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 September 30, 2019

or

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

For the transition period from to

Commission file number 001-33288

HAYNES INTERNATIONAL, INC.

(Exact name of registrant as specified in its charter)

Delaware	**06-1185400**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
1020 West Park Avenue, Kokomo, Indiana	**46904-9013**
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code **(765) 456-6000**

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

Title of each class	Trading Symbol	Name of each exchange on which registered
Common Stock, par value $.001 per share	**HAYN**	**NASDAQ Global Market**

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

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

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

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

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, 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 Act). ☐ Yes ☒ No

As of March 31, 2019, the aggregate market value of the registrant's common stock held by non-affiliates of the registrant was $299,299,784 based on the closing sale price as reported on the NASDAQ Global Market. Shares of common stock held by each executive officer and director and by each person who owns 10% or more of the outstanding common stock have been excluded in that such persons may be deemed to be affiliates. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

12,513,500 shares of Haynes International, Inc. common stock were outstanding as of November 14, 2019.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's Proxy Statement to be delivered to stockholders in connection with the Annual Meeting of Stockholders to be held February 25, 2020 have been incorporated by reference into Part III of this report.

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This Annual Report on Form 10-K contains statements that constitute "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934, each as amended. All statements other than statements of historical fact, including statements regarding market and industry prospects and future results of operations or financial position, made in this Annual Report on Form 10-K are forward-looking. In many cases, you can identify forward-looking statements by terminology, such as "may", "should", "expects", "intends", "plans", "anticipates", "believes", "estimates", "predicts", "potential" or "continue" or the negative of such terms and other comparable terminology. The forward-looking information may include, among other information, statements concerning the Company's outlook for fiscal year 2020 and beyond, overall volume and pricing trends, cost reduction strategies and their anticipated results, market and industry trends, capital expenditures and dividends. There may also be other statements of expectations, beliefs, future plans and strategies, anticipated events or trends and similar expressions concerning matters that are not historical facts. Readers are cautioned that any such forward-looking statements are not guarantees of future performance and involve risks and uncertainties, including, without limitation, those risk factors set forth in Item 1A of this Annual Report on Form 10-K. Actual results may differ materially from those in the forward-looking statements as a result of various factors, many of which are beyond the Company's control.

The Company has based these forward-looking statements on its current expectations and projections about future events. Although the Company believes that the assumptions on which the forward-looking statements contained herein are based are reasonable, any of those assumptions could prove to be inaccurate. As a result, the forward-looking statements based upon those assumptions also could be incorrect. Risks and uncertainties may affect the accuracy of forward-looking statements.

The Company undertakes no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

Part I

Item 1. Business

Overview

Haynes International, Inc. (“Haynes”, “the Company”, “we”, “our” or “us”) is one of the world’s largest producers of high-performance nickel- and cobalt-based alloys in flat product form such as sheet, coil and plate forms. The Company is focused on developing, manufacturing, marketing and distributing technologically advanced, high-performance alloys, which are sold primarily in the aerospace, chemical processing and industrial gas turbine industries. The Company’s products consist of high-temperature resistant alloys, or HTA products, and corrosion-resistant alloys, or CRA products. HTA products are used by manufacturers of equipment that is subjected to extremely high temperatures, such as jet engines for the aerospace market, gas turbine engines used for power generation and industrial heating equipment. CRA products are used in applications that require resistance to very corrosive media found in chemical processing, power plant emissions control and hazardous waste treatment. Management believes Haynes is one of the principal producers of high-performance alloy flat products in sheet, coil and plate forms, and sales of these forms, in the aggregate, represented approximately 58% of net product revenues in fiscal 2019. The Company also produces its products as seamless and welded tubulars, and in slab, bar, billet and wire forms.

The Company has significant manufacturing facilities in Kokomo, Indiana; Arcadia, Louisiana; and Mountain Home, North Carolina. The Kokomo facility specializes in flat products, the Arcadia facility specializes in tubular products, and the Mountain Home facility specializes in wire products. The Company’s products are sold primarily through its direct sales organization, which includes 12 service and/or sales centers in the United States, Europe and Asia. All of these centers are Company-operated. In fiscal 2019, approximately 75% of the Company’s net revenue was generated by its direct sales organization, and the remaining 25% was generated by a network of independent distributors and sales agents that supplement its direct sales efforts primarily in the United States, Europe and Asia, some of whom have been associated with the Company for over 30 years.

Available Information

The address of the Company’s website is *www.haynesintl.com*. The Company provides a link to its reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 on its website as soon as reasonably practicable after filing with the U.S. Securities and Exchange Commission. The filings available on the Company’s website date back to February 3, 2011. For all filings made prior to that date, the Company’s website includes a link to the website of the U.S. Securities and Exchange Commission, where such filings are available. Information contained or referenced on the Company’s website is not incorporated by reference into, and does not form a part of this Annual Report on Form 10-K. For a statement of the Company’s profits and losses and total assets, please see the financial statements of the Company included in Item 8 of this Annual Report on Form 10-K.

Business Strategy

The Company’s goal is to grow its business by increasing revenues, profitability and cash flow while continuing to be its customers’ provider of choice for high-performance alloys and value-added processes. This goal is pursued within the overarching goal of ***safety***, which is a core priority. The Company has launched and implemented a series of focus initiatives designed to continue to improve safety and to unlock the potential of the Company by increasing volumes, improving targeted pricing and relentlessly pursuing reduced costs. This includes effectively utilizing open capacity on major assets and managing mix at constrained assets.

The following are some examples of strategic focus initiatives that are currently being undertaken.

- ***Increasing prices to ensure the Company is compensated for the high-value differentiated products and services it provides.*** The Company is adjusting pricing in a number of high-value products especially in high-temperature applications. This includes spot pricing, mill lead- time products and long-term customer agreements when they renew. These price increases are beyond raw material increases, thus they contribute

to improving margins. In addition, price increases to offset inflationary increases in the Company's costs are also a focus initiative.

- ***Capitalize on strategic equipment investment.*** The Company expects to continue to improve operations and gain traction in realizing a return on investment of capital in manufacturing facilities and equipment. Management believes that the Company's capital investments will enable it to continue to satisfy long-term customer demand for value-added products.

- ***Optimize processes to reduce costs.*** The Company is focusing on operational improvements, which include specific cost reduction projects. This ongoing pursuit is significant and includes initiatives in many different areas such as material management, productivity enhancements, yield & efficiency improvements and outsourcing costs.

