

CARPENTER TECHNOLOGY CORP

Form 10-K

August 11, 2017

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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, 2017

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

(State or other jurisdiction of incorporation or organization)

23-0458500

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

1735 Market Street, 15th Floor

Philadelphia, Pennsylvania

(Address of principal executive offices)

610-208-2000

(Registrant's telephone number, including area code)

19103

(Zip Code)

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

Common Stock, \$5 Par Value New York Stock Exchange

Title of each class

Name of each exchange on which registered

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

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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 and posted on its corporate Website, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files)

Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

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

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

Emerging growth company

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

Indicate by check mark whether the registrant 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, 2016 was \$1,689,766,058, based on the closing price per share of the registrant's common stock on that date of \$36.17 as reported on the New York Stock Exchange.

As of August 8, 2017, 46,757,548 shares of the registrant's common stock were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Selected portions of the Company's fiscal year 2017 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”, “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 19 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 producer and distributor of premium specialty alloys, including titanium alloys, powder metals, stainless steels, alloy steels, and tool steels as well as drilling tools. Our high-performance materials and advanced process solutions are an integral part of critical applications used within the aerospace, transportation, medical and energy markets, among other sectors. Building on our history of innovation, our superalloy and titanium powder technologies support a range of next-generation products and manufacturing techniques, including additive manufacturing (or 3D printing).

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 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 Powder Products business, the Amega West business and the Latrobe and Mexico distribution businesses. The businesses in the PEP segment are managed with an entrepreneurial structure to promote speed and flexibility, and drive overall revenue and profit growth.

(2) Raw Materials:

Our business depends on continued delivery of critical raw materials for our day-to-day operations. These raw materials include nickel, cobalt, chromium, manganese, molybdenum, titanium, iron and scrap containing iron and nickel. 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 of increased costs 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.

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(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 patents. The duration of patents issued outside of the United States vary 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.

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

Quarter Ended	2017	2016	2015
September 30,	22 %	25 %	25 %
December 31,	24	25	24
March 31,	26	25	26
June 30,	28	25	25
	100%	100%	100%

(5) Customers:

On a consolidated basis, we are not dependent upon a single customer, or a 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 income. One customer, Arconic, Inc., accounted for approximately 11 percent and 13 percent of net sales for the years ended June 30, 2017 and 2016, respectively. No single customer accounted for 10 percent or more of net sales during fiscal year 2015. No single customer accounted for 10 percent or more of the accounts receivable outstanding at June 30, 2017. Approximately 22 percent of the accounts receivable outstanding at June 30, 2016 was due from two customers, Alcoa Inc. and Precision Castparts Corporation. See Note 19 to our consolidated financial statements included in Item 8. “Financial Statements and Supplementary Data” for additional information.

(6) Backlog:

As of June 30, 2017, we had a sales backlog of orders excluding surcharge, believed to be firm, of approximately \$438 million, substantially all of which is expected to be shipped within fiscal year 2018. Our backlog of orders excluding surcharge as of June 30, 2016 was approximately \$306 million.

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(7) Competition:

We are leaders in specialty materials for critical applications with over 125 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 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 \$16.9 million, \$16.3 million and \$18.7 million in fiscal years 2017, 2016 and 2015, 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 \$12.4 million, \$13.5 million and \$14.8 million for fiscal years 2017, 2016 and 2015, respectively. The capital expenditures for environmental control equipment were \$0.8 million, \$0.7 million and \$0.5 million for fiscal years 2017, 2016 and 2015, respectively. We anticipate spending approximately \$6 million on major domestic environmental capital projects over the next five fiscal years. This includes approximately \$3 million in fiscal year 2018. Due to the possibility of future regulatory developments, the amount of future capital expenditures may vary from these estimates.

(10) Employees:

As of June 30, 2017, our total workforce consisted of approximately 4,600 employees, which included approximately 130 production employees in Washington, Pennsylvania, who are covered under a collective bargaining agreement which expires on August 31, 2019, and approximately 440 employees in Latrobe, Pennsylvania who are covered under a collective bargaining agreement which expires August 1, 2020.

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

Sales outside of the United States, including export sales, were \$599.3 million, \$569.9 million and \$646.8 million in fiscal years 2017, 2016 and 2015, respectively. Long-lived assets held outside of the United States were \$26.1 million and \$28.0 million as of June 30, 2017 and 2016, respectively. For further information on domestic and international sales, see Note 19 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 Senior Financial Officers 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 2017. The Code of Ethics and any information regarding any waivers of the Code of Ethics are disclosed on Carpenter’s website at www.cartech.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 public may read and copy any materials the Company files with the SEC at the SEC’s Public Reference Room at 100 F Street, N.E., Washington, DC 20549. The public may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC also 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.

The demand for certain products we produce may be cyclical.

Demand in our end-use markets, including companies in the aerospace and defense, energy, transportation, medical and industrial and consumer 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 cyclicity 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.

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The energy market has also been historically cyclical, principally as a result of volatile oil prices. Due to lower oil prices, oil and gas drilling and exploration activity has slowed. The decline in oil prices has negatively impacted the demand for our products used in our Energy and Industrial and Consumer end-use markets. 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 outlook for oil prices remains uncertain. The duration of the current low price environment or further deterioration in prices could further adversely affect the demand for products, which could impact 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, including our state-of-the-art manufacturing facility in Athens, Alabama and our adjacent superalloy powder facility. 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 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 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 iron and nickel have been volatile due to factors beyond our control. We are able 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 these critical raw materials is subject to factors that are not in our control. In some cases, these critical raw materials 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 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 deliveries 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.

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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 Congo (the “DRC”) or an adjoining country and whether such minerals helped finance the armed conflict in the DRC. The Company timely filed its annual conflict minerals report required by the rules on May 19, 2017. 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.

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 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.

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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” and the recently signed Paris climate accord, 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, Energy and Medical 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 the results of our 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 federal laws, 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 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 130 production employees at our Dynamet business unit located in Washington, Pennsylvania are covered by a collective bargaining agreement. This agreement expires in August 2019. Approximately 440 production employees at our Latrobe business unit located in Latrobe, Pennsylvania are covered by a collective bargaining agreement. This agreement expires in August 2020. There can be no assurance that we will succeed in concluding collective bargaining agreements with the unions to replace those that expire. 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.

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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, has 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.

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 pandemic 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.

We believe that international sales, which are associated with various risks, will continue to account for a significant percentage of our future revenues.

Risks associated with international sales 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 tax laws and tariffs; and exchange rate fluctuations (which may affect sales to international customers and the value of profits earned on international sales when converted into 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.

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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. Recent proposals have been 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, 2017, if the FIFO method of inventory had been used instead of the LIFO method, our inventories would have been approximately \$106 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.

We could be adversely impacted if our information technology (“IT”) and computer systems do not perform properly or if we fail to protect the integrity of confidential data.

Management relies extensively on IT infrastructure, including hardware, network, 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 information technology could result in theft, destruction, loss, misappropriation or release of confidential data or intellectual property which could adversely impact our future results.

We are in the process of implementing a new enterprise resource planning system and problems with the design or implementation of this system could interfere with our business and operations.

We are engaged in a multi-year implementation of a global enterprise resource planning (ERP) system. The new ERP system will replace multiple current business systems and is being designed to improve manufacturing planning, development and processes, accurately maintain books and records, record transactions and provide important information of the operations of our business to our management. The implementation of the new ERP system has required, and will continue to require, the investment of significant financial resources as well as a considerable allocation of personnel for the project. Any disruptions, delays or deficiencies in the design and implementation of the new ERP system may result in increased costs and other difficulties that could adversely affect our financial condition and results of operations.

The carrying value of goodwill and other intangible assets may not be recoverable.

Goodwill and other long-lived assets including property, plant and equipment 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.

Item 1B. Unresolved Staff Comments

None.

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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 large diameter hollow bar in Orwigsburg, Pennsylvania and Elyria, Ohio and operates a mini mill manufacturing stainless steel bar and wire in Hartsville, South Carolina. The principal locations for PEP businesses include titanium alloy production facilities located in Washington, Pennsylvania and Clearwater, Florida, powder products manufacturing facilities in Bridgeville, Pennsylvania, Athens, Alabama, Woonsocket, Rhode Island and Bruceton Mills, West Virginia and a facility in Houston, Texas for manufacturing of machined components used in the drilling, exploration and production of oil and gas. The PEP segment also includes domestic leased warehouses and service centers located in Houston, Texas; San Antonio, Texas; Midland, Texas; Oklahoma City, Oklahoma; Casper, Wyoming; Lafayette, Louisiana; West Alexander, Pennsylvania; Vienna, Ohio and Chicago, Illinois. The PEP segment includes one owned service center in White House, Tennessee.

The Reading, Hartsville, Washington, Bridgeville, Orwigsburg, Elyria, Woonsocket, Latrobe, Houston 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 Sweden, Canada, Singapore, China, Mexico, Taiwan, the United Arab Emirates, the United Kingdom and Belgium.

Our corporate offices, located in Philadelphia, Pennsylvania, 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 PRP's. 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, 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 11 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 11 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.

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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. Since joining Carpenter in January 2013, Mr. Thene served as the Senior Vice President and Chief Financial Officer. Mr. Thene joined Carpenter after 23 years with Alcoa Inc., a leading producer of primary and fabricated aluminum, holding various management positions.

Damon J. Audia was appointed Senior Vice President and Chief Financial Officer effective October 19, 2015. Mr. Audia joined Carpenter from The Goodyear Tire & Rubber Company where he worked for ten years and most recently served as Senior Vice President of Finance for the company's North America division.

Joseph E. Haniford was appointed Senior Vice President and Chief Operating Officer effective June 30, 2016. Since joining Carpenter in July 2015, Mr. Haniford served as Senior Vice President - Specialty Alloys Operations. Mr. Haniford joined Carpenter from EnTrans International where he was responsible for all operations as the company's Chief Operating Officer and was a member of the Board of Directors. Prior to EnTrans International, Mr. Haniford worked for Alcoa, Inc. for more than 30 years in various executive leadership positions.

James D. Dee was appointed Vice President, General Counsel and Secretary effective September 13, 2010. Mr. Dee joined Carpenter from C&D Technologies where he last served as Senior Vice President, General Counsel, Secretary and Chief Administrative Officer at C&D Technologies. Prior to his tenure at C&D Technologies, Mr. Dee was employed by the law firm of Montgomery, McCracken, Walker & Rhodes, LLP. He also worked 16 years at SPS Technologies, Inc., where he last served as Vice President, General Counsel and Secretary.

Name	Age	Position	Assumed Present Position
Tony R. Thene	56	President and Chief Executive Officer	July 2015
Damon J. Audia	46	Senior Vice President and Chief Financial Officer	October 2015
Joseph E. Haniford	58	Senior Vice President and Chief Operating Officer	June 2016
James D. Dee	60	Vice President, General Counsel and Secretary	September 2010

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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 2017		Fiscal Year 2016	
Quarter Ended:	High	Low	High	Low
September 30,	\$42.25	\$32.44	\$41.25	\$29.18
December 31,	\$42.27	\$30.37	\$37.18	\$27.55
March 31,	\$45.34	\$34.50	\$36.18	\$23.99
June 30,	\$41.50	\$34.24	\$38.16	\$28.74
Annual	\$45.34	\$30.37	\$41.25	\$23.99

The range of our common stock price on the NYSE from July 3, 2017 to August 8, 2017 was \$36.96 to \$40.62. The closing price of the common stock was \$39.15 on August 8, 2017.

We have paid quarterly cash dividends on our common stock for over 120 consecutive years. We paid a quarterly dividend of \$0.18 per share of common stock during each quarter of fiscal years 2017 and 2016.

As of August 8, 2017, there were 2,227 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”.

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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 each of the last five fiscal years ended June 30, 2017. The cumulative total return assumes an investment of \$100 on June 30, 2012 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.

	2012	2013	2014	2015	2016	2017
Carpenter Technology Corporation	\$100.00	\$95.60	\$137.60	\$99.70	\$86.70	\$102.40
S&P Midcap 400	\$100.00	\$125.10	\$149.70	\$156.10	\$157.40	\$175.90
Russell Materials & Processing Growth	\$100.00	\$118.10	\$145.90	\$149.40	\$151.20	\$177.20

Issuer Purchases of Equity Securities

On October 14, 2016, the Company issued 56,217 shares of its common stock to Hans J. Sack in connection with the settlement of certain litigation between him and the Company. This issuance of securities was not registered under the Securities Act of 1933, as amended (the "Securities Act"), but qualified for exemption under Section 4(a)(2) of the Securities Act, as it was an issuance not involving any "public offering."

Employees surrendered 5,977 shares to the Company, at an average purchase price of \$37.45, during the fourth quarter of fiscal year 2017, for the payment of the minimum tax liability withholding obligations upon the vesting of shares of restricted stock and the exercise of options. We do not consider this a share buyback program.

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Item 6. Selected Financial Data

Five-Year Financial Summary
in millions, except per share data
(Fiscal years ended June 30,)

	2017(a)	2016(b)(d)	2015(c)(d)	2014	2013
Summary of Operations:					
Net sales	\$1,797.6	\$1,813.4	\$2,226.7	\$2,173.0	\$2,271.7
Operating income	\$97.2	\$51.6	\$111.5	\$212.0	\$232.7
Net income	\$47.0	\$11.3	\$58.7	\$132.8	\$146.5
Financial Position at Year-End:					
Cash and cash equivalents	\$66.3	\$82.0	\$70.0	\$120.0	\$257.5
Total assets	\$2,878.1	\$2,794.3	\$2,902.6	\$3,053.7	\$2,878.6
Long-term debt, net of current portion	\$550.0	\$611.3	\$603.8	\$600.5	\$599.9
Per Common Share:					
Net earnings:					
Basic	\$0.99	\$0.23	\$1.11	\$2.48	\$2.75
Diluted	\$0.99	\$0.23	\$1.11	\$2.47	\$2.73
Cash dividend-common	\$0.72	\$0.72	\$0.72	\$0.72	\$0.72
Weighted Average Common Shares Outstanding:					
Basic	47.0	48.1	52.6	53.3	52.9
Diluted	47.1	48.2	52.7	53.6	53.2

(a) Fiscal year 2017 included \$3.2 million of loss on divestiture of business. See Note 2 in the Notes to the Consolidated Financial Statements included in Item 8 “Financial Statements and Supplementary Data” of this report.

(b) Fiscal year 2016 included \$22.5 million of excess inventory write-down charges, \$12.5 million of goodwill impairment charges and \$18.0 million of restructuring and impairment charges including \$7.6 million of impairment of intangible assets and property, plant and equipment and \$10.4 million of restructuring costs related primarily to an early retirement incentive and other severance related costs. See Note 3 in the Notes to the Consolidated Financial Statements included in Item 8 “Financial Statements and Supplementary Data” of this report.

(c) Fiscal year 2015 included \$29.1 million of restructuring costs related principally to workforce reduction, facility closures and write-down of certain assets. See Note 3 in the Notes to the Consolidated Financial Statements included in Item 8 “Financial Statements and Supplementary Data” of this report.

(d) The weighted average common shares outstanding for fiscal years 2016 and 2015 included 5.5 million and 0.9 million less shares, respectively, related to the share repurchase program authorized in October 2014. During the year ended June 30, 2016 and 2015, we repurchased 3,762,200 shares and 2,995,272 shares, respectively, of common stock for \$123.9 million and \$124.5 million, respectively.

See Item 7. “Management’s Discussion and Analysis of Financial Condition and Results of Operations” for discussion of factors that affect the comparability of the “Selected Financial Data”.

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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 as well as drilling tools. Our high-performance materials and advanced process solutions are an integral part of critical applications used within the aerospace, transportation, medical and energy markets, among other sectors. Building on our history of innovation, our superalloy and titanium powder technologies support a range of next-generation products and manufacturing techniques, including additive manufacturing or 3D printing. 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. 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, divestitures 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.

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Business Trends

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

(\$ in millions, except per share data)	Years Ended June 30,		
	2017	2016	2015
Net sales	\$1,797.6	\$1,813.4	\$2,226.7
Net sales excluding surcharge revenue (1)	\$1,558.4	\$1,572.6	\$1,811.8
Operating income	\$97.2	\$51.6	\$111.5
Operating income excluding pension earnings, interest and deferrals (“pension EID”) expense (1)	\$121.0	\$70.9	\$121.0
Net income	\$47.0	\$11.3	\$58.7
Diluted earnings per share	\$0.99	\$0.23	\$1.11
Purchases of property, equipment and software	\$98.5	\$95.2	\$170.5
Free cash flow (1)	\$(17.8)	\$138.6	\$74.4
Pounds sold (in thousands) (2)	236,346	242,560	277,482

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

(2) Includes pounds from Specialty Alloys Operations segment, Dynamet and Carpenter Powder Products businesses.

