that the lump-sum payments exceeded the threshold of service cost and interest cost components and settlement accounting was required. We recorded settlement charges of $11.4 million in the year ended June 30, 2021, within other (income) expense, net.

The following is a summary of the net pension (income) expense for the years ended June 30, 2022, 2021 and 2020:

	Years Ended June 30,		
($ in millions)	**2022**	**2021**	**2020**
Pension plans	$ (4.2)	$ 21.3	$ 12.2
Other postretirement plans	(3.1)	3.3	3.1
Net pension (income) expense	$ (7.3)	$ 24.6	$ 15.3

The service cost component of net pension (income) expense represents the estimated cost of future pension liabilities earned associated with active employees. The pension earnings, interest and deferrals is comprised of the expected return on plan assets, interest costs on the projected benefit obligations of the plans and amortization of actuarial gains and losses and prior service costs and benefits.

During the year ended June 30, 2020, in connection with a restructuring plan, we reduced our global salaried positions by twenty percent. In certain cases, employees were eligible for severance benefits under one of our pension plans. As a result, $3.5 million was funded from this qualified pension plan to cover severance payments and medical coverage for impacted participants.

Net periodic (income) expense is recorded in accounts that are included in both the cost of sales and selling, general and administrative expenses based on the function of the associated employees and in other (income) expense, net. The following is a summary of the classification of net pension (income) expense for the years ended June 30, 2022, 2021 and 2020:

	Years Ended June 30,		
($ in millions)	**2022**	**2021**	**2020**
Service cost included in Cost of sales	$ 9.6	$ 10.8	$ 11.0
Service cost included in Selling, general and administrative expenses	1.4	1.5	1.5
Pension earnings, interest and deferrals included in Other (income) expense, net	(18.3)	0.9	2.8
Settlement charge included in Other (income) expense, net	—	11.4	—
Net pension (income) expense	$ (7.3)	$ 24.6	$ 15.3

As of June 30, 2022 and 2021, amounts capitalized in gross inventory were $1.7 million and $1.0 million, respectively.

Operating Performance Overview

Fiscal year 2022 proved to be a challenging but successful year. We navigated through an unforeseen outage of our Reading, PA press, continued COVID-19 isolations, a difficult hiring environment and other supply chain challenges. But in addressing each of them, we believe we are emerging from the fiscal year stronger and well-positioned for growth. Looking ahead, we expect to see continued growth across our end-use markets, especially in Aerospace, Defense and Medical applications, where customers are still ramping to pre-pandemic levels. To capitalize on the demand in our core business, we are focused on achieving additional productivity and capacity gains through the Carpenter Operating Model. Further, our strong position in our core business is supported by our capabilities in key emerging areas including electrification and additive manufacturing that further support our long-term growth profile. We believe the continued execution of our strategy will drive sustainable long-term value creation for our customers and shareholders.

For fiscal year 2022, we reported net loss of $49.1 million, or $1.01 loss per diluted share, compared with net loss of $229.6 million, or $4.76 loss per diluted share for fiscal year 2021. Our fiscal year 2022 came to a successful end and placed us on strong ground to deliver accelerated growth in fiscal year 2023. Closing out the year, both the SAO and PEP segments outperformed our expectations. We also continued to expand our backlog across our end-use markets and secured several price increases on our transactional business as overall demand conditions across our end-use markets remain strong. Our backlog grew by 191 percent year-over-year. The fiscal year operating income results were driven by double-digit revenue growth in all end-use markets. We finished fiscal year 2022 with total liquidity of $448.3 million.

Results of Operations — Fiscal Year 2022 Compared to Fiscal Year 2021

For fiscal year 2022, we reported net loss of $49.1 million, or $1.01 loss per diluted share. Excluding special items, loss per diluted share would have been $1.06 for fiscal year 2022. This compares with net loss of $229.6 million, or $4.76 loss per diluted share, a year earlier. Excluding special items, loss per share would have been $2.01 per diluted share for fiscal year 2021. The results for fiscal year 2022 compared to the same period a year ago were driven by growing demand across all our end-use markets.

Both periods were impacted by special items. Our fiscal year 2022 results were negatively impacted by COVID-19 charges of $5.9 million, a historical environmental site charge of $2.4 million and debt extinguishment losses, net of $6.0 million. These charges were offset by COVID-19 employee retention credits of $12.7 million and an acquisition-related contingent liability release of $4.7 million. Our fiscal year 2021 results negatively impacted by a goodwill impairment charge of $52.8 million, LIFO decrement charges of $52.2 million, inventory write-downs from restructuring of $4.2 million, COVID-19 charges of $17.3 million, non-cash restructuring and asset impairment charges of $16.6 million, pension settlement charges of $11.4 million, and debt extinguishment losses, net of $8.2 million. The LIFO decrement charges were non-cash charges associated with reducing inventory and liquidating LIFO layers that had historical costs in excess of the fiscal year 2021 inventory costs.

Net Sales

Net sales for fiscal year 2022 were $1,836.3 million, which represents a 24 percent increase from fiscal year 2021. Excluding surcharge revenue, sales were 12 percent higher than fiscal year 2021 on 11 percent higher volume. The results reflect double-digit sales growth across all end-use markets versus the prior year period.

Geographically, sales outside the United States increased 20 percent from fiscal year 2021 to $656.4 million. The increase was primarily due to higher product demand in the Medical end-use markets in all regions, higher sales in Aerospace and Defense in the South America region, and stronger demand in the Energy end-use market in the Asia Pacific and Canada regions. A portion of our sales outside the United States are denominated in foreign currencies. The impact of fluctuations in foreign currency exchange rates resulted in a $0.7 million decrease in sales during fiscal year 2022 compared to fiscal year 2021. International sales as a percentage of our total net sales represented 36 percent and 37 percent for fiscal year 2022 and fiscal year 2021, respectively.

Sales by End-Use Markets

We sell to customers across diversified end-use markets. The following table includes comparative information for our net sales, which includes surcharge revenue, by principal end-use markets. We believe this is helpful supplemental information in analyzing the performance of the business from period to period.

($ in millions)	Fiscal Year 2022	Fiscal Year 2021	$ Increase	% Increase
Aerospace and Defense	$ 790.2	$ 710.9	$ 79.3	11 %
Medical	212.3	143.5	68.8	48 %
Transportation	178.3	144.5	33.8	23 %
Energy	113.0	87.8	25.2	29 %
Industrial and Consumer	417.2	292.1	125.1	43 %
Distribution	125.3	96.8	28.5	29 %
Total net sales	$ 1,836.3	$ 1,475.6	$ 360.7	24 %

The following table includes comparative information for our net sales by the same principal end-use markets, but excluding surcharge revenue:

($ in millions)	Fiscal Year 2022	Fiscal Year 2021	$ Increase	% Increase
Aerospace and Defense	$ 599.6	$ 598.8	$ 0.8	— %
Medical	177.2	128.2	49.0	38 %
Transportation	125.2	115.9	9.3	8 %
Energy	76.3	70.5	5.8	8 %
Industrial and Consumer	297.2	243.1	54.1	22 %
Distribution	124.5	96.3	28.2	29 %
Total net sales excluding surcharge revenue	$ 1,400.0	$ 1,252.8	$ 147.2	12 %

Sales to the Aerospace and Defense market increased 11 percent from fiscal year 2021 to $790.2 million. Excluding surcharge revenue, sales were flat on 4 percent higher shipment volume. The results reflect higher year-over-year demand as COVID-19 travel restrictions eased and the aircraft OEM build rates increased.

Sales to the Medical market increased 48 percent to $212.3 million from fiscal year 2021. Excluding surcharge revenue, sales increased 38 percent on 35 percent higher shipment volume. The results reflect higher demand from the ongoing recovery in elective surgeries, with our customers focused on increasing stock levels to meet demand.

Transportation market sales of $178.3 million reflected a 23 percent increase from fiscal year 2021. Excluding surcharge revenue, sales increased 8 percent on 9 percent higher shipment volume. The results reflect higher demand in all sub-markets but was muted from the continuing chip shortage compared to the prior year period.

Sales to the Energy market of $113.0 million reflected a 29 percent increase from fiscal year 2021. Excluding surcharge revenue, sales increased 8 percent. The results reflect increasing global rig counts and higher oil prices benefiting the oil and gas sub-market. This was partially offset by lower sales for power generation materials compared to the prior year period. The prior year results also include one quarter of the Amega West business, which was divested on September 30, 2020.

Industrial and Consumer market sales of $417.2 million increased 43 percent from 2021. Excluding surcharge revenue, sales increased 22 percent on 18 percent higher shipment volume. The results reflect the impact of stronger demand for materials used across all Consumer and Industrial sub-markets.

Gross Profit

Gross profit in fiscal year 2022 increased to $149.8 million, or 8.2 percent of net sales, from $1.0 million, or 0.1 percent of net sales for fiscal year 2021. The current year results reflect the impact of higher volumes across all end-use markets, an improving product mix and increased pricing, partially offset by the ongoing inflationary pressures on operating costs related to critical production supplies, freight and labor compared to the same period a year ago. Excluding the impact of surcharge revenue and $11.9 million of COVID-19 employee retention credits, our adjusted gross margin in fiscal year 2022 was 9.9 percent compared to adjusted gross margin of 4.6 percent in fiscal year 2021.

Our surcharge mechanism is structured to recover increases in raw material costs, although in certain cases with a lag effect as discussed above. While the surcharge generally protects the absolute gross profit dollars, it does have a dilutive effect on gross margin as a percent of sales. The following represents a summary of the dilutive impact of the surcharge on gross margin excluding the impact of the special items. We present and discuss these financial measures because management believes removing the impact of these items provides a more consistent and meaningful basis for comparing results of operations from period to period. See the section "Non-GAAP Financial Measures" below for further discussion of these financial measures.

	Fiscal Year	
($ in millions)	**2022**	**2021**
Net sales	$ 1,836.3	$ 1,475.6
Less: surcharge revenue	436.3	222.8
Net sales excluding surcharge revenue	$ 1,400.0	$ 1,252.8
Gross profit	$ 149.8	$ 1.0
LIFO decrement	—	52.2
Inventory write-downs from restructuring	—	4.2
COVID-19 employee retention credits	(11.9)	—
Gross profit excluding special items	$ 137.9	$ 57.4
Gross margin	8.2 %	0.1 %
Gross margin excluding surcharge revenue and special items	9.9 %	4.6 %

Selling, General and Administrative Expenses

Selling, general and administrative expenses in fiscal year 2022 were $174.7 million, or 9.5 percent of net sales (12.5 percent of net sales excluding surcharge revenue), compared to $180.2 million, or 12.2 percent of net sales (14.4 percent of net sales excluding surcharge revenue), in fiscal year 2021. The lower selling, general and administrative expenses in fiscal year 2022 include a non-cash benefit of $4.7 million from the reversal of a contingent liability associated with a historical acquisition for which the time period expired and lower variable compensation charges compared to the same period a year ago. Partially offsetting these benefits in fiscal year 2022 is an environmental charge of $2.4 million which represents a prior period charge related to a third party Superfund waste-disposal site.

Restructuring and Asset Impairment Charges

During fiscal year 2022, we had no restructuring and asset impairment charges compared to $16.6 million in fiscal year 2021. Additional restructuring activities were executed in our Additive business in the PEP segment during fiscal year 2021. This included $14.2 million of non-cash pre-tax impairment charges consisting of $8.2 million of property, plant and equipment, $4.3 million associated with certain definite lived intangible assets, $1.3 million related to a lease right of use asset and $0.4 million of other non-cash charges. We also recognized $0.4 million for facility shut-down costs and various personnel costs for severance payments, medical coverage and related items.

In fiscal year 2021, we recorded $2.0 million of non-cash impairment pre-tax charges as a result of the Amega West business exit primarily related to accounts receivable determined to be uncollectible.

Activities undertaken in connection with the fiscal year 2021 Additive restructuring plan were substantially completed in the first quarter of fiscal year 2022.

Goodwill Impairment Charge

In preparing the financial statements for the fiscal year ended June 30, 2021, we identified an impairment triggering event related to the Additive reporting unit within the PEP segment. This reporting unit had experienced slower than expected growth due to customers shifting their near-term focus away from this emerging area as a result of the continuing impacts of the COVID-19 pandemic. During the year ended June 30, 2021, we also made strategic decisions to reduce resources allocated to the Additive reporting unit to concentrate on the essential manufacturing business. In light of these decisions and market conditions, the pace of growth in the future projections for the Additive reporting unit were lowered. As a result, during the year ended June 30, 2021, we recorded an impairment charge of $52.8 million, which represented the entire balance of goodwill for this reporting unit. No goodwill impairment charges were recognized during the fiscal year ended June 30, 2022.

Operating Loss

Our operating loss in fiscal year 2022 was $24.9 million, or negative 1.4 percent of net sales, as compared with $248.6 million of operating loss, or negative 16.8 percent of net sales, in fiscal year 2021. Excluding surcharge revenue and special items, adjusted operating margin was negative 2.4 percent for fiscal year 2022 and negative 8.4 percent for fiscal year 2021. Results for fiscal year 2022 reflect higher sales in all end-use markets compared to the prior year period as well as the full recognition of various cost saving actions taken in fiscal year 2021 and the fourth quarter of fiscal year 2020. Negatively impacting results for fiscal year 2022 were near-term operational challenges resulting from the Reading press outage, labor shortages and supply chain disruptions as well as the ongoing inflationary pressures on operating costs related to critical production supplies, freight and labor. Our fiscal year 2022 operating results were negatively impacted by COVID-19 charges of $5.9 million and a historical environmental site charge of $2.4 million, offset by COVID-19 employee retention credits of $12.7 million and an acquisition-related contingent liability release of $4.7 million. Our fiscal year 2021 results were negatively impacted by a goodwill impairment charge of $52.8 million, LIFO decrement charges of $52.2 million, inventory write-downs from restructuring of $4.2 million, COVID-19 charges of $17.3 million and non-cash restructuring and asset impairment charges of $16.6 million. The LIFO decrement charges were non-cash charges associated with reducing inventory and liquidating LIFO layers that had historical costs in excess of the fiscal year 2021 inventory costs.

The following presents our operating loss and operating margin, in each case excluding the impact of surcharge on net sales and excluding special items. We present and discuss these financial measures because management believes removing the impact of these items provides a more consistent and meaningful basis for comparing results of operations from period to period. See the section "Non-GAAP Financial Measures" below for further discussion of these financial measures.

	Fiscal Year	
($ in millions)	**2022**	**2021**
Net sales	$ 1,836.3	$ 1,475.6
Less: surcharge revenue	436.3	222.8
Net sales excluding surcharge revenue	$ 1,400.0	$ 1,252.8
Operating loss	$ (24.9)	$ (248.6)
Special items:		
LIFO decrement	—	52.2
COVID-19 costs	5.9	17.3
COVID-19 employee retention credits	(12.7)	—
Inventory write-downs from restructuring	—	4.2
Acquisition-related contingent liability release	(4.7)	—
Environmental site charge	2.4	—
Restructuring and asset impairment charges	—	16.6
Goodwill impairment	—	52.8
Adjusted operating loss excluding special items	$ (34.0)	$ (105.5)
Operating margin	(1.4)%	(16.8)%
Adjusted operating margin excluding surcharge revenue and special items	(2.4)%	(8.4)%

Interest Expense, Net and Debt Extinguishment Losses, Net

Fiscal year 2022 interest expense, net was $44.9 million compared to $32.7 million in fiscal year 2021. Capitalized interest reduced interest expense by $0.8 million for fiscal year 2022 and by $8.1 million in fiscal year 2021. We have historically used interest rate swaps to achieve a level of floating rate debt to fixed rate debt where appropriate; all interest rate swaps were terminated as of September 30, 2020, in connection with the prepayment of the related $250.0 million notes. Interest expense, net for fiscal year 2022 includes no net gains or losses from interest rate swaps compared with $0.4 million of net gains from interest rate swaps for fiscal year 2021. Debt extinguishment losses, net in fiscal year 2022 were $6.0 million of debt prepayment costs made in connection with the prepayment of notes due March 2023. Debt extinguishment losses, net in fiscal year 2021 totaled $8.2 million and included $10.5 million of debt prepayment costs on the notes due July 2021 partially offset by gains of $2.3 million on the related interest rate swaps that were terminated in connection with the prepayment.

Other (Income) Expense, Net

Other income for fiscal year 2022 was $12.7 million compared with other expense of $8.4 million a year ago. The current fiscal year reflects income from pension earnings, interest and deferrals from favorable returns on plan assets compared to expense in the prior year. The fiscal year 2021 expense is primarily due to pension settlement charges of $11.4 million.

Income Taxes

Our effective tax rate (income tax (benefit) expense as a percent of (loss) income before taxes) for fiscal year 2022 was 22.2 percent as compared to 22.9 percent for fiscal year 2021. The fiscal year 2022 tax benefit includes the unfavorable impacts of losses in certain foreign jurisdictions for which no tax benefit can be recognized. The fiscal year 2021 tax benefit included the unfavorable impacts of the $52.8 million non-deductible goodwill impairment charge and losses in certain foreign jurisdictions for which no tax benefit can be recognized, as well as, tax benefits of $2.8 million associated with pension settlement charges, $2.0 million associated with debt extinguishment losses, net, $5.0 million for the impact of restructuring and asset impairment charges and $0.7 million as a result of changes in our prior year tax positions. Additionally, the anticipated benefit for the carryback of the fiscal year 2021 net operating loss to fiscal years with higher tax rates was included in fiscal year 2021. Also included was a tax charge of $1.4 million attributable to employee share-based compensation. Excluding the tax impact of the non-deductible goodwill impairment charge, pension settlement charges, debt extinguishment losses, net, restructuring and asset impairment charges and changes in our prior year tax positions, the tax rate for fiscal year 2021 would have been 28.2 percent.

The Coronavirus Aid, Relief and Economic Security Act (the "CARES Act") was enacted on March 27, 2020. The CARES Act established new provisions, including but not limited to, expanded deduction of certain qualified capital expenditures, delayed payment of certain employment taxes, expanded use of net operating losses, reduced limitations on deductions of interest expense and extension of funding for defined benefit plans. The net operating loss provision provided incremental tax benefits of approximately $7.0 million, which were recognized in fiscal year 2021, due to the higher tax rates in the expanded carryback period. The other provisions in the CARES Act are not expected to have a significant impact on our financial position, results of operations or cash flows.

During the quarter ended March 31, 2022, the Company changed its assertion regarding undistributed earnings from foreign subsidiaries. The Company now asserts that substantially all undistributed earnings from foreign subsidiaries will not be considered permanently reinvested. The potential tax implications from the distribution of these earnings are expected to be limited to withholding taxes in certain foreign jurisdictions and are not expected to materially impact the consolidated financial statements.

See Note 18 to the consolidated financial statements in Item 8. "Financial Statements and Supplementary Data" for a full reconciliation of the statutory federal tax rate to the effective tax rates.

Business Segment Results

Summary information about our operating results on a segment basis is set forth below. For more detailed segment information, see Note 20 to the consolidated financial statements included in Item 8. "Financial Statements and Supplementary Data".

The following table includes comparative information for volumes by business segment:

	Fiscal Year			
(Pounds sold, in thousands)	**2022**	**2021**	**Increase (Decrease)**	**% Increase (Decrease)**
Specialty Alloys Operations	187,754	166,942	20,812	12 %
Performance Engineered Products *	10,662	7,936	2,726	34 %
Intersegment	(10,304)	(5,172)	(5,132)	(99)%
Consolidated pounds sold	188,112	169,706	18,406	11 %

* Pounds sold data for PEP segment includes Dynamet and Additive businesses only.

The following table includes comparative information for net sales by business segment:

($ in millions)	Fiscal Year 2022	Fiscal Year 2021	$ Increase (Decrease)	% Increase (Decrease)
Specialty Alloys Operations	$ 1,565.6	$ 1,262.2	$ 303.4	24 %
Performance Engineered Products	344.5	259.8	84.7	33 %
Intersegment	(73.8)	(46.4)	(27.4)	(59)%
Total net sales	$ 1,836.3	$ 1,475.6	$ 360.7	24 %

The following table includes comparative information for our net sales by business segment, but excluding surcharge revenue:

($ in millions)	Fiscal Year 2022	Fiscal Year 2021	$ Increase (Decrease)	% Increase (Decrease)
Specialty Alloys Operations	$ 1,137.1	$ 1,042.8	$ 94.3	9 %
Performance Engineered Products	336.7	255.9	80.8	32 %
Intersegment	(73.8)	(45.9)	(27.9)	(61)%
Total net sales excluding surcharge revenue	$ 1,400.0	$ 1,252.8	$ 147.2	12 %

Specialty Alloys Operations Segment

Net sales in fiscal year 2022 for the SAO segment increased 24 percent to $1,565.6 million, as compared with $1,262.2 million in fiscal year 2021. Excluding surcharge revenue, net sales increased 9 percent from a year ago. The fiscal year 2022 net sales reflected 12 percent higher shipment volume as compared to fiscal year 2021. The SAO segment results reflect higher sales in all end-use markets except Aerospace and Defense which were flat compared to the prior year.

Operating income for the SAO segment in fiscal year 2022 was $9.6 million, or 0.6 percent of net sales (0.8 percent of net sales excluding surcharge revenue), compared to operating loss of $87.4 million, or negative 6.9 percent of net sales (negative 0.8 percent of net sales excluding surcharge revenue), for fiscal year 2021. Fiscal year 2022 reflects higher volume in all end-use markets partially offset by the near-term operational challenges resulting from labor shortages, supply chain disruptions and the unplanned Reading press outage which was returned to service in the third quarter. The current year also includes a benefit of $10.6 million related to COVID-19 employee retention credits. The prior year period included negative impacts from targeted inventory reductions and LIFO decrement charges of $47.9 million. The LIFO decrement charges are non-cash charges associated with reducing inventory and liquidating LIFO layers that had historical costs in excess of the fiscal year 2021 inventory costs. The fiscal year 2022 results also include $5.2 million of COVID-19 related costs compared to $14.6 million in fiscal year 2021.

Performance Engineered Products Segment

Net sales for fiscal year 2022 for the PEP segment were $344.5 million as compared with $259.8 million for fiscal year 2021. Excluding surcharge revenue, net sales increased 32 percent from a year ago. The results reflect higher sales in all end-use markets including Energy when excluding the prior year net sales of the Amega West business which was divested on September 30, 2020.

Operating income for the PEP segment for fiscal year 2022 was $18.1 million, or 5.3 percent of net sales, as compared with operating loss of $16.5 million, or negative 6.4 percent of net sales for fiscal year 2021. Fiscal year 2022 results reflect higher sales in all end-use markets and cost savings in the current fiscal year from the restructuring actions taken in fiscal year 2021. The current year also includes a benefit of $2.1 million related to COVID-19 employee retention credits. Fiscal year 2021 included LIFO decrement charges of $4.3 million. The LIFO decrement charges are non-cash charges associated with reducing inventory and liquidating LIFO layers that had historical costs in excess of the fiscal year 2021 inventory costs. The fiscal year 2022 results also include $0.7 million of COVID-19 related costs compared to $2.7 million in fiscal year 2021.

Results of Operations — Fiscal Year 2021 Compared to Fiscal Year 2020

For fiscal year 2021, we reported net loss of $229.6 million, or $4.76 loss per diluted share. Excluding special items, loss per diluted share would have been $2.01 for fiscal year 2021. This compares with net income of $1.5 million, or $0.02 per diluted share, a year earlier. Excluding special items, earnings per share would have been $2.36 per diluted share for fiscal year 2020. The results for fiscal year 2021 compared to fiscal year 2020 were negatively impacted by the significantly lower volume due to the COVID-19 pandemic, targeted inventory reductions to strengthen liquidity and non-cash restructuring and asset impairment charges. These headwinds were partially offset by the various cost savings actions taken by us in fiscal year 2021 and the fourth quarter of fiscal year 2020. Our fiscal year 2021 results were impacted by a goodwill impairment charge totaling $52.8 million, LIFO decrement charges of $52.2 million, COVID-19 charges of $17.3 million, restructuring and asset impairment charges of $16.6 million, pension settlement charges of $11.4 million, debt extinguishment losses, net of $8.2 million and inventory write-downs from restructuring of $4.2 million. The LIFO decrement charges are non-cash charges associated with reducing inventory and liquidating LIFO layers that had historical costs in excess of the fiscal year 2021 inventory costs. Our fiscal year 2020 results reflect goodwill impairment charges totaling $34.6 million, inventory write-downs and restructuring and asset impairment charges of $97.8 million, LIFO decrement charges of $1.8 million and COVID-19 charges of $7.4 million.

Net Sales

Net sales for fiscal year 2021 were $1,475.6 million, which was a 32 percent decrease from fiscal year 2020. Excluding surcharge revenue, sales were 31 percent lower than fiscal year 2020 on 27 percent lower volume. The results reflected the on-going financial disruptions caused by COVID-19, resulting in lower sales across all end-use markets except transportation versus the prior year period.

Geographically, fiscal year 2021 sales outside the United States decreased 30 percent from fiscal year 2020 to $549.0 million. The decrease was primarily due to lower product demand in the Aerospace and Defense and Medical end-use markets in all regions. A portion of our sales outside the United States are denominated in foreign currencies. The impact of fluctuations in foreign currency exchange rates resulted in a $3.8 million increase in sales during fiscal year 2021 compared to fiscal year 2020. International sales as a percentage of our total net sales represented 37 percent and 36 percent for fiscal year 2021 and fiscal year 2020, respectively.

Sales by End-Use Markets

We sell to customers across diversified end-use markets. The following table includes comparative information for our net sales, which includes surcharge revenue, by principal end-use markets. We believe this is helpful supplemental information in analyzing performance of the business from period to period.

	Fiscal Year		$	%
($ in millions)	**2021**	**2020**	**(Decrease) Increase**	**(Decrease) Increase**
Aerospace and Defense	$ 710.9	$ 1,313.7	$ (602.8)	(46)%
Medical	143.5	197.0	(53.5)	(27)%
Transportation	144.5	132.1	12.4	9 %
Energy	87.8	135.4	(47.6)	(35)%
Industrial and Consumer	292.1	296.0	(3.9)	(1)%
Distribution	96.8	106.9	(10.1)	(9)%
Total net sales	$ 1,475.6	$ 2,181.1	$ (705.5)	(32)%

The following table includes comparative information for our net sales by the same principal end-use markets, but excluding surcharge revenue:

($ in millions)	Fiscal Year 2021	Fiscal Year 2020	$ (Decrease) Increase	% (Decrease) Increase
Aerospace and Defense	$ 598.8	$ 1,072.1	$ (473.3)	(44)%
Medical	128.2	177.2	(49.0)	(28)%
Transportation	115.9	108.7	7.2	7 %
Energy	70.5	116.4	(45.9)	(39)%
Industrial and Consumer	243.1	248.1	(5.0)	(2)%
Distribution	96.3	106.2	(9.9)	(9)%
Total net sales excluding surcharge revenue	$ 1,252.8	$ 1,828.7	$ (575.9)	(31)%

Sales to the Aerospace and Defense market decreased 46 percent from fiscal year 2020 to $790.2 million. Excluding surcharge revenue, sales decreased 44 percent on 47 percent lower shipment volume. The results reflect weaker year-over-year demand in all sub-markets due to the continued impact of lower aircraft OEM build rates due to COVID-19 travel restrictions.