- ***Increase revenues by inventing new alloys, developing new applications for existing alloys and expanding into new markets.*** The Company believes that it is an industry leader in developing new alloys designed to meet its customers' specialized and demanding requirements. The Company continues to work closely with customers and end users of its products to identify, develop and manufacture new high-performance alloys. Since fiscal 2003, the Company's technical programs have yielded nine new proprietary alloys with multiple applications, an accomplishment that the Company believes distinguishes it from its competitors.

  Developing new applications for existing alloys is also a key strength and strategy of the Company. The Company leverages its technical expertise to develop unique applications for its products, especially proprietary and specialty alloys that can yield higher margins. These new applications, including use in unique special projects and new content programs are an important part of the Company's growth strategy.

  Through development of new alloys and new applications for existing alloys, the Company is seeking to participate in additional markets in order to generate new revenue streams beyond the core markets of aerospace, chemical processing and industrial gas turbine industries. The Company believes that the synthetic natural gas, renewable energy, clean-coal, waste-to-energy, oil and gas, flue-gas desulfurization, automotive, consumer electronics, heat treatment, medical and nuclear industries all present possible opportunities for its products.

- ***Increase revenues by providing value-added processing services and leveraging the Company's global distribution network.*** The Company believes that its network of service and sales centers throughout North America, Europe and Asia distinguishes it from its competitors, many of whom operate only mills. The Company's service and sales centers enable it to develop close customer relationships through direct interaction with customers and to respond to customer orders quickly, while also providing value-added cutting services such as laser, plasma and water-jet cutting. These services allow the Company's customers to minimize their processing costs and outsource non-core activities.

- ***Continue to expand the maintenance, repair and overhaul business.*** The Company believes that its maintenance, repair and overhaul, or MRO, business represents both an expanding and recurring revenue stream. Products used in the Company's end markets require periodic replacement due to the extreme environments in which they are used, which drives demand for recurring MRO work. The Company intends to continue to leverage the capabilities of its service and sales centers to respond quickly to its customers' time-sensitive MRO needs to develop new and retain existing business opportunities.

- ***Increase profitability through strategic acquisitions and alliances.*** The Company will continue to examine opportunities that enable it to enhance shareholder value. These opportunities may include product line additions, market expansion opportunities or other synergies. The Company will also continue to evaluate strategic relationships with third parties in the industry in order to enhance its competitive position and relationships with customers.

Company History

The Company was founded in 1912 as Haynes Stellite Works by American inventor and entrepreneur Elwood Haynes in Kokomo, Indiana. Since its founding, the Company has continuously conducted its main operations in Kokomo, Indiana. The Company was owned for much of its history by corporate parents, including Union Carbide and Cabot Corporation, until purchased in 1989 and then again in 1997 by private equity firms. The debt incurred in the last leveraged buy-out ultimately forced the Company into bankruptcy in March 2004, from which it emerged five months later in August 2004.

The Company began operations in its tubular facility in Arcadia, Louisiana over 30 years ago. This facility and the Company's tubular product business have grown with additional investment over time. The Company operates service centers in the U.S. many of which include value-added operations with laser, water-jet and plasma cutting. The Company also acquired a stainless steel and high-temperature alloy wire company located in Mountain Home, North Carolina in 2005. The Company primarily produces high-performance alloy wire at that facility. Most recently, in January 2015, the Company acquired assets in LaPorte, Indiana enabling coil stretching, leveling, slitting and cut-to-length operations. The Laporte operation also includes a toll processing business. The Company expanded the Laporte facility and moved operations from Lebanon, Indiana to that facility. In addition, the Company has expanded globally with service center locations in the United Kingdom, Switzerland and China and other sales offices in France, Japan, Singapore and Italy.

In March 2007, the Company completed a public equity offering, and simultaneously the Company listed its common stock on the NASDAQ Global Market. The Company began paying a dividend in fiscal 2010 and raised the dividend at the beginning of fiscal 2012.

Products

The global specialty alloy market consists of three primary sectors: stainless steel, general-purpose nickel alloys and high-performance nickel- and cobalt-based alloys. The Company believes that the high-performance alloy sector represents less than 10% of the total alloy market. The Company competes primarily in the high-performance nickel- and cobalt-based alloy sectors, which includes HTA products and CRA products. In each year of fiscal 2017, 2018 and 2019, HTA products accounted for approximately 81%, 81% and 80% of the Company's net revenues, and sales of the Company's CRA products accounted for approximately 19%, 19% and 20% of the Company's net revenues. These percentages are based on data which include revenue associated with sales by the Company to its foreign subsidiaries, but exclude revenue associated with sales by foreign subsidiaries to their customers. Management believes, however, that the effect of including revenue data associated with sales by its foreign subsidiaries would not materially change the percentages presented in this section.

High-temperature Resistant Alloys. HTA products are used primarily in manufacturing components for the hot sections of gas turbine engines. Stringent safety and performance standards in the aerospace industry result in development lead times typically as long as eight to ten years in the introduction of new aerospace-related market applications for HTA products. However, once a particular new alloy is shown to possess the properties required for a specific application in the aerospace market, it tends to remain in use for extended periods. HTA products are also used in gas turbine engines produced for use in applications such as naval and commercial vessels, electric power generation, power sources for offshore drilling platforms, gas pipeline booster stations and emergency standby power generators. The following table

sets forth information with respect to the Company's significant high-temperature resistant alloys, applications and features (new HTA development is discussed below under "Patents and Trademarks"):

Alloy and Year Introduced	End Markets and Applications[1]	Features
HAYNES® HR-160® alloy (1990)[2]	Waste incineration/CPI-boiler tube shields	Good resistance to sulfidation at high temperatures
HAYNES 242® alloy (1990)	Aero-seal rings	High strength, low expansion and good fabricability
HAYNES HR-120® alloy (1990)	IGT-cooling shrouds	Good strength-to-cost ratio as compared to competing alloys
HAYNES 230® alloy (1984)[2]	Aero/IGT-ducting, combustors	Excellent combination of strength, stability, oxidation-resistance and fabricability
HAYNES 214® alloy (1981)[2]	Aero-honeycomb seals	Excellent combination of oxidation resistance and fabricability among nickel-based alloys
HAYNES 188 alloy (1968)	Aero-burner cans, after-burner components	High strength, oxidation resistant cobalt-based alloy
HAYNES 625 alloy (1964)	Aero/CPI-ducting, tanks, vessels, weld overlays	Good fabricability and general corrosion resistance
HAYNES 617 alloy (1999)	Aero/IGT—ducting, combustors	Good combination of strength, stability, oxidation resistance and fabricability
HAYNES 263 alloy (1960)	Aero/IGT-components for gas turbine hot gas exhaust pan	Good ductility and high strength at temperatures up to 1600°F
HAYNES 718 alloy (1955)	Aero-ducting, vanes, nozzles	Weldable, high-strength alloy with good fabricability
HASTELLOY® X alloy (1954)	Aero/IGT-burner cans, transition ducts	Good high-temperature strength at relatively low cost
HAYNES 25 alloy (1950)[2]	Aero-gas turbine parts, bearings, and various industrial applications	Excellent strength, good oxidation resistance to 1800°F
HAYNES 282® alloy (2005)[2]	Aero/IGT components	Excellent high temperature strength, weldability and fabricability
HAYNES 244® alloy (2013)[2]	Aero/IGT components	High strength to 1400°F and low thermal expansion

(1) "Aero" refers to the aerospace industry; "IGT" refers to the industrial gas turbine industry; "CPI" refers to the chemical processing industry.