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

(\$ in millions)	Years Ended June 30,					
	2017		2016		2015	
	Dollars	% of Total	Dollars	% of Total	Dollars	% of Total
Aerospace and Defense	\$973.3	54 %	\$981.5	54 %	\$1,053.8	48 %
Energy	138.0	8	130.6	7	285.6	13
Transportation	143.9	8	160.6	8	171.0	7
Medical	125.5	7	121.5	7	129.4	6
Industrial and Consumer	298.2	17	300.9	17	450.0	20
Distribution	118.7	6	118.3	7	136.9	6
Total net sales	\$1,797.6	100%	\$1,813.4	100%	\$2,226.7	100%

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Impact of Raw Material Prices and Product Mix

We value most of our inventory utilizing 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 30 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 income 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 Expense

Net pension expense, 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. The following is a summary of the net periodic benefit costs for the years ended June 30, 2017, 2016 and 2015:

	Years Ended June 30,		
(\$ in millions)	2017	2016	2015
Pension plans	\$ 45.8	\$ 50.9	\$ 34.5
Other postretirement plans	2.6	2.9	10.0
Net periodic benefit costs	\$ 48.4	\$ 53.8	\$ 44.5

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In September 2016, we announced changes to retirement plans we offer to certain employees. 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. Approximately 1,900 affected employees were transitioned to the Company's 401(k) plan that has been in effect for eligible employees since 2012, when the pension plan was closed to new entrants. We recognized the plan freeze during fiscal year 2017 as a curtailment, since it eliminated the accrual for a significant number of participants for all of their future services. We also made a voluntary pension contribution of \$100 million to the affected plan in October 2016.

The service cost component of net pension expense represents the estimated cost of future pension liabilities earned associated with active employees. The pension earnings, interest and deferrals ("pension EID") 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.

During the year ended June 30, 2016, we offered an early retirement incentive to certain employees. The cost of this early retirement incentive totaled \$9.4 million and was paid from the Company's qualified pension plan.

During the year ended June 30, 2015, in connection with a restructuring plan, we reduced approximately 200 salaried positions. As a result, \$8.3 million was paid from the Company's qualified pension plan consisting primarily of various personnel-related costs to cover severance payments and medical coverage.

Net pension 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. The following is a summary of the classification of net pension expense for the years ended June 30, 2017, 2016 and 2015:

(\$ in millions)	Years Ended June 30,		
	2017	2016	2015
Cost of sales			
Service cost	\$20.2	\$28.1	\$29.3
Pension earnings, interest and deferrals	16.5	13.2	5.0
Total cost of sales	36.7	41.3	34.3
Selling, general and administrative expenses			
Service cost	3.9	6.4	7.3
Pension earnings, interest and deferrals	7.3	6.1	4.5
Curtailment charge (benefit)	0.5	—	(1.6)
Total selling, general and administrative expenses	11.7	12.5	10.2
Net pension expense	\$48.4	\$53.8	\$44.5

As of June 30, 2017 and 2016, amounts capitalized in gross inventory were \$3.4 million and \$10.6 million, respectively.

Operating Performance Overview

Overall, fiscal year 2017 was a successful year for Carpenter as we continued building a foundation for long-term sustainable growth. More specifically, we executed our updated strategy and made notable progress in the following areas:

We began to see the benefits of our realigned commercial team and market-focused sales approach, as evidenced by achieving share gains across our end-use markets and delivering consistent backlog growth and increasing booking rates. We also took advantage of improving market conditions across most of our end-use markets in the second half of the fiscal year.

We advanced our productivity and cost reduction plan through the further roll-out of the Carpenter Operating Model in our PEP businesses. In addition, the Carpenter Operating Model helped to reduce our SAO variable costs by approximately 3 percent as compared to the prior year.

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We invested in new technology and capabilities to further strengthen our solutions portfolio. These investments in core growth areas include most notably in fiscal year 2017 the addition of titanium powder as a result of the Puris acquisition.

We have actively managed our business and remain in solid financial position. In fiscal 2017, we refinanced our existing credit facility. We also acted to reduce our pension liabilities moving forward by freezing our largest defined benefit pension plan in addition to a \$100 million voluntary pension contribution. In addition, we divested a business that did not fit our core strategic direction for cash proceeds of \$12 million.

Results of Operations — Fiscal Year 2017 Compared to Fiscal Year 2016

For fiscal year 2017, we reported net income of \$47.0 million, or \$0.99 per diluted share, compared with net income of \$11.3 million, or \$0.23 per diluted share, a year earlier. Our fiscal year 2017 results reflect operating cost improvements driven by the implementation of the Carpenter Operating Model and improving market conditions in many of our end-use markets. In the Aerospace and Defense end-use market, we experienced increasing demand for our products across our diversified sub-markets, especially engines, where we saw strong order flows related to the next generation engines. We experienced similar momentum across other markets, such as the oil and gas sub-market, where our Amega West business continues to benefit from our investments in new products over the last several years. In addition, we saw stronger demand in both the Aerospace and Medical end-use markets for our titanium solutions. Our fiscal year 2016 results reflect non-cash impairment charges consisting of excess inventory write-down totaling \$22.5 million, goodwill impairment charges totaling \$12.5 million and impairment of intangible assets and property, plant and equipment charges totaling \$7.6 million.

Net Sales

Net sales for fiscal year 2017 were \$1,797.6 million, which was a 1 percent decrease from fiscal year 2016. Excluding surcharge revenue, sales were 1 percent lower than fiscal year 2016 on 3 percent lower volume. The results reflect demand challenges in the first half of fiscal year 2017 offset by the improving demand conditions in the second half of fiscal year 2017 driven by the Aerospace and Defense end-use market. The year over year performance was also impacted by reduced ongoing weakness in demand for material used in the Transportation end-use market.

Geographically, sales outside the United States increased 5 percent from fiscal year 2016 to \$599.3 million. The increase is primarily due to sales to Europe in the Aerospace and Defense end-use market. 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 \$5.1 million decrease in sales during the fiscal year 2017 compared to fiscal year 2016. International sales as a percentage of our total net sales represented 33 percent and 31 percent for fiscal year 2017 and fiscal year 2016, 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		\$	%
	2017	2016	Increase (Decrease)	Increase (Decrease)
Aerospace and Defense	\$973.3	\$981.5	\$ (8.2)	(1)%
Energy	138.0	130.6	7.4	6 %

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Transportation	143.9	160.6	(16.7)	(10)%
Medical	125.5	121.5	4.0		3	%
Industrial and Consumer	298.2	300.9	(2.7)	(1)%
Distribution	118.7	118.3	0.4		—	%
Total net sales	\$1,797.6	\$1,813.4	\$ (15.8)	(1)%

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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		\$	%
	2017	2016	Increase (Decrease)	Increase (Decrease)
Aerospace and Defense	\$817.1	\$823.1	\$ (6.0)	(1)%
Energy	124.2	115.3	8.9	8 %
Transportation	122.7	136.8	(14.1)	(10)%
Medical	115.7	114.5	1.2	1 %
Industrial and Consumer	260.7	265.2	(4.5)	(2)%
Distribution	118.0	117.7	0.3	— %
Total net sales excluding surcharge revenue	\$1,558.4	\$1,572.6	\$ (14.2)	(1)%

Sales to the Aerospace and Defense market decreased 1 percent from fiscal year 2016 to \$973.3 million. Excluding surcharge revenue, sales were decreased 1 percent on 2 percent lower shipment volume. The results reflect the impact of increased new engine platform demand offset by a decrease in sales of material used for fasteners, structural and distribution applications due to supply chain consolidation.

Sales to the Energy market of \$138.0 million reflected a 6 percent increase from fiscal year 2016. Excluding surcharge revenue, sales increased 8 percent on 8 percent higher shipment volume. The results reflect strong demand for power generation materials during the first half of fiscal year 2017. In addition, we experienced an increase in demand during the second half of fiscal year 2017 driven by improved rental activity within the oil and gas businesses. The North American quarterly average directional and horizontal rig count, an indicator of drilling activity, increased 123 percent from the same period a year ago.

Transportation market sales decreased 10 percent from fiscal year 2016 to \$143.9 million. Excluding surcharge revenue, sales decreased 10 percent on 14 percent lower shipment volume. The results reflect the impact of weaker demand as a result of ongoing weakness in production of passenger car and heavy duty on-road and off-road trucks.

Sales to the Medical market sales increased 3 percent to \$125.5 million from fiscal year 2016. Excluding surcharge revenue, sales increased 1 percent on 2 percent higher shipment volume. The results reflect improving demand for materials used in cardiology and orthopedics applications in addition to more normalized buying patterns by distributors and OEMs as supply chain inventory levels appear to be stabilizing.

Industrial and Consumer market sales decreased 1 percent to \$298.2 million for fiscal year 2017. Excluding surcharge revenue, sales decreased 2 percent on flat shipment volume. The results reflect the impact of strong demand for materials used in consumer electronics, pumps, valves and fittings during the second half of fiscal year 2017 offset by weaker demand for industrial tooling.

Gross Profit

Gross profit in fiscal year 2017 increased to \$284.3 million, or 15.8 percent of net sales from \$255.9 million, or 14.1 percent of net sales for fiscal year 2016. During the year ended June 30, 2016, we recorded a \$22.5 million excess inventory adjustment in our oil and gas businesses within the PEP segment due to the prolonged weakness in oil and gas businesses. Excluding the impacts of the excess inventory write-down and surcharge revenue, our gross margin in fiscal year 2017 was 18.2 percent compared to 17.7 percent in fiscal year 2016. The results reflect the impact of weaker demand across all end-use markets during the first half of fiscal year 2017 offset by improving demand conditions in the second half of fiscal year 2017 and operating cost improvements compared to the same period a year

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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 excess inventory write-down. 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.

(\$ in millions)	Fiscal Year			
	2017	2016		
Net sales	\$1,797.6	\$1,813.4		
Less: surcharge revenue	239.2	240.8		
Net sales excluding surcharge revenue	\$1,558.4	\$1,572.6		
Gross profit	\$284.3	\$255.9		
Excess inventory write-down	—	22.5		
Gross profit excluding the excess inventory write-down	\$284.3	\$278.4		
Gross margin	15.8	% 14.1	%	
Gross margin excluding surcharge revenue and excess inventory write-down	18.2	% 17.7	%	
Selling, General and Administrative Expenses				

Selling, general and administrative expenses in fiscal year 2017 were \$183.9 million, or 10.2 percent of net sales (11.8 percent of net sales excluding surcharge revenue), compared to \$173.8 million, or 9.6 percent of net sales (11.1 percent of net sales excluding surcharge revenue), in fiscal year 2016. Selling, general and administrative expenses increased in fiscal year 2017 primarily due to higher variable compensation expense compared to fiscal year 2016.

Restructuring and Asset Impairment Charges

During fiscal year 2016, we incurred \$18.0 million of restructuring and asset impairment charges. This included \$7.6 million of non-cash impairment charges to write down property, plant and equipment and other intangible assets. The remaining \$10.4 million consisted primarily of an early retirement incentive that resulted in a reduction of approximately 130 production and maintenance positions. No restructuring and asset impairment charges were incurred during the fiscal year ended June 30, 2017.

Activities undertaken in connection with the fiscal year 2016 restructuring plan are complete.

Goodwill Impairment Charge

The Company’s Amega West Services (“Amega”) and Specialty Steel Supply (“SSS”), prior to its divestiture, reporting units within the PEP Segment were significantly impacted by the prolonged weakness in oil and gas drilling and exploration activity driven by depressed oil prices. As a result, during the fiscal year 2016 we recorded an impairment charge of \$12.5 million, which represented the entire balance of the goodwill recorded for these reporting units. No goodwill impairment charges were incurred during the fiscal year ended June 30, 2017.

Operating Income

Our operating income in fiscal year 2017 increased to \$97.2 million, or 5.4 percent of net sales as compared with \$51.6 million, or 2.8 percent in net sales in fiscal year 2016. Excluding surcharge revenue, pension EID and special items, operating margin was 8.0 percent for the fiscal year 2017 and 8.5 percent for the same period a year ago. The decrease in the operating margin reflects the impact of weaker demand during the first half of fiscal year 2017 and higher variable compensation accruals partially offset by improving demand conditions in the second half of fiscal year 2017 and operating cost efficiencies compared to the same period a year ago.

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Operating income has been significantly impacted by our pension EID, which may be volatile based on conditions in the financial markets, as well as other special items. The following presents our operating income and operating margin, in each case excluding the impact of surcharge on net sales, pension EID, the loss on divestiture of business, the excess inventory write-down, restructuring and asset impairment charges, goodwill impairment and other 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.

(\$ in millions)	Fiscal Year			
	2017	2016		
Net sales	\$ 1,797.6	\$ 1,813.4		
Less: surcharge revenue	239.2	240.8		
Net sales excluding surcharge revenue	\$ 1,558.4	\$ 1,572.6		
Operating income	\$97.2	\$51.6		
Pension EID	23.8	19.3		
Operating income excluding pension EID	121.0	70.9		
Special items:				
Loss on divestiture of business	3.2	—		
Pension curtailment charge	0.5	—		
Excess inventory write-down	—	22.5		
Restructuring and asset impairment charges	—	18.0		
Goodwill impairment	—	12.5		
Consulting costs	—	9.3		
Operating income excluding pension EID and special items	\$ 124.7	\$ 133.2		
Operating margin	5.4	% 2.8	%	
Operating margin excluding surcharge revenue, pension EID and special items	8.0	% 8.5	%	

Interest Expense

Fiscal year 2017 interest expense was \$29.8 million compared to \$28.0 million in fiscal year 2016. We have used interest rate swaps to achieve a level of floating rate debt to fixed rate debt. Interest expense for fiscal year 2017 includes net gains from interest rate swaps of \$1.8 million compared with \$2.6 million of net gains from interest rate swaps for the fiscal year 2016.

Other Income (Expense), Net

Other income for fiscal year 2017 was \$2.8 million as compared with other expense of \$2.1 million a year ago. The results reflect positive impacts in foreign exchange gains of \$2.0 million and favorable market return on investments used to fund company-owned life insurance contracts and investments held in rabbi trusts of \$2.2 million for the current period compared to the same period a year ago.

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Income Taxes

Our effective tax rate (income tax expense as a percent of income before taxes) for fiscal year 2017 was 33.0 percent as compared to 47.4 percent in fiscal year 2016. As a result of the voluntary pension contribution, income tax expense for fiscal year 2017 includes a tax charge of \$2.1 million due to reduced tax benefits for domestic manufacturing claimed in prior periods. The fiscal year 2017 tax rate also includes tax benefits of \$0.9 million associated with the repatriation of earnings from one of our foreign subsidiaries and a tax charge of \$0.9 million for prior year adjustments in various tax jurisdictions. The fiscal year 2016 tax rate includes the impact of non-cash goodwill impairment charges, a portion of which is non-deductible for tax purposes, as well as a tax charge of \$2.8 million recorded as a result of a decision to sell our equity method investment in India. The fiscal year 2016 tax rate also includes net tax benefits of \$0.8 million primarily for additional research and development credits as a result of the December 2015 enactment of the Protecting Americans from Tax Hikes Act of 2015.

As of June 30, 2017, we had \$99.1 million of indefinitely reinvested foreign earnings for which we had not provided deferred income taxes. Due to a change in foreign cash requirements for one of our foreign subsidiaries, we changed our intent with regard to indefinite reinvestment of foreign earnings of this subsidiary. As a result of this change, we repatriated \$11.5 million of foreign earnings during fiscal year 2017 and recognized associated tax benefits of \$0.9 million. The remaining balance of unremitted foreign earnings continues to be indefinitely reinvested.

See Note 17 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 19 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		Increase (Decrease)	% Increase (Decrease)
	2017	2016		
(Pounds sold, in thousands)				
Specialty Alloys Operations	227,744	234,296	(6,552)	(3)%
Performance Engineered Products	10,902	11,626	(724)	(6)%
Intersegment	(2,300)	(3,362)	1,062	32 %
Consolidated pounds sold	236,346	242,560	(6,214)	(3)%

* Pounds sold data for PEP segment includes Dynamet and Carpenter Powder Products businesses only.