Sales to the Medical market decreased 27 percent to $212.3 million from fiscal year 2020. Excluding surcharge revenue, sales decreased 28 percent on 24 percent lower shipment volume. The results reflect lower demand as a result of the medical supply chain managing inventory levels closely related to ongoing concerns and delays of elective medical procedures due to the COVID-19 pandemic.

Transportation market sales of $178.3 million reflected a 9 percent increase from fiscal year 2020. Excluding surcharge revenue, sales increased 7 percent on 12 percent higher shipment volume. The results reflect improved demand for materials used in light-duty and heavy-duty vehicles in fiscal year 2021.

Sales to the Energy market of $113.0 million reflected a 35 percent decrease from fiscal year 2020. Excluding surcharge revenue, sales decreased 39 percent. The results reflect depressed North American drilling activity and decreased demand globally as a result of the impact of COVID-19. This is slightly offset by higher demand in power generation materials. The fiscal year 2020 results include a full year of sales for the Amega West business, which we divested on September 30, 2020.

Industrial and Consumer market sales decreased 1 percent to $417.2 million for fiscal year 2021. Excluding surcharge revenue, sales decreased 2 percent on 4 percent higher shipment volume. The flat results reflected the ongoing demand for materials used in the select industrial applications and steady demand for consumer electronics and sporting goods.

Gross Profit

Gross profit in fiscal year 2021 decreased to $1.0 million, or 0.1 percent of net sales from $329.4 million, or 15.1 percent of net sales for fiscal year 2020. The fiscal year 2021 results were impacted by significantly lower volume resulting from the COVID-19 pandemic, continued targeted inventory reductions which resulted in $52.2 million of LIFO decrement charges and $4.2 million of inventory write-downs from restructuring. Excluding the impact of the surcharge revenue, LIFO decrement and the inventory write-downs, our adjusted gross margin in fiscal year 2021 was 4.6 percent compared to adjusted gross margin of 19.7 percent in fiscal year 2020.

Our surcharge mechanism is structured to recover increases in raw material costs, although in certain cases with a lag effect as discussed above. While the surcharge generally protects the absolute gross profit dollars, it does have a dilutive effect on gross margin as a percent of sales. The following represents a summary of the dilutive impact of the surcharge on gross margin and special items. We present and discuss these financial measures because management believes removing the impact of surcharge provides a more consistent and meaningful basis for comparing results of operations from period to period. See the section "Non-GAAP Financial Measures" below for further discussion of these financial measures.

($ in millions)	Fiscal Year 2021	Fiscal Year 2020
Net sales	$ 1,475.6	$ 2,181.1
Less: surcharge revenue	222.8	352.4
Net sales excluding surcharge revenue	$ 1,252.8	$ 1,828.7
Gross profit	$ 1.0	$ 329.4
LIFO decrement	52.2	1.8
Inventory write-downs from restructuring	4.2	29.3
Gross profit excluding special items	$ 57.4	$ 360.5
Gross margin	0.1 %	15.1 %
Gross margin excluding surcharge revenue and special items	4.6 %	19.7 %

Selling, General and Administrative Expenses

Selling, general and administrative expenses in fiscal year 2021 were $180.2 million, or 12.2 percent of net sales (14.4 percent of net sales excluding surcharge revenue), compared to $201.0 million, or 9.2 percent of net sales (11.0 percent of net sales excluding surcharge revenue), in fiscal year 2020. The lower selling, general and administrative expenses in fiscal year 2021 reflect the impacts of the cost saving actions initiated in the fourth quarter of fiscal year 2020 including lower salaries and benefits compared to the same period a year ago.

Restructuring and Asset Impairment Charges

During fiscal year 2021, restructuring and asset impairment charges were $16.6 million compared to $68.5 million in fiscal year 2020. Additional restructuring activities were executed in our Additive business in the PEP segment during fiscal year 2021. This included $14.2 million of non-cash pre-tax impairment charges consisting of $8.2 million of property, plant and equipment, $4.3 million associated with certain definite lived intangible assets, $1.3 million related to a lease right of use asset and $0.4 million of other non-cash charges. We also recognized $0.4 million for facility shut-down costs and various personnel costs for severance payments, medical coverage and related items.

We recorded $2.0 million of non-cash impairment pre-tax charges as a result of the Amega West business exit primarily related to accounts receivable determined to be uncollectible.

Activities undertaken in connection with the fiscal year 2021 Additive restructuring plan were substantially complete in the first quarter of fiscal year 2022.

Goodwill Impairment Charge

In preparing the financial statements for the fiscal year ended June 30, 2021, we identified an impairment triggering event related to the Additive reporting unit within the PEP segment. This reporting unit had experienced slower than expected growth due to customers shifting their near-term focus away from this emerging area as a result of the continuing impacts of the COVID-19 pandemic. During the year ended June 30, 2021, we also made strategic decisions to reduce resources allocated to the Additive reporting unit to concentrate on the essential manufacturing business. In light of these decisions and market conditions, the pace of growth in the future projections for the Additive reporting unit were lowered. As a result, during the year ended June 30, 2021, we recorded an impairment charge of $52.8 million, which represented the entire balance of goodwill for this reporting unit.

Operating (Loss) Income

Our operating loss in fiscal year 2021 was $248.6 million, or negative 16.8 percent of net sales as compared with $25.3 million of operating income, or 1.2 percent of net sales in fiscal year 2020. Excluding surcharge revenue and special items, adjusted operating margin was negative 8.4 percent for fiscal year 2021 and 9.1 percent for fiscal year 2020. The results for fiscal year 2021 compared to fiscal year 2020 were negatively impacted by the significantly lower volume due to the COVID-19 pandemic, targeted inventory reductions to strengthen liquidity and non-cash restructuring and asset impairment charges. These headwinds were partially offset by the various cost savings actions taken in fiscal year 2021 and the fourth quarter of fiscal year 2020. Our fiscal year 2021 results were also impacted by a goodwill impairment charge totaling $52.8 million, LIFO decrement charges of $52.2 million, COVID-19 charges of $17.3 million, restructuring and asset impairment charges of $16.6 million, and inventory write-downs from restructuring of $4.2 million.

The following presents our operating income and operating margin, in each case excluding the impact of surcharge on net sales and excluding special items. We present and discuss these financial measures because management believes removing the impact of these items provides a more consistent and meaningful basis for comparing results of operations from period to period. See the section "Non-GAAP Financial Measures" below for further discussion of these financial measures.

	Fiscal Year	
($ in millions)	**2021**	**2020**
Net sales	$ 1,475.6	$ 2,181.1
Less: surcharge revenue	222.8	352.4
Net sales excluding surcharge revenue	$ 1,252.8	$ 1,828.7
Operating (loss) income	$ (248.6)	$ 25.3
Special items:		
LIFO decrement	52.2	1.8
COVID-19 costs	17.3	7.4
Inventory write-downs from restructuring	4.2	29.3
Restructuring and asset impairment charges	16.6	68.5
Goodwill impairment	52.8	34.6
Adjusted operating (loss) income excluding special items	$ (105.5)	$ 166.9
Operating margin	(16.8)%	1.2 %
Adjusted operating margin excluding surcharge revenue and special items	(8.4)%	9.1 %

Interest Expense, Net and Debt Extinguishment Losses, Net

Fiscal year 2021 interest expense was $32.7 million compared to $19.8 million in fiscal year 2020. We have historically used interest rate swaps to achieve a level of floating rate debt to fixed rate debt where appropriate; all interest rate swaps were terminated as of September 30, 2020, in connection with the prepayment of the related $250.0 million notes. Interest expense, net for fiscal year 2021 includes net gains from interest rate swaps of $0.4 million compared with $1.4 million of net gains from interest rate swaps for fiscal year 2020. Capitalized interest reduced interest expense by $8.1 million for fiscal year 2021 and by $9.0 million in fiscal year 2020. Debt extinguishment losses, net in fiscal year 2021 include $10.5 million of debt prepayment costs on the notes due July 2021 partially offset by gains of $2.3 million on the related interest rate swaps that were terminated in connection with the prepayment.

Other Expense (Income), Net

Other expense for fiscal year 2021 was $8.4 million compared with other income of $0.6 million in fiscal year 2020. The fiscal year 2021 expense was primarily due to pension settlement charges of $11.4 million. There were no pension settlement charges in fiscal year 2020.

Income Taxes

Our effective tax rate (income tax (benefit) expense as a percent of (loss) income before taxes) for fiscal year 2021 was 22.9 percent as compared to 75.4 percent for fiscal year 2020. The fiscal year 2021 tax benefit includes the unfavorable impacts of the $52.8 million non-deductible goodwill impairment charge and losses in certain foreign jurisdictions for which no tax benefit can be recognized, as well as, tax benefits of $2.8 million associated with pension settlement charges, $2.0 million associated with debt extinguishment losses, net, $5.0 million for the impact of restructuring and asset impairment charges and $0.7 million as a result of changes in our prior year tax positions. Additionally, the anticipated benefit for the carryback of the fiscal year 2021 net operating loss to fiscal years with higher tax rates is included in the period. Also included is a tax charge of $1.4 million attributable to employee share-based compensation. Excluding the tax impact of the non-deductible goodwill impairment charge, pension settlement charges, debt extinguishment losses, net restructuring and asset impairment charges and changes in our prior year tax positions, the tax rate for fiscal year 2021 would have been 28.2 percent. The fiscal year 2020 tax expense includes the unfavorable impact of the $10.7 million non-deductible goodwill impairment charge and losses in certain foreign jurisdictions for which no tax benefit can be recognized, as well as, tax benefits of $27.0 million for the impact of restructuring and asset impairment charges and $1.0 million as a result of changes in our prior year tax positions. Excluding the impact of the non-deductible goodwill impairment charge, restructuring and asset impairment charges and changes in our prior year tax positions, the tax rate for fiscal year 2020 would have been 23.6 percent.

The net operating loss provision of the CARES Act provided incremental tax benefits of approximately $7.0 million due to the higher tax rates in the expanded carryback period. The other provisions in the CARES Act are not expected to have a significant impact on our financial position, results of operations or cash flows.

Undistributed earnings of our foreign subsidiaries, totaling $56.4 million were considered permanently reinvested. If these earnings were to be repatriated, approximately $0.8 million of tax expense would be incurred.

See Note 18 to the consolidated financial statements in Item 8. "Financial Statements and Supplementary Data" for a full reconciliation of the statutory federal tax rate to the effective tax rates.

Business Segment Results

Summary information about our operating results on a segment basis is set forth below. For more detailed segment information, see Note 20 to the consolidated financial statements included in Item 8. "Financial Statements and Supplementary Data".

The following table includes comparative information for volumes by business segment:

(Pounds sold, in thousands)	Fiscal Year 2021	Fiscal Year 2020	(Decrease)	% (Decrease)
Specialty Alloys Operations	166,942	221,784	(54,842)	(25)%
Performance Engineered Products *	7,936	12,260	(4,324)	(35)%
Intersegment	(5,172)	(2,308)	(2,864)	(124)%
Consolidated pounds sold	169,706	231,736	(62,030)	(27)%

* Pounds sold data for PEP segment includes Dynamet and Additive businesses only.

The following table includes comparative information for net sales by business segment:

($ in millions)	Fiscal Year 2021	Fiscal Year 2020	$ (Decrease) Increase	% (Decrease) Increase
Specialty Alloys Operations	$ 1,262.2	$ 1,831.6	$ (569.4)	(31)%
Performance Engineered Products	259.8	401.1	(141.3)	(35)%
Intersegment	(46.4)	(51.6)	5.2	10 %
Total net sales	$ 1,475.6	$ 2,181.1	$ (705.5)	(32)%

The following table includes comparative information for our net sales by business segment, but excluding surcharge revenue:

($ in millions)	Fiscal Year 2021	Fiscal Year 2020	$ (Decrease) Increase	% (Decrease) Increase
Specialty Alloys Operations	$ 1,042.8	$ 1,483.0	$ (440.2)	(30)%
Performance Engineered Products	255.9	395.2	(139.3)	(35)%
Intersegment	(45.9)	(49.5)	3.6	7 %
Total net sales excluding surcharge revenue	$ 1,252.8	$ 1,828.7	$ (575.9)	(31)%

Specialty Alloys Operations Segment

Net sales in fiscal year 2021 for the SAO segment decreased 31 percent to $1,262.2 million, as compared with $1,831.6 million in fiscal year 2020. Excluding surcharge revenue, net sales decreased 30 percent from fiscal year 2020. The fiscal year 2021 net sales reflected 25 percent lower shipment volume compared to fiscal year 2020. The SAO segment results reflect lower sales in the Aerospace and Defense and Medical end-use markets compared to the prior year caused by the market impact from the COVID-19 pandemic. Sales in the Transportation end-use market increased in fiscal year 2021 compared to fiscal year 2020.

Operating loss for the SAO segment in fiscal year 2021 was $87.4 million, or negative 6.9 percent of net sales (negative 8.4 percent of net sales excluding surcharge revenue), compared to operating income of $239.0 million, or 13.0 percent of net sales (16.1 percent of net sales excluding surcharge revenue), for fiscal year 2020. Fiscal year 2021 included LIFO decrement charges of $47.9 million compared to $1.8 million in fiscal year 2020. The LIFO decrement charges are non-cash charges associated with reducing inventory and liquidating LIFO layers that had historical costs in excess of the fiscal year 2021 inventory costs. The fiscal year 2021 results also include $14.6 million of COVID-19 related costs compared to $6.5 million in fiscal year 2020.

Performance Engineered Products Segment

Net sales for fiscal year 2021 for the PEP segment were $344.5 million as compared with $401.1 million for fiscal year 2020. Excluding surcharge revenue, net sales decreased 35 percent from a year ago. The results reflect decreases in sales in all end-use markets. This included lower demand in the Medical end-use market from delays in elective procedures caused by COVID-19. The fiscal year 2021 net sales results reflect the divestiture of the Amega West business on September 30, 2020.

Operating loss for the PEP segment for fiscal year 2021 was $16.5 million, or negative 6.4 percent of net sales, as compared with operating loss of $10.4 million, or negative 2.6 percent of net sales for fiscal year 2020. Fiscal year 2021 included LIFO decrement charges of $4.3 million. The LIFO decrement charges are non-cash charges associated with reducing inventory and liquidating LIFO layers that had historical costs in excess of the fiscal year 2021 inventory costs. The fiscal year 2021 results also include $2.7 million of COVID-19 related costs compared to $0.9 million in fiscal year 2020.

Liquidity and Financial Resources

During fiscal year 2022, we generated cash from operating activities of $6.0 million as compared with $250.0 million in fiscal year 2021. Our free cash flow, which we define under "Non-GAAP Financial Measures" below, was negative $122.3 million as compared to positive $132.0 million for the same period a year ago. The change in operating cash flow primarily reflects the impact of higher earnings after non-cash adjustments to net income in fiscal year 2022 offset by changes in inventory compared to a year ago. The current year reflects cash used to build inventory of $71.9 million compared to cash from targeted inventory reductions of $238.5 million in fiscal year 2021. The current period also includes $47.1 million from certain income tax refunds received related to prior years. The free cash flow results reflect lower capital spending levels in the current period as compared to the prior year period. Fiscal year 2021 results also included $20.0 million of proceeds related to the sale of our Amega West business.

Capital expenditures for property, plant, equipment and software were $91.3 million for fiscal year 2022 as compared to $100.5 million for fiscal year 2021. In fiscal year 2023, we expect capital expenditures to be approximately $100 million.

We evaluate liquidity needs for alternative uses including funding external growth opportunities, share repurchases as well as funding consistent dividend payments to stockholders. Dividends for fiscal year 2022 were $39.2 million, as compared to $39.1 million in the prior year period. In fiscal years 2022, 2021 and 2020 we declared and paid quarterly cash dividends of $0.20 per share.

For the fiscal years ended June 30, 2022, 2021 and 2020, interest costs totaled $45.7 million, $40.8 million and $28.8 million, respectively, of which $0.8 million, $8.1 million and $9.0 million, respectively, were capitalized as part of the cost of property, plant, equipment and software. Debt extinguishment losses, net for the fiscal year ended June 30, 2022 were $6.0 million as compared with $8.2 million of debt extinguishment losses, net for the fiscal year ended June 30, 2021 which included $10.5 million of debt prepayment costs on notes due July 2021, offset by gains of $2.3 million on related interest rate swaps that were terminated in connection with the prepayment. For the fiscal year ended June 30, 2020, there were no debt extinguishment losses, net.

We have demonstrated the ability to generate cash to meet our needs through cash flows from operations, management of working capital and the ability to access capital markets to supplement internally generated funds. We target minimum liquidity of $150 million, consisting of cash and cash equivalents added to available borrowing capacity under our Credit Facility.

On March 26, 2021, we entered into our $300.0 million secured revolving credit facility (the "Credit Facility"). The Credit Facility amended and restated our previous revolving credit facility, dated March 31, 2017, which had been set to expire in March 2022. The Credit Facility extends the maturity to March 31, 2024, subject to a springing maturity of November 30, 2022. If, by November 30, 2022, our outstanding $300.0 million 4.45% Senior Notes due in March 2023 were not redeemed, repurchased or refinanced with indebtedness having a maturity date of October 1, 2024 or later, all indebtedness under the Credit Facility would be due. The springing maturity clause has been fulfilled with the issuance of the 2030 Notes and subsequent payment in full of the 4.45% Senior Notes, as discussed in Note 10, Debt. The Credit Facility contains a revolving credit commitment amount of $300.0 million, subject to our right, from time to time, to request an increase of the commitment to $500.0 million in the aggregate; and provides for the issuance of letters of credit subject to a $40.0 million sub-limit. We have the right to voluntarily prepay and re-borrow loans, to terminate or reduce the commitments under the Credit Facility, and, subject to certain lender approvals, to join subsidiaries as subsidiary borrowers.

On February 14, 2022, we entered into an amendment (the “Amendment”) to our secured revolving Credit Facility. The Amendment revised the interest coverage ratio covenant under the Credit Facility so that the first test date is June 30, 2022, and to require a minimum interest coverage ratio of 2.00 to 1.00 at June 30, 2022 (calculated for the two fiscal quarters then ended), 3.00 to 1.00 at September 30, 2022 (calculated for the three fiscal quarters then ended) and 3.50 to 1.00 at December 31, 2022 and thereafter (calculated for the four fiscal quarters then ended). The Amendment revised the restricted period under the Credit Facility, during which the Company is prohibited from incurring any secured debt other than purchase money financing for new equipment and is subject to additional restrictions on its ability to make dividends or distributions or to make certain investments, to expire on September 30, 2022.

On March 16, 2022, we completed our offering and sale of $300.0 million in aggregate principal amount of 7.625% Senior Notes due 2030 (the "2030 Notes"). The 2030 Notes accrue interest at the rate of 7.625% per annum, with interest payable in cash semi-annually in arrears on March 15 and September 15, commencing September 15, 2022. The 2030 Notes will mature on March 15, 2030. The 2030 Notes are senior unsecured indebtedness, ranking equally in right of payment with all its existing and future senior unsecured indebtedness and senior to its future subordinated indebtedness. We used the net proceeds from the issuance of the 2030 Notes to repay, in April 2022, in full $300.0 million in principal of its 4.45% senior unsecured notes due March 2023, including any interest and premium due thereon.

As of June 30, 2022, we had $5.9 million of issued letters of credit and no short-term borrowings under the Credit Facility. The balance of the Credit Agreement, $294.1 million, remains available to us. As of June 30, 2022, the borrowing rate for the Credit Facility was 3.67 percent.

We believe that our total liquidity of $448.3 million, as of June 30, 2022, which includes cash and cash equivalents of $154.2 million and available borrowing capacity of $294.1 million under the Credit Facility, will be sufficient to fund our cash needs over the foreseeable future.

During fiscal year 2022, we made pension contributions of $0.7 million in total to our qualified defined benefit pension plans. We are not required to make cash contributions to our domestic qualified pension plans during fiscal year 2023 as a result of the American Rescue Plan Act of 2021. Over the next five years, current estimates indicate that we will be required to make approximately $67.4 million of cash contributions to our domestic qualified defined benefit pension plans, based on the laws in effect for pension funding as of June 30, 2022, and subject to market returns and interest rate assumptions.

As of June 30, 2022, we had cash and cash equivalents of approximately $40.6 million held at various foreign subsidiaries. Our global cash deployment considers, among other things, the geographic location of our subsidiaries' cash balances, the locations of our anticipated liquidity needs and the cost to access international cash balances, as necessary. During the fiscal year ended June 30, 2022, we repatriated cash of $19.8 million from foreign jurisdictions.

We are subject to certain financial and restrictive covenants under the Credit Facility, which, among other things, require the maintenance of a minimum interest coverage ratio. The interest coverage ratio is defined in the Credit Facility as, for any period, the ratio of consolidated earnings before interest, taxes, depreciation and amortization and non-cash net pension expense ("EBITDA") to consolidated interest expense for such period. The interest coverage covenant was waived until the quarter ended June 30, 2022 at which time it is required to be 2.00 to 1.00, for the quarter ended September 30, 2022 it will be 3.00 to 1.00 and then 3.50 to 1.00 thereafter. The Credit Facility also requires us to maintain a debt to capital ratio of less than 55 percent. The debt to capital ratio is defined in the Credit Facility as the ratio of consolidated indebtedness, as defined therein, to consolidated capitalization, as defined therein. In addition, we are subject to an asset coverage ratio minimum of 1.10 to 1.00. The asset coverage ratio is defined in the Credit Facility as eligible receivables and inventory, as defined therein, to outstanding loans and obligations, as defined therein. As of June 30, 2022, we were in compliance with all of the covenants of the Credit Facility.

The following table shows our actual ratio performance with respect to the financial covenants, as of June 30, 2022:

Covenant	Covenant Requirement	Actual Ratio
Consolidated debt to capital	55% (maximum)	34%
Consolidated interest coverage ratio	2.00 to 1.00 (minimum)	3.65 to 1.00
Asset coverage ratio	1.10 to 1.00 (minimum)	71.40 to 1.00

To the extent that we do not comply with the current or modified covenants under the Credit Facility, this could reduce our liquidity and flexibility due to potential restrictions on borrowings available to us unless we are able to obtain waivers or modifications of the covenants.

Non-GAAP Financial Measures

The following provides additional information regarding certain non-GAAP financial measures that we use in this report. Our definitions and calculations of these items may not necessarily be the same as those used by other companies.

Net Sales and Gross Margin Excluding Surcharge Revenue and Special Items

This report includes discussions of net sales as adjusted to exclude the impact of raw material surcharge and special items and the resulting impact on gross margins, which represent financial measures that have not been determined in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP"). We present and discuss these financial measures because management believes removing the impact of raw material surcharge from net sales provides a more consistent basis for comparing results of operations from period to period for the reasons discussed earlier in this report. In addition, management believes that excluding special items from gross profit and gross margin is helpful in analyzing our operating performance as the inventory write-downs from restructuring are not indicative of ongoing operating performance. Management uses its results excluding these amounts to evaluate its operating performance and to discuss its business with investment institutions, our board of directors and others. See our earlier discussion of "Gross Profit" for a reconciliation of net sales and gross margin, excluding surcharge revenue and special items, to net sales as determined in accordance with U.S. GAAP. Net sales and gross margin excluding surcharge revenue and special items is not a U.S. GAAP financial measure and should not be considered in isolation of, or as a substitute for, net sales and gross margin calculated in accordance with U.S. GAAP.

Adjusted Operating (Loss) Income and Adjusted Operating Margin Excluding Surcharge Revenue and Special Items

This report includes discussions of operating (loss) income and operating margin as adjusted to exclude the impact of raw material surcharge revenue and special items which represent financial measures that have not been determined in accordance with U.S. GAAP. We present and discuss these financial measures because management believes removing the impact of raw material surcharge from net sales provides a more consistent and meaningful basis for comparing results of operations from period to period for the reasons discussed earlier in this report. In addition, management believes that excluding special items from operating margin is helpful in analyzing our operating performance, as these items are not indicative of ongoing operating performance. Management uses its results excluding these amounts to evaluate its operating performance and to discuss its business with investment institutions, our board of directors and others. See our earlier discussion of operating loss for a reconciliation of adjusted operating (loss) income and adjusted operating margin excluding special items to operating (loss) income and operating margin determined in accordance with U.S. GAAP. Adjusted operating (loss) income and adjusted operating margin excluding surcharge revenue and special items is not a U.S. GAAP financial measure and should not be considered in isolation of, or as a substitute for, operating (loss) income and operating margin calculated in accordance with U.S. GAAP.

Adjusted Loss Per Share

The following provides a reconciliation of adjusted loss per share, to its most directly comparable U.S. GAAP financial measures:

($ in millions, except per share data)	**Loss Before Income Taxes**	**Income Tax Benefit**	**Net Loss**	**Loss Per Diluted Share***
Year ended June 30, 2022, as reported	$ (63.1)	$ 14.0	$ (49.1)	$ (1.01)
Special items:				
COVID-19 costs	5.9	(1.3)	4.6	0.08
COVID-19 employee retention credits	(12.7)	2.8	(9.9)	(0.20)
Acquisition-related contingent liability release	(4.7)	1.1	(3.6)	(0.07)
Environmental site charge	2.4	(0.5)	1.9	0.04
Debt extinguishment losses, net	6.0	(1.3)	4.7	0.10
Total impact of special items	(3.1)	0.8	(2.3)	(0.05)
Year ended June 30, 2022, as adjusted	$ (66.2)	$ 14.8	$ (51.4)	$ (1.06)

* Impact per diluted share calculated using weighted average common shares outstanding of 48.5 million for the fiscal year ended June 30, 2022.

($ in millions, except per share data)	Loss Before Income Taxes	Income Tax Benefit	Net Loss	Loss Per Diluted Share*
Year ended June 30, 2021, as reported	$ (297.9)	$ 68.3	$ (229.6)	$ (4.76)
Special items:				
LIFO decrement	52.2	(14.9)	37.3	0.77
COVID-19 costs	17.3	(5.0)	12.3	0.25
Inventory write-downs from restructuring	4.2	(1.0)	3.2	0.07
Restructuring and asset impairment charges	16.6	(4.0)	12.6	0.26
Goodwill impairment	52.8	(0.1)	52.7	1.09
Debt extinguishment losses, net	8.2	(2.0)	6.2	0.13
Pension settlement charges	11.4	(2.8)	8.6	0.18
Total impact of special items	162.7	(29.8)	132.9	2.75
Year ended June 30, 2021, as adjusted	$ (135.2)	$ 38.5	$ (96.7)	$ (2.01)

* Impact per diluted share calculated using weighted average common shares outstanding of 48.3 million for the fiscal year ended June 30, 2021.

Management believes that the presentation of loss per share adjusted to exclude the impact of special items is helpful in analyzing the operating performance of the Company, as these items are not indicative of ongoing operating performance. Management uses its results excluding these amounts to evaluate its operating performance and to discuss its business with investment institutions, the Company's board of directors and others. Our definitions and calculations of these items may not necessarily be the same as those used by other companies. Adjusted loss per share is not a U.S. GAAP financial measure and should not be considered in isolation of, or as a substitute for, loss per share calculated in accordance with U.S. GAAP.