(2) Represents a patented product or a product which the Company believes has limited or no competition.

Corrosion-resistant Alloys. CRA products are used in a variety of applications, such as chemical processing, power plant emissions control, hazardous waste treatment, sour gas production and pharmaceutical vessels. Historically, the chemical processing market has represented the largest end-user sector for CRA products. Due to maintenance, safety and environmental considerations, the Company believes this market continues to represent an area of potential long-term growth. In addition to the use of CRA products in the chemical and petrochemical processing industry, the Company has seen an increased demand for some of these alloys in applications such as gas-to-liquid and synthetic gas. For improved efficiency within relevant applications, higher operating temperatures and harsher environmental conditions are required and, as a consequence, high-temperature, corrosion-resistant alloys are used. Some of our HTA products offer excellent resistance to oxidation, sulfidation, metal dusting and other high-temperature degradation modes. The Company expects this area of the chemical and petrochemical industry to represent potential long-term growth opportunities for the HTA products. Unlike aerospace applications within the HTA product market, the development of new market applications for CRA products generally does not require long lead times. The following table sets forth information with respect to certain

of the Company's significant corrosion-resistant alloys, applications and features (new CRA development is discussed below under "Patents and Trademarks"):

Alloy and Year Introduced	End Markets and Applications[1]	Features
HASTELLOY C-2000® alloy (1995)[2]	CPI-tanks, mixers, piping	Versatile alloy with good resistance to uniform corrosion
HASTELLOY B-3® alloy (1994)[2]	CPI-acetic acid plants	Better fabrication characteristics compared to other nickel-molybdenum alloys
HASTELLOY D-205® alloy (1993)[2]	CPI-plate heat exchangers	Corrosion resistance to hot concentrated sulfuric acid
ULTIMET® alloy (1990)[2]	CPI-pumps, valves	Wear and corrosion resistant nickel-based alloy
HASTELLOY C-22® alloy (1985)	CPI/FGD-tanks, mixers, piping	Resistance to localized corrosion and pitting
HASTELLOY G-30® alloy (1985)[2]	CPI-tanks, mixers, piping	Alloy with good corrosion resistance in phosphoric acid
HASTELLOY G-35® alloy (2004)[2]	CPI-tanks, heat exchangers, piping	Improved corrosion resistance to phosphoric acid with excellent resistance to corrosion in highly oxidizing media
HASTELLOY C-276 alloy (1968)	CPI/FGD/oil and gas tanks, mixers, piping	Broad resistance to many environments
HASTELLOY C-22HS® alloy (2003)[2]	Oil & Gas/Marine tubular, shafts, fasteners	Combines very high strength with excellent corrosion resistance and toughness
HASTELLOY® HYBRID-BC1® alloy (2008)[2]	CPI-tanks, heat exchangers, piping	Higher resistance to hydrochloric and sulfuric acids and can tolerate the presence of oxidizing species

(1) "CPI" refers to the chemical processing industry; "FGD" refers to the flue gas desulfurization industry.

(2) Represents a patented product or a product which the Company believes has limited or no significant competition.

Patents and Trademarks

The Company currently maintains a total of approximately 23 published U.S. patents and applications and approximately 291 foreign counterpart patents and applications targeted at countries with significant or potential markets for the patented products. Since fiscal 2003, the Company's technical programs have yielded nine new proprietary alloys.

The alloys being commercialized saw significant further advancement in the process during fiscal 2017, 2018 and 2019. The Company believes that its alloys (particularly HAYNES® 282® alloy) are being commercialized rapidly when compared to historical trends for other proprietary alloys introduced by the Company. The Company will continue to actively promote its new alloys through customer engineering visits, technical presentations and papers.

In the aerospace, industrial gas turbine and high temperature markets, one of the alloys that has already seen significant commercial success is HAYNES® 282® alloy. This alloy has an excellent combination of high temperature strength, formability and fabricability. There have been a significant number of customer tests and evaluations of this product for the hot sections of gas turbines in the aerospace and industrial gas turbine markets, and for other high temperature applications. The alloy has already been specified into major aerospace and industrial gas turbine applications, as well as for certain high temperature components in the automotive and industrial applications. Another new alloy for use in the aerospace and industrial gas turbine markets is HAYNES® 244® alloy. It combines high strength to 1400 degrees Fahrenheit with a low coefficient of thermal expansion. Commercialization is ongoing for this alloy, and it has recently been specified into a major aerospace component.

In the chemical processing industry, customers have found extensive applications for HASTELLOY® G-35® alloy, particularly in wet phosphoric acid production. Management expects demand for this alloy will continue to grow. Commercialization is also ongoing for HASTELLOY® HYBRID-BC1® alloy. HYBRID-BC1® alloy is a CRA product with potential applications in the chemical processing industry that has demonstrated resistance to hydrochloric and sulfuric acid.

In the oil and gas industry, HASTELLOY® C-22HS® alloy has already found increasing applications. Commercialization of this alloy continues as is the testing, evaluation and promotion of this alloy with special emphasis on applications for this industry.

In addition to the successful commercialization of the above alloys, the Company continues to develop applications for new alloys being scaled up at the mill and not yet ready to begin the commercialization process. HAYNES® HR-235® alloy has excellent resistance to metal dusting in carbonaceous high temperature environments. Potential uses include applications in petrochemical production and syngas plants. HAYNES® HR-224® alloy is a HTA product with superior resistance to oxidation and excellent fabricability, and could be used in certain current and emerging technology applications. Another new alloy, HAYNES® NS-163® alloy, is a nitride dispersion strengthened alloy for certain potential high temperature applications. Most recently, HAYNES® 233™ alloy was introduced. This alloy offers excellent oxidation resistance at temperatures to 2100°F or higher coupled with superior creep strength, a combination of properties believed not to have been achieved previously in a readily fabricated alloy. This alloy is also being introduced to key customers.