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

	Fiscal Year		\$ Increase (Decrease)	% Increase (Decrease)
	2017	2016		
(\$ in millions)				
Specialty Alloys Operations	\$1,461.6	\$1,481.0	\$ (19.4)	(1)%
Performance Engineered Products	366.6	358.7	7.9	2 %
Intersegment	(30.6)	(26.3)	(4.3)	(16)%
Total net sales	\$1,797.6	\$1,813.4	\$ (15.8)	(1)%

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

(\$ in millions)	Fiscal Year		\$	%
	2017	2016	Increase (Decrease)	Increase (Decrease)
Specialty Alloys Operations	\$1,221.8	\$1,239.6	\$ (17.8)	(1)%
Performance Engineered Products	365.7	357.9	7.8	2 %
Intersegment	(29.1)	(24.9)	(4.2)	(17)%
Total net sales excluding surcharge revenue	\$1,558.4	\$1,572.6	\$ (14.2)	(1)%

Specialty Alloys Operations Segment

Net sales in fiscal year 2017 for the SAO segment decreased 1 percent to \$1,461.6 million, as compared with \$1,481.0 million in fiscal year 2016. Excluding surcharge revenue, net sales decreased 1 percent from a year ago. The fiscal year 2017 net sales reflected 3 percent lower shipment volume as compared to fiscal year 2016. The results reflect the impact of lower demand primarily in the Aerospace and Defense and Transportation end-use markets in the first half of fiscal year 2017 partially offset by improving demand conditions during the second half of fiscal year 2017 compared to prior year same period.

Operating income for the SAO segment in fiscal year 2017 was \$172.3 million, or 11.8 percent of net sales (14.1 percent of net sales excluding surcharge revenue), compared to \$176.9 million, or 11.9 percent of net sales (14.3 percent of net sales excluding surcharge revenue), for fiscal year 2016. The decrease in operating income reflects lower demand in the first half of the fiscal year 2017 partially offset by improving demand conditions during the second half of fiscal year 2017 and cost improvement driven by the implementation of the Carpenter Operating Model compared to prior year same period.

Performance Engineered Products Segment

Net sales for fiscal year 2017 for the PEP segment were \$366.6 million as compared with \$358.7 million for fiscal year 2016. Excluding surcharge revenue, net sales were increased 2 percent from a year ago. The results reflect the increased net sales in the second half of fiscal year 2017 as a result of improved rental activity within the oil and gas businesses partially offset by lower shipment volume primarily in the Aerospace and Defense end-use market.

Operating income for the PEP segment for fiscal year 2017 was \$8.5 million, or 2.3 percent of net sales, as compared with operating loss of \$5.5 million, or 1.5 percent of net sales for fiscal year 2016. The results reflect the improved rental activity within the oil and gas businesses in the second half of fiscal year 2017 and the positive impact of cost reduction initiatives partially offset by lower shipment volume primarily in the Aerospace and Defense end-use market.

Results of Operations — Fiscal Year 2016 Compared to Fiscal Year 2015

For fiscal year 2016, we reported net income of \$11.3 million, or \$0.23 per diluted share, compared with net income of \$58.7 million, or \$1.11 per diluted share for the fiscal year 2015. Our fiscal year 2016 results reflect operating cost improvements driven by the implementation of the Carpenter Operating Model which were more than offset by the impact of lower volumes principally in our Energy, Industrial and Consumer and Aerospace and Defense end-use markets and non-cash impairment charges related to certain assets in the Company's oil and gas businesses within the PEP segment. The non-cash impairment charges consist of:

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Excess inventory write-down charges totaling \$22.5 million

Goodwill impairment charges totaling \$12.5 million

Impairment of intangible assets and property, plant and equipment charges totaling \$7.6 million

In addition, the Company recorded \$10.4 million of restructuring charges consisting primarily of an early retirement incentive offered to certain employees funded by the Company's pension plan.

Net Sales

Net sales for fiscal year 2016 were \$1,813.4 million, which was a 19 percent decrease from fiscal year 2015.

Excluding surcharge revenue, sales were 13 percent lower than fiscal year 2015 on 13 percent lower volume. The results reflect weakness in demand for materials used in the Energy end-use market which also affected order patterns for customers in the Industrial and Consumer end-use market.

Geographically, sales outside the United States decreased 12 percent from fiscal year 2015 to \$569.9 million. The decrease is primarily due to sales to Asia and Canada in the Energy and Industrial and Consumer end-use markets. In addition, sales to Europe decreased in the Aerospace and Defense, Energy, Medical and Industrial and Consumer end-use markets. 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 \$9.5 million decrease in sales during the fiscal year 2016 compared to fiscal year 2015. International sales as a percentage of our total net sales represented 31 percent and 29 percent for fiscal year 2016 and fiscal year 2015, 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		\$ %	
	2016	2015	Decrease	Decrease
Aerospace and Defense	\$981.5	\$1,053.8	\$(72.3)	(7)%
Energy	130.6	285.6	(155.0)	(54)%
Transportation	160.6	171.0	(10.4)	(6)%
Medical	121.5	129.4	(7.9)	(6)%
Industrial and Consumer	300.9	450.0	(149.1)	(33)%
Distribution	118.3	136.9	(18.6)	(14)%
Total net sales	\$1,813.4	\$2,226.7	\$(413.3)	(19)%

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		\$ %	
	2016	2015	Increase (Decrease)	Increase (Decrease)
Aerospace and Defense	\$823.1	\$823.5	\$(0.4)	— %
Energy	115.3	245.0	(129.7)	(53)%
Transportation	136.8	130.9	5.9	5 %
Medical	114.5	118.5	(4.0)	(3)%
Industrial and Consumer	265.2	358.3	(93.1)	(26)%
Distribution	117.7	135.6	(17.9)	(13)%

Total net sales excluding surcharge revenue \$1,572.6 \$1,811.8 \$ (239.2) (13)%

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Sales to the Aerospace and Defense market decreased 7 percent from fiscal year 2015 to \$981.5 million. Excluding surcharge revenue, sales were flat on similar shipment volume. The results reflect stronger demand for materials used in structural applications and an increase in sales of engine materials as a result of additional activity across the new platforms offset by a decrease in sales of titanium fastener material. In addition, we experienced strength in our defense related sales with continued spending on supported programs.

Sales to the Energy market of \$130.6 million reflected a 54 percent decrease from fiscal year 2015. Excluding surcharge revenue, sales decreased 53 percent on 50 percent lower shipment volume. The results reflect the impact of low oil and gas prices and slowing demand, which significantly reduced drilling and exploration activity. The North American average directional rig count, a leading indicator of drilling activity, decreased 53 percent from fiscal year 2015.

Transportation market sales decreased 6 percent from fiscal year 2015 to \$160.6 million. Excluding surcharge revenue, sales increased 5 percent on 3 percent lower shipment volume. The results reflect a strengthening mix for our materials used in engine, valve and fuel system materials. Low fuel prices drove up sales for vehicle platforms with higher Carpenter material content. In addition, sales of light trucks increased from fiscal year 2015.

Sales to the Medical market decreased 6 percent to \$121.5 million from fiscal year 2015. Excluding surcharge revenue, sales decreased 3 percent on 2 percent lower shipment volume. The results reflect pricing pressures on transactional business for titanium and stainless steel materials.

Industrial and Consumer market sales were \$300.9 million for fiscal year 2016. Excluding surcharge revenue, sales decreased 26 percent on 22 percent lower shipment volume. The results reflect decreased demand for materials used in capital equipment and industrial components due in part to the drilling and exploration activity.

Distribution sales decreased 14 percent from fiscal year 2015 to \$118.3 million. Excluding surcharge revenue, sales decreased 13 percent from fiscal year 2015.

Gross Profit

Gross profit in fiscal year 2016 decreased to \$255.9 million, or 14.1 percent of net sales from \$318.3 million, or 14.3 percent of net sales for fiscal year 2015. During the year ended June 30, 2016, we recorded a \$22.5 million excess inventory adjustment in our oil and gas businesses within the PEP segment due to the prolonged weakness in oil and gas businesses. Excluding the impacts of the excess inventory write-down and surcharge revenue, our gross margin in fiscal year 2016 was 17.7 percent as compared 17.6 percent in fiscal year 2015. The results reflect lower operating costs driven by the implementation of the Carpenter Operating Model which were offset by lower volume principally in our Energy and Industrial and Consumer end-use markets compared to fiscal year 2015.

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 excess inventory write-down. 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.

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(\$ in millions)	Fiscal Year			
	2016	2015		
Net sales	\$1,813.4	\$2,226.7		
Less: surcharge revenue	240.8	414.9		
Net sales excluding surcharge revenue	\$1,572.6	\$1,811.8		
Gross profit	\$255.9	\$318.3		
Excess inventory write-down	22.5	—		
Gross profit excluding the excess inventory write-down	\$278.4	\$318.3		
Gross margin	14.1	% 14.3	%	
Gross margin excluding surcharge revenue and excess inventory write-down	17.7	% 17.6	%	

Selling, General and Administrative Expenses

Selling, general and administrative expenses in fiscal year 2016 were \$173.8 million, or 9.6 percent of net sales (11.1 percent of net sales excluding surcharge revenue), compared to \$177.7 million, or 8.0 percent of net sales (9.8 percent of net sales excluding surcharge revenue), in fiscal year 2015. Selling, general and administrative expenses decreased due to lower salaries and benefits of \$5.6 million primarily as a result of the restructuring actions taken in fiscal year 2015, lower variable compensation expense of \$3.1 million partially offset by consulting costs of \$4.2 million related to the Business Management Office (BMO) and strategic business review. The BMO is focused on profit optimization, operating cost improvement and inventory reductions.

Restructuring and Asset Impairment Charges

During fiscal year 2016, we incurred \$18.0 million of restructuring and asset impairment charges. This included \$7.6 million of non-cash impairment charges to write down property, plant and equipment and other intangible assets. The remaining \$10.4 million consisted primarily of an early retirement incentive that resulted in a reduction of approximately 130 production and maintenance positions.

During fiscal year 2015, we incurred \$29.1 million of restructuring charges. We implemented a reduction of approximately 200 salaried positions resulting in a charge of \$12.7 million consisting primarily of various personnel-related costs to cover severance payments, medical coverage and related items. We also exited the ultra-fine grain materials development program resulting in a charge of \$13.4 million during fiscal year 2015. In addition, we announced the closure of a facility resulting in a charge of \$3.0 million to reflect the write-down of certain property and equipment. The actions taken in fiscal year 2015 aimed to yield approximately \$30 million of fixed costs savings were realized in fiscal year 2016.

Activities undertaken in connection with the fiscal years 2016 and 2015 restructuring plans are complete.

Goodwill Impairment Charge

Amega and SSS, prior to its divestiture, reporting units within the PEP Segment were significantly impacted by the prolonged weakness in oil and gas drilling and exploration activity driven by depressed oil prices. As a result, during the fiscal year 2016 we recorded an impairment charge of \$12.5 million which represents the entire balance of the goodwill recorded for these reporting units.

Operating Income

Our operating income in fiscal year 2016 decreased to \$51.6 million, or 2.8 percent of net sales as compared with \$111.5 million, or 5.0 percent in net sales in fiscal year 2015. Excluding surcharge revenue, pension EID and special items, operating margin was 8.5 percent for fiscal year 2016 and 8.6 percent for fiscal year 2015. The decrease in the operating margin reflects lower volume principally in our Energy and Industrial and Consumer end-use markets partially offset by operating cost improvements and overhead cost reductions compared to fiscal year 2015.

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Operating income has been significantly impacted by our pension EID, which may be volatile based on conditions in the financial markets, as well as other special items. The following presents our operating income and operating margin, in each case excluding the impact of surcharge on net sales, pension EID, the excess inventory write-down, restructuring and asset impairment charges, goodwill impairment and other 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.

(\$ in millions)	Fiscal Year			
	2016	2015		
Net sales	\$1,813.4	\$2,226.7		
Less: surcharge revenue	240.8	414.9		
Net sales excluding surcharge revenue	\$1,572.6	\$1,811.8		
Operating income	\$51.6	\$111.5		
Pension EID	19.3	9.5		
Operating income excluding pension EID	70.9	121.0		
Special items:				
Excess inventory write-down	22.5	—		
Restructuring and asset impairment charges	18.0	29.1		
Goodwill impairment	12.5	—		
Consulting costs	9.3	5.1		
Operating income excluding pension EID and special items	\$133.2	\$155.2		
Operating margin	2.8	% 5.0	%	
Operating margin excluding surcharge revenue, pension EID and special items	8.5	% 8.6	%	

Interest Expense

Fiscal year 2016 interest expense was \$28.0 million compared to \$27.7 million in fiscal year 2015. We have used interest rate swaps to achieve a level of floating rate debt to fixed rate debt. Interest expense for fiscal year 2016 includes net gains from interest rate swaps of \$2.6 million compared with \$2.9 million of net gains from interest rate swaps for the fiscal year 2015.

Other (Expense) Income, Net

Other expense for fiscal year 2016 was \$2.1 million as compared with other income of \$5.3 million for fiscal year 2015. The results reflect negative impacts in foreign exchange losses of \$2.7 million for fiscal year 2016 compared to fiscal year 2015. The fiscal year 2015 results include a \$4.4 million favorable legal settlement.

Income Taxes

Our effective tax rate (income tax expense as a percent of income before taxes) for fiscal year 2016 was 47.4 percent as compared to 34.1 percent in fiscal year 2015. The fiscal year 2016 tax rate includes the impact of non-cash goodwill impairment charges, a portion of which is non-deductible for tax purposes, as well as a tax charge of \$2.8 million recorded due to a change in business strategy for one of our foreign subsidiaries that resulted in a change in our intent with regard to the indefinite reinvestment of the foreign earnings for this subsidiary. The fiscal year 2016 tax rate also includes net tax benefits of \$0.8 million primarily for additional research and development credits as a result of the December 2015 enactment of the Protecting Americans from Tax Hikes Act of 2015. Income tax expense in the prior year includes a net tax charge of \$1.6 million for the unfavorable impact of bonus depreciation on

domestic manufacturing benefits, net of additional research and development credits as a result of the enactment of the Tax Increase Prevention Act of 2014.

As of June 30, 2016, we had \$106.5 million of indefinitely reinvested foreign earnings for which we had not provided deferred income taxes.

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See Note 17 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 19 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		Increase (Decrease)	% Increase (Decrease)
	2016	2015		
(Pounds sold, in thousands)				
Specialty Alloys Operations	234,296	269,550	(35,254)	(13)%
Performance Engineered Products	11,626	15,262	(3,636)	(24)%
Intersegment	(3,362)	(7,330)	3,968	54 %
Consolidated pounds sold	242,560	277,482	(34,922)	(13)%

* Pounds sold data for PEP segment includes Dynamet and Carpenter Powder Products businesses only.

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

	Fiscal Year		\$ Increase (Decrease)	% Increase (Decrease)
	2016	2015		
(\$ in millions)				
Specialty Alloys Operations	\$1,481.0	\$1,796.6	\$(315.6)	(18)%
Performance Engineered Products	358.7	497.7	(139.0)	(28)%
Intersegment	(26.3)	(67.6)	41.3	61 %
Total net sales	\$1,813.4	\$2,226.7	\$(413.3)	(19)%

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

	Fiscal Year		\$ Increase (Decrease)	% Increase (Decrease)
	2016	2015		
(\$ in millions)				
Specialty Alloys Operations	\$1,239.6	\$1,373.5	\$(133.9)	(10)%
Performance Engineered Products	357.9	496.5	(138.6)	(28)%
Intersegment	(24.9)	(58.2)	33.3	57 %
Total net sales excluding surcharge revenue	\$1,572.6	\$1,811.8	\$(239.2)	(13)%

Specialty Alloys Operations Segment

Net sales in fiscal year 2016 for the SAO segment decreased 18 percent to \$1,481.0 million, as compared with \$1,796.6 million in fiscal year 2015. Excluding surcharge revenue, sales decreased 10 percent from fiscal year 2015. The fiscal year 2016 net sales reflected 13 percent lower shipment volume as compared to fiscal year 2015. The results reflect weakness in the Energy and Industrial and Consumer end-use markets compared to fiscal year 2015.

Operating income for the SAO segment in fiscal year 2016 was \$176.9 million, or 11.9 percent of net sales (14.3 percent of net sales excluding surcharge revenue), compared to \$155.2 million, or 8.6 percent of net sales (11.3 percent of net sales excluding surcharge revenue), for fiscal year 2015. The increase in operating income reflects operating cost improvements driven by the implementation of the Carpenter Operating Model, an insurance recovery benefit of \$4 million and a favorable shift in product mix.

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Performance Engineered Products Segment

Net sales for fiscal year 2016 for the PEP segment were \$358.7 million as compared with \$497.7 million for fiscal year 2015. Excluding surcharge revenue, net sales were decreased 28 percent. The results reflect decreased net sales primarily due to the current weakness in the Energy end-use market.

Operating loss for the PEP segment for fiscal year 2016 was \$5.5 million, or 1.5 percent of net sales, as compared with operating income of \$39.1 million, or 7.9 percent of net sales for fiscal year 2015. The results reflect the impact of the weak Energy end-use market due to limited drilling activity.