Free Cash Flow

The following provides a reconciliation of free cash flow, as used in this annual report, to its most directly comparable U.S. GAAP financial measures:

	Fiscal Year		
($ in millions)	2022	2021	2020
Net cash provided from operating activities	$ 6.0	$ 250.0	$ 231.8
Purchases of property, plant, equipment and software	(91.3)	(100.5)	(171.4)
Proceeds from disposals of property, plant and equipment and assets held for sale	2.2	1.6	0.2
Proceeds from divestiture of business	—	20.0	—
Dividends paid	(39.2)	(39.1)	(38.8)
Free cash flow	$ (122.3)	$ 132.0	$ 21.8

Management believes that the presentation of free cash flow provides useful information to investors regarding our financial condition because it is a measure of cash generated which management evaluates for alternative uses. It is management's current intention to use excess cash to fund investments in capital equipment, acquisition opportunities and consistent dividend payments. Free cash flow is not a U.S. GAAP financial measure and should not be considered in isolation of, or as a substitute for, cash flows calculated in accordance with U.S. GAAP.

Critical Accounting Policies and Estimates

The preparation of the consolidated financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates. On an on-going basis, we evaluate our estimates, including those related to bad debts, customer claims, inventories, pensions and other postretirement benefits, intangible assets, goodwill, leases, environmental liabilities, income taxes, derivative instruments and hedging activities and contingencies and litigation.

We believe the following are the critical accounting policies and areas affected by significant judgments and estimates impacting the preparation of our consolidated financial statements.

Allowance for Doubtful Accounts

We maintain an allowance for doubtful accounts for estimated losses resulting from the failure of our customers to make required payments. We perform ongoing credit evaluations of our customers and monitor their payment patterns. Should the financial condition of our customers deteriorate, resulting in an impairment of their ability to make payments, additional allowances may be required.

Inventories

Inventories are valued at the lower of cost or market for those inventories determined by the LIFO method. We value other inventory at the lower of cost or net realizable value, determined by the FIFO and average cost methods. As of June 30, 2022 and 2021, $122.9 million and $107.5 million of inventory, respectively, was accounted for using a method other than the LIFO method.

Costs include direct materials, direct labor, applicable manufacturing overhead and other direct costs. Under the LIFO inventory valuation method, changes in the cost of raw materials and production activities are recognized in cost of sales in the current period even though these materials and other costs may have been incurred at significantly different values due to the length of time of our production cycle. The prices for many of the raw materials we use have been volatile. Since we value most of our inventory utilizing the LIFO inventory costing methodology, rapid changes in raw material costs have an impact on our operating results. In a period of rising prices, cost of sales expense recognized under LIFO is generally higher than the cash costs incurred to acquire the inventory sold. Conversely, in a period of declining raw material prices, cost of sales expense recognized under LIFO is generally lower than the cash costs incurred to acquire the inventory sold.

Since the LIFO inventory valuation methodology is designed for annual determination, interim estimates of the annual LIFO valuation are required. We evaluate the effects of the LIFO inventory valuation method on an interim basis by estimating the expected annual LIFO cost based on cost changes to date and recognize effects that are not expected to be replaced by year-end in the interim period in which the liquidation occurs. These projections of annual LIFO inventory valuation reserve changes are updated quarterly and are evaluated based upon material, labor and overhead costs.

Pension and Other Postretirement Benefits

The amount of net pension (income) expense, which is determined annually, or upon remeasurement, is based upon the value of the assets in the pension trusts at the beginning of the fiscal year as well as actuarial assumptions, such as the discount rate and the expected long-term rate of return on plan assets. The assumed long-term rate of return on pension plan assets is reviewed at each year-end based on the plan's investment policies, an analysis of the historical returns of the capital markets and current interest rates. Based on the current funding level, the benchmark allocation policy for the Company's largest pension plan assets is to have approximately 75 percent in return seeking assets and 25 percent in liability-hedging assets. Return seeking assets include global equities, diversified credit and real assets. Liability-hedging assets include bond funds and cash. When the funding level of the plan reaches 95 percent and improves to fully or over-funded status in increments of 5 percent, assets will be shifted from return seeking to liability-hedging assets in accordance with the glidepath policy outlined in the pension plan’s Investment Policy Statement. The plan discount rate is determined by reference to the Bond:Link interest rate model based upon a portfolio of highly rated U.S. corporate bonds with individual bonds that are theoretically purchased to settle the plan's anticipated cash outflows. The fluctuations in stock and bond markets could cause actual investment results to be significantly different from those assumed, and therefore, significantly impact the valuation of the assets in our pension trusts. Changes in actuarial assumptions could significantly impact the accounting for the pension assets and liabilities. If the assumed long-term rate of return on plan assets was changed by 0.25 percent, the net pension (income) expense would change by $2.2 million. If the discount rate was changed by 0.25 percent, the net pension (income) expense would change by $0.3 million.

Long-Lived Assets

Long-lived assets are reviewed for impairment and written down to fair value whenever events or changes in circumstances indicate that the carrying value may not be recoverable through estimated future undiscounted cash flows. The amount of the impairment loss is the excess of the carrying amount of the impaired assets over the fair value of the assets based upon estimated future discounted cash flows. We evaluate long-lived assets for impairment by individual business unit. Changes in estimated cash flows could have a significant impact on whether or not an asset is impaired and the amount of the impairment.

Goodwill

Goodwill is not amortized but instead is tested at least annually for impairment as of June 1, or more frequently if events or circumstances indicate that the carrying amount of goodwill may be impaired. Effective in fiscal year 2022 and prospectively, we will perform the required annual goodwill impairment test as of June 1 rather than on June 30 which was our previous practice. We believe this change is preferable as it more closely aligns with the timing of our annual budgeting process. We do not believe this change resulted in any delay, acceleration or avoidance of impairment. Furthermore, a retrospective application to prior periods is impracticable as we are unable to objectively determine, without the use of hindsight, the assumptions which would be used in earlier periods.

Potential impairment is identified by comparing the fair value of a reporting unit to its carrying value. If the carrying value of the reporting unit exceeds its fair value, any impairment loss is measured by the difference between the carrying value of the reporting unit and its fair value, not to exceed the carrying amount of goodwill. The discounted cash flow analysis for each reporting unit tested requires significant estimates and assumptions related to cash flow forecasts, discount rates, terminal values and income tax rates. The cash flow forecasts include significant judgments and assumptions related to revenue growth rates, which include perpetual growth rates, gross margin and weighted average cost of capital. The cash flow forecasts are developed based on assumptions about each reporting unit's markets, product offerings, pricing, capital expenditure and working capital requirements as well as cost performance.

The discount rates used in the discounted cash flow are estimated based on a market participant's perspective of each reporting unit's weighted average cost of capital. The terminal value, which represents the value attributed to the reporting unit beyond the forecast period, is estimated using a perpetuity growth rate assumption. The income tax rates used in the discounted cash flow analysis represent estimates of the long-term statutory income tax rates for each reporting unit based on the jurisdictions in which the reporting units operate.

In preparing the financial statements for the quarter ended December 31, 2020, we identified an impairment triggering event related to the Additive reporting unit within the PEP segment. This reporting unit has experienced slower than expected growth due to customers shifting their near-term focus away from this emerging area as a result of the continuing impacts of the COVID-19 pandemic. During the quarter ended December 31, 2020 we also made strategic decisions to reduce resources allocated to the Additive reporting unit to concentrate on the essential manufacturing business. In light of these decisions and current market conditions, the pace of growth in the future projections for the Additive reporting unit were lowered. We determined the goodwill associated with this reporting unit was impaired and recorded an impairment charge of $52.8 million during the quarter ended December 31, 2020, which represents the entire balance of goodwill for this reporting unit. No other asset impairment was identified at the impairment testing date. The carrying value of the Additive reporting unit was greater than the fair value by approximately 37.7 percent. For purposes of the discounted cash flow technique for Additive's fair value, we used a weighted average cost of capital of 15.5 percent and a terminal growth rate assumption of 3.0 percent. If a terminal growth rate of 4.0 percent was used the Additive reporting unit would have a carrying value in excess of fair value of approximately 34.2 percent, still resulting in a full impairment.

As of June 30, 2022, we have three reporting units with goodwill recorded. Goodwill associated with the SAO reporting unit as of June 30, 2022, was $195.5 million and represents approximately 81 percent of total goodwill as of June 30, 2022. The remaining goodwill is associated with the PEP segment, which includes two reporting units, Dynamet and Latrobe Distribution, with goodwill recorded as of June 30, 2022, of $31.9 million and $14.0 million, respectively. The fair value for all three reporting units is estimated using a weighting of discounted cash flows and the use of market multiples valuation techniques.

Goodwill associated with the SAO reporting unit is tested at the SAO segment level. As of June 1, 2022, the fair value of the SAO reporting unit exceeded the carrying value by approximately 38.2 percent. The discounted cash flows analysis for the SAO reporting unit includes assumptions related to our ability to increase volume, improve mix, expand product offerings and continue to implement opportunities to reduce costs over the next several years. For purposes of the discounted cash flow analysis for SAO's fair value, a weighted average cost capital of 9.5 percent and a terminal growth rate assumption of 2.5 percent were used. If the long-term growth rate for this reporting unit had been hypothetically reduced by 0.5 percent at June 1, 2022, the SAO reporting unit would have a fair value that exceeded the carrying value by approximately 34.5 percent.

Goodwill associated with the PEP segment is tested at the Dynamet and Latrobe Distribution reporting unit level. As of June 1, 2022, the fair value of the Dynamet reporting unit exceeded the carrying value by approximately 54.1 percent. For purposes of the discounted cash flow analysis for Dynamet's fair value, a weighted average cost capital of 13.0 percent and a terminal growth rate assumption of 2.5 percent were used. If the long-term growth rate for this reporting unit had been hypothetically reduced by 0.5 percent at June 1, 2022, the Dynamet reporting unit would have a fair value that exceeded the carrying value by approximately 52.0 percent. As of June 1, 2022, the fair value of the Latrobe Distribution reporting unit exceeded the carrying value by approximately 34.5 percent. For purposes of the discounted cash flow analysis for Latrobe Distribution's fair value, a weighted average cost capital of 11.0 percent and a terminal growth rate assumption of 2.5 percent were used. If the long-term growth rate for this reporting unit had been hypothetically reduced by 0.5 percent at June 1, 2022, the Latrobe Distribution reporting unit would have a fair value that exceeded the carrying value by approximately 32.1 percent.

The estimate of fair value requires significant judgment. We based our fair value estimates on assumptions that we believe to be reasonable but that are unpredictable and inherently uncertain, including estimates of future growth rates and operating margins and assumptions about the overall economic climate and the competitive environment for our business units. There can be no assurance that our estimates and assumptions made for purposes of our goodwill and identifiable intangible asset testing as of the time of testing will prove to be accurate predictions of the future. If our assumptions regarding business projections, competitive environments or anticipated growth rates are not correct, we may be required to record goodwill and/or intangible asset impairment charges in future periods, whether in connection with our next annual impairment testing or earlier, if an indicator of an impairment is present before our next annual evaluation. We continuously monitor for events and circumstances that could negatively impact the key assumptions in determining fair value of the reporting units.

Leases

Determination of whether a contract is or contains a lease at contract inception is based on the presence of identified assets and the right to obtain substantially all of the economic benefit from or to direct the use of such assets. When it is determined a lease exists, a right-of-use ("ROU") asset and corresponding lease liability are recorded on the consolidated balance sheets. ROU assets represent the right to use an underlying asset for the lease term. Lease liabilities represent the obligation to make lease payments arising from the lease. ROU assets are recognized at commencement date at the value of the lease liability and are adjusted for any prepayments, lease incentives received, and initial direct costs incurred. Lease liabilities are recognized at lease commencement date based on the present value of remaining lease payments over the lease term. As the discount rate implicit in the lease is not readily determinable in most leases, an incremental borrowing rate is used. Lease terms include options to extend or terminate the lease when it is reasonably certain that the option will be exercised. Lease contracts with a term of 12 months or less are not recorded in the consolidated balance sheets. Fixed lease expense is recognized for operating leases on a straight-line basis over the lease term. Lease agreements with lease and non-lease components, are accounted for as a single lease component for all underlying asset classes. Accordingly, all costs associated with a lease contract are accounted for as lease costs. Some leasing arrangements require variable payments that are dependent on usage, output, or may vary for other reasons, such as insurance and tax payments. The variable lease payments are not presented as part of the ROU asset or lease liability.

Environmental Expenditures

Environmental expenditures that pertain to current operations or to future revenues are expensed or capitalized consistent with Carpenter's capitalization policy for property, plant and equipment. Expenditures that result from the remediation of an existing condition caused by past operations and that do not contribute to current or future revenues are expensed. Liabilities are recognized for remedial activities when the remediation is probable and the cost can be reasonably estimated. Most estimated liabilities are not discounted to present value due to the uncertainty as to the timing and duration of expected costs. For one former operating facility site, due to the routine nature of the expected costs, the liability for future costs is discounted to present value over 20 years assuming a discount rate of approximately 3 percent as of June 30, 2022 and 2021.

Income Taxes

Deferred income taxes result from temporary differences in the recognition of income and expense for financial and income tax reporting purposes, or differences between the fair value of assets acquired in business combinations accounted for as purchases for financial reporting purposes and their corresponding tax bases. Deferred income taxes represent future tax benefits (assets) or costs (liabilities) to be recognized when those temporary differences reverse. We evaluate on a quarterly basis whether, based on all available evidence, we believe that our deferred income tax assets will be realizable. Valuation allowances are established when it is estimated that it is more likely than not that the tax benefit of the deferred tax assets will not be realized. The evaluation includes the consideration of all available evidence, both positive and negative, regarding historical operating results including recent years with reported losses, the estimated timing of future reversals of existing taxable temporary differences, estimated future taxable income exclusive of reversing temporary differences and carryforwards, and potential tax planning strategies which may be employed to prevent an operating loss or tax credit carryforward from expiring unused. Future realization of deferred income tax assets ultimately depends upon the existence of sufficient taxable income within the carryback or carryforward period available under tax law.

Management determines whether a tax position should be recognized in the financial statements by evaluating whether it is more likely than not that the tax position will be sustained upon examination by the tax authorities based upon the technical merits of the position. For those tax positions which should be recognized, the measurement of a tax position is determined as being the largest amount of benefit that is greater than 50 percent likely of being realized upon ultimate settlement. Interest and penalties on estimated liabilities for uncertain tax positions are recorded as components of the provision for income taxes.

Derivative Financial Instruments

Our current risk management strategies include the use of derivative instruments to reduce certain risks. The critical strategies include: (1) the use of commodity forward contracts to fix the price of a portion of anticipated future purchases of certain raw materials and energy to offset the effects of changes in the costs of those commodities; and (2) the use of foreign currency forward contracts to hedge a portion of anticipated future sales denominated in foreign currencies, principally the Euro and Pound Sterling, in order to offset the effect of changes in exchange rates. The commodity forwards and foreign currency forwards have been designated as cash flow hedges and unrealized net gains and losses are recorded in the accumulated other comprehensive loss component of stockholders' equity. The unrealized gains or losses are reclassified to the statement of operations when the hedged transaction affects earnings or if the anticipated transactions are no longer expected to occur. We may use interest rate swaps to maintain a certain level of floating rate debt relative to fixed rate debt. Interest rate swaps have been designated as fair value hedges. Accordingly, the mark-to-market values of both the interest rate swap and the underlying debt obligations are recorded as equal and offsetting gains and losses in the interest expense component of the consolidated statement of operations. We have also used forward interest rate swaps to manage the risk of cash flow variability associated with fixed interest debt expected to be issued. We also use foreign currency forward contracts to protect certain short-term asset or liability positions denominated in foreign currencies against the effect of changes in exchange rates. These positions do not qualify for hedge accounting and accordingly are marked-to-market at each reporting date through charges to other income and expense.

New Accounting Pronouncements

For information with respect to new accounting pronouncements and the impact of these pronouncements on our consolidated financial statements, see Note 3 to Notes to Consolidated Financial Statements included in Item 8. "Financial Statements and Supplementary Data".

Off Balance Sheet Arrangements

We had no off balance sheet arrangements during the periods presented.

Market Sensitive Instruments and Risk Management

See "Item 7A. Quantitative and Qualitative Disclosures About Market Risk" for discussion of market sensitive instruments and associated market risk for Carpenter.

Contingencies

Environmental

We are subject to various federal, state, local and international environmental laws and regulations relating to pollution, protection of public health and the environment, natural resource damages and occupational safety and health. Although compliance with these laws and regulations may affect the costs of our operations, compliance costs to date have not been material. We have environmental remediation liabilities at some of our owned operating facilities and have been designated as a potentially responsible party ("PRP") with respect to certain third party Superfund waste-disposal sites and other third party-owned sites. Additionally, we have been notified that we may be a PRP with respect to other Superfund sites as to which no proceedings have been instituted against us. Neither the exact amount of remediation costs nor the final method of their allocation among all designated PRPs at these Superfund sites have been determined. Accordingly, at this time, we cannot reasonably estimate expected costs for such matters. The liability for future environmental remediation costs that can be reasonably estimated is evaluated on a quarterly basis. We accrue amounts for environmental remediation costs that represent our best estimate of the probable and reasonably estimable future costs related to environmental remediation. The liabilities recorded for environmental remediation costs at Superfund sites, other third party-owned sites and Carpenter-owned current or former operating facilities remaining at June 30, 2022 and 2021 were $18.3 million and $16.0 million, respectively. During fiscal year 2022 we recorded a liability for a third party Superfund waste-disposal site, Helen Kramer Landfill, of $2.4 million. In December 1997, we were named as a party in the Helen Kramer Landfill Settlement Agreement. As a result of the settlement agreement, we were obligated to reimburse the settling work defendants for 31.4 percent of up to $7.5 million in capital expenditure costs as they were incurred, which was prior to fiscal year 2022. We recorded a $2.4 million liability for our proportional share of the capital expenditure amount. We intend to pay these remediation costs during the next fiscal year. During fiscal year 2022, we also decreased the liability for a company-owned former operating site by $0.1 million.

Estimates of the amount and timing of future costs of environmental remediation requirements are inherently imprecise because of the continuing evolution of environmental laws and regulatory requirements, the availability and application of technology, the identification of currently unknown remediation sites and the allocation of costs among the PRPs. Based upon information currently available, such future costs are not expected to have a material effect on our financial position, results of operations or cash flows over the long-term. However, such costs could be material to our financial position, results of operations or cash flows in a particular future quarter or year.

Other

We are defending various routine claims and legal actions that are incidental to our business, and that are common to our operations, including those pertaining to product claims, commercial disputes, patent infringement, employment actions, employee benefits, compliance with domestic and foreign laws, personal injury claims and tax issues. Like many other manufacturing companies in recent years we, from time to time, have been named as a defendant in lawsuits alleging personal injury as a result of exposure to chemicals and substances in the workplace. We provide for costs relating to these matters when a loss is probable and the amount of the loss is reasonably estimable. The effect of the outcome of these matters on our future results of operations and liquidity cannot be predicted because any such effect depends on future results of operations and the amount and timing (both as to recording future charges to operations and cash expenditures) of the resolution of such matters. While it is not feasible to determine the outcome of these matters, we believe that the total liability from these matters will not have a material effect on our financial position, results of operations or cash flows over the long-term. However, there can be no assurance that an increase in the scope of pending matters or that any future lawsuits, claims, proceedings or investigations will not be material to our financial position, results of operations or cash flows in a particular future quarter or year.

Forward-Looking Statements

This Annual Report on Form 10-K contains forward-looking statements within the meaning of the Private Securities Litigation Act of 1995. These forward-looking statements are subject to risks and uncertainties that could cause actual results to differ from those projected, anticipated or implied. The most significant of these uncertainties are described in this Form 10-K. They include but are not limited to: (1) the cyclical nature of the specialty materials business and certain end-use markets, including aerospace, defense, medical, transportation, energy, industrial and consumer, or other influences on Carpenter Technology's business such as new competitors, the consolidation of competitors, customers, and suppliers or the transfer of manufacturing capacity from the United States to foreign countries; (2) the ability of Carpenter Technology to achieve cash generation, growth, earnings, profitability, operating income, cost savings and reductions, qualifications, productivity improvements or process changes; (3) the ability to recoup increases in the cost of energy, raw materials, freight or other factors; (4) domestic and foreign excess manufacturing capacity for certain metals; (5) fluctuations in currency exchange rates; (6) the effect of government trade actions; (7) the valuation of the assets and liabilities in Carpenter Technology's pension trusts and the accounting for pension plans; (8) possible labor disputes or work stoppages; (9) the potential that our customers may substitute alternate materials or adopt different manufacturing practices that replace or limit the suitability of our products; (10) the ability to successfully acquire and integrate acquisitions; (11) the availability of credit facilities to Carpenter Technology, its customers or other members of the supply chain; (12) the ability to obtain energy or raw materials, especially from suppliers located in countries that may be subject to unstable political or economic conditions; (13) Carpenter Technology's manufacturing processes are dependent upon highly specialized equipment located primarily in facilities in Reading and Latrobe, Pennsylvania and Athens, Alabama for which there may be limited alternatives if there are significant equipment failures or a catastrophic event; (14) the ability to hire and retain key personnel, including members of the executive management team, management, metallurgists and other skilled personnel; (15) fluctuations in oil and gas prices and production; (16) uncertainty regarding the return to service of the Boeing 737 MAX aircraft and the related supply chain disruption; (17) potential impacts of the COVID-19 pandemic on our operations, financial results and financial position; (18) our efforts and efforts by governmental authorities to mitigate the COVID-19 pandemic, such as travel bans, shelter in place orders and business closures, and the related impact on resource allocations and manufacturing and supply chains; (19) our ability to execute our business continuity, operational, budget and fiscal plans in light of the COVID-19 pandemic; and (20) our ability to successfully carry out restructuring and business exit activities on the expected terms and timelines. Any of these factors could have an adverse and/or fluctuating effect on Carpenter Technology's results of operations. The forward-looking statements in this document are intended to be subject to the safe harbor protection provided by Section 27A of the Securities Act of 1933, as amended (the "Securities Act"), and Section 21E of the Securities Exchange Act of 1934, as amended. We caution you not to place undue reliance on forward-looking statements, which speak only as of the date of this Form 10-K or as of the dates otherwise indicated in such forward-looking statements. Carpenter Technology undertakes no obligation to update or revise any forward-looking statements.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

We use derivative financial instruments to reduce certain types of financial risk. Firm price sales arrangements involve a risk of profit margin fluctuations particularly as raw material prices have been volatile. Firm price sales arrangements generally include certain annual purchasing commitments and consumption schedules agreed to by the customers at selling prices based on raw material prices at the time the arrangements are established. As discussed in Note 17 to the consolidated financial statements included in Part II, Item 8. "Financial Statements and Supplementary Data", in order to reduce the risk of fluctuating profit margins on these sales, we enter into commodity forward contracts to purchase certain critical raw materials necessary to produce the products sold under the firm price sales arrangements. If a customer fails to perform its obligations under the firm price sales arrangements, we may realize losses as a result of the related commodity forward contracts. As of June 30, 2022, we had approximately $8.6 million of net deferred gains related to commodity forward contracts to purchase certain raw materials. A large portion of this balance is related to commodity forward contracts to support firm price sales arrangements associated with many customers. However, approximately 14 percent of these net deferred gains relate to commodity forward contracts entered into to support sales under firm price sales arrangements with one customer in addition to credit already extended to this customer in connection with outstanding trade receivables. Our customers have historically performed under these arrangements and we believe that they will honor such obligations in the future.

We are actively involved in managing risks associated with energy resources. Risk containment strategies include interaction with primary and secondary energy suppliers as well as obtaining adequate insurance coverage to compensate us for potential business interruption related to lack of availability of energy resources. In addition, we have used forwards to fix the price of a portion of our anticipated future purchases of certain energy requirements to protect against the impact of significant increases in energy costs. We also use surcharge mechanisms to offset a portion of these charges where appropriate.

Fluctuations in foreign currency exchange rates could subject us to risk of losses on anticipated future cash flows from our international operations or customers. Foreign currency forward contracts are used to hedge certain foreign exchange risk.

We use interest rate swaps to achieve a level of floating rate debt relative to fixed rate debt where appropriate. Historically, we have entered into forward swap contracts to manage the risk of cash flow variability associated with fixed interest debt expected to be issued.

All hedging strategies are reviewed and approved by senior financial management before being implemented. Senior financial management has established policies regarding the use of derivative instruments that prohibit the use of speculative or leveraged derivatives.

Based on the current funding level, the benchmark allocation policy for the Company's largest pension plan assets is to have approximately 75 percent in return seeking assets and 25 percent in liability-hedging assets. Return seeking assets include global equities, diversified credit and real assets. Liability-hedging assets include bond funds and cash. When the funding level of the plan reaches 95 percent and improves to fully or over-funded status in increments of 5 percent, assets will be shifted from return seeking to liability-hedging assets in accordance with the glidepath policy outlined in the pension plan’s Investment Policy Statement.

The status of our financial instruments as of June 30, 2022, is provided in Note 17 to the consolidated financial statements included in Item 8. "Financial Statements and Supplementary Data". Assuming on June 30, 2022, (a) an instantaneous 10 percent decrease in the price of raw materials and energy for which we have commodity forward contracts, and (b) a 10 percent strengthening of the U.S. dollar versus foreign currencies for which foreign exchange forward contracts existed, our results of operations would not have been materially affected in either scenario.

Item 8. Financial Statements and Supplementary Data

Index to Consolidated Financial Statements and Supplementary Data

Management's Responsibilities for Financial Reporting

Management prepared the financial statements included in this Annual Report on Form 10-K and is responsible for their integrity and objectivity. The statements were prepared in conformity with accounting principles generally accepted in the United States of America and, as such, include amounts based on management's best judgments and estimates. Financial information elsewhere in this Annual Report is consistent with that in the financial statements.

Carpenter maintains a system of internal controls, supported by a code of conduct, designed to provide reasonable assurance that assets are safeguarded and transactions are properly executed and recorded for the preparation of financial information. We believe Carpenter's system of internal controls provides this appropriate balance. The system of internal controls and compliance is continually monitored by Carpenter's internal audit staff.

The Audit/Finance Committee of the Board of Directors, composed of independent directors, meets regularly with management, Carpenter's internal auditors and our independent registered public accounting firm to consider audit results and to discuss significant internal control, auditing and financial reporting matters. Both the independent registered public accounting firm and internal auditors have unrestricted access to the Audit/Finance Committee.

Management's Report on Internal Control Over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting. Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluations 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.

Management assessed the effectiveness of Carpenter's internal control over financial reporting as of June 30, 2022. In making this assessment, it used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in *Internal Control — Integrated Framework* (2013).

Based on its assessment, management concluded that, as of June 30, 2022, Carpenter's internal control over financial reporting is effective based on those criteria.

The effectiveness of Carpenter's internal control over financial reporting as of June 30, 2022, has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report appearing herein.

/s/ Tony R. Thene

Tony R. Thene
President and Chief Executive Officer

/s/ Timothy Lain

Timothy Lain
Senior Vice President and Chief Financial Officer

Report of Independent Registered Public Accounting Firm

To the Board of Directors and
Stockholders of Carpenter Technology Corporation

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Carpenter Technology Corporation and its subsidiaries (the "Company") as of June 30, 2022 and 2021, and the related consolidated statements of operations, of comprehensive loss, of changes in equity and of cash flows for each of the three years in the period ended June 30, 2022, including the related notes and financial statement schedule listed in the accompanying index (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of June 30, 2022, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of June 30, 2022 and 2021, and the results of its operations and its cash flows for each of the three years in the period ended June 30, 2022 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of June 30, 2022, based on criteria established in Internal Control - Integrated Framework (2013) issued by the COSO.