Patents or other proprietary rights are an important element of the Company's business. The Company's strategy is to file patent applications in the U.S. and any other country that represents an important potential commercial market to the Company. In addition, the Company seeks to protect technology that is important to the development of the Company's business. The Company also relies upon trade secret rights to protect its technologies and its development of new applications and alloys. The Company protects its trade secrets in part through confidentiality and proprietary information agreements with its customers. Trademarks on the names of many of the Company's alloys have also been applied for or granted in the U.S. and certain foreign countries.

While the Company believes its patents are important to its competitive position, significant barriers to entry exist beyond the expiration of any patent period. These barriers to entry include the unique equipment required to produce these materials and the exacting processes required to achieve the desired metallurgical properties. These processing requirements include optimal melting and thermo-mechanical processing parameters for each alloy. Management believes that the current alloy development programs and these barriers to entry reduce the impact of patent expirations on the Company.

End Markets

The global specialty alloy market consists of stainless steels, general purpose nickel alloys and high-performance nickel- and cobalt-based alloys. Of this total market, the Company primarily competes in the high-performance nickel- and cobalt-based alloy sector, which demands diverse specialty alloys suitable for use in precision manufacturing. Given the technologically advanced nature of the products, strict requirements of the end users and higher-growth end markets, the Company believes the high-performance alloy sector provides greater growth potential, the opportunity for higher profit margins and greater opportunities for service, product and price differentiation as compared to the stainless steels and general-purpose nickel alloys markets. While stainless steel and general-purpose nickel alloys are generally sold in bulk through third-party distributors, the Company's products are sold in smaller-sized orders which are customized and typically handled on a direct-to-customer basis.

Aerospace. The Company has manufactured HTA products for the aerospace market since the late 1930s and has developed numerous proprietary alloys for this market. Customers in the aerospace market tend to be the most demanding with respect to meeting specification requirements, precise tolerances and achieving new product performance standards. Stringent safety standards and continuous efforts to reduce equipment weight, reduce emissions, and develop more fuel-efficient designs require close coordination between the Company, the aero-engine OEM's, and its customers in the selection and development of HTA products. As a result, sales to aerospace customers tend to be made through the Company's direct sales force. Demand for the Company's products in the aerospace market is based on the new and

replacement market for jet engines and the maintenance needs of operators of commercial and military aircraft. The Company's HTA products are used for static components in the hot sections of the aero-engine. The hot sections are subjected to substantial wear and tear and require periodic maintenance, repair and overhaul. The Company views the maintenance, repair and overhaul (MRO) business as an area of continuing long-term growth.

Chemical Processing. The chemical processing market represents a large base of customers with diverse CRA and HTA applications driven by demand for key end-use markets such as automobiles, housing, health care, biopharmaceuticals, agriculture and metals production. Both CRA and HTA supplied by the Company have been used in the chemical processing market since the early 1930s. Demand for the Company's products in this market is driven by the level of MRO and expansion requirements of existing chemical processing facilities, as well as the construction of new facilities. The expansion of manufacturing of natural gas liquids in North America is expected to be a driver of demand in this market. In addition, the Company believes the extensive worldwide network of Company-owned service and sales centers, as well as its network of independent distributors and sales agents who supplement the Company's direct sales efforts outside of the U.S., provide a competitive advantage in marketing its CRA and HTA products in the chemical processing market.

Industrial gas turbine. Demand for the Company's products in the industrial gas turbine market is driven primarily by utility-scale electricity generation, both for base load as well as for backup generation during times of peak power demand. The benefit of these turbines are their relatively low cost, high efficiency, rapid response and reliability, especially as weather-controlled renewables have become major sources of electricity. An additional demand consideration is the drive to lower emissions from coal-fired generating facilities, since natural gas has gained acceptance as a cleaner, low cost alternative to coal. Industrial gas turbines are also used for power and propulsion in certain classes of ships and ferries, most commonly as derivatives of popular aero turbine engines. Demand is also generated by mechanical drive units used for oil and gas production and pipeline transportation and for back-up sources of power generation for hospitals and shopping malls. The company also has a strong presence in microturbine applications, which provide decentralized power and thermal heating for many key markets. The Company's products have allowed turbines to operate with higher temperatures and efficiencies for much longer service intervals.

Other Markets. Other markets in which the Company sells its HTA products and CRA products include flue-gas desulfurization (FGD), oil and gas, waste incineration, industrial heat treating, automotive, sensors and instrumentation, biopharmaceuticals, solar and nuclear fuel. The FGD market has been driven by both legislated and self-imposed standards for lowering emissions from fossil fuel fired electric generating facilities. This market is expected to soften in the U.S. if the trend to switch from coal to natural gas for power plants continues, but has continued potential in other regions of the world. The Company also sells its products for use in the oil and gas market, primarily in connection with sour gas production. In addition, incineration of municipal, biological, industrial and hazardous waste products typically produces very corrosive conditions that demand high performance alloys. The Company continues to look for opportunities to introduce and expand the use of its alloys in emerging technologies such as solar, fuel cells, ultra-supercritical steam and supercritical-CO2 power plants, and nuclear fuel applications. Markets capable of providing growth are being driven by increasing performance, reliability and service life requirements for products used in these markets, which could provide further applications for the Company's products.

Sales and Marketing and Distribution

The Company sells its products primarily through its direct sales organization, which operates from 15 total locations in the U.S., Europe and Asia, 12 of which are service and/or sales centers. All of the Company's service and/or sales centers are operated either directly by the Company or through its directly or indirectly wholly-owned subsidiaries. Approximately 75% of the Company's net revenue in fiscal 2019 was generated by the Company's direct sales organization. The remaining 25% of the Company's fiscal 2019 net revenues was generated by a network of independent distributors and sales agents who supplement the Company's direct sales in the U.S., Europe and Asia. Going forward, the Company expects its direct sales force to generate approximately 75% of its total net revenues.

Providing technical assistance to customers is an important part of the Company's marketing strategy. The Company provides performance analyses of its products and those of its competitors for its customers. These analyses enable the Company to evaluate the performance of its products enabling the products to be included as part of the technical

specifications used in the production of customers' products. The Company's market development professionals are assisted by its engineering and technology staff in directing the sales force to new opportunities. Management believes the Company's combination of direct sales, technical marketing, engineering and customer support provides an advantage over other manufacturers in the high-performance alloy industry. This framework allows the Company to obtain direct insight into customers' alloy needs and to develop proprietary alloys that provide solutions to customers' problems.