Liquidity and Financial Resources

We ended fiscal year 2017 with \$66.3 million of cash, a decrease of \$15.7 million from fiscal year 2016. During fiscal year 2017 our cash from operations was \$129.3 million as compared with \$256.9 million in fiscal year 2016. Our free cash flow, which we define under “Non-GAAP Financial Measures” below, was negative \$17.8 million as compared to positive \$138.6 million for the same period a year ago. The decrease in free cash flow reflects the impact of the \$100 million pension contribution offset by cash tax benefits realized with the contribution of approximately \$39 million, the titanium powder acquisition and unfavorable working capital levels, principally as a result of increased inventory levels to support improving demand conditions.

Capital expenditures for property, equipment and software were \$98.5 million for fiscal year 2017 as compared to \$95.2 million for the fiscal year 2016. In fiscal year 2018, we expect capital expenditures to be approximately \$120 million.

Dividends for the fiscal year 2017 were \$34.1 million, as compared with \$34.8 million in the prior year and were paid at the same quarterly rate of \$0.18 per share of common stock in both periods.

For the years ended June 30, 2017, 2016 and 2015, interest costs totaled \$31.1 million, \$29.9 million and \$30.4 million, respectively, of which \$1.3 million, \$1.9 million and \$2.7 million, respectively, were capitalized as part of the cost of property, plant, equipment and software.

During fiscal year 2017, we made a voluntary cash contribution of \$100 million to our largest qualified pension plan, and are required to make cash contributions of \$6.7 million to our pension plans during fiscal year 2018. Over the next five years, current estimates indicate that we will be required to make about \$85.4 million of cash contributions to our pension plans, based on the laws in effect for pension funding as of June 30, 2017, and subject to market returns and interest rate assumptions.

We have demonstrated the ability to generate cash to meet our needs through cash flows from operations, management of working capital and the availability of outside sources of financing to supplement internally generated funds. We generally target minimum liquidity, consisting of cash and cash equivalents added to available borrowing capacity under our credit agreement, of \$150.0 million. On March 31, 2017, we entered into a new \$400.0 million Credit Agreement (the “Credit Agreement”) that extends to March 2022. The Credit Agreement replaced the previous \$500.0 million revolving credit facility, dated June 28, 2013, which had been set to expire in June 2018. As of June 30, 2017, we had \$6.1 million of issued letters of credit. The balance of the Credit Agreement (\$393.9 million as of June 30, 2017) remains available to us. As of June 30, 2017, we had total liquidity of approximately \$460 million, including \$66.3 million of cash and cash equivalents. The Credit Agreement provides flexibility to fund our ongoing cash requirements as needed. From time to time during the year ended June 30, 2017 we have borrowed under our Credit Agreement and subsequently repaid any outstanding borrowings prior to June 30, 2017. The weighted average daily borrowing under the Credit Agreement during the year ended June 30, 2017 was \$28.1 million with daily

outstanding borrowings ranging from \$0.0 million to \$88.2 million.

We evaluate liquidity needs for alternative uses including funding external growth opportunities, share repurchases as well as funding consistent dividend payments to stockholders. Over the last several years, we declared and paid quarterly cash dividends of \$0.18 per share.

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As of June 30, 2017, we had cash and cash equivalents of approximately \$27.1 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. The repatriation of cash from certain foreign subsidiaries could have adverse tax consequences as we may be required to pay and record U.S. income taxes and foreign withholding taxes in various tax jurisdictions on these funds to the extent they were previously considered permanently reinvested. From time to time, we evaluate opportunities to repatriate cash from foreign jurisdictions. Our current plans consider repatriating cash only at levels that would result in minimal or no net adverse tax consequences in the near term. During the year ended June 30, 2017, we repatriated cash of \$11.5 million from foreign jurisdictions that resulted in \$0.9 million of tax benefits. From time to time, we may make short-term intercompany borrowings against our cash held outside the United States in order to reduce or eliminate any required borrowing under our Credit Agreement.

We are subject to certain financial and restrictive covenants under the Credit Agreement, which, among other things, require the maintenance of a minimum interest coverage ratio (3.50 to 1.00 as of June 30, 2017). The interest coverage ratio is defined in the Credit Agreement 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 Credit Agreement 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 Agreement as the ratio of consolidated indebtedness, as defined therein, to consolidated capitalization, as defined therein. As of June 30, 2017, the Company was in compliance with all of the covenants of the Credit Agreement.

The following table shows our actual ratio performance with respect to the financial covenants, as of June 30, 2017:

Covenant	Covenant Requirement	Actual Ratio
Consolidated interest coverage	3.50 to 1.00 (minimum)	9.38 to 1.00
Consolidated debt to capital	55% (maximum)	34%

We continue to believe that we will maintain compliance with the financial and restrictive covenants in future periods. To the extent that we do not comply with the covenants under the Credit Agreement, 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 the resulting impact on gross margins, as well as the excess inventory write-down, 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 and cost of 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 the excess inventory write-down from gross profit and gross margin is helpful in analyzing our operating performance as the excess inventory write-down is 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. See our earlier discussions of "Gross Profit" for reconciliations of net sales and gross margin, excluding surcharge revenue

and the excess inventory write-down, to net sales as determined in accordance with U.S. GAAP. Net sales and gross margin excluding surcharge revenue and the excess inventory write-down 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.

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Operating Income and Operating Margin Excluding Surcharge Revenue, Pension EID and Special Items

This report includes discussions of operating income and operating margin as adjusted to exclude the impact of raw material surcharge revenue, pension EID, loss on divestiture of business, excess inventory write-down, restructuring and asset impairment charges, goodwill impairment and other 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 and cost of 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 pension EID, loss on divestiture of business, excess inventory write-down, restructuring and asset impairment charges, goodwill impairment and other special items from operating income and operating margin is helpful in analyzing our operating performance particularly as pension EID may be volatile due to changes in the financial markets and the loss on divestiture of business, the excess inventory write-down, restructuring and asset impairment charges, goodwill impairment and other special 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. See our earlier discussion of operating income for a reconciliation of operating income and operating margin excluding pension EID, loss on divestiture of business, excess inventory write-down, restructuring and asset impairment charges, goodwill impairment and other special items to operating income and operating margin determined in accordance with U.S. GAAP. Operating income and operating margin excluding surcharge revenue, pension EID, loss on divestiture of business, excess inventory write-down, restructuring and asset impairment charges, goodwill impairment 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 income and operating margin calculated in accordance with U.S. GAAP.

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Adjusted Earnings Per Share

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

(\$ in millions, except per share data)	Income Before Income Taxes	Income Tax Benefit (Expense) (a)	Net Income	Earnings Per Diluted Share
Year ended June 30, 2017, as reported	\$ 70.2	\$ (23.2)	\$ 47.0	\$ 0.99

Special items:

Loss on divestiture of business	3.2	(1.1)	2.1	0.04
Pension curtailment	0.5	(0.1)	0.4	0.01
Income tax item (b)	—	2.1	2.1	0.04
Total impact of special items	3.7	0.9	4.6	0.09
Year ended June 30, 2017, as adjusted	\$ 73.9	\$ (22.3)	\$ 51.6	\$ 1.08

(\$ in millions, except per share data)	Income Before Income Taxes	Income Tax Benefit (Expense) (a)	Net Income	Earnings Per Diluted Share
Year ended June 30, 2016, as reported	\$ 21.5	\$ (10.2)	\$ 11.3	\$ 0.23

Special items:

Excess inventory write-down	22.5	(7.8)	14.7	0.31
Restructuring and asset impairment charges	18.0	(5.7)	12.3	0.26
Goodwill impairment	12.5	(3.2)	9.3	0.19
Consulting costs	9.3	(3.3)	6.0	0.13
Income tax item (c)	—	2.8	2.8	0.06
Impact of tax law change	—	(0.8)	(0.8)	(0.02)
Total impact of special items	62.3	(18.0)	44.3	0.93
Year ended June 30, 2016, as adjusted	\$ 83.8	\$ (28.2)	\$ 55.6	\$ 1.16

(a) The income tax effect of the special items was determined using a normalized effective income tax rate of 35 percent unless the item had specific discrete income tax impacts such as certain nontaxable goodwill and asset impairment charges and impacts of tax law changes.

(b) Discrete income tax charge recorded as a result of reduced tax benefits claimed in prior years in connection with the Company's \$100 million voluntary pension contribution made in October 2016.

(c) As a result of a decision to sell our equity method investment in India, we changed our intent with regard to the indefinite reinvestment of the foreign earnings from one of our subsidiaries. Accordingly, we recorded a discrete income tax charge during the year ended June 30, 2016.

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Management believes that the presentation of earnings per share adjusted to exclude the impacts of loss on divestiture of business, excess inventory write-down, restructuring and asset impairment charges, goodwill impairment and other special items is helpful in analyzing the operating performance of the Company, as these costs 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 earnings per share is not a U.S. GAAP financial measure and should not be considered in isolation of, or as a substitute for, earnings 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:

(\$ in millions)	Fiscal Year		
	2017	2016	2015
Net cash provided from operating activities	\$129.3	\$256.9	\$282.6
Purchases of property, equipment and software	(98.5)	(95.2)	(170.5)
Purchase of business	(35.3)	—	—
Proceeds from divestiture of business	12.0	—	—
Dividends paid	(34.1)	(34.8)	(37.9)
Proceeds from disposals of plant and equipment and assets held for sale	2.5	1.4	0.2
Proceeds from note receivable from the sale of equity method investment	6.3	—	—
Proceeds from sale of equity method investment	—	6.3	—
Other	—	4.0	—
Free cash flow	\$(17.8)	\$138.6	\$74.4

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, goodwill, intangible assets, income taxes, pensions and other postretirement benefits, contingencies and litigation, environmental liabilities and derivative instruments and hedging activities.

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.

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Inventories

Inventories are stated at the lower of cost or market. The cost of inventories is primarily determined using the LIFO method. We also use the FIFO and average cost methods. As of June 30, 2017 and 2016, \$107.3 million and \$118.4 million of inventory, respectively, was accounted for using a method other than the LIFO method.

Costs include direct materials, direct labor and 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 recognized under LIFO is generally lower than 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 recognize 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. 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 the pension expense, which is determined annually, 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 allocation policy for pension plan assets is to have approximately 60 percent in return seeking assets and 40 percent in liability matching assets. Return seeking assets include domestic and international equities and diversified loan funds. Liability matching assets include long duration bond funds. As the funding level of the plans improves in increments of 5 percent, assets will be shifted from return seeking to liability matching in increments of 4 percent as a de-risking strategy. 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 expense would change by \$2.6 million. If the discount rate was changed by 0.25 percent, the net pension expense would change by \$0.7 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.

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Goodwill

Goodwill is not amortized, but instead is tested for impairment, at least annually at the reporting unit level. Potential impairment is identified by comparing the fair value of a reporting unit to its carrying value. The fair value is estimated based principally upon discounted cash flow analysis. If the carrying value of the reporting unit exceeds its fair value, any impairment loss is measured by comparing the carrying value of the reporting unit's goodwill to its implied fair value. 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 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.

As of June 30, 2017, we had four remaining reporting units with goodwill recorded. Goodwill associated with our SAO reporting unit is tested at the SAO segment level and represents approximately 75 percent of our total goodwill. All other goodwill is associated with our PEP segment, which includes 3 reporting units with goodwill recorded.

As of June 30, 2017, the fair value of the SAO exceeded the carrying value by approximately 20 percent. The goodwill recorded related to the SAO as of June 30, 2017 was \$195.5 million. The discounted cash flows analysis for the SAO 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, we used a weighted average cost capital of 10 percent and a terminal growth rate assumption of 3 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.

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, 2017 and 2016.

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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 income statement when the hedged transaction affects earnings or if the anticipated transactions are no longer expected to occur. We 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 income. 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 evaluate all derivative instruments each quarter to determine that they are highly effective. Any ineffectiveness is recorded in our consolidated statement of income. 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 20, Recent Accounting Pronouncements, 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.

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Contractual Obligations

At June 30, 2017, we had the following contractual obligations and other commercial commitments and contingencies:

(\$ in millions)	Total	Fiscal Year					
		2018	2019	2020	2021	2022	Thereafter
Long-term debt (1)	\$605.0	\$55.0	\$—	\$—	\$—	\$250.0	\$ 300.0
Estimated interest payments (2)	131.5	29.5	26.4	26.4	26.4	13.9	8.9
Operating leases	30.4	8.7	6.6	5.1	3.1	1.9	5.0
Pension plan contributions (3)	229.4	6.7	5.7	6.9	24.5	41.6	144.0
Accrued post-retirement benefits (4)	153.5	15.5	15.5	15.6	15.5	15.5	75.9
Purchase obligations (5)	127.8	127.8	—	—	—	—	—
Pension benefits (6)	34.1	3.3	3.3	3.5	3.6	3.6	16.8
Total	\$1,311.7	\$246.5	\$57.5	\$57.5	\$73.1	\$326.5	\$ 550.6

(1) Refer to Note 9 to Notes to Consolidated Financial Statements included in Item 8. “Financial Statements and Supplementary Data”.

(2) Estimated interest payments for long-term debt were calculated based on the applicable rates and payment dates. No interest payments are included for any potential borrowings under our revolving credit facility.

(3) Pension plan contributions represent required minimum contributions for plan years beginning January 1, 2016. These amounts were calculated based on actuarial valuations as prescribed by pension funding regulations in the United States effective June 30, 2017. Estimated fiscal year contributions have been included through fiscal year 2028. The actual required pension contributions in future periods may be different.

(4) Postretirement benefits for certain plans may be paid from corporate assets or certain designated plan assets maintained in a Voluntary Employee Benefit Association (“VEBA”) Trust. During fiscal year 2017, we funded benefit payments using assets in the VEBA Trust. Prior to fiscal year 2017, benefit payments for these plans were funded by corporate assets. Estimated fiscal year postretirement benefit payments have been included through fiscal year 2027.

(5) We have entered into purchase commitments 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. We used June 30, 2017 raw material prices for commitments with variable pricing.

(6) Pension benefits for certain plans are paid from corporate assets. There is no guarantee that future payments will be paid from corporate assets rather than plan assets.

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.

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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. During fiscal years 2017, the Company decreased the liability for a company-owned former operating site by \$0.1 million. During fiscal years 2016 and 2015, the Company increased the liability for a company-owned former operating site by \$0.3 million and \$0.4 million, respectively. 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, 2017 and 2016 were \$16.1 million and \$16.2 million, respectively.

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, industrial, transportation, consumer, medical and energy, or other influences on Carpenter'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 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 degree of success of government trade actions; (7) the valuation of the assets and liabilities in Carpenter'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, its customers or other members of the supply chain;

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(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'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; and (16) the success of actions taken to reduce costs associated with retirement and pension plans. Any of these factors could have an adverse and/or fluctuating effect on Carpenter'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. Carpenter 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 16 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. 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. Market valuations are performed at least quarterly to monitor the effectiveness of our risk management programs.

Based on the current funding level, the allocation policy for our largest pension plan assets is to have approximately 60 percent in return seeking assets and 40 percent in liability matching assets. Return seeking assets include domestic and international equities and diversified loan funds. Liability matching assets include long duration bond funds. As the funding level of the plans improves in increments of 5 percent, assets will be shifted from return seeking to

liability matching in increments of 4 percent as a de-risking strategy.

The status of our financial instruments as of June 30, 2017 is provided in Note 16 to the consolidated financial statements included in Item 8, "Financial Statements and Supplementary Data". Assuming on June 30, 2017, (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.

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Item 8. Financial Statements and Supplementary Data

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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, 2017. In making this assessment, it used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (2013 Framework) (COSO) in Internal Control — Integrated Framework. Based on its assessment, management concluded that, as of June 30, 2017, 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, 2017 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/ Damon J. Audia
Damon J. Audia
Senior Vice President and Chief Financial Officer

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Report of Independent Registered Public Accounting Firm

To the Board of Directors and
Shareholders of Carpenter Technology Corporation

In our opinion, the consolidated financial statements listed in the accompanying index present fairly, in all material respects, the financial position of Carpenter Technology Corporation and its subsidiaries as of June 30, 2017 and June 30, 2016, and the results of their operations and their cash flows for each of the three years in the period ended June 30, 2017 in conformity with accounting principles generally accepted in the United States of America. In addition, in our opinion, the financial statement schedule listed in the accompanying index presents fairly, in all material respects, the information set forth therein when read in conjunction with the related consolidated financial statements. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of June 30, 2017, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's management is responsible for these financial statements and financial statement schedule, for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Annual Report on Internal Control over Financial Reporting. Our responsibility is to express opinions on these financial statements, on the financial statement schedule, and on the Company's internal control over financial reporting based on our integrated audits. We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. 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.

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.