Change in Accounting Principle

As discussed in Note 9 to the consolidated financial statements, the Company changed its accounting policy for impairment of goodwill by modifying the annual goodwill impairment testing date from June 30 to June 1.

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 the accompanying Management's Report on Internal Control Over Financial Reporting. 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.

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 matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that (i) relates 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 matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Goodwill Impairment Assessment – Specialty Alloys Operations and Dynamet Reporting Units

As described in Notes 1 and 9 to the consolidated financial statements, the Company’s consolidated goodwill balance was $241.4 million as of June 30, 2022 and the goodwill associated with the Specialty Alloys Operations (SAO) and Dynamet reporting units was $195.5 million and $31.9 million, respectively. Goodwill is annually tested for impairment as of June 1, or more frequently if events or circumstances indicate that the carrying amount of goodwill may be impaired. Potential impairment is identified by comparing the fair value of a reporting unit to its carrying value, including goodwill. The fair value is estimated using a weighting of discounted cash flows and market multiples valuation techniques for the SAO and Dynamet reporting units. The discounted cash flow technique requires the use of cash flow forecasts. The cash flow forecasts include significant judgments and assumptions related to revenue growth rates, which include perpetual growth rates, gross margin and weighted average cost of capital.

The principal considerations for our determination that performing procedures relating to the goodwill impairment assessment of the SAO and Dynamet reporting units is a critical audit matter are the significant judgment by management when developing the fair value measurement of the SAO and Dynamet reporting units using the discounted cash flow valuation technique, which in turn led to a high degree of auditor judgment, subjectivity, and effort in performing procedures and evaluating management’s significant assumptions related to (i) the revenue growth rates and weighted average cost of capital for the SAO reporting unit, and (ii) the revenue growth rates for the Dynamet reporting unit. In addition, 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 Company’s SAO and Dynamet reporting units. These procedures also included, among others, (i) testing management’s process for developing the fair value estimates, (ii) evaluating the appropriateness of the discounted cash flow valuation technique; (iii) testing the completeness, accuracy and relevance of underlying data used in developing the estimates; and (iv) evaluating the reasonableness of the significant assumptions used by management related to the revenue growth rates and weighted average cost of capital for the SAO reporting unit and the revenue growth rates for the Dynamet reporting unit. Evaluating management’s assumptions related to the revenue growth rates and weighted average cost of capital involved evaluating whether the assumptions were reasonable considering (i) the current and past performance of the reporting units, (ii) the consistency with external market and industry data, and (iii) whether these assumptions were consistent with evidence obtained in other areas of the audit. Professionals with specialized skill and knowledge were used to assist in evaluating the appropriateness of the discounted cash flow valuation technique, and the reasonableness of the weighted average cost of capital assumption.

/s/ PricewaterhouseCoopers LLP
Philadelphia, Pennsylvania

August 15, 2022

We have served as the Company's auditor since 1918.

CARPENTER TECHNOLOGY CORPORATION
CONSOLIDATED STATEMENTS OF OPERATIONS
For the Years Ended June 30, 2022, 2021 and 2020

($ in millions, except per share data)	2022	2021	2020
Net sales	$ 1,836.3	$ 1,475.6	$ 2,181.1
Cost of sales	1,686.5	1,470.4	1,822.4
Cost of sales - inventory write-downs from restructuring	—	4.2	29.3
Gross profit	149.8	1.0	329.4
Selling, general and administrative expenses	174.7	180.2	201.0
Restructuring and asset impairment charges	—	16.6	68.5
Goodwill impairment	—	52.8	34.6
Operating (loss) income	(24.9)	(248.6)	25.3
Interest expense, net	44.9	32.7	19.8
Debt extinguishment losses, net	6.0	8.2	—
Other (income) expense, net	(12.7)	8.4	(0.6)
(Loss) income before income taxes	(63.1)	(297.9)	6.1
Income tax (benefit) expense	(14.0)	(68.3)	4.6
Net (loss) income	$ (49.1)	$ (229.6)	$ 1.5
(LOSS) EARNINGS PER COMMON SHARE:			
Basic	$ (1.01)	$ (4.76)	$ 0.02
Diluted	$ (1.01)	$ (4.76)	$ 0.02
WEIGHTED AVERAGE COMMON SHARES OUTSTANDING:			
Basic	48.5	48.3	48.1
Diluted	48.5	48.3	48.2

See accompanying notes to consolidated financial statements.

CARPENTER TECHNOLOGY CORPORATION
CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
For the Years ended June 30, 2022, 2021 and 2020

($ in millions)	2022	2021	2020
Net (loss) income	$ (49.1)	$ (229.6)	$ 1.5
Other comprehensive income (loss), net of tax			
Pension and postretirement benefits (losses), net of tax of $(8.4), $(55.3) and $(13.2), respectively	26.2	175.2	(41.0)
Net (loss) gain on derivative instruments, net of tax of $0.5, $(5.7) and $(1.2), respectively	(1.4)	18.0	3.7
Foreign currency translation	(6.0)	12.5	(8.9)
Other comprehensive income (loss), net of tax	18.8	205.7	(46.2)
Comprehensive loss, net of tax	$ (30.3)	$ (23.9)	$ (44.7)

See accompanying notes to consolidated financial statements.

CARPENTER TECHNOLOGY CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS
For the Years Ended June 30, 2022, 2021 and 2020

($ in millions)	2022	2021	2020
OPERATING ACTIVITIES			
Net (loss) income	$ (49.1)	$ (229.6)	$ 1.5
Adjustments to reconcile net (loss) income to net cash provided from operating			
Depreciation and amortization	131.4	123.6	123.9
LIFO decrement	—	52.2	1.8
Goodwill impairment charge	—	52.8	34.6
Non-cash inventory write-downs from restructuring	—	4.2	29.3
Acquisition-related contingent liability release	(4.7)	—	—
Non-cash restructuring and asset impairment charges	—	16.2	56.4
Debt extinguishment losses, net	6.0	8.2	—
Deferred income taxes	(3.1)	(33.6)	(0.4)
Net pension (income) expense	(7.3)	24.6	15.3
Share-based compensation expense	10.8	10.4	10.9
Net loss on disposal of property, plant, and equipment and assets held for sale	2.0	0.3	0.2
Changes in working capital and other:			
Accounts receivable	(79.0)	(14.9)	90.3
Inventories	(71.9)	238.5	29.5
Other current assets	8.3	(33.9)	(20.5)
Accounts payable	95.7	22.4	(109.9)
Accrued liabilities	(24.5)	33.8	(18.1)
Pension plan contributions	(0.7)	(19.9)	(6.5)
Other postretirement plan contributions	(1.7)	(2.7)	(3.5)
Other, net	(6.2)	(2.6)	(3.0)
Net cash provided from operating activities	6.0	250.0	231.8
INVESTING ACTIVITIES			
Purchases of property, plant, equipment and software	(91.3)	(100.5)	(171.4)
Proceeds from disposals of property, plant and equipment and assets held for sale	2.2	1.6	0.2
Proceeds from divestiture of business	—	20.0	—
Net cash used for investing activities	(89.1)	(78.9)	(171.2)
FINANCING ACTIVITIES			
Credit agreement borrowings	—	—	351.1
Credit agreement repayments	—	—	(181.1)
Net change in short-term credit agreement borrowings	—	(170.0)	(19.7)
Proceeds from issuance of long-term debt, net of offering costs	296.6	395.5	—
Payments on long-term debt	(300.0)	(250.0)	—
Payments for debt extinguishment costs, net	(6.0)	(8.2)	—
Payments for debt issue costs	(0.8)	(2.5)	—
Dividends paid	(39.2)	(39.1)	(38.8)
Proceeds from stock options exercised	—	0.5	4.3
Withholding tax payments on share-based compensation awards	(3.4)	(2.3)	(8.0)
Net cash (used for) provided from financing activities	(52.8)	(76.1)	107.8
Effect of exchange rate changes on cash and cash equivalents	2.7	(0.7)	(2.3)
(DECREASE) INCREASE IN CASH AND CASH EQUIVALENTS	(133.2)	94.3	166.1
Cash and cash equivalents at beginning of year	287.4	193.1	27.0
Cash and cash equivalents at end of year	$ 154.2	$ 287.4	$ 193.1

See accompanying notes to consolidated financial statements.

CARPENTER TECHNOLOGY CORPORATION
CONSOLIDATED BALANCE SHEETS
June 30, 2022 and 2021

($ in millions, except share data)	2022	2021
ASSETS		
Current assets:		
Cash and cash equivalents	$ 154.2	$ 287.4
Accounts receivable, net of allowance for doubtful accounts of $5.4 million and $6.5 million at June 30, 2022 and 2021, respectively	382.3	308.7
Inventories	496.1	425.7
Other current assets	86.8	95.6
Total current assets	1,119.4	1,117.4
Property, plant and equipment, net	1,420.8	1,457.5
Goodwill	241.4	241.4
Other intangibles, net	35.2	43.1
Deferred income taxes	5.7	5.3
Other assets	109.8	106.5
Total assets	$ 2,932.3	$ 2,971.2
LIABILITIES		
Current liabilities:		
Accounts payable	$ 242.1	$ 142.4
Accrued liabilities	133.5	163.9
Total current liabilities	375.6	306.3
Long-term debt	691.8	694.5
Accrued pension liabilities	196.6	222.6
Accrued postretirement benefits	77.4	98.6
Deferred income taxes	162.4	156.9
Other liabilities	98.0	100.0
Total liabilities	1,601.8	1,578.9
Contingencies and commitments (see Note 13)		
STOCKHOLDERS' EQUITY		
Common stock — authorized 100,000,000 shares; issued 56,025,510 shares at June 30, 2022, and 56,024,619 shares at June 30, 2021; outstanding 48,286,439 shares at June 30, 2022, and 48,040,676 shares at June 30, 2021	280.1	280.1
Capital in excess of par value	320.3	322.6
Reinvested earnings	1,211.0	1,299.3
Common stock in treasury (7,739,071 shares and 7,983,943 shares at June 30, 2022 and 2021, respectively), at cost	(307.4)	(317.4)
Accumulated other comprehensive loss	(173.5)	(192.3)
Total stockholders' equity	1,330.5	1,392.3
Total liabilities and stockholders' equity	$ 2,932.3	$ 2,971.2

See accompanying notes to consolidated financial statements.

CARPENTER TECHNOLOGY CORPORATION
CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY
For the Years Ended June 30, 2022, 2021 and 2020

($ in millions, except per share data)	Common Stock Par Value of $5	Common Stock Capital in Excess of Par Value	Reinvested Earnings	Common Stock in Treasury	Accumulated Other Comprehensive (Loss) Income	Total Equity
Balances at June 30, 2019	**$ 279.0**	**$ 320.4**	**$ 1,605.3**	**$ (332.8)**	**$ (351.8)**	**$ 1,520.1**
Net income			1.5			1.5
Pension and postretirement benefits loss, net of tax					(41.0)	(41.0)
Net gain on derivative instruments, net of tax					3.7	3.7
Foreign currency translation					(8.9)	(8.9)
Cash dividends:						
Common @ $0.80 per share			(38.8)			(38.8)
Share-based compensation plans	0.5	(2.7)		7.0		4.8
Stock options exercised	0.6	3.7				4.3
Balances at June 30, 2020	**280.1**	**321.4**	**1,568.0**	**(325.8)**	**(398.0)**	**1,445.7**
Net loss			(229.6)			(229.6)
Pension and postretirement benefits gain, net of tax					175.2	175.2
Net gain on derivative instruments, net of tax					18.0	18.0
Foreign currency translation					12.5	12.5
Cash dividends:						
Common @ $0.80 per share			(39.1)			(39.1)
Share-based compensation plans		0.8		8.4		9.2
Stock options exercised		0.4				0.4
Balances at June 30, 2021	**280.1**	**322.6**	**1,299.3**	**(317.4)**	**(192.3)**	**1,392.3**
Net loss			(49.1)			(49.1)
Pension and postretirement benefits gain, net of tax					26.2	26.2
Net loss on derivative instruments, net of tax					(1.4)	(1.4)
Foreign currency translation					(6.0)	(6.0)
Cash dividends:						
Common @ $0.80 per share			(39.2)			(39.2)
Share-based compensation plans		(2.3)		10.0		7.7
Balances at June 30, 2022	**$ 280.1**	**$ 320.3**	**$ 1,211.0**	**$ (307.4)**	**$ (173.5)**	**$ 1,330.5**

See accompanying notes to consolidated financial statements.

CARPENTER TECHNOLOGY CORPORATION
CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY (CONTINUED)
For the Years Ended June 30, 2022, 2021 and 2020

	Common Shares		
	Issued	Treasury	Net Outstanding
Balances at June 30, 2019	55,808,743	(8,338,380)	47,470,363
Stock options exercised	117,049	—	117,049
Share-based compensation plans	86,956	176,100	263,056
Balances at June 30, 2020	56,012,748	(8,162,280)	47,850,468
Stock options exercised	11,871	—	11,871
Share-based compensation plans	—	178,337	178,337
Balances at June 30, 2021	56,024,619	(7,983,943)	48,040,676
Stock options exercised	891	—	891
Share-based compensation plans	—	244,872	244,872
Balances at June 30, 2022	56,025,510	(7,739,071)	48,286,439

See accompanying notes to consolidated financial statements.

1. Summary of Significant Accounting Policies

Basis of Consolidation

The consolidated financial statements include the accounts of the Company and all majority-owned subsidiaries. All significant intercompany accounts and transactions are eliminated.

Revenue Recognition

Revenue, net of related discounts, rebates, returns and allowances of $25.8 million, $14.4 million and $25.8 million for the years ended June 30, 2022, 2021 and 2020, respectively, is recognized when performance obligations are satisfied under the terms of a customer order or contract. This occurs when control of the goods and services has transferred to the customer, which is generally determined when title, ownership and risk of loss pass to the customer, all of which occurs upon shipment or delivery of the product, based on the applicable shipping terms, or when the service is performed. Shipping terms may vary for products shipped outside the United States depending on the mode of transportation, the country where the material is shipped and any agreements made with the customers.

Freight and Handling Fees and Costs

Freight and handling costs billed separately to customers are included as part of net sales, and freight and handling costs expensed are included as part of cost of sales on the consolidated statements of operations.

Research and Development

Research and development expenditures, which amounted to $20.4 million, $19.7 million and $28.0 million in fiscal years 2022, 2021 and 2020, respectively, are expensed as incurred and are generally reported in cost of sales in the consolidated statements of operations. The research and development expenditures consist principally of salaries and benefits, building costs, utilities and administrative expenses. Substantially all development costs are related to developing new products or designing significant improvements to existing products or processes.

Cash Equivalents

Cash equivalents consist of highly liquid instruments with original maturities of three months or less. Cash equivalents are stated at cost, which approximates market.

Accounts Receivable

Trade receivables are carried at original invoice amount less an estimate made for doubtful receivables based on a review of outstanding amounts. Trade credit is extended based upon periodic evaluation of each customer's ability to perform its obligations. The Company determines accounts receivable allowances based on an aging of accounts and a review of specific accounts identified as collection risks. The Company does not require collateral to secure accounts receivable.

Inventories

Inventories are valued at the lower of cost or market for those inventories determined by the LIFO method. The Company values other inventory at the lower of cost or net realizable value, determined by the FIFO and average cost methods. As of June 30, 2022 and 2021, $122.9 million and $107.5 million of inventory, respectively, was accounted for using a method other than the LIFO method.

Property, Plant and Equipment and Depreciation

Fixed assets are stated at historical cost, with the exception of assets acquired through acquisitions, which are recorded at fair value, less accumulated depreciation. Depreciation for financial reporting purposes is computed by the straight-line method over the estimated useful lives of the assets. Upon disposal, assets and related depreciation are removed from the accounts and the differences between the net amounts and proceeds from disposal are generally included in cost of goods sold in the consolidated statements of operations.

Computer Software and Amortization

Computer software is included in property, plant and equipment, net on the consolidated balance sheets and is amortized for financial reporting purposes on a straight-line basis over the respective estimated useful lives ranging from 3 to 12 years.

Goodwill

Goodwill, net of accumulated impairment losses, representing the excess of the cost over the net tangible and identifiable intangible assets of acquired businesses, is stated at cost. Goodwill is not amortized but instead is tested at least annually for impairment as of June 1, or more frequently if events or circumstances indicate that the carrying amount of goodwill may be impaired. Effective fiscal year 2022 and prospectively, the Company will perform its required annual goodwill impairment test as of June 1 rather than on June 30 which was the Company's previous practice. The Company believes this change is preferable as it more closely aligns with the timing of the Company's annual budgeting process. The Company does not believe this change resulted in any delay, acceleration or avoidance of impairment. Furthermore, a retrospective application to prior periods is impracticable as the Company is unable to objectively determine, without the use of hindsight, the assumptions which would be used in earlier periods.

Potential impairment is identified by comparing the fair value of a reporting unit to its carrying value, including goodwill. The fair value is estimated using a weighting of discounted cash flows and the use of market multiples valuation techniques for the SAO reporting unit and remaining two PEP segment reporting units with goodwill.

The discounted cash flow technique requires the use of cash flow forecasts. The cash flow forecasts include significant judgments and assumptions related to revenue growth rates, which include perpetual growth rates, gross margin and weighted average cost of capital. The market multiples valuation technique includes significant judgment in the determination of the market multiples. If the carrying value of the reporting unit exceeds its fair value, any impairment loss is measured by the difference between the carrying value of the reporting unit and its fair value, not to exceed the carrying amount of goodwill.

Intangible assets

The costs of intangible assets, consisting principally of trademarks, trade names, non-compete arrangements, technology, patents and customer relationships are amortized on a straight-line basis over the estimated useful lives ranging from 5 to 30 years. The gross carrying amount and related accumulated amortization are removed from the accounts upon full amortization or impairment.

Impairment of Long-Lived Assets

Long-lived assets subject to amortization, including property, plant, equipment and intangible assets, are reviewed for impairment and written down to fair value whenever events or changes in circumstances indicate that the carrying value may not be recoverable through future undiscounted cash flows. The amount of the impairment loss is the excess of the carrying amount of the impaired assets over the fair value of the assets based upon discounted future cash flows.

Leases

Determination of whether a contract is or contains a lease at contract inception is based on the presence of identified assets and the right to obtain substantially all of the economic benefit from or to direct the use of such assets. When it is determined a lease exists, a ROU asset and corresponding lease liability are recorded on the consolidated balance sheets. ROU assets represent the right to use an underlying asset for the lease term. Lease liabilities represent the obligation to make lease payments arising from the lease. On the lease commencement date, the Company measures and records a ROU asset and lease liability equal to the present value of the remaining lease payments, discounted using the rate implicit in the lease (or if that rate cannot be readily determined, an incremental borrowing rate). Lease terms include options to extend or terminate the lease when it is reasonably certain that the option will be exercised. Lease contracts with a term of 12 months or less are not recorded in the consolidated balance sheets. Fixed lease expense is recognized for operating leases on a straight-line basis over the lease term. Lease agreements with lease and non-lease components, are accounted for as a single lease component for all underlying asset classes. Accordingly, all costs associated with a lease contract are accounted for as lease costs. Some leasing arrangements require variable payments that are dependent on usage, output, or may vary for other reasons, such as insurance and tax payments. The variable lease payments are not presented as part of the ROU asset or lease liability.

Environmental Expenditures

Environmental expenditures that pertain to current operations or to future revenues are expensed or capitalized consistent with the Company's capitalization policy for property, plant and equipment. Expenditures that result from the remediation of an existing condition caused by past operations and that do not contribute to current or future revenues are expensed. Liabilities are recognized for remedial activities when the remediation is probable and the cost can be reasonably estimated. Most estimated liabilities are not discounted to present value due to the uncertainty as to the timing and duration of expected costs. For one former operating facility site, due to the routine nature of the expected costs, the liability for future costs is discounted to present value over 20 years assuming a discount rate of approximately 3 percent as of June 30, 2022 and 2021. The liabilities, net of present value discount, for this former operating site were $11.2 million and $11.2 million, as of June 30, 2022 and 2021, respectively.

Derivative Financial Instruments

All derivative financial instruments are recorded on the balance sheet at their fair value and changes in fair value are recorded each period in current earnings or other comprehensive income (loss). The Company enters into derivative financial instruments to hedge certain anticipated transactions, firm commitments or assets and liabilities denominated in foreign currencies. In addition, the Company, from time to time, utilizes interest rate swaps to convert fixed rate debt to floating rate debt.

Foreign Currency Translation

Assets and liabilities of international operations are translated into U.S. dollars at exchange rates in effect at year-end, and their income statements are translated at the average monthly exchange rates prevailing during the year. The resulting translation gains and losses are recorded each period as a component of accumulated other comprehensive income (loss) until the international entity is sold or liquidated. Gains and losses from transactions denominated in foreign currencies are reported in other (income) expense, net in the consolidated statements of operations.

Income Taxes

Deferred income taxes are recognized by applying enacted statutory tax rates, applicable to future years, to temporary differences between the tax basis and financial statement carrying values of the Company's assets and liabilities. Valuation allowances are recorded to reduce deferred tax assets to amounts that are more likely than not to be realized.

Significant judgments, estimates and assumptions are required in determining tax return reporting positions and in calculating provisions for income tax, which are based on interpretations of tax regulations and accounting pronouncements. Liabilities are established for uncertain tax positions when it is more likely than not that such positions, if challenged, would not be sustained upon review by taxing authorities. These liabilities are re-evaluated as tax regulations and facts and circumstances change, such as the closing of a tax audit or the expiration of the statute of limitations for a specific exposure.

Earnings per Share

The Company calculates basic and diluted earnings per share using the two class method. Under the two class method, earnings are allocated to common stock and participating securities (restricted stock units that receive non-forfeitable dividends) according to their participation rights in dividends and undistributed earnings. The earnings available to each class of stock are divided by the weighted average number of shares for the period in each class. Diluted earnings per share assume the issuance of common stock for all potentially dilutive share equivalents outstanding.

Concentration of Credit Risk

Financial instruments that are potentially subject to concentrations of credit risk consist primarily of cash and cash equivalents, investments in marketable securities and trade receivables. Investment and cash management policies have been implemented that limit deposit concentrations and limit investments to investment grade securities. The risk with respect to trade receivables is mitigated by monitoring payment terms and periodic credit evaluations we perform on our customers, the short duration of our payment terms and by the diversification of our customer base. During fiscal years 2022 and 2021, no single customer accounted for 10 percent or more of total net sales. During fiscal year 2020, one customer, Howmet Aerospace Inc. (formerly Arconic Inc.), accounted for approximately 10 percent of total net sales. For the year ended June 30, 2020, 90 percent of sales to Howmet Aerospace Inc. were reported by the SAO segment and 10 percent were reported by the PEP segment, respectively. No single customer accounted for 10 percent or more of the accounts receivable outstanding at June 30, 2022 and 2021.

Use of Estimates

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

The Company has assessed various accounting estimates and other matters, including those that require consideration of forecasted financial information, in context with the unknown future impacts of COVID-19 using information that is reasonably available to the Company at this time. As additional information becomes available, the future assessment of these estimates, including expectations at the time regarding the duration, scope and severity of the pandemic, as well as other factors, could materially adversely affect the consolidated financial statements in future reporting periods.

2. Restructuring Charges and Asset Impairment Charges

Fiscal year 2022

There were no restructuring and asset impairment charges for fiscal year 2022.

Fiscal year 2021

During fiscal year 2021, restructuring and asset impairment charges were $16.6 million. Additional restructuring actions were executed within the Company's Additive business in the PEP segment. This included $14.2 million of non-cash pre-tax impairment charges related to $8.2 million of property, plant and equipment, $4.3 million associated with certain definite lived intangible assets, $1.3 million related to a lease right of use asset and $0.4 million of other non-cash charges. The Company also recognized $0.4 million for facility shut-down costs and various personnel-related costs for severance payments, medical coverage and related items.

The Company also recorded $2.0 million of non-cash pre-tax impairment charges as a result of the Amega West business exit primarily related to accounts receivable determined to be uncollectible.

Fiscal year 2020

During fiscal year 2020, restructuring and asset impairment charges were $68.5 million. As a result of the prolonged weakness in oil and gas drilling and exploration activities and the impact this weakness had on certain reporting units in the PEP segment, the Company approved a plan to exit the Amega West oil and gas business. As a result, the Company recognized restructuring charges of $31.1 million. This included non-cash pre-tax impairment charges of $26.8 million on certain long-lived assets, of which $21.2 million related to property, plant and equipment and $5.6 million associated with certain definite lived intangible assets during the year ended June 30, 2020. The Company also recognized $4.3 million for facility shut-down costs and various personnel costs for severance payments, medical coverage and related items.

The Company recorded a pre-tax charge of $20.7 million during the year ended June 30, 2020, to reflect site closure costs for two domestic powder facilities in the PEP segment consisting of non-cash adjustments of property, plant and equipment and other assets.

During the year ended June 30, 2020, the Company implemented a restructuring plan aimed at reducing fixed costs by eliminating 20 percent of global salaried positions across all business segments. In connection with this restructuring plan and other cost saving actions, the Company recorded a pre-tax charge of $8.4 million during the year ended June 30, 2020, consisting primarily of various personnel-related costs for severance payments, medical coverage and related items. Of this charge, $0.9 million was recorded as non-cash forfeiture income related to share-based compensation in fiscal year 2020 and $3.5 million was paid from the Company's qualified pension plan in fiscal year 2021.

The Company recorded a pre-tax charge of $8.3 million during the year ended June 30, 2020, to reflect a non-cash write-down of software related to costs for an enterprise resource system that will not be implemented at a particular business unit.

The reserve balances and activity for restructuring charges at June 30, 2022 and 2021 were as follows:

	June 30,	
($ in millions)	**2022**	**2021**
Reserve balance beginning of year	$ 1.4	$ 9.5
Restructuring charges excluding non-cash impairments	—	1.2
Cash payments	(1.4)	(9.3)
Reserve balance end of year	$ —	$ 1.4

3. Recent Accounting Pronouncements

Recently Issued Accounting Pronouncements - Adopted

In November 2021, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2021-10 Government Assistance (Topic 832): Disclosures by Business Entities about Government Assistance. The amendments in ASU 2021-10 require the following annual disclosures about transactions with a government that are accounted for by applying a grant or contribution accounting model by analogy: information about the nature of the transactions and the related accounting policy used to account for the transactions; the line items on the balance sheet and income statement that are affected by the transactions, and the amounts applicable to each financial statement line item; significant terms and conditions of the transactions, including commitments and contingencies. ASU 2021-10 is effective for public business entities for annual periods, including interim periods within those annual periods, beginning after December 15, 2021, with early adoption permitted. The Company adopted the provisions of ASU 2021-10 in the fourth quarter of fiscal year 2022. ASU 2021-10 is a requirement for additional disclosure and it did not materially impact the consolidated financial statements.

In December 2019, the FASB issued ASU 2019-12 Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes. The guidance removes certain exceptions to the general principles related to the approach for intraperiod tax allocation, the methodology for calculating income taxes in an interim period when a year-to-date loss exceeds the anticipated loss for the year, and recognition of deferred tax liabilities for outside basis differences. The new standard also simplifies the accounting for franchise taxes and enacted changes in tax laws or rates and clarifies the accounting for transactions that result in a step-up in the basis of goodwill. ASU 2019-12 is effective for public business entities for annual periods, including interim periods within those annual periods, beginning after December 15, 2020, with early adoption permitted. The Company adopted the provisions of ASU 2019-12 in the first quarter of fiscal year 2022. As a result, the Company recorded tax benefits on its year-to-date net loss for the nine months ended March 31, 2022 in excess of its forecasted total tax benefits for the full fiscal year. Adoption of the other provisions in ASU 2019-12 did not materially impact the consolidated financial statements.