The Company continues to focus on growing its business in foreign markets, operating from service and sales centers in Asia and Europe.

While the Company is making concentrated efforts to expand foreign sales, the majority of its revenue continues to be provided by sales to U.S. customers. The Company's domestic expansion effort includes, but is not limited to, the continued expansion of ancillary product forms, the continued development of new high-performance alloys, the addition of equipment in U.S. service and sales centers to improve the Company's ability to provide a product closer to the form required by the customer and the continued effort, through the technical expertise of the Company, to find solutions to customer challenges.

The following table sets forth the approximate percentage of the Company's fiscal 2019 net revenues generated through each of the Company's distribution channels.

	From Domestic Locations	From Foreign Locations	Total
Company mill direct/service and sales centers	50 %	25 %	75 %
Independent distributors/sales agents	25 %	— %	25 %
Total	75 %	25 %	100 %

The Company's top twenty customers accounted for approximately 38%, 36% and 44% of the Company's net revenues in fiscal 2017, 2018 and 2019, respectively. No customer or group of affiliated customers of the Company accounted for more than 10% of the Company's net revenues in fiscal 2017, 2018 or 2019.

Manufacturing Process

High-performance alloys require a lengthier, more complex production process and are more difficult to manufacture than lower-performance alloys, such as stainless steel. The alloying elements in high-performance alloys must be highly refined during melting, and the manufacturing process must be tightly controlled to produce precise chemical properties. The resulting alloyed material is more difficult to process because, by design, it is more resistant to deformation. Consequently, high-performance alloys require that a greater force be applied when hot or cold working and are less susceptible to reduction or thinning when rolling or forging. This results in more cycles of rolling, annealing and pickling compared to a lower-performance alloy to achieve proper dimensions. Certain alloys may undergo forty or more distinct stages of melting, remelting, annealing, hot reduction, cold reduction, pickling and testing before they achieve the specifications required by a customer. This longer production cycle contributes to slower inventory turns. The Company manufactures its high-performance alloys in various forms, including sheet, coil, plate, billet/ingot, tubular, wire and other forms. The Company also performs value-added cutting services to supply certain customers with product cut to their specification.

At the Kokomo, Indiana facility, the manufacturing process begins with raw materials being combined, melted and refined in a precise manner to produce the chemical composition specified for each high-performance alloy. The Company's primary melt facility utilizes two different melting processes. The argon oxygen decarburization process utilizes gas controls to remove carbon and other undesirable elements, thereby allowing more tightly-controlled chemistries, which in turn produce more consistent properties in the high-performance alloys. The other primary melt method utilizes vacuum induction melting, which involves the melting of raw materials through electromagnetic induction while under vacuum conditions to produce the desired tightly-controlled chemistry. The control systems allow for statistical process control monitoring in real time to improve product quality. For most high-performance alloys, this molten material is cast into electrodes and additionally refined through electroslag remelting. The resulting ingots are then

forged or rolled to an intermediate shape and size depending upon the intended final product form. Intermediate shapes destined for flat products are then sent through a series of hot and cold rolling, annealing, pickling, leveling and shearing operations before being cut to final size.

The Company has a four-high Steckel rolling mill for use in hot rolling high-performance alloys, created specifically for that purpose. The four-high Steckel rolling mill was installed in 1982 and is one of the most powerful four-high Steckel rolling mills in the world. The mill is capable of generating approximately 12.0 million pounds of separating force and rolling a plate up to 72 inches wide. The mill includes integrated computer controls (with automatic gap control and programmed rolling schedules), two coiling Steckel furnaces and seven heating furnaces. Computer-controlled rolling schedules for each of the hundreds of combinations of product shapes and sizes the Company produces allow the mill to roll numerous widths and gauges to exact specifications without stoppages or changeovers.

The Company also operates a three-high hot rolling mill and a two-high hot rolling mill, each of which is capable of custom processing much smaller quantities of material than the four-high Steckel rolling mill. These mills provide the Company with significant flexibility in running smaller batches of varied products in response to customer requirements. The Company believes the flexibility provided by the three-high and two-high mills provides the Company with an advantage over its major competitors in obtaining smaller specialty orders.

The coil and sheet operation includes the ability to cold roll to tight tolerances, bright anneal, oxidize anneal and pickle, along with finishing processes that slit and cut to size. The Company recently made the capital investment to redesign, rebuild, and operate a cold mill that had been shuttered for a decade, resulting in a significant increase in capacity in that area. The Company has also invested, installed, and begun to operate a new processing line for more annealing capacity to support the added rolling capacity. This added annealing capacity gives the Company the ability to offer either bright annealed finish or anneal and pickled finish that will be determined by specifications, application or type of alloy.

The Company also produces bar and billet product through a series of bar mills and a forge press operation that is located at the Kokomo, Indiana facility.

The Arcadia, Louisiana facility uses feedstock produced at the Kokomo facility to fabricate welded and seamless alloy pipe and tubing and purchases extruded tube hollows to produce seamless titanium tubing. The manufacturing processes at Arcadia require cold pilger mills, weld mills, draw benches, annealing furnaces and pickling facilities. The Company recently completed a capital investment project that added capacity in the above-mentioned processes.

The Mountain Home, North Carolina facility primarily manufactures finished high-performance alloy wire. Finished wire products and powder are also warehoused at this facility.

Backlog

The Company defines backlog to include firm commitments from customers for delivery of product at established prices. There are orders in the backlog at any given time which include prices that are subject to adjustment based on changes in raw material costs, that can vary from approximately 30%-50% of the orders. Historically, approximately 75% of the Company’s backlog orders have shipped within six months and approximately 90% have shipped within 12 months. The backlog figures do not typically reflect that portion of the Company’s business conducted at its service and sales centers on a spot or “just-in-time” basis. For additional discussion of backlog, see Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations contained in this Annual Report on Form 10-K.

Consolidated Backlog at Fiscal Quarter End

	2015	2016	2017	2018	2019
			(in millions)		
1st quarter	$ 215.5	$ 204.7	$ 167.3	$ 205.7	$ 237.8
2nd quarter	220.4	193.5	170.8	212.3	253.0
3rd quarter	192.9	187.2	180.9	220.6	254.9
4th quarter	185.8	168.3	177.3	216.0	235.2

Raw Materials

Raw materials represented an estimated 45% of cost of sales in fiscal 2019. Nickel, a major component of many of the Company's products, accounted for approximately 30% of raw material costs, or approximately 14% of total cost of sales in fiscal 2019. Other raw materials include cobalt, chromium, molybdenum and tungsten. Melt materials consist of virgin raw material, purchased scrap and internally produced scrap.