/s/ PricewaterhouseCoopers LLP

Philadelphia, PA

August 11, 2017

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CARPENTER TECHNOLOGY CORPORATION
CONSOLIDATED STATEMENTS OF INCOME
For the Years Ended June 30, 2017, 2016 and 2015

(\$ in millions, except per share data)	2017	2016	2015
Net sales	\$1,797.6	\$1,813.4	\$2,226.7
Cost of sales	1,513.3	1,535.0	1,908.4
Cost of sales - excess inventory write-down	—	22.5	—
Gross profit	284.3	255.9	318.3
Selling, general and administrative expenses	183.9	173.8	177.7
Loss on divestiture of business	3.2	—	—
Restructuring and asset impairment charges	—	18.0	29.1
Goodwill impairment	—	12.5	—
Operating income	97.2	51.6	111.5
Interest expense	(29.8)	(28.0)	(27.7)
Other income (expense), net	2.8	(2.1)	5.3
Income before income taxes	70.2	21.5	89.1
Income tax expense	23.2	10.2	30.4
Net income	\$47.0	\$11.3	\$58.7
EARNINGS PER COMMON SHARE:			
Basic	\$0.99	\$0.23	\$1.11
Diluted	\$0.99	\$0.23	\$1.11
WEIGHTED AVERAGE COMMON SHARES OUTSTANDING:			
Basic	47.0	48.1	52.6
Diluted	47.1	48.2	52.7

See accompanying notes to consolidated financial statements.

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CARPENTER TECHNOLOGY CORPORATION
 CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
 For the Years ended June 30, 2017, 2016 and 2015

(\$ in millions)	2017	2016	2015
Net income	\$47.0	\$11.3	\$58.7
Other comprehensive income (loss), net of tax			
Pension and postretirement benefits gain (loss), net of tax of \$(27.3), \$52.8 and \$12.0, respectively	45.3	(87.5)	(20.1)
Net gain (loss) on derivative instruments, net of tax of \$(11.8), \$(4.0) and \$21.7, respectively	19.5	6.7	(36.1)
Unrealized gain on marketable securities, net of tax of \$0.0, \$0.0 and \$0.0, respectively	—	—	0.1
Foreign currency translation	2.0	(0.9)	(26.9)
Other comprehensive income (loss), net of tax	66.8	(81.7)	(83.0)
Comprehensive income (loss), net of tax	\$113.8	\$(70.4)	\$(24.3)

See accompanying notes to consolidated financial statements.

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CARPENTER TECHNOLOGY CORPORATION
 CONSOLIDATED STATEMENTS OF CASH FLOWS

For the Years Ended June 30, 2017, 2016 and 2015

(\$ in millions)	2017	2016	2015
OPERATING ACTIVITIES			
Net income	\$47.0	\$11.3	\$58.7
Adjustments to reconcile net income to net cash provided from operating activities:			
Depreciation and amortization	117.8	119.3	122.3
Goodwill impairment charge	—	12.5	—
Non-cash excess inventory write-down	—	22.5	—
Non-cash restructuring and asset impairment charges	—	7.6	7.6
Deferred income taxes	41.6	0.8	60.4
Net pension expense	48.4	53.8	44.5
Payments from qualified pension plan associated with restructuring charges	—	9.4	8.3
Stock-based compensation expense	13.0	8.7	10.0
Net loss on disposal of property and equipment	2.5	0.6	1.2
Loss on divestiture of business	3.2	—	—
Changes in working capital and other:			
Accounts receivable	(34.6)	48.2	25.4
Inventories	(74.6)	1.6	36.0
Other current assets	2.8	(2.1)	(0.3)
Accounts payable	42.5	(7.6)	(59.9)
Accrued liabilities	25.6	(14.0)	(12.1)
Pension plan contributions	(100.0)	—	(7.2)
Other postretirement plan contributions	(3.2)	(13.0)	(13.2)
Other, net	(2.7)	(2.7)	0.9
Net cash provided from operating activities	129.3	256.9	282.6
INVESTING ACTIVITIES			
Purchases of property, equipment and software	(98.5)	(95.2)	(170.5)
Proceeds from disposals of property and equipment and assets held for sale	2.5	1.4	0.2
Acquisition of business	(35.3)	—	—
Proceeds from maturities of marketable securities	0.9	0.9	0.3
Net proceeds from divestiture of business	12.0	—	—
Proceeds from note receivable from the sale of equity method investment	6.3	—	—
Proceeds received from sale of equity method investment	—	6.3	—
Other	—	4.0	—
Net cash used for investing activities	(112.1)	(82.6)	(170.0)
FINANCING ACTIVITIES			
Credit agreement borrowings	122.1	77.0	545.1
Credit agreement repayments	(122.1)	(77.0)	(545.1)
Dividends paid	(34.1)	(34.8)	(37.9)
Payments of debt issue costs	(1.4)	—	—
Purchases of treasury stock	—	(123.9)	(124.5)
Payments on seller financed debt related to purchase of software	—	(4.9)	—
Tax benefits on share-based compensation	0.5	—	0.7
Proceeds from stock options exercised	2.2	0.5	2.3
Net cash used for financing activities	(32.8)	(163.1)	(159.4)
Effect of exchange rate changes on cash and cash equivalents	(0.1)	0.8	(3.2)
(DECREASE) INCREASE IN CASH AND CASH EQUIVALENTS	(15.7)	12.0	(50.0)

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Cash and cash equivalents at beginning of year	82.0	70.0	120.0
Cash and cash equivalents at end of year	\$66.3	\$82.0	\$70.0

See accompanying notes to consolidated financial statements.

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CARPENTER TECHNOLOGY CORPORATION
 CONSOLIDATED BALANCE SHEETS
 June 30, 2017 and 2016

(\$ in millions, except share data)	2017	2016
ASSETS		
Current assets:		
Cash and cash equivalents	\$66.3	\$82.0
Accounts receivable, net of allowance for doubtful accounts of \$2.6 million and \$4.1 million at June 30, 2017 and 2016, respectively	290.4	253.6
Inventories	690.4	628.7
Other current assets	46.5	46.4
Total current assets	1,093.6	1,010.7
Property, plant and equipment, net	1,316.8	1,351.4
Goodwill	263.4	244.8
Other intangibles, net	64.9	63.2
Deferred income taxes	7.6	8.2
Other assets	131.8	116.0
Total assets	\$2,878.1	\$2,794.3
LIABILITIES		
Current liabilities:		
Current portion of long term debt	\$55.0	\$—
Accounts payable	201.1	159.6
Accrued liabilities	139.9	139.2
Total current liabilities	396.0	298.8
Long-term debt, net of current portion	550.0	611.3
Accrued pension liabilities	378.3	509.3
Accrued postretirement benefits	122.6	116.6
Deferred income taxes	184.8	102.4
Other liabilities	47.8	51.0
Total liabilities	1,679.5	1,689.4
Contingencies and commitments (see Note 11)		
STOCKHOLDERS' EQUITY		
Common stock — authorized 100,000,000 shares; issued 55,349,658 shares at June 30, 2017 and 55,254,569 shares at June 30, 2016; outstanding 46,753,180 shares at June 30, 2017 and 46,600,125 shares at June 30, 2016	276.7	276.3
Capital in excess of par value	284.8	273.5
Reinvested earnings	1,321.8	1,308.9
Common stock in treasury (8,596,478 shares and 8,654,444 shares at June 30, 2017 and 2016, respectively), at cost	(341.6)	(343.9)
Accumulated other comprehensive loss	(343.1)	(409.9)
Total equity	1,198.6	1,104.9
Total liabilities and equity	\$2,878.1	\$2,794.3

See accompanying notes to consolidated financial statements.

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CARPENTER TECHNOLOGY CORPORATION
CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY
For the Years Ended June 30, 2017, 2016 and 2015

(\$ in millions, except per share data)	Common Stock		Reinvested Earnings	Common Stock in Treasury	Accumulated Other Comprehensive (Loss) Income	Total Equity
	Par Value of \$5	Capital in Excess of Par Value				
Balances at June 30, 2014	\$275.8	\$263.5	\$ 1,311.6	\$(101.4)	\$ (245.2)	\$ 1,504.3
Net income			58.7			58.7
Pension and postretirement benefits loss, net of tax					(20.1)	(20.1)
Net loss on derivative instruments, net of tax					(36.1)	(36.1)
Unrealized gain on marketable securities, net of tax					0.1	0.1
Foreign currency translation					(26.9)	(26.9)
Cash Dividends:						
Common @ \$0.72 per share			(37.9)			(37.9)
Purchases of treasury stock				(124.5)		(124.5)
Share-based compensation plans		2.1		4.8		6.9
Stock options exercised	0.4	1.9				2.3
Tax shortfall on share-based compensation		(0.9)				(0.9)
Balances at June 30, 2015	276.2	266.6	1,332.4	(221.1)	(328.2)	1,325.9
Net income			11.3			11.3
Pension and postretirement benefits loss, net of tax					(87.5)	(87.5)
Net gain on derivative instruments, net of tax					6.7	6.7
Foreign currency translation					(0.9)	(0.9)
Cash Dividends:						
Common @ \$0.72 per share			(34.8)			(34.8)
Purchases of treasury stock				(123.9)		(123.9)
Share-based compensation plans		7.7		1.1		8.8
Stock options exercised	0.1	0.4				0.5
Tax shortfall on share-based compensation		(1.2)				(1.2)
Balances at June 30, 2016	276.3	273.5	1,308.9	(343.9)	(409.9)	1,104.9
Net income			47.0			47.0
Pension and postretirement benefits gain, net of tax					45.3	45.3
Net gain on derivative instruments, net of tax					19.5	19.5
Foreign currency translation					2.0	2.0
Cash Dividends:						
Common @ \$0.72 per share			(34.1)			(34.1)
Share-based compensation plans		10.4		2.3		12.7
Stock options exercised	0.4	1.8				2.2
Tax shortfall on share-based compensation		(0.9)				(0.9)
Balances at June 30, 2017	\$276.7	\$284.8	\$ 1,321.8	\$(341.6)	\$ (343.1)	\$ 1,198.6

See accompanying notes to consolidated financial statements.

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CARPENTER TECHNOLOGY CORPORATION
 CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY (CONTINUED)
 For the Years Ended June 30, 2017, 2016 and 2015

	Common Shares		
	Issued	Treasury	Net Outstanding
Balances at June 30, 2014	55,161,875	(2,024,731)	53,137,144
Purchases of treasury stock	—	(2,995,272)	(2,995,272)
Stock options exercised	73,067	—	73,067
Share-based compensation plans	—	103,305	103,305
Balances at June 30, 2015	55,234,942	(4,916,698)	50,318,244
Purchases of treasury stock	—	(3,762,200)	(3,762,200)
Stock options exercised	19,627	—	19,627
Share-based compensation plans	—	24,454	24,454
Balances at June 30, 2016	55,254,569	(8,654,444)	46,600,125
Stock options exercised	95,089	—	95,089
Share-based compensation plans	—	57,966	57,966
Balances at June 30, 2017	55,349,658	(8,596,478)	46,753,180

See accompanying notes to consolidated financial statements.

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CARPENTER TECHNOLOGY CORPORATION
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. Investments in companies in which the Company exercises significant influence, but which it does not control (generally a 20 to 50 percent ownership interest), are accounted for by the equity method of accounting and the Company's share of their income or loss is included in other income(expense), net in the consolidated statements of income. During fiscal year 2016, the Company sold its only equity method investment in exchange for \$6.3 million in cash and \$12.6 million in a note receivable. During fiscal year 2017 the Company received \$6.3 million related to the note receivable.

Revenue Recognition

Revenue, net of related discounts, rebates, returns and allowances of \$23.8 million, \$29.8 million and \$27.4 million for the years ended June 30, 2017, 2016 and 2015, respectively, is recognized when persuasive evidence of arrangement exists, title and risk of loss has transferred to the customer, collectability is reasonably assured and pricing is fixed and determinable. These criteria are generally met upon shipment or delivery of the product based on the applicable shipping terms. 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 income.

Research and Development

Research and development expenditures, which amounted to \$16.9 million, \$16.3 million and \$18.7 million in fiscal years 2017, 2016 and 2015, respectively, are expensed as incurred and are generally reported in cost of sales in the consolidated statements of income. 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. Cost for inventories is principally determined by the LIFO method. The Company also uses the FIFO and average cost methods. As of June 30, 2017 and 2016, \$107.3 million and \$118.4 million of inventory, respectively, was accounted for using a method other than the LIFO method.

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CARPENTER TECHNOLOGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Property, Plant and Equipment and Depreciation

Fixed assets are stated at historical cost less accumulated depreciation. Depreciation for financial reporting purposes is computed by the straight-line method over the estimated useful lives of the assets. Depreciation for income tax purposes is computed using accelerated methods. 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 statement of income.

Computer Software and Amortization

Computer software is included in other assets on the consolidated balance sheet, and is amortized for financial reporting purposes on a straight-line basis over the respective estimated useful lives ranging from 3 to 15 years. Amortization expense charged to operations related to capitalized software amounted to \$5.2 million, \$5.5 million and \$6.1 million for the years ended June 30, 2017, 2016 and 2015, respectively. The carrying value of computer software net of accumulated amortization at June 30, 2017 and 2016 was \$71.0 million and \$49.3 million, respectively.

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 annually tested for impairment (in the fourth quarter), or more frequently if events or circumstances indicate that the carrying amount of goodwill may be impaired. Such events or circumstances include a decline in general economic conditions, adverse changes in the industry and markets, poor financial performance effecting earnings and cash flows and a trend of negative or declining cash flows over multiple 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 discounted cash flows and the use of market multiples valuation techniques. These valuation techniques require the use of estimates and assumptions related to projected operating results, capital expenditures and working capital levels as well as the cost of capital. If the carrying value of the reporting unit exceeds its fair value, any impairment loss is measured by comparing the carrying value of the reporting unit's goodwill to its implied fair value.

Intangible assets

The costs of intangible assets, consisting principally of trademarks, trade names, non-compete arrangements, technology and customer relationships are amortized on a straight-line basis over the estimated useful lives ranging from 5 to 30 years.

Impairment of Long-Lived Assets

Long-lived assets, including property, plant and equipment and intangible assets, subject to amortization 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.

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, 2017 and 2016. The liabilities, net of present value discount, for this former operating site were \$11.0 million and \$10.9 million, as of June 30, 2017 and 2016, respectively.

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CARPENTER TECHNOLOGY CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

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. 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 utilizes interest rate swaps to convert fixed rate debt to floating rate.

At least quarterly, the Company determines hedge effectiveness utilizing regression analysis for measuring the probable high correlation of the expected future cash flows of the hedged item and the derivative hedging instrument. The ineffective portion of hedges is immediately recorded in the consolidated statement of income. If the hedging relationship ceases to be highly effective or it becomes probable that an expected transaction will no longer occur, future gains or losses on the derivative instrument are recorded in the consolidated statement of income.

Foreign Currency Translation

Assets and liabilities of most 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 (loss) income 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 statement of income.

Income Taxes

Deferred income taxes are recognized by applying enacted statutory tax rates, applicable to future years, to temporary differences between the tax bases 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 year 2017 and 2016, one customer, Arconic, Inc., accounted for approximately 11 percent and 13 percent, respectively, of total net sales. No single customer accounted for 10 percent or more of total net sales during fiscal year 2015. No single customer accounted for 10 percent or more of accounts receivable outstanding at June 30, 2017. Approximately 22 percent of the accounts receivable outstanding at June 30, 2016 was due from two customers, Alcoa Inc. and Precision Castparts Corporation.

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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.

Reclassifications

The Company changed the presentation of borrowings and repayments made under the credit agreement in the consolidated statements of cash flows. Prior year amounts have been reclassified to conform to fiscal year 2017 presentation.

2. Acquisition and Divestiture

On February 28, 2017, the Company acquired substantially all the assets of Puris LLC (“Puris”), for a cash purchase price of \$35.3 million. The acquisition provides the Company with immediate entry into the rapidly growing titanium powder market, an expanded presence in additive manufacturing and strengthens the Company’s capabilities as a solutions provider for customers across its end-use markets. The purchase price allocation was completed in the fourth quarter of fiscal year 2017 and resulted in the purchase price being allocated to \$1.7 million of working capital, \$6.5 million of property and equipment, \$8.5 million of identifiable intangible assets and \$18.6 million of goodwill.

On June 29, 2017, the Company divested the Specialty Steel Supply (“SSS”) business. The divestiture was completed in two separate transactions for total cash proceeds of \$12.0 million. In connection with the divestiture, the Company recorded a pretax loss of \$3.2 million. The operations of the SSS business were historically included in our Performance Engineered Products (“PEP”) segment. The Company does not have any significant continuing involvement in the operations of SSS after the divestiture.

3. Restructuring Charges and Asset Impairment Charges

There were no restructuring or asset impairment charges during fiscal year 2017. Restructuring and asset impairment charges for the years ended June 30, 2016 and 2015 were \$18.0 million and \$29.1 million, respectively.