In June 2016, the FASB issued ASU 2016-13 Financial Instruments - Credit Losses (Topic 326). This guidance added a new impairment model, known as the current expected credit loss model ("CECL"), which is based on expected losses rather than incurred losses that were recognized under the Allowance for Loan and Lease Losses accounting standard. Under this model, an entity is required to recognize an allowance equivalent to its estimate of expected credit losses. The CECL model applies to most debt instruments, trade receivables, lease receivables, financial guarantee contracts and other loan commitments. This model does not have a minimum threshold for recognition of impairment losses and requires the measurement of expected credit losses on assets that have a low risk of loss. This guidance will need to be considered in future assessments of credit losses. The adoption of ASU 2016-13 did not materially impact the consolidated financial statements.

In August 2018, the FASB issued ASU 2018-14 Reference Rate Reform (Subtopic 715-20). The amendments in ASU 2018-14 remove disclosures that no longer are considered cost beneficial, clarify the specific requirements of disclosures and add disclosure requirements identified as relevant. Amendments that affect the Company's disclosure include the following: (i) elimination of presenting the amounts in accumulated other comprehensive income expected to be recognized (i.e., amortization of net actuarial losses and prior service costs) as non-service components of net periodic benefit cost over the next fiscal year; (ii) for postretirement health care benefits, elimination of the effects of a one-percentage point change in assumed health care cost trend rates on the (a) aggregate of the service and interest cost components of net periodic benefit cost and (b) benefit obligation. These amendments are effective for fiscal years ending after December 15, 2020 and early adoption is permitted. The adoption of ASU 2018-14 did not materially impact the consolidated financial statements.

In March 2020, the FASB issued ASU 2020-04 Reference Rate Reform (Topic 848). The guidance in ASU 2020-04 provides optional expedients and exceptions for applying GAAP to contracts, hedging relationships, and other transactions affected by reference rate reform, if certain criteria are met. The amendments apply only to contracts and hedging relationships that reference LIBOR or another reference rate expected to be discontinued due to reference rate reform. These amendments are effective immediately and may be applied prospectively to contract modifications made and hedging relationships entered into or evaluated on or before December 31, 2022. The adoption of ASU 2020-04 did not materially impact the consolidated financial statements.

In February 2016, the FASB issued Accounting Standards Update ASU 2016-02 Leases (Topic 842) which replaced the prior guidance in ASC 840, Leases. The standard improves transparency and comparability among companies by recognizing lease assets and lease liabilities on the balance sheet and by disclosing key information about leasing arrangements. ASU 2016-02 is effective for public business entities for annual periods, including interim periods within those annual periods, beginning after December 15, 2018, with early adoption permitted. The Company adopted the provisions of ASU 2016-02 in the first quarter of fiscal year 2020 using the modified retrospective transition method, which did not require the Company to adjust comparative periods. Operating leases are included in other assets, accrued liabilities (current) and other liabilities (long-term) on the consolidated balance sheets. The Company's ROU assets and lease liabilities are recognized on the lease commencement date in an amount that represents the present value of future lease payments. Upon adoption of the new lease guidance, the Company recorded a ROU asset and lease liability on the consolidated balance sheet for several types of operating leases, including land and buildings, equipment (e.g. trucks and forklifts), vehicles and computer equipment. The adoption of the standard had no impact on the Consolidated Statements of Income or the Consolidated Statements of Cash Flows. There was no cumulative effect of adopting the standard at the date of initial application in reinvested earnings.

The Company elected the package of practical expedients included in this guidance, which allowed it to not reassess: (i) whether any expired or existing contracts contain leases; (ii) the lease classification for any expired or existing leases; and, (iii) the initial direct costs for existing leases. The Company has elected the practical expedient to not separate lease components from nonlease components for all asset classes. The Company recognizes lease expense in the consolidated statements of operations on a straight-line basis over the lease term. The Company also made a policy election to not recognize ROU assets and lease liabilities for short-term leases with an initial term of 12 months or less for all asset classes. Leases with the option to extend their term or terminate early are reflected in the lease term when it is reasonably certain that the Company will exercise such options. Since adopted, the Company has expanded the disclosure of operating leases included in Note 14.

In February 2018, the FASB issued ASU 2018-02, Income Statement - Reporting Comprehensive Income (Topic 220) - Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income, which allows a reclassification from accumulated other comprehensive income (loss) to reinvested earnings for standard tax effects resulting from the Act to Provide for Reconciliation Pursuant to Titles II and V of the Concurrent Resolution on the Budget for Fiscal Year 2018 (Tax Cuts and Jobs Act). ASU 2018-02 is effective for public business entities for annual periods, including interim periods within those annual periods, beginning after December 15, 2018, with early adoption permitted. The Company adopted the provisions of ASU 2018-02 in the first quarter of fiscal year 2020. The adoption of ASU 2018-02 did not materially impact the consolidated financial statements.

In August 2018, the FASB issued ASU 2018-15, Intangibles - Goodwill and Other - Internal Use Software (Subtopic 350-40) - Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That is a Service Contract, to help entities evaluate the accounting for fees paid by a customer in a cloud computing arrangement. ASU 2018-15 was effective for public business entities for annual periods, including interim periods within those annual periods, beginning after December 15, 2019, with early adoption permitted. The Company early adopted the provisions of ASU 2018-15 in the first quarter of fiscal year 2020 and elected the prospective adoption method. The adoption of ASU 2018-15 did not materially impact the consolidated financial statements.

4. Revenue

The Company recognizes revenue in accordance with Topic 606, Revenue from Contracts. The Company applies the five-step model in the FASB's guidance, which requires the Company to: (i) identify the contract with a customer; (ii) identify the performance obligations in the contract; (iii) determine the transaction price; (iv) allocate the transaction price to the performance obligations in the contract; and (v) recognize revenue when, or as, the Company satisfies a performance obligation.

The Company recognizes revenue when performance obligations under the terms of a customer purchase order or contract are satisfied. This occurs when control of the goods and services has transferred to the customer, which is generally determined when title, ownership and risk of loss pass to the customer, all of which occurs upon shipment or delivery of the product or the service is performed. Consignment transactions are arrangements where the Company transfers product to a customer location but retains ownership and control of such product until it is used by the customer. Revenue for consignment arrangements is recognized upon usage by the customer. Service revenue is recognized as the services are performed.

The customer purchase order or contract for goods transferred has a single performance obligation for which revenue is recognized at a point in time. The standard terms and conditions of a customer purchase order include general rights of return and product warranty provisions related to nonconforming product. Depending on the circumstances, the product is either replaced or a quality adjustment is issued. Such warranties do not represent a separate performance obligation.

Each customer purchase order or contract sets forth the transaction price for the products and services purchased under that arrangement. Some customer arrangements include variable consideration, such as volume rebates, which generally depend upon the Company's customers meeting specified performance criteria, such as a purchasing level over a period of time. The Company exercises judgment to estimate the most likely amount of variable consideration at each reporting date.

Revenue is measured as the amount of consideration the Company expects to receive in exchange for its product. The normal payment terms are 30 days. The Company has elected to use the practical expedient that permits a Company to not adjust for the effects of a significant financing component if it expects that at the contract inception, the period between when the Company transfers a promised good or service to a customer and when the customer pays for that good or service will be one year or less.

Amounts billed to customers for shipping and handling activities to fulfill the Company's promise to transfer the goods are included in revenues and costs incurred by the Company for the delivery of goods are classified as cost of sales in the consolidated statements of operations. Shipping terms may vary for products shipped outside the United States depending on the mode of transportation, the country where the material is shipped and any agreements made with the customers.

Contract liabilities are recognized when the Company has received consideration from a customer to transfer goods or services at a future point in time when the Company performs under the purchase order or contract. Contract liabilities were $14.4 million and $8.6 million at June 30, 2022 and 2021, respectively, and are included in accrued liabilities on the consolidated balance sheets.

The Company elected the practical expedient that permits the omission of disclosure for remaining performance obligations which are expected to be satisfied in one year or less.

Disaggregation of Revenue

The Company operates in two business segments, Specialty Alloys Operations and Performance Engineered Products. Revenue is disaggregated within these two business segments by diversified end-use markets and by geographical location. Comparative information of the Company's overall revenues by end-use markets and geography for years ended June 30, 2022, 2021 and 2020 were as follows:

End-Use Market Data	**Years Ended June 30,**		
($ in millions)	**2022**	**2021**	**2020**
Aerospace and Defense	$ 790.2	$ 710.9	$ 1,313.7
Medical	212.3	143.5	197.0
Transportation	178.3	144.5	132.1
Energy	113.0	87.8	135.4
Industrial and Consumer	417.2	292.1	296.0
Distribution	125.3	96.8	106.9
Total net sales	$ 1,836.3	$ 1,475.6	$ 2,181.1

Geographic Data	Years Ended June 30,		
($ in millions)	2022	2021	2020
United States	$ 1,179.9	$ 926.6	$ 1,393.4
Europe	253.5	242.7	387.4
Asia Pacific	233.9	194.4	237.5
Mexico	89.4	48.8	67.0
Canada	41.5	32.9	54.2
Other	38.1	30.2	41.6
Total net sales	$ 1,836.3	$ 1,475.6	$ 2,181.1

5. Divestiture

On September 30, 2020, the Company divested the Amega West business for a total sale price of $20.0 million. In connection with the divestiture, the Company received $17.6 million of cash in the quarter ended September 30, 2020 and the remaining $2.4 million of cash in the quarter ended December 31, 2020. The operations of the Amega West business were historically included in our PEP segment and the Energy end-use market. The Company does not have any significant continuing involvement in the operations of Amega West after the divestiture.

6. Loss (Earnings) per Common Share

The Company calculates basic and diluted (loss) earnings per share using the two class method. Under the two class method, (loss) earnings are allocated to common stock and participating securities (non-vested restricted shares and units that receive non-forfeitable dividends) according to their participation rights in dividends and undistributed earnings. The (loss) earnings available to each class of stock are divided by the weighted average number of outstanding shares for the period in each class. Diluted (loss) earnings per share assumes the issuance of common stock for all potentially dilutive share equivalents outstanding. For the years ended June 30, 2022 and 2021, the Company incurred a net loss and accordingly excluded all potentially dilutive securities from the determination of diluted loss per share as their impact was anti-dilutive.

The calculations of basic and diluted (loss) earnings per common share for the years ended June 30, 2022, 2021 and 2020 were as follows:

	Years Ended June 30,		
(in millions, except per share data)	2022	2021	2020
Net (loss) income	$ (49.1)	$ (229.6)	$ 1.5
Dividends allocated to participating securities	(0.1)	(0.4)	(0.4)
(Loss) earnings available for common shareholders used in calculation of basic (loss) earnings per share	$ (49.2)	$ (230.0)	$ 1.1
Weighted average number of common shares outstanding, basic	48.5	48.3	48.1
Basic (loss) earnings per common share	$ (1.01)	$ (4.76)	$ 0.02
Net (loss) income	$ (49.1)	$ (229.6)	$ 1.5
Dividends allocated to participating securities	(0.1)	(0.4)	(0.4)
(Loss) earnings available for common shareholders used in calculation of diluted (loss) earnings per share	$ (49.2)	$ (230.0)	$ 1.1
Weighted average number of common shares outstanding, basic	48.5	48.3	48.1
Effect of shares issuable under share-based compensation plans	—	—	0.1
Weighted average number of common shares outstanding, diluted	48.5	48.3	48.2
Diluted (loss) earnings per common share	$ (1.01)	$ (4.76)	$ 0.02

The following awards issued under share-based compensation plans were excluded from the calculations of diluted earnings per share above because their effects were anti-dilutive:

	Years Ended June 30,		
(in millions)	2022	2021	2020
Stock options	1.9	2.1	1.3

7. Inventories

Inventories consisted of the following components at June 30, 2022 and 2021:

	June 30,	
($ in millions)	**2022**	**2021**
Raw materials and supplies	$ 127.8	$ 115.0
Work in process	261.2	206.2
Finished and purchased products	107.1	104.5
Total inventory	$ 496.1	$ 425.7

Inventories are valued at the lower of cost or market for those inventories determined by the LIFO method. The Company values other inventory at the lower of cost or net realizable value, determined by the FIFO and average cost methods. If the FIFO method of inventory had been used instead of the LIFO method, inventories would have been $427.2 million and $238.8 million higher as of June 30, 2022 and 2021, respectively. Current cost of LIFO-valued inventories was $800.4 million at June 30, 2022, and $557.0 million at June 30, 2021. There was no impact to cost of sales, net income or earnings per share during fiscal year 2022 from reductions in LIFO-valued inventories. In fiscal year 2021, the reductions in LIFO-valued inventories increased cost of sales by $52.2 million, increased net loss by $37.3 million and negatively impacted diluted loss per share by $0.77.

There were no inventory impairments recorded in fiscal year 2022. In fiscal year 2021, the Company recorded $4.2 million of inventory impairments within the Additive reporting unit which is part of the PEP segment as a result of restructuring actions.

8. Property, Plant and Equipment, net

Property, plant and equipment, net consisted of the following components at June 30, 2022 and 2021:

	June 30,	
($ in millions)	2022	2021
Land	$ 38.3	$ 36.5
Buildings and building equipment	546.5	537.6
Machinery and equipment	2,348.4	2,234.6
Capitalized software	219.8	221.2
Construction in progress	66.5	120.0
Total at cost	3,219.5	3,149.9
Less: accumulated depreciation and amortization	1,798.7	1,692.4
Total property, plant and equipment, net	$ 1,420.8	$ 1,457.5

The estimated useful lives of depreciable assets are as follows:

Asset Category	Useful Life (in Years)
Buildings and building equipment	10 – 45
Machinery and equipment	3 – 30
Capitalized software	3 – 12

As a result of targeted cost reduction activities, as further described in Note 2, the Company executed restructuring activities within the Additive reporting unit in both fiscal years 2021 and 2020. As a result, the Company recorded impairment charges related to property, plant and equipment of $8.2 million during fiscal year 2021. During fiscal year 2020 the Company approved a plan to exit the oil and gas business and closed two powder facilities in the PEP segment. As a result, the Company recorded impairment charges related to property, plant and equipment of $31.4 million in fiscal year 2020.

Depreciation for the years ended June 30, 2022, 2021 and 2020 was $107.6 million, $104.7 million and $111.0 million, respectively. Amortization related to capitalized software amounted to $16.9 million, $12.0 million and $5.3 million for the years ended June 30, 2022, 2021 and 2020, respectively.

9. Goodwill and Other Intangible Assets, Net

Goodwill

Goodwill is not amortized but instead is tested at least annually for impairment as of June 1, or more frequently if events or circumstances indicate that the carrying amount of goodwill may be impaired. Effective fiscal year 2022 and prospectively, the Company will perform its required annual goodwill impairment test as of June 1 rather than on June 30 which was the Company’s previous practice. The Company believes this change is preferable as it more closely aligns with the timing of the Company’s annual budgeting process. The Company does not believe this change resulted in any delay, acceleration or avoidance of impairment. Furthermore, a retrospective application to prior periods is impracticable as the Company is unable to objectively determine, without the use of hindsight, the assumptions which would be used in earlier periods.

As of June 30, 2022, the Company has three reporting units with goodwill recorded. Goodwill associated with the SAO reporting unit as of June 30, 2022, was $195.5 million and represents approximately 81 percent of total goodwill as of June 30, 2022. The remaining goodwill is associated with the PEP segment, which includes two reporting units, Dynamet and Latrobe Distribution, with goodwill recorded as of June 30, 2022, of $31.9 million and $14.0 million, respectively. The fair value for all three reporting units is estimated using a weighting of discounted cash flows and the use of market multiples valuation techniques.

The Company conducts goodwill impairment testing at least annually as of June 1, or more often if events, changes or circumstances indicate that the carrying amount may not be recoverable. In preparing the financial statements for the quarter ended December 31, 2020, the Company identified an impairment triggering event related to the Additive reporting unit within the PEP segment. This reporting unit experienced slower than expected growth due to customers shifting their near-term focus away from this emerging area as a result of the continuing impacts of the COVID-19 pandemic. During the quarter ended December 31, 2020 the Company also made strategic decisions to reduce resources allocated to the Additive reporting unit to concentrate on the essential manufacturing business. In light of these decisions and current market conditions, the pace of growth in the future projections for the Company's Additive reporting unit were lowered.

The fair value for the Additive reporting unit was estimated using a discounted cash flow technique. The Company determined the goodwill associated with the Additive reporting unit was impaired and recorded an impairment charge of $52.8 million during the quarter ended December 31, 2020, which represented the entire balance of goodwill.

Goodwill associated with the SAO reporting unit is tested at the SAO segment level. As of June 1, 2022, the fair value of the SAO reporting unit exceeded the carrying value by approximately 38.2 percent. The discounted cash flows analysis for the SAO reporting unit includes assumptions related to our ability to increase volume, improve mix, expand product offerings and continue to implement opportunities to reduce costs over the next several years. For purposes of the discounted cash flow analysis for SAO's fair value, the Company used a weighted average cost capital of 9.5 percent and a terminal growth rate assumption of 2.5 percent. If the long-term growth rate of this reporting unit had been hypothetically reduced by 0.5 percent at June 1, 2022, the SAO reporting unit would have a fair value that exceeded the carrying value by approximately 34.5 percent.

Goodwill associated with the PEP segment is tested at the Dynamet and Latrobe Distribution reporting unit level. As of June 1, 2022, the fair value of the Dynamet reporting unit exceeded the carrying value by approximately 54.1 percent. For purposes of the discounted cash flow analysis for Dynamet's fair value, a weighted average cost capital of 13.0 percent and a terminal growth rate assumption of 2.5 percent were used. If the long-term growth rate for this reporting unit had been hypothetically reduced by 0.5 percent at June 1, 2022, the Dynamet reporting unit would have a fair value that exceeded the carrying value by approximately 52.0 percent. As of June 1, 2022, the fair value of the Latrobe Distribution reporting unit exceeded the carrying value by approximately 34.5 percent. For purposes of the discounted cash flow analysis for Latrobe Distribution's fair value, a weighted average cost capital of 11.0 percent and a terminal growth rate assumption of 2.5 percent were used. If the long-term growth rate for this reporting unit had been hypothetically reduced by 0.5 percent at June 1, 2022, the Latrobe Distribution reporting unit would have a fair value that exceeded the carrying value by approximately 32.1 percent.

The Company continuously monitors for events and circumstances that could negatively impact the key assumptions in determining fair value of the reporting units.

Accumulated goodwill impairment losses of $134.6 million are related solely to the PEP segment. The changes in the carrying amount of goodwill by reportable segment for fiscal years 2022 and 2021 were as follows:

($ in millions)	June 30, 2020	Impairment	Other	June 30, 2021	June 30, 2022
Goodwill	$ 372.2	$ —	$ 3.8	$ 376.0	$ 376.0
Accumulated impairment losses	(81.8)	(52.8)	—	(134.6)	(134.6)
Total goodwill	$ 290.4	$ (52.8)	$ 3.8	$ 241.4	$ 241.4
Specialty Alloys Operations	$ 195.5	$ —	$ —	$ 195.5	$ 195.5
Performance Engineered Products	94.9	(52.8)	3.8	45.9	45.9
Total goodwill	$ 290.4	$ (52.8)	$ 3.8	$ 241.4	$ 241.4

Other Intangible Assets, Net

		June 30, 2022			June 30, 2021		
($ in millions)	Useful Life (in Years)	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Trademarks and trade names	15 - 30	$ 29.9	$ (25.3)	$ 4.6	$ 29.9	$ (24.3)	$ 5.6
Customer relationships	10 - 15	70.8	(48.8)	22.0	70.8	(44.1)	26.7
Technology	10 - 15	3.6	(3.1)	0.5	3.6	(2.8)	0.8
Patents	14 - 20	11.4	(3.3)	8.1	11.4	(1.4)	10.0
Total		$ 115.7	$ (80.5)	$ 35.2	$ 115.7	$ (72.6)	$ 43.1

The Company recorded $6.9 million of amortization expense related to intangible assets during fiscal year 2022, $6.9 million during fiscal year 2021 and $8.3 million during fiscal year 2020. The estimated annual amortization expense related to intangible assets for each of the succeeding five fiscal years is $6.8 million in fiscal year 2023, $6.6 million in fiscal year 2024, $6.5 million in fiscal years 2025 and 2026 and $4.5 million in fiscal year 2027.

During the year ended June 30, 2021, the Company impaired $4.3 million of net carrying amount related to technology and customer relationships within the Additive reporting unit. The impairment was the result of a restructuring plan to consolidate certain operations within the Additive business in the PEP segment. There was no remaining carrying value for these assets as of June 30, 2021.

As a result of targeted cost reduction activities, in fiscal year 2020 the Company approved a plan to exit the oil and gas business and closed two powder facilities in the PEP segment. As a result, the Company recorded an impairment charge of $7.3 million of net carrying amount related to definite lived intangible assets during fiscal year 2020. There was no remaining carrying value for these assets as of June 30, 2020.

10. Accrued Liabilities

Accrued liabilities consisted of the following as of June 30, 2022 and 2021:

	June 30,	
($ in millions)	2022	2021
Accrued compensation and benefits	$ 53.2	$ 81.4
Accrued interest expense	18.4	16.2
Contract liabilities	14.4	8.6
Accrued postretirement benefits	14.1	14.4
Current portion of lease liabilities	9.9	9.0
Accrued pension liabilities	3.4	3.5
Accrued income taxes	0.4	0.5
Derivative financial instruments	0.3	4.2
Other	19.4	26.1
Total accrued liabilities	$ 133.5	$ 163.9

11. Debt

On March 16, 2022, the Company completed its offering and sale of $300.0 million in aggregate principal amount of 7.625% Senior Notes due 2030 (the "2030 Notes"). The 2030 Notes accrue interest at the rate of 7.625% per annum, with interest payable in cash semi-annually in arrears on March 15 and September 15, commencing September 15, 2022. The 2030 Notes will mature on March 15, 2030. The 2030 Notes are senior unsecured indebtedness of the Company, ranking equally in right of payment with all its existing and future senior unsecured indebtedness and senior to its future subordinated indebtedness. The Company used the net proceeds from the issuance of the 2030 Notes to repay, in April 2022, in full $300.0 million in principal of its 4.45% senior unsecured notes due March 2023, including any interest and premium due thereon.

On July 10, 2020, the Company completed its offering and sale of $400.0 million in aggregate principal amount of 6.375% Senior Notes due 2028 (the "2028 Notes"). The 2028 Notes accrue interest at the rate of 6.375% per annum, with interest payable in cash semi-annually in arrears on each January 15th and July 15th, commencing January 15, 2021. The 2028 Notes will mature on July 15, 2028. The 2028 Notes are senior unsecured indebtedness of the Company, ranking equally in right of payment with all its existing and future senior unsecured indebtedness and senior to any future subordinated indebtedness. The Company utilized a portion of the net proceeds from the issuance of the 2028 Notes to repay in full $250.0 million in aggregate principal amount of its senior unsecured notes due July 2021. The Company used or intends to use the remaining net proceeds from the issuance of the 2028 Notes for general corporate purposes.

On March 26, 2021, the Company entered into a $300.0 million secured revolving credit facility ("the Credit Facility"). The Credit Facility amended and restated the Company's previous revolving credit facility, dated March 31, 2017, which had been set to expire in March 2022. The Credit Facility extends the maturity to March 31, 2024, subject to a springing maturity of November 30, 2022. If, by November 30, 2022, the Company's outstanding $300.0 million 4.45% Senior Notes due in March 2023 were not redeemed, repurchased or refinanced with indebtedness having a maturity date of October 1, 2024 or later, all indebtedness under the Credit Facility would be due. The springing maturity clause has been fulfilled with the issuance of the 2030 Notes and subsequent payment in full of the 2023 Notes. The Credit Facility contains a revolving credit commitment amount of $300.0 million, subject to the Company's right, from time to time, to request an increase of the commitment to $500.0 million in the aggregate; and provides for the issuance of letters of credit subject to a $40.0 million sub-limit. The Company has the right to terminate or reduce the commitments under the Credit Facility, and, subject to certain lender approvals, to join subsidiaries as subsidiary borrowers.

On February 14, 2022, the Company entered into an amendment (the "Amendment") to its Credit Facility. The Amendment revised the interest coverage ratio covenant under the Credit Facility so the first test date is June 30, 2022, and to require a minimum interest coverage ratio of 2.00 to 1.00 at June 30, 2022, (calculated for the two fiscal quarters then ended), 3.00 to 1.00 at September 30, 2022, (calculated for the three fiscal quarters then ended) and 3.50 to 1.00 at December 31, 2022, and thereafter (calculated for the four fiscal quarters then ended). The Amendment revised the restricted period under the Credit Facility, during which the Company is prohibited from incurring any secured debt other than purchase money financing for new equipment and is subject to additional restrictions on its ability to make dividends or distributions or to make certain investments, to expire on September 30, 2022.

Interest on the borrowings under the Credit Facility accrue at variable rates, based upon a "Eurocurrency Rate" or a defined "Base Rate". Both are determined based upon the credit rating of the Company's senior unsecured long-term debt (the "Debt Rating"). The applicable margin to be added to Eurocurrency Rate ranges from 1.25% to 2.25% (2.00% as of June 30, 2022), and for Base Rate-determined loans, from 0.25% to 1.25% (1.00% as of June 30, 2022). The Company also pays a quarterly commitment fee ranging from 0.275% to 0.375% (0.35% as of June 30, 2022), determined based upon the Debt Rating, of the unused portion of the $300.0 million commitment under the Credit Facility. In addition, the Company must pay certain letter of credit fees, ranging from 1.25% to 2.25% (2.00% as of June 30, 2022), with respect to letters of credit issued under the Credit Facility. The Company has the right to voluntarily prepay and re-borrow loans and to terminate or reduce the commitments under the facility. As of June 30, 2022, the Company had $5.9 million of issued letters of credit under the Credit Facility and no short-term borrowings, with the balance of $294.1 million available to the Company. As of June 30, 2022, the borrowing rate for the Credit Facility was 3.67 percent.

The Company is subject to certain financial and restrictive covenants under the Credit Facility, which, among other things, require the maintenance of a minimum interest coverage ratio. The interest coverage ratio is defined in the Credit Facility as, for any period, the ratio of consolidated earnings before interest, taxes, depreciation and amortization and non-cash net pension expense ("EBITDA") to consolidated interest expense for such period. The interest coverage covenant was waived until the quarter ended June 30, 2022 at which time it is required to be 2.00 to 1.00 and then 3.00 to 1.00 at September 30, 2022. The Credit Facility also requires the Company to maintain a debt to capital ratio of less than 55 percent. The debt to capital ratio is defined in the Credit Facility as the ratio of consolidated indebtedness, as defined therein, to consolidated capitalization, as defined therein. In addition, the Company is also subject to an asset coverage ratio minimum of 1.10 to 1.00. The asset coverage ratio is defined in the Credit Facility as eligible receivables and inventory, as defined therein, to outstanding loans and obligations, as defined therein. As of June 30, 2022, the Company was in compliance with all of the covenants of the Credit Facility.