The average nickel price per pound for cash buyers for the 30-day period ended on September 30, 2017, 2018 and 2019, as reported by the London Metals Exchange, was $5.10, $5.68 and $8.02 respectively. Prices for certain other raw materials which are significant in the manufacture of the Company's products, such as cobalt and chrome were lower in fiscal 2019 compared to fiscal 2018, while the price of molybdenum was higher in fiscal 2019 compared to fiscal 2018.

To the extent that the Company is unable to adjust to rapid fluctuations in the price of nickel, cobalt and other raw materials that it uses in large quantities, there may be a negative effect on gross profit margins. The Company enters into several different types of sales contracts with customers, some of which allow it to pass on increases in nickel or other raw material prices to customers. In other cases, the Company fixes the nickel or other raw materials component of its prices for a period of time through the life of a long-term contract. In yet other cases, the Company prices its products at the time of order, which allows it to establish prices with reference to known costs of raw material inventory, but which does not allow the Company to offset an unexpected rise in the price of raw materials.

The Company's business model includes mill manufacturing and global distribution facilities, which create a long working capital cycle and contribute to a long position as it relates to commodity price risk, especially for product sold out of distribution facility inventory at spot prices. In addition, the type of high-performance products the Company produces require multiple production steps to create the final yielded product that is sold to the customer. These refining steps generate high revert scrap pounds that are recycled back through the melt at metal value. This scrap cycle also contributes to a long position as it relates to commodity price risk.

Although alternative sources of supply are available, the Company currently purchases nickel through an exclusive arrangement with a single supplier to ensure consistent quality and supply. The Company purchases raw materials through various arrangements including fixed-term contracts and spot purchases, which involve a variety of pricing mechanisms. In cases where the Company prices its products at the time of order placement, the Company attempts to establish selling prices with reference to known costs of materials, thereby reducing the risk associated with changes in the cost of raw materials. However, to the extent that the price of nickel fluctuates rapidly, there may be a favorable or unfavorable effect on the Company's gross profit margins. The Company periodically purchases material forward with certain suppliers in connection with fixed price agreements with customers. In the event a customer fails to meet the expected volume levels or the consumption schedule deviates from the expected schedule, a rapid or prolonged decrease in the price of raw materials could adversely affect the Company's operating results.

The Company values inventory utilizing the first-in, first-out ("FIFO") inventory costing methodology. Under the FIFO inventory costing method, the cost of materials included in cost of sales may be different from the current market price at the time of sale of finished product due to the length of time from the acquisition of the raw material to the sale of the finished product. In a period of decreasing raw material costs, the FIFO inventory valuation method normally results in higher costs of sales as compared to last-in, first out method. Conversely, in a period of rising raw material costs, the FIFO inventory valuation method normally results in lower costs of sales.

Research and Technical Support

The Company's technology facilities are located at the Kokomo headquarters and consist of 19,000 square feet of offices and laboratories, as well as an additional 90,000 square feet of paved storage area. The Company has six fully equipped technology testing laboratories, including a mechanical and wear test lab, a metallographic lab, an electron microscopy lab, a corrosion lab, a high-temperature lab and a welding lab. These facilities also contain a reduced scale, fully equipped melt shop and process lab. As of September 30, 2019, the technology, engineering and technological testing staff consisted of 28 persons, 14 of whom have engineering or science degrees, including 8 with doctoral degrees, with the majority of degrees in the field of metallurgical engineering or materials science.

During fiscal 2019, research and development projects were focused on new alloy development, new product form development, supportive data generation and new alloy concept validation, relating to products for the aerospace, industrial gas turbine, chemical processing and oil and gas industries. In addition, significant projects were conducted to generate technical data in support of major market application opportunities in areas such as renewable energy, fuel cell systems, biotechnology (including toxic waste incineration and pharmaceutical manufacturing) and power generation.

Competition

The high-performance alloy market is a highly competitive market in which eight to ten major producers participate in various product forms. The Company's primary competitors in flat rolled products include Special Metals Corporation, a subsidiary of Precision Castparts Corp., Allegheny Technologies, Inc. and VDM Metals GmbH. The Company faces strong competition from domestic and foreign manufacturers of both high-performance alloys (similar to those the Company produces) and other competing metals. The Company may face additional competition in the future to the extent new materials are developed, such as plastics, ceramics or additive manufacturing that may be substituted for the Company's products. The Company also believes that it will face increased competition from non-U.S. entities in the next five to ten years, especially from competitors located in Eastern Europe and Asia. Recent tariff increases between the U.S. and China have adversely impacted the Company when competing with producers outside of the U.S. for sales into China. Additionally, in recent years, the Company's domestic business has been challenged by a strong U.S. dollar, which makes the goods of foreign competitors less expensive to import into the U.S and makes the Company's products more expensive to export outside the U.S.

In recent years, the Company experienced strong price competition from competitors who produce both stainless steel and high-performance alloys due primarily to weakness in the stainless steel market. Increased competition requires the Company to price its products competitively, which pressures the Company's gross profit margin and net income. The Company continues to respond to this competition by increasing emphasis on service centers, offering value-added services, improving its cost structure and striving to improve delivery times and reliability.

Employees

As of September 30, 2019, the Company employed 1,179 full-time employees worldwide. All eligible hourly employees at the Kokomo, Indiana and Arcadia, Louisiana plants (597 in the aggregate) are covered by two collective bargaining agreements.

On July 1, 2018, the Company entered into a new five-year collective bargaining agreement with the United Steelworkers of America, which covers eligible hourly employees at the Kokomo, Indiana plant. This agreement will expire in June 2023.

On December 21, 2015, the Company entered into a new collective bargaining agreement with the United Steelworkers of America which covers eligible hourly employees at the Company's Arcadia, Louisiana plant. This agreement will expire in December 2020.

Management believes that current relations with the union are satisfactory.

Environmental Matters

The Company has an enterprise level environmental policy, which focuses on fostering a safe workplace, offering high quality products while protecting the environment, compliance with law and health and safety management systems, utilization of all available resources to improve the quality, environmental, health and safety management systems and setting, implementing and reviewing quality, environmental, health and safety objectives and targets. This policy is communicated to contractors and vendors who provide services on site, and the Company periodically audits selected suppliers from an environmental compliance perspective. The Company maintains an environmental management system certified to ISO 14001 standards and, for its Kokomo operations, ISO 50001 standards. The Company maintains multiple policies designed to comply with the Occupational Safety and Health Administration standards and has OHSAS 18001 certification.