Fiscal Year 2016

During the year ended June 30, 2016, the Company recorded \$10.4 million of pre-tax charges, consisting of \$9.4 million associated with an early retirement incentive funded by the Company’s qualified pension plan, \$0.7 million of other severance costs paid by the Company in fiscal year 2016 and \$0.3 million of other severance related costs paid by the Company in fiscal year 2017. At this time, the Company does not expect any additional charges related to these restructuring actions in the future.

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 recognized non-cash impairment pre-tax charges of \$7.6 million on certain long-lived assets, including \$6.5 million related to property, plant and equipment and \$1.1 million associated with certain definite lived intangible assets during the year ended June 30, 2016.

Fiscal Year 2015

In fiscal year 2015, the Company implemented a restructuring plan aimed at reducing fixed costs by approximately \$30 million annually across the Company. In connection with this restructuring plan, the Company recorded a pre-tax charge of \$12.7 million during the year ended June 30, 2015 consisting primarily of various personnel-related costs for severance payments, medical coverage and related items. Of this charge, \$2.5 million was paid by the Company in fiscal year 2015, \$8.3 million was paid from the Company's qualified pension plan in fiscal year 2015, \$0.4 million was recorded as non-cash forfeiture income related to stock-based compensation in fiscal year 2015 and the remaining balance was paid by the Company in fiscal year 2016.

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The Company recorded a pre-tax charge of \$13.4 million during the year ended June 30, 2015 to exit a materials development program. This includes an \$8.0 million cash payment during the year ended June 30, 2015 to exit a licensing agreement and non-cash asset impairment charges totaling \$5.4 million.

The Company recorded a pre-tax charge of \$3.0 million during the year ended June 30, 2015 to reflect site closure costs consisting of \$0.4 million cash payments and \$2.6 million non-cash write-downs of inventory, property and equipment and related items.

Activity and reserve balances for restructuring charges at June 30, 2017 and 2016 were as follows:

(\$ in millions)	June 30,	
	2017	2016
Reserve balance beginning of year	\$0.3	\$2.3
Restructuring charges and asset impairment charges	—	18.0
Cash payments	(0.3)	(3.0)
Payments from qualified pension plan associated with restructuring charges	—	(9.4)
Non-cash asset impairment charges and other	—	(7.6)
Reserve balance end of year	\$—	\$0.3

4. Earnings per Common Share

The calculations of basic and diluted earnings from continuing operations per common share for the years ended June 30, 2017, 2016 and 2015 were as follows:

(in millions, except per share data)	Years Ended June 30,		
	2017	2016	2015
Net income	\$47.0	\$11.3	\$58.7
Less: earnings and dividends allocated to participating securities	(0.3)	(0.1)	(0.1)
Earnings available for common shareholders used in calculation of basic earnings per share	\$46.7	\$11.2	\$58.6
Weighted average number of common shares outstanding, basic	47.0	48.1	52.6
Basic earnings per common share	\$0.99	\$0.23	\$1.11
Net income	\$47.0	\$11.3	\$58.7
Less: earnings and dividends allocated to participating securities	(0.3)	(0.1)	(0.1)
Earnings available for common shareholders used in calculation of diluted earnings per share	\$46.7	\$11.2	\$58.6
Weighted average number of common shares outstanding, basic	47.0	48.1	52.6
Effect of shares issuable under share-based compensation plans	0.1	0.1	0.1
Weighted average number of common shares outstanding, diluted	47.1	48.2	52.7
Diluted earnings per common share	\$0.99	\$0.23	\$1.11

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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)	2017	2016	2015
Stock options	1.9	1.5	0.8
5. Inventories			

Inventories consisted of the following components at June 30, 2017 and 2016:

	June 30,	
(\$ in millions)	2017	2016
Raw materials and supplies	\$ 152.8	\$ 137.6
Work in process	365.6	298.9
Finished and purchased products	172.0	192.2
Total inventory	\$ 690.4	\$ 628.7

If the FIFO method of inventory had been used instead of the LIFO method, inventories would have been \$106.1 million and \$98.2 million higher as of June 30, 2017 and 2016, respectively. Current cost of LIFO-valued inventories was \$689.2 million at June 30, 2017 and \$608.5 million at June 30, 2016. The reductions in LIFO-valued inventories increased cost of sales by \$0.0 million during fiscal year 2017 and \$0.0 million during fiscal year 2016 and \$1.6 million during fiscal year 2015.

During fiscal year 2016, the Company recorded a \$22.5 million charge for excess inventory adjustments in certain reporting units in the PEP segment due to the prolonged weakness in oil and gas businesses.

6. Property, Plant and Equipment

Property, plant and equipment consisted of the following components at June 30, 2017 and 2016:

	June 30,	
(\$ in millions)	2017	2016
Land	\$ 34.1	\$ 33.0
Buildings and building equipment	495.7	484.1
Machinery and equipment	2,082.4	2,038.3
Construction in progress	56.3	52.3
Total at cost	2,668.5	2,607.7
Less: accumulated depreciation and amortization	1,351.7	1,256.3
Total property, plant, and equipment	\$ 1,316.8	\$ 1,351.4

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

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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 recorded an impairment charge related to property, plant and equipment of \$6.5 million during fiscal year 2016.

Depreciation for the years ended June 30, 2017, 2016 and 2015 was \$105.8 million, \$106.5 million and \$107.2 million, respectively.

7. Goodwill and Other Intangible Assets, Net

Goodwill

The Company conducts goodwill impairment testing at least annually as of June 30, or more often if events, changes or circumstances indicate that the carrying amount may not be recoverable.

The Company has determined there was no goodwill impairment for the year ended June 30, 2017. As a result of prolonged weakness in oil and gas drilling and exploration activity, the Company determined that the goodwill associated with 2 reporting units was impaired and recorded an impairment charge of \$12.5 million during the year ended June 30, 2016 which represented the entire balance of the goodwill recorded for these reporting units.

The changes in the carrying amount of goodwill by reportable segment for fiscal years 2017 and 2016 were as follows:

(\$ in millions)	June 30, 2015	Impairment	Other	June 30, 2016	Acquisition	June 30, 2017
Goodwill	\$292.1	\$ —	\$(0.1)	\$292.0	\$ 18.6	\$310.6
Accumulated impairment losses	(34.7)	(12.5)	—	(47.2)	—	(47.2)
Total goodwill	\$257.4	\$(12.5)	\$(0.1)	\$244.8	\$ 18.6	\$263.4
Specialty Alloys Operations	\$195.5	\$ —	\$—	\$195.5	\$ —	\$195.5
Performance Engineered Products	61.9	(12.5)	(0.1)	49.3	18.6	67.9
Total goodwill	\$257.4	\$(12.5)	\$(0.1)	\$244.8	\$ 18.6	\$263.4

The amounts included in “other” in the above table represent foreign exchange impacts on the amounts recorded in goodwill.

Other Intangible Assets, Net

(\$ in millions)	Useful Life (in Years)	June 30, 2017			June 30, 2016		
		Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Trademarks and trade names	15 - 30	\$33.5	\$(21.9)	\$ 11.6	\$32.4	\$(20.7)	\$ 11.7
Customer relationships	10 - 15	73.3	(25.8)	47.5	73.0	(22.2)	50.8
Non-compete agreements	5	0.2	—	0.2	5.4	(4.7)	0.7
Technology	15	5.7	(0.1)	5.6	—	—	—
Total		\$112.7	\$(47.8)	\$ 64.9	\$110.8	\$(47.6)	\$ 63.2

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 recorded an impairment charge of \$1.1 million related to definite lived intangible assets during fiscal year 2016.

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The Company recorded \$6.8 million of amortization expense related to intangible assets during fiscal year 2017, \$7.3 million during fiscal year 2016 and \$9.0 million during fiscal year 2015. The estimated annual amortization expense related to intangible assets for each of the succeeding five fiscal years is \$6.6 million in fiscal years 2018, 2019, 2020, 2021 and 2022.

8. Accrued Liabilities

Accrued liabilities consisted of the following as of June 30, 2017 and 2016:

(\$ in millions)	June 30,	
	2017	2016
Accrued compensation and benefits	\$59.1	\$41.8
Accrued postretirement benefits	15.5	13.8
Derivative financial instruments	13.1	31.6
Accrued interest expense	11.2	11.2
Deferred revenue	9.8	8.9
Accrued income taxes	5.1	1.5
Accrued pension liabilities	3.3	10.1
Other	22.8	20.3
Total accrued liabilities	\$139.9	\$139.2

9. Debt

On March 31, 2017, the Company entered into a \$400.0 million syndicated credit facility (“Credit Agreement”) that extends to March 2022. The Credit Agreement replaced the Company’s previous revolving credit facility, dated June 28, 2013, which had been set to expire in June 2018. Interest on the borrowings under the Credit Agreement accrue at variable rates, based upon LIBOR or a defined “Base Rate,” both determined based upon the rating of the Company’s senior unsecured long-term debt (the “Debt Rating”). The applicable margin to be added to LIBOR ranges from 1.00% to 1.75% (1.50% as of June 30, 2017), and for Base Rate-determined loans, from 0.00% to 0.75% (0.50% as of June 30, 2017). The Company also pays a quarterly commitment fee ranging from 0.125% to 0.400% (0.275% as of June 30, 2017), determined based upon the Debt Rating, of the unused portion of the \$400.0 million commitment under the Credit Agreement. In addition, the Company must pay certain letter of credit fees, ranging from 1.00% to 1.75% (1.50% as of June 30, 2017), with respect to letters of credit issued under the Credit Agreement. 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, 2017, the Company had \$6.1 million of issued letters of credit under the Credit Agreement, with the balance of \$393.9 million available to the Company.

The Company is subject to certain financial and restrictive covenants under the Credit Agreement, which, among other things, require the maintenance of a minimum interest coverage ratio of 3.50 to 1.00. The interest coverage ratio is defined in the Credit Agreement 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 Credit Agreement 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 Agreement as the ratio of consolidated indebtedness, as defined therein, to consolidated capitalization, as defined therein. As of June 30, 2017, the Company was in compliance with all of the covenants of the Credit Agreement.

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Long-term debt outstanding as of June 30, 2017 and 2016 consisted of the following:

(\$ in millions)	June 30,	
	2017	2016
Medium-term notes, Series B at 6.97% to 7.10% due from April 2018 to May 2018 (face value of \$55.0 million at June 30, 2017 and 2016)	\$55.0	\$55.0
Senior unsecured notes, 5.20% due July 2021 (face value of \$250.0 million at June 30, 2017 and 2016)	251.2	257.8
Senior unsecured notes, 4.45% due March 2023 (face value of \$300.0 million at June 30, 2017 and 2016)	298.8	298.5
Total	605.0	611.3
Less: amounts due within one year	(55.0)	—
Long-term debt, net of current portion	\$550.0	\$611.3

Aggregate maturities of long-term debt for the five years subsequent to June 30, 2017, are \$55.0 million in fiscal year 2018, \$0.0 million in 2019, 2020, 2021, \$250.0 million in 2022, and \$300.0 million thereafter.

For the years ended June 30, 2017, 2016 and 2015, interest costs totaled \$31.1 million, \$29.9 million and \$30.4 million, respectively, of which \$1.3 million, \$1.9 million and \$2.7 million, respectively, were capitalized as part of the cost of property, plant, equipment and software.

10. 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.

In September 2016, the Company announced changes to retirement plans it offers to certain employees. The Company froze benefits accrued to eligible participants of its largest qualified defined benefit pension plan and certain non-qualified benefit plans effective December 31, 2016. The Company recognized the plan freeze during fiscal year 2017 as a curtailment, since it eliminated the accrual of defined benefits for future services for a significant number of participants. The impact of the curtailment included a one-time accelerated recognition of outstanding unamortized prior service costs of \$0.5 million. The curtailment event triggered a re-measurement for the affected benefit plans as of August 31, 2016 using a weighted average discount rate of 3.57 percent. The re-measurement resulted in a reduction of accrued pension liabilities of \$18.7 million.

In October 2016, the Company made a voluntary pension contribution of \$100.0 million to its largest qualified defined benefit pension plan.

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 year 2017, the Company funded benefit payments using assets in the VEBA Trust. Prior to fiscal year 2017, benefit payments for these plans were funded by the Company assets.

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

(\$ in millions)	Pension Plans		Other Postretirement Plans	
	2017	2016	2017	2016
Change in projected benefit obligation:				
Projected benefit obligation at beginning of year	\$1,404.4	\$1,323.1	\$246.0	\$236.8
Service cost	20.5	31.2	3.6	3.3
Interest cost	50.3	58.0	9.2	10.4
Benefits paid	(92.0)	(126.1)	(12.7)	(13.3)
Actuarial loss	39.3	108.8	(1.7)	8.8
Special termination benefits	0.6	9.4	—	—
Curtailement gain	(72.6)	—	—	—
Plan amendments	18.6	—	10.7	—
Projected benefit obligation at end of year	1,369.1	1,404.4	255.1	246.0
Change in plan assets:				
Fair value of plan assets at beginning of year	885.1	985.8	115.6	111.6
Actual return	91.1	22.2	10.9	4.3
Benefits paid	(92.0)	(126.1)	(12.7)	(13.3)
Contributions	103.4	3.2	3.2	13.0
Fair value of plan assets at end of year	987.6	885.1	117.0	115.6
Funded status of the plans	\$(381.5)	\$(519.3)	\$(138.1)	\$(130.4)
Amounts recognized in the consolidated balance sheets:				
Other assets - noncurrent	\$0.1	\$0.1	\$—	\$—
Accrued liabilities - current	(3.3)	(10.1)	(15.5)	(13.8)
Accrued pension liabilities - noncurrent	(378.3)	(509.3)	—	—
Accrued postretirement benefits - noncurrent	—	—	(122.6)	(116.6)
	\$(381.5)	\$(519.3)	\$(138.1)	\$(130.4)

(\$ in millions)	Pension Plans		Other Postretirement Plans	
	2017	2016	2017	2016
Amounts recognized in accumulated other comprehensive loss:				
Net actuarial loss	\$451.3	\$547.7	\$52.2	\$61.1
Prior service cost (credit)	18.3	2.0	(28.2)	(45.4)
Total	\$469.6	\$549.7	\$24.0	\$15.7
Other changes in plan assets and benefit obligations recognized in other comprehensive loss consist of:				
Net actuarial (gain) loss	\$(59.1)	\$152.8	\$(5.7)	\$11.3
Amortization of net loss	(37.8)	(27.3)	(3.2)	(2.6)
Prior service cost	18.6	—	10.7	—
Amortization of prior service (cost) benefit	(1.8)	(0.4)	6.5	6.5
Total, before tax effect	\$(80.1)	\$125.1	\$8.3	\$15.2
Additional information:				
Accumulated benefit obligation for all pension plans	\$1,362.8	\$1,319.7	N/A	N/A

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The following is additional information related to plans with projected benefit obligations in excess of plan assets as of June 30, 2017 and 2016:

(\$ in millions)	Pension Plans		Other Postretirement Plans	
	2017	2016	2017	2016
Projected benefit obligation	\$1,369.0	\$1,404.3	\$ 255.1	\$ 246.0
Fair value of plan assets	\$987.4	\$884.9	\$ 117.0	\$ 115.6

The following additional information is for plans with accumulated benefit obligations in excess of plan assets as of June 30, 2017 and 2016:

(\$ in millions)	Pension Plans		Other Postretirement Plans	
	2017	2016	2017	2016
Accumulated benefit obligation	\$1,362.7	\$1,319.6	\$ 255.1	\$ 246.0
Fair value of plan assets	\$987.4	\$884.9	\$ 117.0	\$ 115.6

The components of the net periodic benefit cost related to the Company's pension and other postretirement benefits for the years ended June 30, 2017, 2016 and 2015 are as follows:

(\$ in millions)	Pension Plans			Other Postretirement Plans		
	2017	2016	2015	2017	2016	2015
Service cost	\$20.5	\$31.2	\$32.2	\$ 3.6	\$ 3.3	\$ 4.4
Interest cost	50.3	58.0	54.1	9.2	10.4	11.8
Expected return on plan assets	(65.1)	(66.1)	(68.8)	(6.9)	(7.0)	(6.6)
Amortization of net loss	37.8	27.4	16.7	3.2	2.7	2.0
Amortization of prior service cost (benefit)	1.8	0.4	0.3	(6.5)	(6.5)	—
Curtailment loss (gain)	0.5	—	—	—	—	(1.6)
Net periodic benefit costs	\$45.8	\$50.9	\$34.5	\$ 2.6	\$ 2.9	\$ 10.0

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 the heading "Pension earnings, interest & deferrals" in the segment data presented in Note 19.

During the year ended June 30, 2016, the Company offered an early retirement incentive to certain employees. As a result of the incentive, \$9.4 million was paid from the Company's qualified pension plan consisting of various personnel-related costs to cover severance payments.