Long-term debt outstanding at June 30, 2022 and 2021 consisted of the following:

	June 30,	
($ in millions)	**2022**	**2021**
Senior unsecured notes, 4.45% due March 2023 (face value of $300.0 million at June 30, 2021)	$ —	$ 299.5
Senior unsecured notes, 6.375% due July 2028 (face value of $400.0 million at June 30, 2022 and 2021)	395.9	395.0
Senior unsecured notes, 7.625% due March 2030 (face value of $300.0 million at June 30, 2022)	295.9	—
Total	691.8	694.5
Less amounts due within one year	—	—
Long-term debt, net of current portion	$ 691.8	$ 694.5

Aggregate maturities of long-term debt for the five fiscal years subsequent to June 30, 2022, are $0.0 million.

For the years ended June 30, 2022, 2021 and 2020, interest costs totaled $45.7 million, $40.8 million and $28.8 million, respectively, of which $0.8 million, $8.1 million and $9.0 million, respectively, were capitalized as part of the cost of property, plant, equipment and software. Debt extinguishment losses, net for the fiscal year ended June 30, 2022 were $6.0 million as compared with $8.2 million of debt extinguishment losses, net for the fiscal year ended June 30, 2021, which included $10.5 million of debt prepayment costs on the Notes due July 2021 offset by gains of $2.3 million on related interest rate swaps that were terminated in connection with the prepayment. For the fiscal year ended June 30, 2020 there were no debt extinguishment losses, net.

12. Pension and Other Postretirement Benefits

The Company provides several noncontributory defined benefit pension plans to certain employees. The plans provide defined benefits based on years of service and final average salary.

The Company also provides other postretirement benefit plans to certain of its employees. The postretirement benefit plans consist of health care and life insurance plans. Plan assets are maintained in a Voluntary Employee Benefit Association ("VEBA") Trust. During fiscal years 2022 and 2021, the Company funded benefit payments using assets in the VEBA Trust.

The following provides a reconciliation of benefit obligations, plan assets and funded status of the plans:

	Pension Plans		Other Postretirement Plans	
($ in millions)	2022	2021	2022	2021
Change in projected benefit obligation:				
Projected benefit obligation at beginning of year	$ 1,225.5	$ 1,343.1	$ 249.3	$ 264.2
Service cost	8.6	9.6	2.4	2.7
Interest cost	36.6	39.4	7.4	7.7
Benefits paid	(62.8)	(92.5)	(11.6)	(12.9)
Actuarial gain	(221.2)	(25.3)	(41.3)	(12.4)
Plan settlements	(27.3)	(48.8)	—	—
Projected benefit obligation at end of year	959.4	1,225.5	206.2	249.3
Change in plan assets:				
Fair value of plan assets at beginning of year	999.4	923.4	136.3	112.8
Actual return	(153.7)	193.7	(11.7)	33.6
Benefits paid	(62.8)	(92.6)	(11.5)	(12.8)
Contributions	3.8	23.7	1.6	2.7
Plan settlements	(27.3)	(48.8)	—	—
Fair value of plan assets at end of year	759.4	999.4	114.7	136.3
Funded status of the plans	$ (200.0)	$ (226.1)	$ (91.5)	$ (113.0)
Amounts recognized in the consolidated balance sheets:				
Accrued liabilities - current	(3.4)	(3.5)	(14.1)	(14.4)
Accrued pension liabilities - noncurrent	(196.6)	(222.6)	—	—
Accrued postretirement benefits - noncurrent	—	—	(77.4)	(98.6)
Funded status of the plans	$ (200.0)	$ (226.1)	$ (91.5)	$ (113.0)

	Pension Plans		Other Postretirement Plans	
($ in millions)	2022	2021	2022	2021
Amounts recognized in accumulated other comprehensive loss:				
Net actuarial loss (gain)	$ 282.0	$ 298.0	$ (10.3)	$ 10.3
Prior service cost (credit)	7.9	10.0	(6.2)	(10.1)
Total	$ 289.9	$ 308.0	$ (16.5)	$ 0.2
Other changes in plan assets and benefit obligations recognized in other comprehensive income (loss) consist of:				
Net actuarial gain	$ (7.5)	$ (162.6)	$ (21.3)	$ (39.4)
Amortization of net (loss) gain	(8.4)	(15.3)	0.8	(3.6)
Amortization of prior service (cost) benefit	(2.1)	(2.1)	3.9	3.9
Settlement charge	—	(11.4)	—	—
Total, before tax effect	$ (18.0)	$ (191.4)	$ (16.6)	$ (39.1)
Additional information:				
Accumulated benefit obligation for all pension plans	$ 956.4	$ 1,217.6	N/A	N/A

For the year ended June 30, 2022, actuarial gains in pension plans were significantly impacted by a change in discount rate of $225.2 million and actuarial gains in other postretirement plans were significantly impacted by a change in discount rate of $41.9 million. For the year ended June 30, 2021, actuarial gains in pension plans were significantly impacted by a mortality update of $13.1 million and a change in discount rate of $7.1 million and actuarial gains in other postretirement plans were significantly impacted by a mortality update of $6.8 million and a change in plan experience of $4.2 million.

The following is additional information related to plans with projected benefit obligations in excess of plan assets as of June 30, 2022 and 2021:

	Pension Plans		Other Postretirement Plans	
($ in millions)	2022	2021	2022	2021
Projected benefit obligation	$ 959.4	$ 1,225.5	$ 206.1	$ 249.3
Fair value of plan assets	$ 759.4	$ 999.4	$ 114.7	$ 136.3

The following additional information is for plans with accumulated benefit obligations in excess of plan assets as of June 30, 2022 and 2021:

	Pension Plans		Other Postretirement Plans	
($ in millions)	2022	2021	2022	2021
Accumulated benefit obligation	$ 956.4	$ 1,217.6	$ 206.1	$ 249.3
Fair value of plan assets	$ 759.4	$ 999.4	$ 114.7	$ 136.3

The components of the net periodic pension (income) expense related to the Company's pension and other postretirement benefits for the years ended June 30, 2022, 2021 and 2020 are as follows:

	Pension Plans			Other Postretirement Plans		
($ in millions)	**2022**	**2021**	**2020**	**2022**	**2021**	**2020**
Service cost	$ 8.6	$ 9.6	$ 9.9	$ 2.4	$ 2.7	$ 2.6
Interest cost	36.6	39.4	46.9	7.4	7.7	9.0
Expected return on plan assets	(59.9)	(56.5)	(62.2)	(8.2)	(6.8)	(7.1)
Amortization of net loss (gain)	8.4	15.3	15.5	(0.8)	3.6	2.5
Amortization of prior service cost (benefit)	2.1	2.1	2.1	(3.9)	(3.9)	(3.9)
Settlement charge	—	11.4	—	—	—	—
Net pension (income) expense	$ (4.2)	$ 21.3	$ 12.2	$ (3.1)	$ 3.3	$ 3.1

The service cost component of the Company's net pension (income) expense, which represents the estimated cost of future pension liabilities earned associated with active employees, is included in the operating income of the business segments. The residual net pension expense, which is comprised of the expected return on plan assets, interest costs on the projected benefit obligations of the plans, and amortization of actuarial gains and losses and prior service costs and benefits, is presented in "Other (income) expense, net". See Note 19 to our consolidated financial statements included in Item 8. "Financial Statements and Supplementary Data".

During fiscal year ended June 30, 2021, the Company evaluated the need for settlement accounting under ASC 715-30-35-82 based on the higher than normal lump-sum payments made during fiscal year 2021 in the Company's largest defined benefit plan. The Company determined that the lump-sum payments exceeded the threshold of service cost and interest cost components and settlement accounting was required. The Company recorded settlement charges of $11.4 million in the year ended June 30, 2021, within other expense, net.

Weighted-average assumptions used to determine benefit obligations at fiscal year end	Pension Plans		Other Postretirement Plans	
	2022	**2021**	**2022**	**2021**
Discount rate	5.00 %	3.06 %	5.02 %	3.04 %
Rate of compensation increase	3.29 %	3.29 %	N/A	N/A

Weighted-average assumptions used to determine net periodic benefit cost for the fiscal year	Pension Plans			Other Postretirement Plans		
	2022	**2021**	**2020**	**2022**	**2021**	**2020**
Discount rate	3.06 %	3.12 %	3.61 %	3.04 %	2.99 %	3.60 %
Expected long-term rate of return on plan assets	6.22 %	6.21 %	6.68 %	6.25 %	6.25 %	6.25 %
Long-term rate of compensation increase	3.29 %	3.29 %	3.31 %	N/A	N/A	N/A

The following table shows the expected health care rate increase and the future rate and time at which it is expected to remain constant:

	June 30,	
	2022	**2021**
Assumed health care cost trend rate	6.25 %	6.50 %
Rate to which the cost trend rate is assumed to decline and remain (the ultimate trend rate)	5.00 %	5.00 %
Year that the rate reaches the ultimate trend rate	2027	2027

Amounts in other accumulated comprehensive loss (gain) that are expected to be recognized as components of net periodic benefit cost in the fiscal year ended June 30, 2023, are:

($ in millions)	Pension Plans	Other Postretirement Plans	Total
Amortization of prior service cost (benefit)	$ 2.1	$ (3.9)	$ (1.8)
Amortization of net actuarial loss (gain)	9.5	(1.8)	7.7
Amortization of accumulated other comprehensive loss (gain)	$ 11.6	$ (5.7)	$ 5.9

The Company's U.S. pension plans' weighted-average asset allocations at June 30, 2022 and 2021, by asset category are as follows:

	2022	2021
Equity securities	35.7 %	58.2 %
Fixed income securities	40.5	41.8
Real assets securities	23.8	—
Total	100.0 %	100.0 %

The Company's policy for developing a pension plan investment strategy includes the periodic development of an asset and liability study by an independent investment consultant. Management considers this study in establishing an asset allocation that is presented to and approved by the Company's Retirement Committee.

Based on the current funding level, the benchmark allocation policy for the Company's largest pension plan assets is to have approximately 75 percent in return seeking assets and 25 percent in liability-hedging assets. Return seeking assets include global equities, diversified credit and real assets. Liability-hedging assets include bond funds and cash. When the funding level of the plan reaches 95 percent and improves to fully or over-funded status in increments of 5 percent, assets will be shifted from return seeking to liability-hedging assets in accordance with the glidepath policy outlined in the pension plan's Investment Policy Statement. The assets related to the Company's other postretirement benefit plans were invested in approximately 85 percent U.S. equities and 15 percent short term investments as of June 30, 2022. Management establishes the expected long-term rate of return assumption by reviewing historical trends and analyzing the current and projected market conditions in relation to the plan's asset allocation and risk management objectives. In determining the expected long-term rate of return, the Company considered historical returns for individual asset classes and the impact of active portfolio management.

The fair values of the Company's pension plan assets as of June 30, 2022 and 2021, by asset category and by the levels of inputs used to determine fair value were as follows:

	June 30, 2022			
	Fair Value Measurements Using Input Type			
($ in millions)	Level 1	Level 2	Net Asset Value	Total
Short-term investments	$ 25.5	$ —	$ —	$ 25.5
Commingled trust funds	—	—	732.8	732.8
Mortgage/asset backed securities and other	—	1.1	—	1.1
	$ 25.5	$ 1.1	$ 732.8	$ 759.4

	June 30, 2021			
	Fair Value Measurements Using Input Type			
($ in millions)	Level 1	Level 2	Net Asset Value	Total
Short-term investments	$ —	$ 21.6	$ —	$ 21.6
Domestic and international equities	156.3	—	—	156.3
Commingled funds	—	—	404.9	404.9
Limited partnerships	—	—	52.4	52.4
Government agency bonds	—	176.2	—	176.2
Corporate bonds	7.6	175.5	—	183.1
Mutual funds	2.4	—	—	2.4
Mortgage/asset backed securities and other	—	2.5	—	2.5
	$ 166.3	$ 375.8	$ 457.3	$ 999.4

The fair values of the Company's other postretirement benefit plans as of June 30, 2022 and 2021, by asset category and by the level of inputs used to determine fair value, were as follows:

	June 30, 2022			
	Fair Value Measurements Using Input Type			
($ in millions)	Level 1	Level 2	Net Asset Value	Total
Commingled trust fund	$ —	$ —	$ 97.7	$ 97.7
Short-term investments	17.0	—	—	17.0
	$ 17.0	$ —	$ 97.7	$ 114.7

	June 30, 2021			
	Fair Value Measurements Using Input Type			
($ in millions)	Level 1	Level 2	Net Asset Value	Total
Commingled fund	$ —	$ —	$ 114.7	$ 114.7
Short-term investments	—	21.6	—	21.6
	$ —	$ 21.6	$ 114.7	$ 136.3

A financial instrument's categorization within the valuation hierarchy is based upon the lowest level of input that is significant to the fair value measurement. Investments in domestic and international equities are generally valued at the closing price reported on the active market on which they are traded. Commingled funds, limited partnerships and mutual funds are valued based on the net asset value ("NAV") established for the fund at each valuation date. The NAV is based on the value of the underlying assets owned by the fund, minus its liabilities, and then divided by the number of units/shares outstanding. Corporate and government agency bonds and other fixed income securities are valued using closing bid prices on an active market when possible, otherwise using evaluated bid prices.

Cash Flows — Employer Contributions

The Company made contributions to the qualified defined benefit pension plans of $0.7 million, $19.9 million and $6.5 million during fiscal years 2022, 2021 and 2020, respectively. The Company currently expects to make no required cash pension contributions to the domestic qualified defined benefit pension plans during fiscal year 2023. During the fiscal years ended June 30, 2022, 2021 and 2020, the Company made contributions of $3.1 million, $3.8 million and $3.3 million to other non-qualified pension plans, respectively.

Estimated Future Benefit Payments

The following benefit payments, which reflect expected future service, as appropriate, are expected to be paid. Pension benefits are currently paid from plan assets and other benefits are currently paid from both corporate assets and the VEBA trust.

($ in millions)	Pension Benefits	Other Benefits
2023	$ 74.8	$ 14.1
2024	$ 71.9	$ 14.6
2025	$ 71.6	$ 14.4
2026	$ 71.1	$ 14.3
2027	$ 70.5	$ 14.1
2028-2032	$ 335.9	$ 66.9

Other Benefit Plans

Carpenter also maintains defined contribution retirement and savings plans for substantially all domestic employees. Company contributions to the plans were $21.0 million in fiscal year 2022, $19.2 million in fiscal year 2021 and $25.3 million in fiscal year 2020.

13. Contingencies and Commitments

Environmental

The Company is subject to various federal, state, local and international environmental laws and regulations relating to pollution, protection of public health and the environment, natural resource damages and occupational safety and health. Although compliance with these laws and regulations may affect the costs of the Company's operations, compliance costs to date have not been material. The Company has environmental remediation liabilities at some of its owned operating facilities and has been designated as a PRP with respect to certain third party Superfund waste-disposal sites and other third party-owned sites. Additionally, the Company has been notified that it may be a PRP with respect to other Superfund sites as to which no proceedings have been instituted against the Company. Neither the exact amount of remediation costs nor the final method of their allocation among all designated PRPs at these Superfund sites have been determined. Accordingly, at this time, we cannot reasonably estimate expected costs for such matters. The liability for future environmental remediation costs that can be reasonably estimated is evaluated by management on a quarterly basis. The Company accrues amounts for environmental remediation costs that represent management's best estimate of the probable and reasonably estimable future costs related to environmental remediation.

During fiscal year 2022, the Company recorded a liability for a third party Superfund waste-disposal site, Helen Kramer Landfill, of $2.4 million. In December 1997, the Company was named as a party in the Helen Kramer Landfill Settlement Agreement. As a result of the settlement agreement, the Company was obligated to reimburse the settling work defendants for 31.4 percent of up to $7.5 million in capital expenditure costs as they were incurred, which was prior to fiscal year 2022. The Company recorded a $2.4 million liability for its proportional share of the capital expenditure amount. The Company intends to pay these remediation costs during the next fiscal year. During fiscal year 2022, the Company also decreased the liability for a company-owned former operating site by $0.1 million.

During fiscal year 2021 the Company had no change to the liability for a company-owned former operating site. For fiscal year 2020, the Company decreased the liability for a company-owned former operating site by $0.1 million.

The liabilities recorded for environmental remediation costs at Superfund sites, other third party-owned sites and Carpenter-owned current or former operating facilities remaining at June 30, 2022 and 2021 were $18.3 million and $16.0 million, respectively.

Other

The Company is defending various routine claims and legal actions that are incidental to its business and common to its operations, including those pertaining to product claims, commercial disputes, patent infringement, employment actions, employee benefits, compliance with domestic and foreign laws and regulations, personal injury claims and tax issues. Like many other manufacturing companies in recent years, the Company, from time to time, has been named as a defendant in lawsuits alleging personal injury as a result of exposure to chemicals and substances in the workplace. The Company provides for costs relating to these matters when a loss is probable and the amount of the loss is reasonably estimable. The effect of the outcome of these matters on the Company's future results of operations and liquidity cannot be predicted because any such effect depends on future results of operations and the amount and timing (both as to recording future charges to operations and cash expenditures) of the resolution of such matters. While it is not feasible to determine the outcome of these matters, management believes that the total liability from these matters will not have a material effect on the Company's financial position, results of operations or cash flows over the long-term. However, there can be no assurance that an increase in the scope of pending matters or that any future lawsuits, claims, proceedings or investigations will not be material to the Company's financial position, results of operations or cash flows in a particular future quarter or year.

The Company has entered into purchase agreements primarily for various key raw materials at market related prices, all made in the normal course of business. The commitments include both fixed and variable price provisions. Raw material prices as of June 30, 2022, were used for commitments with variable pricing. The purchase commitments covered by these agreements aggregate to $224.1 million as of June 30, 2022. Of this amount $187.8 million relates to fiscal year 2023, $29.9 million to fiscal year 2024, $3.5 million to fiscal year 2025, $2.9 million to fiscal year 2026 and $0.0 million to fiscal year 2027.

14. Leases

The Company records ROU assets and operating lease liabilities on the consolidated balance sheet for several types of operating leases, including land and buildings, equipment (e.g. trucks and forklifts), vehicles and computer equipment. On the lease commencement date, the Company measures and records a ROU asset and lease liability equal to the present value of the remaining lease payments, discounted using the rate implicit in the lease (or if that rate cannot be readily determined, the Company's incremental borrowing rate). Operating leases are included in other assets, accrued liabilities (current) and other liabilities (long-term) on the consolidated balance sheets.

The Company elected the practical expedient to not separate lease components from nonlease components for all asset classes. The Company recognizes lease expense in the consolidated statements of operations on a straight-line basis over the lease term. The Company elected to not recognize ROU assets and lease liabilities for short-term leases with an initial term of 12 months or less for all asset classes. Leases with the option to extend their term or terminate early are reflected in the lease term when it is reasonably certain that the Company will exercise such options. Some leasing arrangements require variable payments that are dependent on usage, output, or may vary for other reasons, such as insurance and tax payments. The variable lease payments are not presented as part of the ROU asset or lease liability.

Operating lease cost was $13.5 million, $14.8 million and $14.8 million for the fiscal years ended June 30, 2022, 2021 and 2020, respectively. The following table sets forth the components of the Company's lease cost for the twelve months ended June 30, 2022 and 2021:

	Years Ended June 30,	
($ in millions)	**2022**	**2021**
Operating lease cost	$ 10.9	$ 12.4
Short-term lease cost	3.5	2.9
Variable lease cost	0.1	0.2
Sublease income	(1.0)	(0.7)
Total lease cost	$ 13.5	$ 14.8
Operating cash flow payments from operating leases	$ 11.4	$ 13.1
Non-cash ROU assets obtained in exchange for lease obligations	$ 16.5	$ 2.0

The leases have a remaining term of one to fifteen years. The following table sets forth the Company's weighted-average remaining lease term and weighted-average discount rate at June 30, 2022 and June 30, 2021.

Weighted-average remaining lease term - operating leases	8.5 years	8.4 years
Weighted-average discount rate - operating leases	3.7 %	4.0 %

The following table sets forth the Company's ROU assets and lease liabilities at June 30, 2022 and June 30, 2021:

	June 30,	
($ in millions)	**2022**	**2021**
Operating lease assets:		
Other assets	$ 42.9	$ 34.3
Operating lease liabilities:		
Other accrued liabilities	$ 9.9	$ 9.0
Other liabilities	42.7	35.5
Total operating lease liabilities	$ 52.6	$ 44.5

Minimum lease payments for operating leases expiring subsequent to June 30, 2022, are as follows:

($ in millions)	**June 30, 2022**
2023	$ 11.6
2024	8.9
2025	6.2
2026	5.0
2027	5.0
Thereafter	25.4
Total future minimum lease payments	62.1
Less imputed interest	9.5
Total	$ 52.6

15. Fair Value Measurements

The fair value hierarchy has three levels based on the inputs used to determine fair value. Level 1 refers to quoted prices in active markets for identical assets or liabilities. Level 2 refers to observable inputs other than quoted prices included in Level 1, such as quoted prices for similar assets and liabilities in active markets; quoted prices for identical or similar assets and liabilities in markets that are not active; or other inputs that are observable or can be corroborated by observable market data. Level 3 refers to unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets and liabilities. This includes certain pricing models, discounted cash flow methodologies and similar techniques that use significant unobservable inputs.

The following tables present the Company's assets and liabilities that are measured at fair value on a recurring basis and are categorized using the fair value hierarchy:

June 30, 2022 ($ in millions)	Fair Value Measurements Using Input Type Level 2	Total
Assets:		
Derivative financial instruments	$ 16.6	$ 16.6
Liabilities:		
Derivative financial instruments	$ 0.4	$ 0.4

June 30, 2021 ($ in millions)	Fair Value Measurements Using Input Type Level 2	Total
Assets:		
Derivative financial instruments	$ 15.9	$ 15.9
Liabilities:		
Derivative financial instruments	$ 5.3	$ 5.3

The Company's derivative financial instruments consist of commodity forward contracts, foreign currency forward contracts, interest rate swaps and forward interest rate swaps. These instruments are measured at fair value using the market method valuation technique. The inputs to this technique utilize information related to foreign exchange rates, commodity prices and interest rates published by third party leading financial news and data providers. This is observable data; however, the valuation of these instruments is not based on actual transactions for the same instruments and, as such, they are classified as Level 2. The Company's use of derivatives and hedging policies are more fully discussed in Note 17.

The Company has currently chosen not to elect the fair value option for any items that are not already required to be measured at fair value in accordance with accounting principles generally accepted in the United States of America.

The carrying amounts of other financial instruments not listed in the table below approximate fair value due to the short-term nature of these items. The carrying amounts and estimated fair values of the Company's financial instruments not recorded at fair value in the financial statements were as follows:

	June 30, 2022		June 30, 2021	
($ in millions)	Carrying Value	Fair Value	Carrying Value	Fair Value
Long-term debt	$ 691.8	$ 641.5	$ 694.5	$ 754.7
Company-owned life insurance	$ 22.9	$ 22.9	$ 24.6	$ 24.6

The fair values of long-term debt as of June 30, 2022, and June 30, 2021, were determined by using current interest rates for debt with terms and maturities similar to the Company's existing debt arrangements and accordingly would be classified as Level 2 inputs in the fair value hierarchy.

The carrying amount of company-owned life insurance reflects cash surrender values based upon the market values of underlying securities, using Level 2 inputs, net of any outstanding policy loans. The carrying value associated with the cash surrender value of these policies is recorded in other assets in the accompanying consolidated balance sheets.

For purposes of performing Step 1 of goodwill impairment testing, the Company uses certain nonrecurring fair value measurements using significant unobservable inputs (Level 3). Fair value for purposes of the goodwill impairment test is based on a weighting of an income approach and a market approach. Under the income approach, fair value is determined based on a discounted cash flow technique that uses estimates of cash flows discounted to present value using rates commensurate with the risks associated with those cash flows. Under the market approach, a market-based value is derived by relating multiples for earnings and cash flow measures for a group of comparable public companies to the same measure for each reporting unit to estimate fair value. The assumptions used by the Company to determine fair value of the reporting units are similar to those that would be used by market participants performing valuations.

16. Share-Based Compensation

The Company has two share-based compensation plans: Amended and Restated Stock-Based Incentive Compensation Plan for Officers and Key Employees (the "Omnibus Plan") and the Stock-Based Compensation Plan for Non-Employee Directors ("Director's Plan"). The Company recognizes compensation cost based on the fair value of the awards on the date of grant. The compensation cost is recognized over the requisite service period of the award, which is generally the shorter of the vesting period that the holder is required to provide service, or the period from the grant date to the date on which the employee is eligible to retire. Upon retirement, as defined in the Company's share-based compensation plans, outstanding awards are subject to certain accelerated vesting terms.

Awards granted under the share-based compensation plans are paid from shares held in treasury and newly issued shares. The total compensation cost that has been charged against income related to these share-based compensation plans was $10.8 million, $10.4 million and $10.9 million for the fiscal years ended June 30, 2022, 2021 and 2020, respectively.

Omnibus Plan

The Omnibus Plan provides that the Board of Directors or a designated committee may grant stock options, restricted stock and restricted stock units, and determine the terms and conditions of each grant. The Omnibus Plan provides the Chief Executive Officer with limited authority to grant awards. As of June 30, 2022, 2,547,507 shares were available for awards which may be granted under this plan.

Director's Plan

The Director's Plan provides for the granting of stock options and stock units to non-employee directors. As of June 30, 2022, 260,325 shares were available for awards which may be granted under this plan.

Stock Options (all plans)

Stock options granted under the plans above are granted with an exercise price equal to at least the fair market value of the Company's common stock on the date of grant. The options are typically exercisable after one to three years of service and expire no longer than ten years from the grant date.

The fair value of stock options awarded in fiscal years 2022, 2021 and 2020 was estimated on the date of each grant using a Black-Scholes option pricing model with the following weighted-average assumptions:

	Years Ended June 30,		
	2022	2021	2020
Expected volatility	52 %	50 %	39 %
Dividend yield	2.4 %	0.3 %	1.4 %
Risk-free interest rate	1.1 %	4.4 %	1.8 %
Expected term (in years)	5.0	5.0	5.0

The assumptions are based on multiple factors, including historical exercise patterns of employees in relatively homogeneous groups with respect to exercise and post-vesting employment termination behaviors, expected future exercising patterns for these same homogeneous groups and the implied volatility of our stock price based on historical performance for the same expected term of the options granted. The risk-free interest rate is based on the U.S. Treasury yield curve in effect at the time of each grant.