The Company's facilities and operations are subject to various foreign, federal, state and local laws and regulations relating to the protection of human health and the environment, including those governing the discharge of pollutants into the environment and the storage, handling, use, treatment and disposal of hazardous substances and wastes. In the U.S., such laws include, without limitation, the Occupational Safety and Health Act, the Clean Air Act, the Clean Water Act, the Toxic Substances Control Act and the Resource Conservation and Recovery Act. As environmental laws and regulations continue to evolve, it is likely the Company will be subject to increasingly stringent environmental standards in the future, particularly under air quality and water quality laws and standards related to climate change issues, such as reporting of greenhouse gas emissions. Violations of these laws and regulations can result in the imposition of substantial penalties and can require facility improvements. Expenses related to environmental compliance, which are primarily included in Cost of sales on the Consolidated Statements of Operations, were approximately $3.5 million for fiscal 2019 and are currently expected to be approximately $3.2 million for fiscal 2020.

The Company's facilities are subject to periodic inspection by various regulatory authorities, who from time to time have issued findings of violations of governing laws, regulations and permits. In the past five years, the Company has paid administrative fines, none of which have had a material effect on the Company's financial condition, for alleged violations relating to environmental matters, requirements relating to its Title V Air Permit and alleged violations of record keeping and notification requirements relating to industrial waste water discharge. Capital expenditures of approximately $0.9 million were made for pollution control improvements during fiscal 2019, with additional expenditures of approximately $1.6 million for similar improvements planned for fiscal 2020.

The Company has received permits from the Indiana Department of Environmental Management and the North Carolina Department of Environment and Natural Resources to close and provide post-closure environmental monitoring and care for certain areas of its Kokomo and Mountain Home, North Carolina facilities, respectively.

The Company is required among other things to monitor groundwater and to continue post-closure maintenance of the former disposal areas at each site. As a result, the Company is aware of elevated levels of certain contaminants in the groundwater, and additional testing and corrective action by the Company could be required. The Company is unable to estimate the costs of any further corrective action at these sites, if required. Accordingly, the Company cannot assure that the costs of any future corrective action at these or any other current or former sites would not have a material effect on the Company's financial condition, results of operations or liquidity.

The Company may also incur liability for alleged environmental damages associated with the off-site transportation and disposal of hazardous substances. Generators of hazardous substances which are transported to disposal sites where environmental problems are alleged to exist are subject to claims under the Comprehensive Environmental Response, Compensation and Liability Act of 1980, or CERCLA, and state counterparts. CERCLA imposes strict, joint and several liabilities for investigatory and cleanup costs upon hazardous substance generators, site owners and operators and other potentially responsible parties. The Company is currently named as a potentially responsible party at one site. There can be no assurance that the Company will not be named as a potentially responsible party at other sites in the future or that the costs associated with those sites would not have a material adverse effect on the Company's financial condition, results of operations or liquidity.

On February 11, 2016, the Company voluntarily reported to the Louisiana Department of Environmental Quality a leak that it discovered in one of its chemical cleaning operations at its Arcadia, Louisiana facility. As a result of the discovery, the Company is working with that department to determine the extent of the issue and appropriate remediation.

Business Conduct and Ethics

The Company has a number of policies in place governing ethical conduct, including, without limitation, a Code of Business Conduct and Ethics, a Human Trafficking Policy (which includes a forced labor policy), an Anti-Corruption Policy, an Anti-Nepotism Policy, an Anti-Harassment Policy (which includes a discrimination policy), a Gift Policy and an Insider Trading and Tipping Policy. Employees must certify compliance with our Code of Business Conduct and Ethics annually, and regular training is provided to employees regarding these and other policies. The Company also has a Supplier Code of Conduct. In addition, the Company maintains a whistleblower hotline with access available on an anonymous basis online or by telephone. The Company also has a conflict minerals policy and reports annually the results of its conflict minerals program on Form SD.

Executive Officers of the Company

The following table sets forth certain information concerning the persons who served as executive officers of the Company as of September 30, 2019. Except as indicated in the following paragraphs, the principal occupations of these persons have not changed during the past five years.

Name	Age	Position with Haynes International, Inc.
Michael L. Shor	60	President and Chief Executive Officer
Daniel W. Maudlin	53	Vice President—Finance, Treasurer and Chief Financial Officer
Janice W. Gunst	47	Vice President—General Counsel & Corporate Secretary
Venkat R. Ishwar	67	Vice President—Marketing & Technology
Marlin C. Losch	59	Vice President—Sales & Distribution
Jean C. Neel	60	Vice President—Corporate Affairs
Scott R. Pinkham	52	Vice President—Tube & Wire
David L. Strobel	58	Vice President—Operations
Gregory W. Tipton	58	Vice President & Chief Information Officer
David S. Van Bibber	48	Controller and Chief Accounting Officer

Mr. Shor was elected President and Chief Executive Officer of the Company in September 2018. Prior to that, he served as interim President and Chief Executive Officer of the Company from May 2018 through September 2018 and Chairman of the Board of the Company from February 2017 through September 2018. Mr. Shor has been a director since 2012.

Mr. Maudlin has served as the Vice President-Finance and Chief Financial Officer of the Company since December 2012.

Ms. Gunst has served as Vice President—General Counsel and Corporate Secretary of the Company since August 2011.

Dr. Ishwar has served as Vice President—Marketing & Technology of the Company since January 2010.

Mr. Losch has served as Vice President—Sales & Distribution of the Company since January 2010.

Ms. Neel has served as Vice President—Corporate Affairs of the Company since April 2000.

Mr. Pinkham has served as Vice President—Tube and Wire Products of the Company since September 2018. Prior to that, he served as Vice President—Manufacturing of the Company since March 2008.

Mr. Strobel has served as Vice President—Operations of the Company since September 2018. Prior to that, he was a consultant to manufacturing companies through his company Silver Eagle Consulting. Mr. Strobel was also Senior Vice President and Chief Technology Officer of Carpenter Technology Corporation from June 2015 to August 2016 and Senior Vice President – Operations of Carpenter Technology from September 2011 to June 2015.

Mr. Tipton has served as Vice President and Chief Information Officer of the Company since January 2019. Prior to that, he served as Chief Information Officer Americas for Dometic from August 2016 to December 2018 and as Director of Information Technology for Dometic from December 2012 to October 2016.

Mr. Van Bibber has served as Controller and Chief Accounting Officer of the Company since December 2012.