Weighted-average assumptions used to determine benefit obligations at fiscal year end	Pension Plans		Other Postretirement Plans	
	2017	2016	2017	2016
Discount rate	3.92%	3.92%	3.89 %	3.86 %
Rate of compensation increase	3.50%	3.49%	N/A	N/A

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Weighted-average assumptions used to determine net periodic benefit cost for the fiscal year	Pension Plans			Other Postretirement Plans		
	2017	2016	2015	2017	2016	2015
Discount rate	3.91 %	4.50 %	4.48 %	3.86 %	4.50 %	4.26 %
Expected long-term rate of return on plan assets	6.88 %	6.92 %	6.92 %	6.25 %	6.25 %	6.25 %
Long-term rate of compensation increase	3.50 %	3.49 %	3.52 %	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, 2017		2016	
Assumed health care cost trend rate	7.00	%	7.50	%
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	2022		2022	

Assumed health care cost trend rates have an effect on the amounts reported for other postretirement benefits. A one percentage point increase in the assumed health care cost trend rate would increase service and interest cost by \$0.1 million and increase the postretirement benefit obligation by \$3.3 million. A one percentage point decrease in the assumed health care cost trend rate would decrease service and interest cost by \$0.1 million and decrease the postretirement benefit obligation by \$2.9 million.

Amounts in other comprehensive loss that are expected to be recognized as components of net periodic benefit cost in the year ended June 30, 2018 are:

(\$ in millions)	Pension Plans	Other Postretirement Plans	Total
Amortization of prior service cost (benefit)	\$ 2.1	\$ (5.2)	\$(3.1)
Amortization of net actuarial loss	13.5	2.9	16.4
Amortization of accumulated other comprehensive loss (gain)	\$ 15.6	\$ (2.3)	\$ 13.3

The Company's U.S. pension plans' weighted-average asset allocations at June 30, 2017 and 2016, by asset category are as follows:

	2017		2016	
Equity securities	55.0	%	55.4	%
Fixed income securities	45.0		44.2	
Cash and cash equivalents	—		0.4	
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 Plan Committee.

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Based on the current funding level, the allocation policy for the Company's largest pension plan assets is to have approximately 60 percent in return seeking assets and 40 percent in liability matching assets. Return seeking assets include domestic and international equities and diversified loan funds. Liability matching assets include long duration bond funds. As the funding level of the plans improves in increments of 5 percent, assets will be shifted from return seeking to liability matching in increments of 4 percent as a de-risking strategy. The assets related to the Company's other postretirement benefit plans were invested in approximately 75 percent U.S. equities and 25 percent fixed income securities as of June 30, 2017. 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, 2017 and 2016, by asset category and by the levels of inputs used to determine fair value were as follows:

(\$ in millions)	June 30, 2017			
	Fair Value			
	Measurements Using			
	Input Type			
	Level 1	Level 2	Net Asset Value	Total
Short-term investments	\$9.4	\$14.6	\$—	\$24.0
Domestic and international equities	148.3	—	—	148.3
Commingled funds	—	—	376.6	376.6
Limited partnerships	—	—	42.3	42.3
Government agency bonds	3.4	151.0	—	154.4
Corporate bonds	—	236.2	—	236.2
Mutual funds	—	—	1.8	1.8
Mortgage/asset backed securities and other	—	4.0	—	4.0
	\$161.1	\$405.8	\$420.7	\$987.6
(\$ in millions)	June 30, 2016			
	Fair Value			
	Measurements Using			
	Input Type			
	Level 1	Level 2	Net Asset Value	Total
Short-term investments	\$—	\$15.3	\$—	\$15.3
Domestic and international equities	139.4	—	—	139.4
Commingled funds	—	—	338.2	338.2
Limited partnerships	—	—	38.5	38.5
Government agency bonds	0.7	141.0	—	141.7
Corporate bonds	—	197.3	—	197.3
Mutual funds	—	—	1.9	1.9
Mortgage/asset backed securities and other	—	12.8	—	12.8
	\$140.1	\$366.4	\$378.6	\$885.1

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The fair values of the Company's other postretirement benefit plans as of June 30, 2017 and 2016, by asset category and by the level of inputs used to determine fair value, were as follows:

(\$ in millions)	June 30, 2017		
	Level 1	Level 2	Level 3
	Fair Value Measurements Using		
	Input Type		
		Net	Total
		Asset Value	
Commingled fund	\$—	\$73.0	\$73.0
Short-term investments	—22.4	—	22.4
Government agency bonds	—12.2	—	12.2
Corporate bonds and other	—8.2	—	8.2
Mortgage backed securities	—1.2	—	1.2
	\$—	\$44.0	\$117.0
		\$73.0	\$73.0
			\$117.0
	June 30, 2016		
	Fair Value Measurements Using		
	Input Type		
		Net	Total
		Asset Value	
Commingled fund	\$—	\$64.0	\$64.0
Short-term investments	—23.8	—	23.8
Government agency bonds	—16.1	—	16.1
Corporate bonds and other	—9.9	—	9.9
Mortgage backed securities	—1.8	—	1.8
	\$—	\$51.6	\$115.6
		\$64.0	\$64.0
			\$115.6

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 US pension plans of \$100.0 million, \$0.0 million and \$7.2 million during fiscal years 2017, 2016 and 2015, respectively. The Company currently expects to make \$6.7 million in required cash pension contributions to the qualified defined benefit pension plans during fiscal year 2018. During the years ended June 30, 2017, 2016 and 2015, the Company made contributions of \$3.5 million, \$3.2 million and \$3.3 million to other non-qualified pension plans, respectively.

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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 corporate assets.

(\$ in millions)	Pension Benefits	Other Benefits
2018	\$ 80.9	\$ 15.5
2019	\$ 81.5	\$ 15.5
2020	\$ 82.1	\$ 15.6
2021	\$ 82.6	\$ 15.5
2022	\$ 82.7	\$ 15.5
2023-2027	\$ 406.4	\$ 75.9

Other Benefit Plans

Carpenter also maintains defined contribution retirement and savings plans for substantially all domestic employees. Company contributions to the plans were \$16.7 million in fiscal year 2017, \$11.8 million in fiscal year 2016 and \$12.0 million in fiscal year 2015.

11. 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 potentially responsible party ("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 2017, the Company decreased the liability for a company-owned former operating site by \$0.1 million. During fiscal years 2016 and 2015, the Company increased the liability for a company-owned former operating site by \$0.3 million and \$0.4 million, respectively. 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, 2017 and 2016 were \$16.1 million and \$16.2 million, respectively.

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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, 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, 2017 were used for commitments with variable pricing. The purchase commitments covered by these agreements aggregate to \$127.8 million as of June 30, 2017, all of which relates to fiscal year 2018.

12. Share Repurchase Program

In October 2014, the Company's Board of Directors authorized a share repurchase program. The program authorizes the purchase of up to \$500.0 million of the Company's outstanding common stock and expired in October 2016. The shares were repurchased from time to time at the Company's discretion based on capital needs of the business, general market conditions and market price of the stock. During the year ended June 30, 2017, the Company did not purchase shares of its common stock on the open market.

13. Operating Leases

The Company leases certain facilities and equipment under operating leases. Total rent expense was \$13.2 million, \$11.3 million and \$12.0 million for the fiscal years ended June 30, 2017, 2016 and 2015, respectively.

Future minimum payments for non-cancellable operating leases in effect at June 30, 2017 are: \$8.7 million in fiscal year 2018, \$6.6 million in fiscal year 2019, \$5.1 million in fiscal year 2020, \$3.1 million in fiscal year 2021, \$1.9 million in fiscal year 2022 and \$5.0 million thereafter.

14. 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.

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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, 2017 (\$ in millions)	Fair Value Measurements Using Input Type	
	Level 2	Total
	Assets:	
Marketable securities		+C5
Municipal auction rate securities	\$ 3.4	\$ 3.4
Derivative financial instruments	14.5	14.5
Total assets	\$ 17.9	\$ 17.9
Liabilities:		
Derivative financial instruments	\$ 19.1	\$ 19.1

June 30, 2016 (\$ in millions)	Fair Value Measurements Using Input Type	
	Level 2	Total
	Assets:	
Marketable securities		
Municipal auction rate securities	\$ 4.1	\$ 4.1
Derivative financial instruments	11.8	11.8
Total assets	\$ 15.9	\$ 15.9
Liabilities:		
Derivative financial instruments	\$ 43.9	\$ 43.9

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 16.

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:

(\$ in millions)	June 30, 2017		June 30, 2016	
	Carrying Value	Fair Value	Carrying Value	Fair Value
Long-term debt, including current portion	\$605.0	\$622.5	\$611.3	\$597.7
Company-owned life insurance	\$15.9	\$15.9	\$14.0	\$14.0

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.

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The fair values of long-term debt as of June 30, 2017 and June 30, 2016 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.

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 of each reporting unit 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 analysis 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.

15. 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 \$13.0 million, \$8.7 million and \$10.0 million for the years ended June 30, 2017, 2016 and 2015, 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, 2017, 3,614,109 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, 2017, 550,691 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 2017, 2016 and 2015 were estimated on the date of each grant using a Black-Scholes option pricing model with the following weighted-average assumptions:

	Years Ended June 30,		
	2017	2016	2015
Expected volatility	37 %	33 %	36 %
Dividend yield	1.8 %	2.0 %	1.6 %
Risk-free interest rate	1.1 %	1.5 %	1.4 %
Expected term (in years)	5.0	5.0	5.0

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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, 2014	1,063,895	\$ 42.69		
Granted	702,411	\$ 48.28		
Exercised	(73,067)	\$ 31.53		
Cancelled	(185,361)	\$ 52.67		
Outstanding at June 30, 2015	1,507,878	\$ 44.61		
Granted	277,769	\$ 36.31		
Exercised	(19,627)	\$ 25.12		
Cancelled	(64,518)	\$ 47.98		
Outstanding at June 30, 2016	1,701,502	\$ 43.35		
Granted	907,141	\$ 38.98		
Exercised	(95,289)	\$ 23.21		
Cancelled	(80,926)	\$ 44.35		
Expired	(40,000)	\$ 55.12		
Outstanding at June 30, 2017	2,392,428	\$ 42.27	7.1 years	\$ 2.8
Exercisable at June 30, 2017	1,350,727	\$ 44.70	5.7 years	\$ 2.7

Outstanding and Exercisable Options

Exercise Price Range	Number Outstanding at June 30, 2017	Weighted Average Remaining Contractual Term (in Years)	Weighted Average Exercise Price	Number Exercisable at June 30, 2017	Weighted Average Exercise Price
\$14.17 - \$20.00	55,214	2.1	\$ 17.29	55,214	\$ 17.29
\$20.01 - \$30.00	82,277	1.7	\$ 23.16	82,277	\$ 23.16
\$30.01 - \$40.00	1,193,588	8.5	\$ 38.16	182,685	\$ 35.28
\$40.01 - \$50.00	385,566	6.0	\$ 43.01	385,566	\$ 43.01
\$50.01 - \$63.54	675,783	6.2	\$ 53.49	644,985	\$ 53.46
	2,392,428		\$ 42.27	1,350,727	\$ 44.70

The weighted average grant date fair value of options awarded during fiscal years 2017, 2016 and 2015 was \$10.81, \$9.27 and \$11.78, respectively. Share-based compensation charged against income related to stock options for the years ended June 30, 2017, 2016 and 2015 was \$4.7 million, \$3.1 million and \$6.8 million, respectively. As of

June 30, 2017, \$6.2 million of compensation cost related to nonvested stock options will be recognized over a weighted average remaining life of 1.9 years.

Of the options outstanding at June 30, 2017, 2,136,406 relate to the Omnibus Plan and 256,022 relate to the Directors' Plan.

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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 zero to two years from 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.

Time-based restricted stock unit awards typically vest 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 \$5.0 million, \$2.4 million and \$1.3 million for the years ended June 30, 2017, 2016 and 2015, respectively. As of June 30, 2017, \$8.2 million of compensation cost related to restricted stock unit awards remains to be recognized over a weighted average remaining life of 1.3 years.

	Number of Awards	Weighted Average Grant Date Fair Value
Restricted Balance at June 30, 2014	113,563	\$ 44.99
Time-based granted	97,168	\$ 42.65
Performance-based granted	895	\$ 54.37
Vested	(76,214)	\$ 42.04
Forfeited	(8,003)	\$ 48.94
Restricted Balance at June 30, 2015	127,409	\$ 45.09
Time-based granted	130,742	\$ 35.96
Performance-based granted	49,529	\$ 31.11
Vested	(36,057)	\$ 48.85
Forfeited	(83,154)	\$ 42.14
Restricted Balance at June 30, 2016	188,469	\$ 35.69
Time-based granted	231,195	\$ 38.82
Performance-based granted	55,478	\$ 36.18
Vested	(44,873)	\$ 34.24
Forfeited	(37,792)	\$ 38.80
Restricted Balance at June 30, 2017	392,477	\$ 37.47

Total Stockholder Return Awards

The Company granted Total Stockholder Return ("TSR") awards in fiscal years 2017, 2016 and 2015. The TSR awards are granted at a target number of shares. The TSR awards are 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 2017, 2016 and 2015 was \$2.0 million, \$2.0 million and \$0.8 million, respectively.

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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	Weighted
	Units	Average Grant Date Fair Value
Outstanding at June 30, 2014	269,315	\$ 32.25
Granted	24,668	\$ 42.80
Distributed	(11,296)	\$ 31.79
Dividend equivalents	4,749	\$ —
Outstanding at June 30, 2015	287,436	\$ 35.48
Granted	40,323	\$ 32.54
Dividend equivalents	7,184	\$ —
Outstanding at June 30, 2016	334,943	\$ 38.64
Granted	27,285	\$ 39.69
Distributed	(30,022)	\$ 34.19
Dividend equivalents	6,347	\$ —
Outstanding at June 30, 2017	338,553	\$ 42.47

Compensation cost is determined using the grant date fair value and charged to expense over the vesting period of one year and amounted to \$1.2 million, \$1.2 million and \$1.1 million for the years ended June 30, 2017, 2016 and 2015, respectively. As of June 30, 2017, \$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.

16. 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.

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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 (loss) 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, 2017, the Company had forward contracts to purchase 23.5 million pounds of certain raw materials with settlement dates through December 2023.

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, 2017, 2016 and 2015 net gains of \$0.3 million, \$0.3 million, \$0.3 million, respectively, were recorded as a reduction to interest expense. These amounts represent the impact of previously terminated swaps which are being amortized over the remaining term of the underlying debt.

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, 2017, 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. 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 income. As of June 30, 2017 and 2016, the total notional amount of floating interest rate contracts was \$150.0 million and \$150.0 million, respectively. For the years ended June 30, 2017, 2016 and 2015, net gains of \$1.8 million, \$2.6 million and \$2.9 million, respectively, were recorded as a reduction to interest expense.

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The fair value and location of outstanding derivative contracts recorded in the accompanying consolidated balance sheets were as follows as of June 30, 2017 and 2016:

June 30, 2017 (\$ in millions)	Interest Rate Swaps	Foreign Currency Contracts	Commodity Contracts	Total Derivatives
Asset Derivatives:				
Derivatives designated as hedging instruments:				
Other current assets	\$ 0.6	\$ 0.2	\$ 6.4	\$ 7.2
Other assets	1.6	—	5.7	7.3
Total asset derivatives	\$ 2.2	\$ 0.2	\$ 12.1	\$ 14.5
Liability Derivatives:				
Derivatives designated as hedging instruments:				
Accrued liabilities	\$ —	\$ 1.0	\$ 12.1	\$ 13.1
Other liabilities	—	—	6.0	6.0
Total liability derivatives	\$ —	\$ 1.0	\$ 18.1	\$ 19.1
June 30, 2016 (\$ in millions)	Interest Rate Swaps	Foreign Currency Contracts	Commodity Contracts	Total Derivatives
Asset Derivatives:				
Derivatives designated as hedging instruments:				
Other current assets	\$ 1.2	\$ 0.3	\$ 0.6	\$ 2.1
Other assets	9.7	—	—	9.7
Total asset derivatives	\$ 10.9	\$ 0.3	\$ 0.6	\$ 11.8
Liability Derivatives:				
Derivatives designated as hedging instruments:				
Accrued liabilities	\$ —	\$ 0.3	\$ 31.3	\$ 31.6
Other liabilities	—	—	12.3	12.3
Total liability derivatives	\$ —	\$ 0.3	\$ 43.6	\$ 43.9

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 \$20.3 million and total liability derivatives would have been \$24.9 million as of June 30, 2017.

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, 2017 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.