	Number of Awards	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term	Aggregate Intrinsic Value ($ in millions)
Outstanding at June 30, 2019	2,126,289	$ 44.06		
Granted	167,926	$ 44.75		
Exercised	(117,049)	$ 36.37		
Forfeited	(27,017)	$ 46.62		
Expired	(608)	$ 30.69		
Outstanding at June 30, 2020	2,149,541	$ 44.50		
Granted	67,142	$ 18.26		
Exercised	(11,871)	$ 38.68		
Forfeited	(59,330)	$ 44.91		
Expired	(69,729)	$ 50.64		
Outstanding at June 30, 2021	2,075,753	$ 43.47		
Granted	36,444	$ 34.43		
Exercised	(891)	$ 39.70		
Forfeited	(69,656)	$ 40.52		
Expired	(79,061)	$ 54.49		
Outstanding at June 30, 2022	1,962,589	$ 42.96	4.0 years	$ 647,920
Exercisable at June 30, 2022	1,891,161	$ 43.11	3.8 years	$ 647,920

Outstanding and Exercisable Options

Exercise Price Range	Number Outstanding at June 30, 2022	Weighted Average Remaining Contractual Term (in Years)	Weighted Average Exercise Price	Number Exercisable at June 30, 2022	Weighted Average Exercise Price
$18.26 - $20.00	67,142	8.3	$ 18.26	67,142	$ 18.26
$20.01 - $30.00	—	0.0	$ —	—	$ —
$30.01 - $40.00	795,009	4.2	$ 38.47	763,556	$ 38.68
$40.01 - $50.00	562,370	4.3	$ 42.67	522,395	$ 42.59
$50.01 - $59.32	538,068	2.8	$ 53.00	538,068	$ 53.00
	1,962,589		$ 42.96	1,891,161	$ 43.11

The weighted average grant date fair value of options awarded during fiscal years 2022, 2021 and 2020 was $12.39, $5.39 and $13.57, respectively. Share-based compensation charged against income related to stock options for the years ended June 30, 2022, 2021 and 2020 was $0.6 million, $1.1 million and $2.1 million, respectively. As of June 30, 2022, $0.1 million of compensation cost related to nonvested stock options will be recognized over a weighted average remaining life of 0.3 years.

Of the options outstanding at June 30, 2022, 1,666,761 relate to the Omnibus Plan and 295,828 relate to the Directors' Plan.

Restricted Stock Unit Awards (Omnibus Plan)

Restricted stock unit awards are granted to employees with performance and/or service conditions. Earned restricted stock unit awards receive non-forfeitable cash dividends during the restriction period. The fair value of the restricted stock unit awards is determined based on the close price of the Company's stock on the grant date.

Performance-based restricted stock unit awards are earned dependent upon how certain performance goals are achieved during a specified performance period according to the terms determined at the date of the grant. These shares typically vest upon approval of attainment of the specified performance goals. Compensation cost is determined and charged to expense beginning in the performance period through the vesting period.

Time-based restricted stock unit awards typically vest one to three years from the date of grant. Compensation cost related to time-based stock unit awards is recognized over the vesting period of the award.

Amounts charged to compensation expense for restricted stock unit awards were $8.0 million, $6.6 million and $8.1 million for the fiscal years ended June 30, 2022, 2021 and 2020, respectively. As of June 30, 2022, $6.0 million of compensation cost related to restricted stock unit awards remains to be recognized over a weighted average remaining life of 1.5 years.

	Number of Awards	Weighted Average Grant Date Fair Value
Restricted Balance at June 30, 2019	474,335	$ 44.66
Time-based granted	191,755	$ 44.19
Vested	(291,443)	$ 42.26
Forfeited	(50,229)	$ 46.08
Restricted Balance at June 30, 2020	324,418	$ 45.99
Time-based granted	413,288	$ 23.85
Vested	(180,565)	$ 45.34
Forfeited	(60,816)	$ 32.89
Restricted Balance at June 30, 2021	496,325	$ 29.44
Time-based granted	281,533	$ 35.76
Vested	(216,656)	$ 32.71
Forfeited	(45,538)	$ 32.35
Restricted Balance at June 30, 2022	515,664	$ 31.27

The Company granted performance-based awards in fiscal years 2022, 2021 and 2020 within the Omnibus Plan. The awards are granted at a target number of shares. These awards are earned dependent upon how certain performance goals are achieved during a specified performance period according to the terms determined at the date of the grant. The actual number of shares awarded may range from a minimum of 0 percent of the target shares to a maximum of 200 percent of the target shares. The fiscal year 2020 awards were amended for a maximum attainment of 100 percent. Participants do not have any rights to dividends (or equivalents) during the performance period. These shares typically vest on the date of the attainment of the specified performance goals. Compensation cost is determined and charged to expense beginning in the performance period through the vesting period. In fiscal year 2022 and 2021 expense of $1.1 million and $1.6 million was recognized for these awards, respectively. In fiscal year 2020, a benefit of $1.4 million was recognized for these awards due to reversals for attainment based on performance.

Total Stockholder Return Awards

The Company granted Total Stockholder Return ("TSR") awards in fiscal year 2018. The TSR awards were granted at a target number of shares. The TSR awards were earned based on the Company's total stockholder return compared to the total stockholder returns of the Russell RSCC Materials & Processing Growth Index at the end of a three-year period. The actual number of shares awarded may range from a minimum of 0 percent of the target shares to a maximum of 200 percent of the target shares. Participants do not have any rights to dividends (or equivalents) during the performance period. The fair value of the TSR awards was estimated using Monte Carlo valuation models. Compensation cost related to TSR awards recognized in fiscal years 2022, 2021 and 2020 was $0.0 million, $0.0 million and $0.9 million, respectively. These awards were fully vested in fiscal year 2020 and distributed in fiscal year 2021.

Director Stock Units

According to the provisions of the Director's Plan, on the date of each annual stockholders' meeting or on such other regularly scheduled date as the Board of Directors may determine from time to time in light of the Company's prevailing practices for the grant of equity awards to employees, each Director shall be granted, in place of cash compensation, a number of stock units determined by dividing 50 percent of the Director's annual retainer by the fair market value of the Company's common stock on that date. These stock units vest as to one-quarter of the units for every three months of service following the grant date and are fully vested on the first anniversary of the grant date. At the Director's election, the remaining 50 percent of the annual retainer and 100 percent of committee chair fees may be paid in stock units in lieu of cash. These units are immediately vested.

In addition to the grant of retainer stock units described above, each Director may be granted annually an additional award of stock units as the Board may determine by resolution. These stock units vest as to one-quarter of the units for every three months of service following the grant date and are fully vested on the first anniversary of the grant date.

Additional units are credited to each Director on a quarterly basis to reflect dividend equivalents on the Company's common stock.

In the case of separation from service due to death or disability, all stock units shall immediately vest.

Following a Director's separation from service, or such other elected distribution date or event, the number of stock units credited to the Director's account will be converted to an equivalent number of the Company's common stock.

	Number of Units		Weighted Average Grant Date Fair Value
Outstanding at June 30, 2019	324,555	$	35.25
Granted	23,002	$	48.72
Distributed	(32,779)	$	33.03
Dividend equivalents	8,381	$	—
Outstanding at June 30, 2020	323,159	$	36.25
Granted	62,144	$	18.55
Distributed	(40,901)	$	38.63
Dividend equivalents	8,963	$	—
Outstanding at June 30, 2021	353,365	$	35.54
Granted	37,234	$	33.62
Distributed	(81,136)	$	33.28
Dividend equivalents	7,770	$	—
Outstanding at June 30, 2022	317,233	$	31.89

Compensation cost is determined using the grant date fair value and charged to expense over the vesting period of one year and amounted to $1.1 million, $1.1 million and $1.2 million for the years ended June 30, 2022, 2021 and 2020, respectively. As of June 30, 2022, $0.3 million of compensation cost related to director stock units remains to be recognized over a weighted average remaining life of 0.3 years.

17. Derivatives and Hedging Activities

The Company uses commodity forwards, interest rate swaps, forward interest rate swaps and foreign currency forwards to manage risks generally associated with commodity price, interest rate and foreign currency rate fluctuations. The following explains the various types of derivatives and includes a recap about the impact the derivative instruments had on the Company's financial position, results of operations and cash flows.

Cash Flow Hedging — Commodity forward contracts: The Company enters into commodity forward contracts to fix the price of a portion of anticipated future purchases of certain critical raw materials and energy to manage the risk of cash flow variability associated with volatile commodity prices. The commodity forward contracts have been designated as cash flow hedges. The qualifying hedge contracts are marked-to-market at each reporting date and any unrealized gains or losses are included in accumulated other comprehensive income ("AOCI") to the extent effective, and reclassified to cost of sales in the period during which the hedged transaction affects earnings or it becomes probable that the forecasted transaction will not occur. As of June 30, 2022, the Company had forward contracts to purchase 6.5 million pounds of certain raw materials with settlement dates through May 2025.

Cash Flow Hedging — Forward interest rate swaps: Historically, the Company has entered into forward interest rate swap contracts to manage the risk of cash flow variability associated with fixed interest debt expected to be issued. The forward interest rate swaps were designated as cash flow hedges. The qualifying hedge contracts were marked-to-market at each reporting date and any unrealized gains or losses were included in AOCI to the extent effective and reclassified to interest expense in the period during which the hedged transaction affects earnings or it becomes probable that the forecasted transaction will not occur. For the years ended June 30, 2022, 2021 and 2020 net gains of $0.4 million, $0.4 million, $0.3 million, respectively, were recorded as a reduction to interest expense. These amounts represent the impact of previously terminated swaps which were being amortized over the remaining term of the underlying debt which was paid off during the fiscal year ended June 30, 2022.

Cash Flow Hedging — Foreign currency forward contracts: The Company uses foreign currency forward contracts to hedge a portion of anticipated future sales denominated in foreign currencies, principally the Euro and Pound Sterling, in order to offset the effect of changes in exchange rates. The qualifying hedge contracts are marked-to-market at each reporting date and any unrealized gains or losses are included in AOCI to the extent effective and reclassified to net sales in the period during which the transaction affects earnings or it becomes probable that the forecasted transaction will not occur.

The Company also uses foreign currency forward contracts to protect certain short-term asset positions denominated in foreign currencies against the effect of changes in exchange rates. These positions do not qualify for hedge accounting and accordingly are marked-to-market at each reporting date through charges to other income and expense. As of June 30, 2022, the fair value of the outstanding foreign currency forwards not designated as hedging instruments and the charges to income for changes in fair value for these contracts were not material.

Fair Value Hedging — Interest rate swaps: The Company uses interest rate swaps to achieve a level of floating rate debt relative to fixed rate debt where appropriate. The Company has designated fixed to floating interest rate swaps as fair value hedges. Accordingly, the changes in the fair value of these instruments are immediately recorded in earnings. The mark-to-market values of both the fair value hedging instruments and the underlying debt obligations are recorded as equal and offsetting gains and losses in interest expense in the consolidated statements of operations. As of the quarter ended September 30, 2020, all interest rate swaps were terminated in connection with the prepayment of Notes due July 2021. As of June 30, 2022 and 2021, the total notional amount of floating interest rate contracts was $0.0 million and $0.0 million, respectively. For the years ended June 30, 2022, 2021 and 2020, net gains of $0.0 million, $0.4 million and $1.4 million were recorded as a reduction to interest expense, respectively.

The fair value and location of outstanding derivative contracts recorded in the accompanying consolidated balance sheets were as follows as of June 30, 2022 and 2021:

June 30, 2022 ($ in millions)	**Interest Rate Swaps**	**Foreign Currency Contracts**	**Commodity Contracts**	**Total Derivatives**
Asset Derivatives:				
Derivatives designated as hedging instruments:				
Other current assets	$ —	$ —	$ 11.5	$ 11.5
Other assets	—	2.6	2.5	5.1
Total asset derivatives	$ —	$ 2.6	$ 14.0	$ 16.6
Liability Derivatives:				
Derivatives designated as hedging instruments:				
Accrued liabilities	$ —	$ 0.2	$ 0.1	$ 0.3
Other liabilities	—	—	0.1	0.1
Total liability derivatives	$ —	$ 0.2	$ 0.2	$ 0.4

June 30, 2021 ($ in millions)	**Interest Rate Swaps**	**Foreign Currency Contracts**	**Commodity Contracts**	**Total Derivatives**
Asset Derivatives:				
Derivatives designated as hedging instruments:				
Other current assets	$ —	$ —	$ 10.0	$ 10.0
Other assets	—	—	5.9	5.9
Total asset derivatives	$ —	$ —	$ 15.9	$ 15.9
Liability Derivatives:				
Derivatives designated as hedging instruments:				
Accrued liabilities	$ —	$ 2.6	$ 1.6	$ 4.2
Other liabilities	—	—	1.1	1.1
Total liability derivatives	$ —	$ 2.6	$ 2.7	$ 5.3

Substantially all of the Company's derivative contracts are subject to master netting arrangements, or similar agreements with each counterparty, which provide for the option to settle contracts on a net basis when they settle on the same day and in the same currency. In addition, these arrangements provide for a net settlement of all contracts with a given counterparty in the event that the arrangement is terminated due to the occurrence of default or a termination event. The Company presents the outstanding derivative contracts on a net basis by counterparty in the consolidated balance sheets. If the Company had chosen to present the derivative contracts on a gross basis, the total asset derivatives would have been $23.7 million and total liability derivatives would have been $7.5 million as of June 30, 2022.

According to the provisions of the Company's derivative arrangements, in the event that the fair value of outstanding derivative positions with certain counterparties exceeds certain thresholds, the Company may be required to issue cash collateral to the counterparties. As of June 30, 2022 the Company had no cash collateral held by counterparties.

The Company is exposed to credit loss in the event of nonperformance by counterparties on its derivative instruments as well as credit or performance risk with respect to its customer commitments to perform. Although nonperformance is possible, the Company does not anticipate nonperformance by any of the parties. In addition, various master netting arrangements are in place with counterparties to facilitate settlements of gains and losses on these contracts.

Cash Flow Hedges

For derivative instruments that are designated and qualify as cash flow hedges, the effective portion of the gain or loss on the derivative is reported as a component of AOCI and reclassified into earnings in the same period or periods during which the hedged transactions affect earnings or it becomes probable the forecasted transactions will not occur. The following is a summary of the gains (losses) related to cash flow hedges recognized during the fiscal years ended June 30, 2022, 2021 and 2020:

	Amount of Gain (Loss) Recognized in AOCI on Derivatives Years Ended June 30,		
($ in millions)	2022	2021	2020
Derivatives in Cash Flow Hedging Relationship:			
Commodity contracts	$ 26.8	$ 30.7	$ (16.9)
Foreign exchange contracts	—	—	(0.7)
Total	$ 26.8	$ 30.7	$ (17.6)

		Amount of Gain Reclassified from AOCI into Income Years Ended June 30,		
($ in millions)	Location of Gain Reclassified from AOCI into Income	2022	2021	2020
Derivatives in Cash Flow Hedging Relationship:				
Commodity contracts	Cost of sales	$ 28.3	$ 6.6	$ 11.5
Foreign exchange contracts	Net sales	—	—	0.8
Forward interest rate swaps	Interest expense	0.4	0.4	0.4
Total		$ 28.7	$ 7.0	$ 12.7

The following is a summary of total amounts presented in the consolidated statements of operations in which the effects of cash flow and fair value hedges are recorded during the fiscal years ended June 30, 2022 and 2021:

	Year Ended June 30, 2022			Year Ended June 30, 2021		
($ in millions)	Net Sales	Cost of Sales	Interest Expense	Net Sales	Cost of Sales	Interest Expense*
Total amounts presented in the consolidated statements of operations in which the effects of cash flow and fair value hedges are recorded	$ 1,836.3	$ 1,686.5	$ 44.9	$ 1,475.6	$ 1,470.4	$ 32.7
Gain on Derivatives in Cash Flow Hedging Relationship:						
Commodity contracts						
Amount of gain reclassified from AOCI to income	—	28.3	—	—	6.6	—
Interest rate swap agreements						
Amount of gain reclassified from AOCI to income	—	—	0.4	—	—	0.4
(Loss) Gain on Derivatives in Fair Value Hedging Relationship:						
Interest rate swap agreements						
Hedged Item	—	—	—	—	—	(2.7)
Derivatives designated as hedging instruments	—	—	—	—	—	2.7
Total gain	$ —	$ 28.3	$ 0.4	$ —	$ 6.6	$ 0.4

*$2.3 million of gains related to the interest rate swap agreements were recorded as a decrease to debt extinguishment losses.

The Company estimates that $2.8 million of net derivative gains included in AOCI as of June 30, 2022, will be reclassified into earnings within the next twelve months. No significant cash flow hedges were discontinued during the year ended June 30, 2022.

The changes in AOCI associated with derivative hedging activities during the fiscal years ended June 30, 2022, 2021 and 2020 were as follows:

	Years Ended June 30,		
($ in millions)	2022	2021	2020
Balance, beginning	$ 6.9	$ (11.1)	$ (14.8)
Current period changes in fair value, net of tax	20.4	23.3	13.3
Reclassification to earnings, net of tax	(21.8)	(5.3)	(9.6)
Balance, ending	$ 5.5	$ 6.9	$ (11.1)

18. Income Taxes

(Loss) income before income taxes for the Company's domestic and foreign operations was as follows:

	Years Ended June 30,		
($ in millions)	2022	2021	2020
Domestic	$ (74.0)	$ (252.5)	$ 20.9
Foreign	10.9	(45.4)	(14.8)
(Loss) income before income taxes	$ (63.1)	$ (297.9)	$ 6.1

The (benefit) expense for income taxes from continuing operations consisted of the following:

($ in millions)	Years Ended June 30, 2022	2021	2020
Current:			
Federal	$ (14.7)	$ (37.3)	$ 1.3
State	0.1	(0.6)	1.8
Foreign	3.7	3.2	1.9
Total current	(10.9)	(34.7)	5.0
Deferred:			
Federal	(1.0)	(22.6)	(1.8)
State	(2.7)	(10.5)	0.3
Foreign	0.6	(0.5)	1.1
Total deferred	(3.1)	(33.6)	(0.4)
Total income tax (benefit) expense	$ (14.0)	$ (68.3)	$ 4.6

The following is a reconciliation of income taxes computed at the U.S. Federal income tax rate to the Company's effective income tax rates:

(% of pre-tax (loss) income)	Years Ended June 30, 2022	2021	2020
Statutory federal income tax rate	21.0 %	21.0 %	21.0 %
State income taxes, net of federal tax benefit	3.1	2.9	2.1
Foreign tax rate differential	(1.0)	(0.4)	24.4
Federal tax rate differential loss carryback	—	2.3	—
Research and development tax credit	4.4	1.1	(63.2)
Adjustments of prior years' income taxes	(7.4)	(0.2)	45.5
Non-deductible goodwill impairment	—	(3.3)	32.5
Non-taxable income	(1.0)	0.4	(1.2)
Non-deductible expenses	(1.8)	—	24.9
Share-based compensation	(0.7)	(0.5)	(2.3)
Changes in valuation allowances	6.0	(0.3)	(6.4)
Law changes	—	—	(1.3)
Other, net	(0.4)	(0.1)	(0.6)
Effective income tax rate	22.2 %	22.9 %	75.4 %

Deferred taxes are recorded for temporary differences between the carrying amounts of assets and liabilities and their tax bases. A valuation allowance is required when it is more likely than not that all or a portion of a deferred tax asset will not be realized. As of June 30, 2022, the Company had net operating loss carryforwards of $9.1 million in the United Kingdom and $1.7 million in Singapore. These losses have an indefinite carryforward period. However, realization of these future tax benefits is expected to be limited to approximately $3.5 million in the United Kingdom and no realized benefit in Singapore. The Company also had state net operating loss carryforwards of $338.6 million expiring between fiscal years 2023 and 2042. A significant portion of the state net operating loss carryforwards are subject to an annual limitation that, under current law, is likely to limit future tax benefits to approximately $11.0 million. Realization is dependent on generating sufficient taxable income prior to expiration of the loss carryforwards. Although realization is not assured, management believes it is more likely than not that all of the deferred tax asset will be realized. The amount of the deferred tax asset considered realizable, however, could be reduced in the near term if estimates of future taxable income during the carry forward periods are reduced.

Valuation allowances decreased by $3.9 million during fiscal year 2022. The expiration of $4.0 million net operating losses for which no tax benefit was recognized, caused a reduction in the valuation allowance. This was offset by a $0.1 million increase in net operating losses incurred in certain tax jurisdictions for which no tax benefit was recognized.

The significant components of deferred tax assets and liabilities that are recorded in the consolidated balance sheets are summarized in the table below:

	June 30,	
($ in millions)	**2022**	**2021**
Deferred tax assets:		
Pensions	$ 43.2	$ 51.5
Postretirement provisions	26.9	30.5
Net operating loss carryforwards	44.5	38.7
Tax credit carryforwards	17.0	26.0
Operating lease liability	10.5	8.9
Other	36.8	38.7
Gross deferred tax assets	178.9	194.3
Valuation allowances	(21.3)	(25.2)
Total deferred tax assets	157.6	169.1
Deferred tax liabilities:		
Depreciation	(262.9)	(271.3)
Intangible assets	(5.2)	(6.1)
Inventories	(28.9)	(30.6)
Operating lease right-of-use asset	(8.3)	(6.6)
Other	(9.0)	(6.0)
Total deferred tax liabilities	(314.3)	(320.6)
Deferred tax liabilities, net	$ (156.7)	$ (151.5)

The Company does not have unrecognized tax benefits as of June 30, 2022, 2021 and 2020. The Company recognizes interest and penalties accrued on any unrecognized tax benefits as a component of income tax expense.

All years prior to fiscal year 2017 have been settled with the Internal Revenue Service and with most significant state, local and foreign tax jurisdictions.

During the quarter ended March 31, 2022, the Company changed its assertion regarding undistributed earnings from foreign subsidiaries. The Company now asserts that substantially all undistributed earnings from foreign subsidiaries will not be considered indefinitely reinvested. The potential tax implications from the distribution of these future earnings are expected to be limited to withholding taxes in certain jurisdictions and are not expected to materially impact the consolidated financial statements.

19. Other (Income) Expense, Net

Other (income) expense, net consists of the following:

($ in millions)	Years Ended June 30, 2022	2021	2020
Unrealized loss (gains) on company owned life insurance contracts and investments held in rabbi trusts	$ 4.8	$ (7.6)	$ (0.1)
Interest income	(0.1)	—	(0.1)
Foreign exchange loss (gain)	1.3	3.7	(2.8)
Pension earnings, interest and deferrals (income) expense	(18.3)	0.9	2.8
Pension settlement charge	—	11.4	—
Other	(0.4)	—	(0.4)
Total other (income) expense, net	$ (12.7)	$ 8.4	$ (0.6)

20. Segment Information, Geographic and Product Data

The Company has two reportable segments, Specialty Alloys Operations ("SAO") and Performance Engineered Products ("PEP").

The SAO segment is comprised of the Company's major premium alloy and stainless steel manufacturing operations. This includes operations performed at mills primarily in Reading and Latrobe, Pennsylvania and surrounding areas as well as South Carolina and Alabama. The combined assets of the SAO operations are being managed in an integrated manner to optimize efficiency and profitability across the total system.

The PEP segment is comprised of the Company's differentiated operations. This segment includes the Dynamet titanium business, the Carpenter Additive business and the Latrobe and Mexico distribution businesses. Effective July 1, 2020 the Company's Carpenter Powder Products business was merged into the Carpenter Additive business. The Amega West business was also part of the PEP segment however it was sold during the quarter ended September 30, 2020. The businesses in the PEP segment are managed with an entrepreneurial structure to promote flexibility and agility to quickly respond to market dynamics.

The Company's executive management evaluates the performance of these operating segments based on sales, operating income and cash flow generation. Segment operating profit excludes general corporate costs, which include executive and director compensation, and other corporate facilities and administrative expenses not allocated to the segments. Also excluded are items that management considers not representative of ongoing operations, such as loss on divestiture of business and other specifically identified income or expense items.

The service cost component of the Company's net pension expense, which represents the estimated cost of future pension liabilities earned associated with active employees, is included in the operating income of the business segments. The residual net pension expense, which is comprised of the expected return on plan assets, interest costs on the projected benefit obligations of the plans and amortization of actuarial gains and losses and prior service costs, is included under "Other (income) expense, net."

On a consolidated basis, no single customer accounted for 10 percent or more of net sales for the fiscal years ended June 30, 2022 and 2021. Howmet Aerospace Inc. (formerly Arconic Inc.), accounted for approximately 10 percent of net sales for the year ended June 30, 2020. For the year ended June 30, 2020, 90 percent of sales to Howmet Aerospace Inc. were reported by the SAO segment and 10 percent were reported by the PEP segment, respectively. No single customer accounted for 10 percent or more of the accounts receivable outstanding at June 30, 2022 and 2021.

Segment Data	Years Ended June 30,		
($ in millions)	2022	2021	2020
Net Sales:			
Specialty Alloys Operations	$ 1,565.6	$ 1,262.2	$ 1,831.6
Performance Engineered Products	344.5	259.8	401.1
Intersegment	(73.8)	(46.4)	(51.6)
Consolidated net sales	$ 1,836.3	$ 1,475.6	$ 2,181.1

	Years Ended June 30,		
($ in millions)	2022	2021	2020
Operating (Loss) Income:			
Specialty Alloys Operations	$ 9.6	$ (87.4)	$ 239.0
Performance Engineered Products	18.1	(16.5)	(10.4)
Corporate costs (including restructuring and asset impairment charges)	(52.8)	(144.3)	(205.0)
Intersegment	0.2	(0.4)	1.7
Consolidated operating (loss) income	$ (24.9)	$ (248.6)	$ 25.3

	Years Ended June 30,		
($ in millions)	2022	2021	2020
Depreciation and Amortization:			
Specialty Alloys Operations	$ 110.1	$ 99.7	$ 93.5
Performance Engineered Products	15.8	18.3	24.8
Corporate	5.5	5.6	6.2
Intersegment	—	—	(0.6)
Consolidated depreciation and amortization	$ 131.4	$ 123.6	$ 123.9

	Years Ended June 30,		
($ in millions)	2022	2021	2020
Capital Expenditures:			
Specialty Alloys Operations	$ 77.5	$ 69.4	$ 99.3
Performance Engineered Products	10.8	6.0	17.2
Corporate	2.9	25.2	54.9
Intersegment	0.1	(0.1)	—
Consolidated capital expenditures	$ 91.3	$ 100.5	$ 171.4

	June 30,	
($ in millions)	2022	2021
Total Assets:		
Specialty Alloys Operations	$ 2,262.4	$ 2,150.1
Performance Engineered Products	418.9	418.5
Corporate	248.9	402.2
Intersegment	2.1	0.4
Consolidated total assets	$ 2,932.3	$ 2,971.2

Geographic Data ($ in millions)	Years Ended June 30, 2022	2021	2020
Net Sales: (a)			
United States	$ 1,179.9	$ 926.6	$ 1,393.4
Europe	253.5	242.7	387.4
Asia Pacific	233.9	194.4	237.5
Mexico	89.4	48.8	67.0
Canada	41.5	32.9	54.2
Other	38.1	30.2	41.6
Consolidated net sales	$ 1,836.3	$ 1,475.6	$ 2,181.1

(a) Net sales were attributed to geographic region based on the location of the customer.

($ in millions)	June 30, 2022	2021
Long-lived assets:		
United States	$ 1,405.1	$ 1,439.2
Europe	13.4	16.3
Mexico	1.4	1.1
Asia Pacific	0.6	0.8
Canada	0.3	0.1
Consolidated long-lived assets	$ 1,420.8	$ 1,457.5

21. Reclassifications from Accumulated Other Comprehensive (Loss) Income

The changes in AOCI by component, net of tax, for the years ended June 30, 2022 and 2021 were as follows:

($ in millions) (a)	Cash flow hedging items	Pension and other postretirement benefit plan items	Foreign currency items	Total
Balance at June 30, 2021	$ 6.9	$ (159.1)	$ (40.1)	$ (192.3)
Other comprehensive income (loss) before reclassifications	20.4	21.7	(6.0)	36.1
Amounts reclassified from AOCI (b)	(21.8)	4.5	—	(17.3)
Net current-period other comprehensive (loss) income	(1.4)	26.2	(6.0)	18.8
Balance at June 30, 2022	$ 5.5	$ (132.9)	$ (46.1)	$ (173.5)

($ in millions) (a)	Cash flow hedging items	Pension and other postretirement benefit plan items	Foreign currency items	Total
Balance at June 30, 2020	$ (11.1)	$ (334.3)	$ (52.6)	$ (398.0)
Other comprehensive income before reclassifications	23.3	153.6	12.5	189.4
Amounts reclassified from AOCI (b)	(5.3)	21.6	—	16.3
Net current-period other comprehensive income	18.0	175.2	12.5	205.7
Balance at June 30, 2021	$ 6.9	$ (159.1)	$ (40.1)	$ (192.3)

(a) All amounts are net of tax. Amounts in parentheses indicate debits.
(b) See separate table below for further details.

The following is a summary of amounts reclassified from AOCI for the years ended June 30, 2022 and 2021:

($ in millions) (a)	Location of gain (loss)	Amount Reclassified from AOCI Years Ended June 30, 2022	2021
Details about AOCI Components			
Cash flow hedging items			
Commodity contracts	Cost of sales	$ 28.3	$ 6.6
Foreign exchange contracts	Net sales	—	—
Forward interest rate swaps	Interest expense	0.4	0.4
	Total before tax	28.7	7.0
	Tax expense	(6.9)	(1.7)
	Net of tax	$ 21.8	$ 5.3
Amortization of pension and other postretirement benefit plan items			
Net actuarial loss, net	(b)	$ (7.6)	$ (18.9)
Prior service benefit, net	(b)	1.8	1.8
Settlement charge	(b)	—	(11.4)
	Total before tax	(5.8)	(28.5)
	Tax benefit	1.3	6.9
	Net of tax	$ (4.5)	$ (21.6)

(a) Amounts in parentheses indicate debits to income/loss.
(b) These AOCI components are included in the computation of net periodic benefit cost (see Note 12 for additional details).

22. Supplemental Data

The following are additional required disclosures and other material items:

($ in millions)	Years Ended June 30, 2022	2021	2020
Cost Data:			
Repairs and maintenance costs	$ 74.6	$ 68.9	$ 117.4
Cash Flow Data:			
Noncash investing and financing activities:			
Noncash purchases of property, plant, equipment and software	$ 7.6	$ 7.3	$ 11.6
Cash paid during the year for:			
Interest payments, net	$ 40.5	$ 28.2	$ 27.0
Income tax (refunds) payments, net	$ (46.1)	$ 2.1	$ 29.8

SUPPLEMENTARY DATA

Quarterly Financial Data (Unaudited)

Quarterly sales and earnings results are normally influenced by seasonal factors. Historically, the first two fiscal quarters (three months ending September 30 and December 31) are typically the lowest principally because of annual plant vacation and maintenance shutdowns by the Company and by many of its customers. However, the timing of major changes in the general economy or the markets including the impacts of COVID-19 pandemic for certain products can alter this pattern.

($ in millions)	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Results of Operations				
Fiscal Year 2022				
Net sales	$ 387.6	$ 396.0	$ 489.0	$ 563.8
Gross profit	$ 25.2	$ 13.1	$ 39.5	$ 72.0
Operating (loss) income	$ (19.1)	$ (31.5)	$ 1.1	$ 24.6
Net (loss) income	$ (14.8)	$ (29.4)	$ (7.5)	$ 2.6
Fiscal Year 2021				
Net sales	$ 353.3	$ 348.8	$ 351.9	$ 421.6
Gross profit (loss)	$ 3.5	$ 6.0	$ 12.8	$ (21.3)
Operating loss	$ (48.8)	$ (89.0)	$ (40.0)	$ (70.7)
Net loss	$ (47.1)	$ (84.9)	$ (40.5)	$ (57.1)

During the quarter ended June 30, 2022, the Company recorded $12.7 million of COVID-19 employee retention credits and an environmental site charge of $2.4 million. During the quarter ended March 31, 2022, the Company recorded an acquisition-related contingent liability release of $4.7 million for which the time period expired. During the quarter ended June 30, 2021, the Company recorded LIFO decrement charges of $52.2 million. During the quarters ended March 31, 2021 and June 30, 2021 the Company recorded inventory write-downs from restructuring of $2.6 million and $1.6 million, respectively. During the quarters ended September 30, 2020, March 31, 2021 and June 30, 2021 the Company recorded restructuring and asset impairment charges of $10.0 million, $5.0 million, and $1.5 million, respectively.

(per share amount)	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
(Loss) Earnings per common share				
Fiscal Year 2022				
Basic (loss) earnings	$ (0.31)	$ (0.61)	$ (0.16)	$ 0.05
Diluted (loss) earnings	$ (0.31)	$ (0.61)	$ (0.16)	$ 0.05
Fiscal Year 2021				
Basic loss	$ (0.98)	$ (1.76)	$ (0.84)	$ (1.18)
Diluted loss	$ (0.98)	$ (1.76)	$ (0.84)	$ (1.18)

(shares in millions)	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Weighted average common shares outstanding				
Fiscal Year 2022				
Basic	48.5	48.6	48.6	48.6
Diluted	48.5	48.6	48.6	48.7
Fiscal Year 2021				
Basic	48.3	48.3	48.3	48.4
Diluted	48.3	48.3	48.3	48.4

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

Not applicable.

Item 9A. Controls and Procedures

(a) Conclusion Regarding the Effectiveness of Disclosure Controls and Procedures

The Company's management, with the participation of the Company's Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of the Company's disclosure controls and procedures as defined in Rules 13a-15(e) and 15d-15(e) of the Securities Exchange Act of 1934, as amended, (the "Exchange Act") as of June 30, 2022. Based on that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that the Company's disclosure controls and procedures as of June 30, 2022, were effective in providing a reasonable level of assurance that information we are required to disclose in reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods required under the Securities and Exchange Commission's rules and forms, including that information required to be disclosed by us in such reports is accumulated and communicated to the Company's management, including the Company's Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

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

Management's Report on the Company's internal control over financial reporting is included in Item 8. of this Annual Report on Form 10-K under the caption "Management's Report on Internal Control Over Financial Reporting" and is incorporated herein by reference. PricewaterhouseCoopers LLP, an independent registered public accounting firm has audited the effectiveness of the Company's internal control over financial reporting as stated in their report which appears in Item 8. of this Annual Report on Form 10-K under the caption "Report of Independent Registered Public Accounting Firm" and is incorporated herein by reference.

(c) Changes in Internal Control over Financial Reporting

There have been no changes in the Company's internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) that occurred during the quarter or year ended June 30, 2022, that have materially affected, or are likely to materially affect, the Company's internal control over financial reporting.

Item 9B. Other Information

Not applicable.

Item 9C. Disclosures Regarding Foreign Jurisdictions that Prevent Inspections

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information required as to the officers is set forth in Part I hereof.

The information required as to directors and the committees of the Board of Directors is incorporated herein by reference to the Company's fiscal year 2022 definitive Proxy Statement under the captions "Election of Directors" and "Corporate Governance".

The information concerning compliance with Section 16(a) of the Securities and Exchange Act of 1934, as amended, is incorporated herein by reference to the Company's fiscal year 2022 definitive Proxy Statement under the caption "Corporate Governance".

The information concerning Carpenter's Code of Ethics and certain additional information relating to the Company's Corporate Governance is incorporated herein by reference to the Company's fiscal year 2022 definitive Proxy Statement under the caption "Corporate Governance".

The information concerning the Audit Committee and its financial experts is incorporated herein by reference to the Company's fiscal year 2022 definitive Proxy Statement under the caption "Audit/Finance Committee Report".

The information concerning material changes to the procedures by which shareholders may recommend nominees to the Board of Directors is incorporated herein by reference to the Company's fiscal year 2022 definitive Proxy Statement under the caption "General Information".

On November 5, 2021, we filed with the New York Stock Exchange ("NYSE") the Annual CEO Certification regarding our compliance with the NYSE's Corporate Governance listing standards as required by Section 303 A-12(a) of the NYSE Listed Company Manual. In addition, we have filed as exhibits to our annual report on Form 10-K for the fiscal year ended June 30, 2022, the applicable certifications of our Chief Executive Officer and our Chief Financial Officer required under Section 302 of the Sarbanes-Oxley Act of 2002, regarding the quality of Carpenter's public disclosures.

Item 11. Executive Compensation

Certain information required by this item is incorporated herein by reference to the Company's fiscal year 2022 definitive Proxy Statement under the captions "Compensation Discussion and Analysis" and "Executive Compensation".

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

The information required by this item is incorporated herein by reference to the Company's fiscal year 2022 definitive Proxy Statement under the caption "Security Ownership of Certain Persons".

Equity Compensation Plan Information

The following table shows the securities authorized for issuance under equity compensation plans as of June 30, 2022:

Plan category	Number of securities to be issued upon exercise of outstanding options, warrants and rights (a)		Weighted average exercise price of outstanding options, warrants and rights (b)	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a)) (c)	
Equity compensation plans approved by security holders	1,962,589	$	42.96	2,807,832	(1)
Equity compensation plans not approved by security holders	—		—	—	
Total	1,962,589	$	42.96	2,807,832	(1)

(1) Includes 2,547,507 shares available for issuance under the Amended and Restated Stock-Based Incentive Compensation Plan for Officers and Key Employees (which provides for the issuance of stock options, restricted stock and restricted stock units) and 260,325 shares available under the Stock-Based Compensation Plan for Non-Employee Directors (which provides for issuance of stock options, stock units and performance units).

There were no reportable purchases during the quarter ended June 30, 2022, provided however that 4,053 shares, at an average purchase price of $38.15, were surrendered by employees to the Company for the payment of the minimum tax liability withholding obligations upon the vesting of shares of restricted stock. We do not consider this a share repurchase program.

Item 13. Certain Relationships, Related Transactions and Director Independence

The information required by this item is incorporated herein by reference to the Company's fiscal year 2022 definitive Proxy Statement under the captions "Corporate Governance" and "Executive Compensation".

Item 14. Principal Accounting Fees and Services

The information required by this item is incorporated herein by reference to the Company's fiscal year 2022 definitive Proxy Statement under the caption "Approval of Appointment of Independent Registered Public Accounting Firm".

PART IV

Item 15. Exhibits and Financial Statement Schedules

(a) Financial Statement Schedule:

(1) The following consolidated financial statement schedule should be read in conjunction with the consolidated financial statements (see Item 8. "Financial Statements and Supplementary Data"):

Schedule II — Valuation and Qualifying Accounts

All other schedules are omitted because they are not applicable or the required information is contained in the consolidated financial statements or notes thereto.

(b) Exhibits

Exhibits required to be filed by Item 601 of Regulation S-K are listed below. Documents not designated as being incorporated herein by reference are filed herewith. The exhibit numbers correspond to the paragraph numbers designated in Item 601 of Regulation S-K.

Exhibit No.	Description
3(A)	Restated Certificate of Incorporation, dated October 26, 1998 (Exhibit 3(A) to our Annual Report on Form 10-K filed on September 9, 2005 and incorporated herein by reference).
3(B)	By-Laws, amended as of August 11, 2015 (Exhibit 3.1 to our Current Report on Form 8-K filed on August 17, 2015 and incorporated herein by reference).
4(A)	Indenture, dated January 12, 1994, between Carpenter Technology Corporation and U.S. Bank Trust National Association (formerly known as First Trust of New York, National Association, as successor Trustee to Morgan Guaranty Trust Company of New York) (Exhibit 4(A) to our Quarterly Report on Form 10-Q filed on February 10, 1994 and incorporated herein by reference).
4(B)	Forms of Fixed Rate and Floating Rate Medium-Term Note, Series B (Exhibit 4(F) to our Annual Report on Form 10-K filed on September 3, 2004 and incorporated herein by reference).
4(C)	First Supplemental Indenture, dated May 22, 2003, between Carpenter Technology Corporation and U.S. Bank Trust National Association (formerly known as First Trust of New York, National Association as successor Trustee to Morgan Guaranty Trust Company of New York) (Exhibit 4(I) to our Annual Report on Form 10-K filed on September 12, 2003 and incorporated herein by reference).
4(D)	Second Supplemental Indenture, dated as of June 30, 2011, between Carpenter Technology Corporation and U.S. Bank National Association (Exhibit 4.1 to our Current Report on Form 8-K filed on June 30, 2011 and incorporated herein by reference).
4(E)	Registration Rights Agreement, dated February 29, 2012, by and among Carpenter, Watermill-Toolrock Partners, L.P., Watermill-Toolrock Partners II, L.P., Watermill-Toolrock Enterprises, LLC and HHEP-Latrobe, L.P. (Exhibit 10.2 to our Current Report on Form 8-K filed on March 1, 2012 and incorporated herein by reference).
4(F)	Third Supplemental Indenture, dated as of February 26, 2013, between Carpenter Technology Corporation and U.S. Bank National Association (Exhibit 4.1 to our Current Report on Form 8-K filed on February 26, 2013 and incorporated herein by reference).
4(G)	Fourth Supplemental Indenture, dated July 24, 2020, by and between Carpenter Technology Corporation and U.S. Bank National Association (Exhibit 4.2 to our Current Report on Form 8-K filed on July 24, 2020 and incorporated herein by reference).
4(H)	Form of 6.375% Senior Notes Due 2028 (Exhibit 4.3 to our Current Report on Form 8-K filed on July 24, 2020 and incorporated herein by reference).
† 10(A)	Supplemental Retirement Plan for Executives of Carpenter Technology Corporation (Exhibit 10(A) to our Annual Report on Form 10-K filed on August 20, 2010 and incorporated herein by reference).

† 10(B)	First Amendment to the Supplemental Retirement Plan for Executives of Carpenter Technology Corporation (Exhibit 10(A) to our Quarterly Report on Form 10-Q filed on October 27, 2016 and incorporated herein by reference.)
† 10(C)	Amended and Restated Deferred Compensation Plan for Non-Management Directors of Carpenter Technology Corporation (Exhibit 10(B) to our Annual Report on Form 10-K filed on August 24, 2011 and incorporated herein by reference).
† 10(D)	Second Amendment to the Amended and Restated Deferred Compensation Plan for Non-Management Directors of Carpenter Technology Corporation (Exhibit 10(D) to our Annual Report on Form 10-K filed on August 29, 2019 and incorporated herein by reference).
† 10(E)	Amended and Restated Deferred Compensation Plan for Officers and Key Employees of Carpenter Technology Corporation (Exhibit 10(D) to our Annual Report on Form 10-K filed on August 11, 2017 and incorporated herein by reference).
† 10(F)	Second Amendment to the Amended and Restated Deferred Compensation Plan for Officers and Key Employees of Carpenter Technology Corporation (Exhibit 10(F) to our Annual Report on Form 10-K filed on August 29, 2019 and incorporated herein by reference).
† 10(G)	Stock-Based Compensation Plan For Non-Employee Directors, as amended (Exhibit 10(E) to our Annual Report on Form 10-K filed on August 24, 2011 and incorporated herein by reference).
† 10(H)	Second Amendment to the Stock-Based Compensation Plan for Non-Employee Directors, as amended (Exhibit 10(H) to our Annual Report on Form 10-K filed on August 29, 2019 and incorporated herein by reference).
10(I)	Trust Agreement for Non-Qualified Employee Benefits Trust between Carpenter Technology Corporation and JP Morgan Chase Bank, N.A., effective as of August 15, 2014 (Exhibit 10(G) to our Annual Report on Form 10-K filed on August 25, 2015 and incorporated herein by reference).
† 10(J)	Amended and Restated Stock-Based Incentive Compensation Plan for Officers and Key Employees (Exhibit A to our Definitive Proxy Statement filed on September 17, 2020 and incorporated herein by reference).
† 10(K)	Form of Restricted Stock Unit Award Agreement (pursuant to Carpenter's Stock-Based Incentive Compensation Plan for Officers and Key Employees) (Exhibit 10(K) to our Annual Report filed on August 14, 2018 and incorporated herein by reference).
† 10(L)	Form of Performance Stock Unit Award Agreement (pursuant to Carpenter's Stock-Based Incentive Compensation Plan for Officers and Key Employees) (Exhibit 10(L) to our Annual Report filed on August 14, 2018 and incorporated herein by reference).
† 10(M)	Form of Stock Option Award Agreement (pursuant to Carpenter's Stock-Based Incentive Compensation Plan for Officers and Key Employees) (Exhibit 10(M) to our Annual Report filed on August 14, 2018 and incorporated herein by reference).
† 10(N)	Form of Three-Year Performance Stock Unit Award Agreement (pursuant to Carpenter's Stock-Based Incentive Compensation Plan for Officers and Key Employees) (Exhibit 10.N to our Annual Report on Form 10-K filed on August 19, 2021 and incorporated herein by reference).

† 10(O)	Form of FY19 and FY20 Three-Year Performance Stock Unit Award Agreement (As Amended) (pursuant to Carpenter's Stock-Based Incentive Compensation Plan for Officers and Key Employees) (Exhibit 10.O to our Annual Report on Form 10-K filed on August 19, 2021 and incorporated herein by reference).
† 10(P)	Benefits Restoration Plan of Carpenter Technology Corporation (Exhibit 10.1 to our Quarterly Report on Form 10-Q filed on May 2, 2016 and incorporated herein by reference).
† 10(Q)	First Amendment to the Benefits Restoration Plan of Carpenter Technology Corporation (Exhibit 10(A) to our Quarterly Report on Form 10-Q filed on October 27, 2016 and incorporated herein by reference).
† 10(R)	Form of Indemnification Agreement for Directors and Officers (Exhibit 10.1 to our Quarterly Report on Form 10-Q filed on May 7, 2015 and incorporated herein by reference).
† 10(S)	Amended and Restated Severance Pay Plan for Executives of Carpenter Technology Corporation (Exhibit 10(S) to our Annual Report on Form 10-K filed on August 11, 2017 and incorporated herein by reference).
† 10(T)	Offer Letter, dated June 1, 2015, by and between Carpenter Technology Corporation and Tony R. Thene (Exhibit 10.1 to our Current Report on Form 8-K filed on June 3, 2015 and incorporated herein by reference).
† 10(U)	Offer Letter, dated August 6, 2018, by and between Carpenter Technology Corporation and Timothy Lain (Exhibit 10.1 to our Current Report on Form 8-K filed on August 8, 2018 and incorporated herein by reference).
† 10(V)	Employment Letter of Agreement, dated August 13, 2010, by and between Carpenter Technology Corporation and James D. Dee (Exhibit 10(F) of Carpenter's Form 10-Q for the quarter ended September 30, 2010 filed November 5, 2010 and incorporated herein by reference).
† 10(W)	Offer Letter, dated June 29, 2015, by and between Carpenter Technology Corporation and Brian J. Malloy (Exhibit 10(AA) to our Annual Report on Form 10-K filed on August 29, 2019 and incorporated herein by reference).
† 10(X)	Offer Letter, dated April 24, 2018, by and between Carpenter Technology Corporation and Michael Murtagh (Exhibit 10(AB) to our Annual Report on Form 10-K filed on August 29, 2019 and incorporated herein by reference).
10(Y)	Amended and Restated Credit Agreement dated as of March 26, 2021 by and among the Carpenter Technology Corporation, Bank of America, N.A. as administrative agent, swing line lender and letter of credit issuer, and the other lenders party thereto, JPMorgan Chase Bank, N.A., as syndication agent, PNC Bank, National Association, U.S. Bank, National Association and Wells Fargo Bank, National Association, each, as a documentation agent, and BofA Securities Inc. and JPMorgan Chase Bank, N.A., as joint lead arrangers and joint bookrunners (Exhibit 10.1 to our Current Report on Form 8-K filed on March 30, 2021 and incorporated herein by reference).
10(Z)	Security Agreement dated as of March 26, 2021 by and among the Carpenter Technology Corporation, the grantors party thereto and Bank of America, N.A. as administrative agent for the secured parties (Exhibit 10.2 to our Current Report on Form 8-K filed on March 30, 2021 and incorporated herein by reference).

† 10(AA)	Executive incentive bonus compensation plan of Carpenter Technology Corporation effective July 1, 2021 (Exhibit 10(CC) to our Annual Report on Form 10-K filed on August 19, 2021 and incorporated herein by reference).
† 10(BB)	First Amendment to the Executive Incentive Bonus Compensation Plan of Carpenter Technology Corporation effective as of July 1, 2021 (Exhibit 10.B to our Quarterly Report on Form 10-Q filed on October 28, 2021 and incorporated herein by reference).
10(CC)	Amendment No. 1 to Amended and Restated Credit Agreement, dated as of February 14, 2022, among Carpenter Technology Corporation, as borrower, Bank of America, N.A., as Administrative Agent, Swing Line Lender and L/C Issuer, and the other lenders party thereto, JPMorgan Chase Bank, N.A., as Syndication Agent, PNC Bank, National Association, U.S. Bank, National Association and Wells Fargo Bank, National Association, each, as a documentation agent, and B of A Securities, Inc. and JPMorgan Chase Bank, N.A., as joint lead arrangers and joint bookrunners. (Exhibit 10.1 to our Current Report on Form 8-K filed on February 14, 2022, and incorporated herein by reference).
10(DD)	Fifth Supplemental Indenture, dated March 16, 2022, by and between Carpenter Technology Corporation and U.S. Bank National Association (Exhibit 4.2 to our Current Report on Form 8-K filed on March 16, 2022, and incorporated herein by reference).
10(EE)	Form of 7.625% Senior Notes due 2030 (Exhibit 4.3 to our Current Report on Form 8-K filed on March 16, 2022, and incorporated herein by reference).
† 10(FF)	Amended and Restated Carpenter Technology Corporation Change of Control Severance Plan (filed herewith).
18	Preferability letter from PricewaterhouseCoopers LLP on change in date of annual goodwill impairment testing performed by the Company (filed herewith).
21	Subsidiaries of the Registrant (filed herewith).
23	Consent of PricewaterhouseCoopers LLP (filed herewith).
24	Powers of Attorney in favor of James D. Dee or Timothy Lain (filed herewith).
31(A)	Certification of Chief Executive Officer required by the Securities and Exchange Commission Rule 13a-14(a)/15d-14(a) (filed herewith).
31(B)	Certification of Chief Financial Officer required by the Securities and Exchange Commission Rule 13a-14(a)/15d-14(a) (filed herewith).
32	Certification pursuant to 18 U.S.C Section 1350 (filed herewith).
101	The following financial information from this Annual Report on Form 10-K for the fiscal year ended June 30, 2022, formatted in XBRL (Extensible Business Reporting Language) and furnished electronically herewith: (i) the Consolidated Balance Sheets; (ii) the Consolidated Statements of Operations; (iii) the Consolidated Statements of Comprehensive Loss; (iv) the Consolidated Statements of Cash Flows; (v) the Consolidated Statements of Changes in Equity; and (vi) the Notes to the Consolidated Financial Statements (filed herewith).

† Denotes employment- or compensation- related agreement, document or plan.

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.

CARPENTER TECHNOLOGY CORPORATION

By /s/ Timothy Lain
Timothy Lain
Senior Vice President and Chief Financial Officer

Date: August 15, 2022

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

/s/ Tony R. Thene Tony R. Thene	President and Chief Executive Officer and Director (Principal Executive Officer)	August 15, 2022
/s/ Timothy Lain Timothy Lain	Senior Vice President and Chief Financial Officer (Principal Financial Officer)	August 15, 2022
/s/ Elizabeth Socci Elizabeth Socci	Vice President - Controller, Chief Accounting Officer (Principal Accounting Officer)	August 15, 2022

*	Chairman and Director	August 15, 2022
I. Martin Inglis		
*	Director	August 15, 2022
Viola L. Acoff		
*	Director	August 15, 2022
A. John Hart		
*	Director	August 15, 2022
Kathy Hopinkah Hannan		
*	Director	August 15, 2022
Steven E. Karol		
*	Director	August 15, 2022
Kathleen Ligocki		
*	Director	August 15, 2022
Charles McLane, Jr.		
*	Director	August 15, 2022
Jeffrey Wadsworth		
*	Director	August 15, 2022
Stephen M. Ward, Jr.		
*	Director	August 15, 2022
Ramin Younessi		

Original Powers of Attorney authorizing James D. Dee or Timothy Lain to sign this Report on behalf of: I. Martin Inglis, Viola L. Acoff, A. John Hart, Kathy Hopinkah Hannan, Steven E. Karol, Kathleen Ligocki, Charles McLane, Jr., Jeffrey Wadsworth, Stephen M. Ward, Jr. and Ramin Younessi being filed with the Securities and Exchange Commission.

*By /s/ James D. Dee

James D. Dee

Attorney-in-fact

CARPENTER TECHNOLOGY CORPORATION AND SUBSIDIARIES

SCHEDULE II. VALUATION AND QUALIFYING ACCOUNTS

($ in millions)

Column A	Column B	Column C Additions		Column D	Column E
Description	Balance at Beginning of Period	Charged to Costs & Expenses	Charged to Other Accounts	Deductions	Balance at End of Period
Year Ended June 30, 2022					
Allowance for doubtful accounts receivable	$ 3.6	$ (0.4)	$ 0.1	$ —	$ 3.3
Deferred tax valuation allowance	$ 25.2	$ (3.9)	$ —	$ —	$ 21.3
Year Ended June 30, 2021					
Allowance for doubtful accounts receivable	$ 3.4	$ 0.3	$ (0.1)	$ —	$ 3.6
Deferred tax valuation allowance	$ 24.2	$ (1.1)	$ 2.1	$ —	$ 25.2
Year Ended June 30, 2020					
Allowance for doubtful accounts receivable	$ 3.7	$ 1.7	$ (2.0)	$ —	$ 3.4
Deferred tax valuation allowance	$ 24.6	$ (0.4)	$ —	$ —	$ 24.2

OUR VALUES

ZERO INJURY WORKPLACE

We believe that all injuries are preventable and that the safety of all employees is our top priority.

TRANSPARENCY

We speak to each other openly and honestly and are proactive in communicating up, down, and across the organization.

ABOVE THE LINE ACCOUNTABILITY

We require each of us to take personal responsibility to “See It, Own It, Solve It, and Do It” to obtain desired results.

PERFORMANCE

We choose to excel at what we do, and we are intolerant of not meeting or beating expectations, goals, and promises.

PROFESSIONAL CONFRONTATION

We speak up and we speak out, but once we make well-informed decisions, supported by reliable data, we move on.

COLLABORATION

We are invested in our teammates’ success and in cross-functional initiatives in order to make the organization better.

DIGNITY AND RESPECT

We value each person as an individual, respect their aspirations, and act honorably in our interactions.

INTEGRITY AND ETHICS

We act responsibly and maintain high ethical standards in the way we interact with each other, customers, suppliers, and communities.

CARPENTER TECHNOLOGY

CarpenterTechnology.com

Carpenter Technology Corporation (NYSE:CRS)
is a recognized leader in high-performance specialty alloy-based materials and process solutions for critical applications in the aerospace, defense, transportation, energy, medical, industrial, and consumer electronics markets. Founded in 1889, Carpenter Technology has evolved to become a pioneer in premium specialty alloys, including titanium, nickel, and cobalt, as well as alloys specifically engineered for additive manufacturing (AM) processes and soft magnetics applications. Carpenter Technology has expanded its AM capabilities to provide a complete "end-to-end" solution to accelerate materials innovation and streamline parts production.

Carpenter Technology Corporation
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