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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 (losses) gains related to cash flow hedges recognized during the years ended June 30, 2017, 2016 and 2015:

(\$ in millions)	Amount of Gain (Loss) Recognized in AOCI on Derivatives (Effective Portion) Years Ended June 30,		
	2017	2016	2015
Derivatives in Cash Flow Hedging Relationship:			
Commodity contracts	\$9.4	\$(34.0)	\$(76.3)
Foreign exchange contracts	(0.1)	0.7	2.6
Total	\$9.3	\$(33.3)	\$(73.7)

(\$ in millions)	Location of (Loss) Gain Reclassified from AOCI into Income (Effective Portion)	Amount of (Loss) Gain Reclassified from AOCI into Income (Effective Portion) Years Ended June 30,		
		2017	2016	2015
Derivatives in Cash Flow Hedging Relationship:				
Commodity contracts	Cost of sales	\$ (22.8)	\$ (44.6)	\$ (18.5)
Foreign exchange contracts	Net sales	0.5	0.2	2.3
Forward interest rate swaps	Interest expense	0.4	0.4	0.4
Total		\$ (21.9)	\$ (44.0)	\$ (15.8)

(\$ in millions)	Location of Gain (Loss) Reclassified from AOCI into Income (Ineffective Portion)	Amount of Gain (Loss) Reclassified from AOCI into Income (Ineffective Portion) Years Ended June 30,		
		2017	2016	2015
Derivatives in Cash Flow Hedging Relationship:				
Commodity contracts	Cost of sales	\$ 2.0	\$ 1.5	\$ (2.2)
Total		\$ 2.0	\$ 1.5	\$ (2.2)

The Company estimates that \$5.6 million of net derivative losses included in AOCI as of June 30, 2017 will be reclassified into earnings within the next twelve months. No significant cash flow hedges were discontinued during the year ended June 30, 2017.

The changes in AOCI associated with derivative hedging activities during the years ended June 30, 2017, 2016 and 2015 were as follows:

(\$ in millions)	2017	2016	2015
Balance, beginning	\$(21.8)	\$(28.5)	\$7.6
Current period changes in fair value, net of tax	5.8	(20.8)	(46.0)
Reclassification to earnings, net of tax	13.7	27.5	9.9
Balance, ending	\$(2.3)	\$(21.8)	\$(28.5)

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17. Income Taxes

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

(\$ in millions)	Years Ended June 30,		
	2017	2016	2015
Domestic	\$ 56.0	\$ 17.3	\$ 64.3
Foreign	14.2	4.2	24.8
Income before income taxes	\$ 70.2	\$ 21.5	\$ 89.1

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

(\$ in millions)	Years Ended June 30,		
	2017	2016	2015
Current:			
Federal	\$(24.5)	\$ 4.7	\$(39.3)
State	(1.1)	0.4	1.2
Foreign	7.2	4.3	8.1
Total current	(18.4)	9.4	(30.0)
Deferred:			
Federal	38.7	0.1	60.2
State	3.5	0.5	0.1
Foreign	(0.6)	0.2	0.1
Total deferred	41.6	0.8	60.4
Total income tax expense	\$ 23.2	\$ 10.2	\$ 30.4

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 income)	Years Ended June 30,		
	2017	2016	2015
Statutory federal income tax rate	35.0 %	35.0 %	35.0 %
State income taxes, net of federal tax benefit	2.0	2.2	2.2
Foreign tax rate differential	(1.5)	5.5	(1.6)
Domestic manufacturing deduction	(3.0)	(7.0)	(2.7)
Research and development tax credit	(3.9)	(8.4)	(0.9)
Law changes	0.9	(3.8)	1.8
Increases (decreases) in valuation allowances	1.1	2.1	(0.3)
Adjustments of prior years' income taxes	3.3	1.3	(0.1)
Unremitted earnings of foreign subsidiaries	(1.2)	12.7	—
Non-deductible goodwill impairment	—	5.1	—
Other, net	0.3	2.7	0.7
Effective income tax rate	33.0 %	47.4 %	34.1 %

Due to a change in business strategy for one of our foreign subsidiaries, the Company changed its intent with regard to the indefinite reinvestment of the foreign earnings for this subsidiary. As a result of this change, the Company recorded a tax charge of \$2.8 million during fiscal year 2016.

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Deferred taxes are recorded for temporary differences between the carrying amounts of assets and liabilities and their tax bases. The significant components of deferred tax assets and liabilities that are recorded in the consolidated balance sheet are summarized in the table below. 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, 2017, the Company had state net operating loss carryforwards of \$361.8 million expiring between 2019 and 2037. Valuation allowances increased by \$0.8 million during fiscal year 2017 primarily due to decreases in projected future taxable income. 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 \$5 million.

(\$ in millions)	June 30,	
	2017	2016
Deferred tax assets:		
Pensions	\$ 139.8	\$ 193.5
Postretirement provisions	54.4	51.0
Net operating loss carryforwards	23.1	20.5
Derivatives and hedging activities	2.4	14.8
Other	44.8	37.4
Gross deferred tax assets	264.5	317.2
Valuation allowances	(18.5)	(17.7)
Total deferred tax assets	246.0	299.5
Deferred tax liabilities:		
Depreciation	(347.5)	(333.0)
Intangible assets	(19.4)	(20.4)
Inventories	(50.1)	(27.4)
Other	(6.2)	(12.9)
Total deferred tax liabilities	(423.2)	(393.7)
Deferred tax liabilities, net	\$(177.2)	\$(94.2)

As of June 30, 2017, the Company had \$99.1 million of indefinitely reinvested foreign earnings for which we have not provided deferred income taxes. Upon distribution of those earnings in the form of dividends or otherwise, the Company would be subject to U.S. income taxes and withholding taxes in various foreign tax jurisdictions. It is not practical to calculate these taxes due to the complex and hypothetical nature of the calculations. Due to a change in foreign cash requirements for one of the Company's subsidiaries, the Company changed its intent with regard to indefinite reinvestment of foreign earnings of this subsidiary. As a result of this change, the Company repatriated \$11.5 million of foreign earnings during fiscal year 2017 and recognized associated tax benefits of \$0.9 million. The remaining balance of unremitted foreign earnings continues to be indefinitely reinvested.

The Company does not have unrecognized tax benefits as of June 30, 2017, 2016 and 2015. The Company recognizes interest and penalties accrued on any unrecognized tax benefits as of a component of income tax expense.

All years prior to fiscal year 2013 have been settled with the Internal Revenue Service and with most significant state, local and foreign tax jurisdictions.

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18. Other Income (Expense), Net

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

(\$ in millions)	Years Ended June 30,		
	2017	2016	2015
Interest income	\$ 0.3	\$ 0.2	\$ 0.1
Equity in earnings of unconsolidated subsidiaries	—	0.6	0.1
Unrealized gains (losses) on company owned life insurance contracts and investments held in rabbi trusts	1.7	(0.5)	0.3
Foreign exchange	(0.4)	(2.4)	0.4
Other	1.2	—	4.4
Total other income (expense), net	\$ 2.8	\$ (2.1)	\$ 5.3

19. 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 Powder Products business, the Amega West business, and the Latrobe and Mexico distribution businesses. 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, restructuring and asset impairment charges, 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 the heading “Pension earnings, interest and deferrals.”

On a consolidated basis, one customer, Arconic, Inc., accounted for approximately 11 percent and 13 percent of net sales for the years ended June 30, 2017 and 2016, respectively. No single customer accounted for 10 percent or more of the Company’s net sales for the year ended June 30, 2015. No single customer accounted for 10 percent or more of the accounts receivable outstanding at June 30, 2017. Approximately 22 percent of the accounts receivable

outstanding at June 30, 2016 was due from two customers, Alcoa Inc. and Precision Castparts Corporation.

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Segment Data (\$ in millions)	Years Ended June 30,		
	2017	2016	2015
Net Sales:			
Specialty Alloys Operations	\$1,461.6	\$1,481.0	\$1,796.6
Performance Engineered Products	366.6	358.7	497.7
Intersegment	(30.6)	(26.3)	(67.6)
Consolidated net sales	\$1,797.6	\$1,813.4	\$2,226.7

(\$ in millions)	Years Ended June 30,		
	2017	2016	2015
Operating Income:			
Specialty Alloys Operations	\$172.3	\$176.9	\$155.2
Performance Engineered Products	8.5	(5.5)	39.1
Corporate costs (including loss on divestiture of business, restructuring and impairment charges)	(61.3)	(103.0)	(72.0)
Pension earnings, interest and deferrals	(23.8)	(19.3)	(9.4)
Intersegment	1.5	2.5	(1.4)
Consolidated operating income	\$97.2	\$51.6	\$111.5

(\$ in millions)	Years Ended June 30,		
	2017	2016	2015
Depreciation and Amortization:			
Specialty Alloys Operations	\$94.0	\$94.4	\$95.0
Performance Engineered Products	20.6	21.9	23.3
Corporate	4.0	3.8	4.6
Intersegment	(0.8)	(0.8)	(0.6)
Consolidated depreciation and amortization	\$117.8	\$119.3	\$122.3

(\$ in millions)	Years Ended June 30,		
	2017	2016	2015
Capital Expenditures:			
Specialty Alloys Operations	\$52.2	\$67.0	\$129.0
Performance Engineered Products	17.0	19.8	38.1
Corporate	29.7	8.6	4.3
Intersegment	(0.4)	(0.2)	(0.9)
Consolidated capital expenditures	\$98.5	\$95.2	\$170.5

(\$ in millions)	June 30,	
	2017	2016
Total Assets:		
Specialty Alloys Operations	\$2,292.1	\$2,256.5
Performance Engineered Products	434.3	415.8
Corporate	167.2	151.3
Intersegment	(15.5)	(29.3)
Consolidated total assets	\$2,878.1	\$2,794.3

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Geographic Data (\$ in millions)	Years Ended June 30,		
	2017	2016	2015
Net Sales: (a)			
United States	\$1,198.3	\$1,243.5	\$1,579.9
Europe	349.6	321.4	359.6
Asia Pacific	127.2	129.5	141.8
Canada	47.7	44.9	61.2
Mexico	48.5	46.7	59.2
Other	26.3	27.4	25.0
Consolidated net sales	\$1,797.6	\$1,813.4	\$2,226.7

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

(\$ in millions)	June 30,	
	2017	2016
Long-lived assets:		
United States	\$1,290.7	\$1,323.4
Asia Pacific	15.3	16.8
Canada	5.6	5.9
Europe	4.0	4.2
Mexico	1.2	1.1
Consolidated long-lived assets	\$1,316.8	\$1,351.4

20. Recent Accounting Pronouncements

In May 2014, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) No. 2014-09, Revenue from Contracts with Customers (Topic 606). The guidance in ASU 2014-09 requires that an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The guidance in ASU 2014-09 permits two methods of adoption: full retrospective in which the standard is applied to all of the periods presented or modified retrospective where an entity would recognize the cumulative effect of initially applying the standard as an adjustment to the opening balance of retained earnings.

The Company is in the process of evaluating the effect that ASU 2014-09 will have on its Consolidated Financial Statements and related disclosures, as well as the expected method of adoption. Currently, the Company is in the process of completing the assessment phase of its evaluation. The assessment phase includes conducting and evaluating the results of internal surveys of its businesses, holding revenue recognition workshops with commercial and business unit finance leadership, and reviewing revenue arrangements across all businesses to initially identify a set of applicable qualitative revenue recognition changes related to the new standard update. The Company’s method of adoption for ASU 2014-09 has not yet been determined and is not expected to be finalized until the assessment phase of the evaluation has been completed. The Company’s effective date for the adoption of the guidance in ASU 2014-09 is July 1, 2018.

In February 2016, the FASB issued ASU 2016-02 Leases (Topic 842). ASU 2016-02 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

application permitted. The Company is evaluating the impact of the adoption of ASU 2016-02 on the consolidated financial statements.

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In March 2016, the FASB issued ASU 2016-08 Revenue from Contracts with Customers (Topic 606) - Principal versus Agent Considerations (Reporting Revenue Gross versus Net). ASU 2016-08 requires an entity to determine whether the nature of its promise to provide goods or services to a customer is performed in a principal or agent capacity and to recognize revenue in a gross or net manner based on its principal/agent designation. ASU 2016-08 is effective for public business entities for annual periods, including interim periods within those annual periods, beginning after December 15, 2017, with early application permitted. The Company is evaluating the impact of the adoption of ASU 2016-08 on the consolidated financial statements.

In March 2016, the FASB issued ASU 2016-09, Compensation - Stock Compensation (Topic 718) - Improvements to Employee Share-Based Payment Accounting, which outlines new provisions intended to simplify various aspects related to accounting for share-based payments and their presentation in the financial statements. ASU 2016-09 is effective for public business entities for annual periods, including interim periods within those annual periods, beginning after December 15, 2016, with early application permitted. The Company is evaluating the impact of the adoption of ASU 2016-09 on the consolidated financial statements.

In August 2016, the FASB issued ASU 2016-15, Statement of Cash Flows (Topic 230) - Classification of Certain Cash Receipts and Cash Payments, which outlines new provisions intended to reduce the existing diversity in practice related to accounting for the cash flow and its presentation in the financial statements. ASU 2016-15 is effective for public business entities for annual periods, including interim periods within those annual periods, beginning after December 15, 2017, with early application permitted. The Company is evaluating the impact of the adoption of ASU 2016-15 on the consolidated financial statements.

In October 2016, the FASB issued ASU 2016-16, Income Taxes (Topic 740) - Intra-Entity Transfers of Assets Other Than Inventory, which outlines updates to improve the accounting for the income tax consequences of intra-entity transfers of assets other than inventory. ASU 2016-16 is effective for public business entities for annual periods, including interim periods within those annual periods, beginning after December 15, 2017, with early application permitted. The Company is evaluating the impact of the adoption of ASU 2016-16 on the consolidated financial statements.

In November 2016, the FASB issued ASU 2016-18, Statement of Cash Flows (Topic 230) - Restricted Cash, which outlines that a statement of cash flows explains the change during the period in total cash, cash equivalents, and amounts generally described as restricted cash or restricted cash equivalents. ASU 2016-18 is effective for public business entities for annual periods, including interim periods within those annual periods, beginning after December 15, 2017, with early application permitted. The Company is evaluating the impact of the adoption of ASU 2016-18 on the consolidated financial statements.

In January 2017, the FASB issued ASU 2017-04, Intangibles - Goodwill and Other (Topic 350) - Simplifying the Test for Goodwill Impairment, which outlines updates to simplify the subsequent measurement of goodwill by eliminating Step 2 from the goodwill impairment test. ASU 2017-04 is effective for public business entities for annual periods, including interim periods within those annual periods, beginning after December 15, 2019, with early application permitted. The Company is evaluating the impact of the adoption of ASU 2017-04 on the consolidated financial statements.

In March 2017, the FASB issued ASU 2017-07, Compensation - Retirement Benefits (Topic 715) - Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost, which outlines updates to improve the presentation of net periodic pension cost and net periodic postretirement benefit cost. ASU 2017-07 is

effective for public business entities for annual periods, including interim periods within those annual periods, beginning after December 15, 2017, with early application permitted. The Company is evaluating the impact of the adoption of ASU 2017-07 on the consolidated financial statements.

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21. Reclassifications from Accumulated Other Comprehensive (Loss) Income

The changes in AOCI by component, net of tax, for the years ended June 30, 2017 and 2016 were as follows:

(\$ in millions) (a)	Cash flow hedging items	Pension and other postretirement benefit plan items	Unrealized losses on available-for-sale securities	Foreign currency items	Total
Balance at June 30, 2016	\$ (21.8)	\$ (344.3)	\$ (0.3)	\$ (43.5)	\$ (409.9)
Other comprehensive income before reclassifications	5.7	22.4	—	2.0	30.1
Amounts reclassified from AOCI (b)	13.8	22.9	—	—	36.7
Net current-period other comprehensive income	19.5	45.3	—	2.0	66.8
Balance at June 30, 2017	\$ (2.3)	\$ (299.0)	\$ (0.3)	\$ (41.5)	\$ (343.1)
(\$ in millions) (a)	Cash flow hedging items	Pension and other postretirement benefit plan items	Unrealized losses on available-for-sale securities	Foreign currency items	Total
Balance at June 30, 2015	\$ (28.5)	\$ (256.8)	\$ (0.3)	\$ (42.6)	\$ (328.2)
Other comprehensive loss before reclassifications	(20.8)	(102.5)	—	(0.9)	(124.2)
Amounts reclassified from AOCI (b)	27.5	15.0	—	—	42.5
Net current-period other comprehensive (loss) income	6.7	(87.5)	—	(0.9)	(81.7)
Balance at June 30, 2016	\$ (21.8)	\$ (344.3)	\$ (0.3)	\$ (43.5)	\$ (409.9)

(a) All amounts are net of tax. Amounts in parentheses indicate debits.

(b) See separate table below for further details.

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The following is a summary of amounts reclassified from AOCI for the years ended June 30, 2017 and 2016:

(\$ in millions) (a)	Location of (loss) gain	Amount Reclassified from AOCI Years Ended June 30,	
		2017	2016
Details about AOCI Components			