Item 1A. Risk Factors

The following risk factors should be considered carefully in addition to the other information contained in this filing.

The risks and uncertainties described below are not the only ones we face and represent risks that our management believes are material to our Company and our business. Additional risks and uncertainties not presently known to us or that we currently deem not material may also harm our business. If any of the following risks actually occur, our business, financial condition or results of operations could be harmed.

Risks Related to Our Business

Our revenues may fluctuate widely based upon changes in demand for our customers' products.

Demand for our products is dependent upon and derived from the level of demand for the machinery, parts and equipment produced by our customers, which are principally manufacturers and fabricators of machinery, parts and equipment for highly specialized applications. Historically, certain of the markets in which we compete have experienced unpredictable, wide demand fluctuations. Because of the comparatively high level of fixed costs associated with our manufacturing processes, significant declines in those markets have had a disproportionately adverse impact on our operating results.

Since we became an independent company, we have, in several instances, experienced substantial year-to-year declines in net revenues, primarily as a result of decreases in demand in the industries to which our products are sold. In fiscal 2002, 2003, 2009, 2010, 2013 and 2016, our net revenues, when compared to the immediately preceding year, declined by approximately 10.3%, 21.2%, 31.1%, 13.0%, 16.7% and 16.6%, respectively. We may experience similar fluctuations in our net revenues in the future. Additionally, demand is likely to continue to be subject to substantial year-to-year fluctuations as a consequence of industry cyclicality, as well as other factors such as global economic uncertainty, and such fluctuations may have a material adverse effect on our business.

Profitability in the high-performance alloy industry is highly sensitive to changes in sales volumes.

The high-performance alloy industry is characterized by high capital investment and high fixed costs. The cost of raw materials is the primary variable cost in the manufacture of our high-performance alloys and, in fiscal 2019, represented approximately 45% of our total cost of sales. Other manufacturing costs, such as labor, energy, maintenance and supplies, often thought of as variable, have a significant fixed element. Profitability is, therefore, very sensitive to changes in volume, and relatively small changes in volume can result in significant variations in earnings. Our ability to effectively utilize our manufacturing assets depends greatly upon continuing demand in our end markets, successfully increasing our market share and continued acceptance of our new products into the marketplace. Any failure to effectively utilize our manufacturing assets may negatively impact our business.

We are subject to risks associated with global trade matters

We are subject to macroeconomic downturns in the United States and abroad that may affect the general economic climate, our performance and the demand of our customers. Previous turmoil in the global economy has had, and future turmoil may have, an adverse impact on our business and our financial condition. In addition to the impact that the global financial crisis previously had, we may face significant challenges if conditions in the global economy worsen. Further, any global trade wars or similar economic turmoil, including new or existing tariffs, could adversely affect our business. For example, the U.S. and China have imposed tariffs on large amounts of products imported into each of the countries from one another. Moreover, these new tariffs, or other changes in trade policy, have resulted in, and may continue to trigger, retaliatory actions on the part of these countries and potentially other countries in the future. Talks between the two countries are ongoing, but the outcome is highly uncertain and could affect our ability to buy raw materials from China and sell products into the Chinese market. A "trade war" or other governmental action related to tariffs or international trade agreements or policies has the potential to adversely impact demand for our products, our costs, customers, suppliers and/or the U.S. economy or certain sections thereof, and, thus, adversely affect our business. Our competitors outside of the United States may not be subject to these tariffs or other measures, and therefore, could have a significant competitive advantage over us in that respect. In addition, the effect of the exit of the United Kingdom from the European Union is currently unknown and could adversely affect our business.

In addition, we are subject to various domestic and international risks and uncertainties, including changing social conditions and uncertainties relating to the current and future political climate. Changes in governmental policies (particularly those that would limit or reduce defense spending) could have an adverse effect on our financial condition and results of operations and may reduce our customers' demand for our products and/or depress pricing of those products used in the defense industry or which have other military applications, resulting in a material adverse impact on our business, prospects, results of operations, revenues and cash flows. Furthermore, any actual armed hostilities and any future terrorist attacks in the U.S. or abroad could also have an adverse impact on the U.S. economy, global financial markets and our business. The effects may include, among other things, a decrease in demand in the aerospace industry due to reduced air travel, as well as reduced demand in the other industries we serve. Depending upon the severity, scope and duration of these effects, the impact on our business could be material.

We operate in cyclical markets.

A significant portion of our revenues are derived from the highly cyclical aerospace, power generation and chemical processing markets. Our sales to the aerospace industry constituted 52.7% of our total sales in fiscal 2019. Our chemical processing and industrial gas turbine sales constituted 18.3% and 12.1%, respectively, of our total sales in fiscal 2019.

The commercial aerospace industry is historically driven by demand from commercial airlines for new aircraft. The U.S. and international commercial aviation industries continue to face challenges arising from the global economic climate, competitive pressures and fuel costs. Demand for commercial aircraft is influenced by industry profitability, trends in airline passenger traffic, the state of U.S. and world economies, the ability of aircraft purchasers to obtain required financing and numerous other factors, including the effects of terrorism and health and safety concerns. The military aerospace cycle is highly dependent on U.S. and foreign government funding which is driven by, among other factors, the effects of terrorism, a changing global political environment, U.S. foreign policy, the retirement of older aircraft and technological improvements to new engines that increase reliability. Accordingly, the timing, duration and magnitude of cyclical upturns and downturns cannot be forecasted with certainty. Downturns or reductions in demand for our products sold into the aerospace market could have a material adverse effect on our business.

The industrial gas turbine market is also cyclical in nature. Demand for power generation products is global and is affected by the state of the U.S. and world economies, the availability of financing to power generation project sponsors, the increase in renewable energy and the political environments of numerous countries. The availability of fuels and related prices also have a large impact on demand. Demand for our products in the industrial gas turbine industry may not return to peak demand levels, which has materially affected and may continue to have a material adverse effect on our business.

We also sell products into the chemical processing industry, which is also cyclical in nature. Customer demand for our products in this market may fluctuate widely depending on U.S. and world economic conditions, the availability of financing, and the general economic strength of the end use customers in this market. Cyclical declines or sustained weakness in this market could have a material adverse effect on our business.

Our business depends, in part, on the success of commercial aircraft programs and our ability to accelerate production levels to timely match order increases in new or existing programs.

The success of our business will depend, in part, on the success of new and existing commercial aircraft programs. We are currently under contract to supply components for a number of commercial aircraft programs. The programs are scheduled to have production increases over the next several years. Our failure to achieve production levels to timely match any related orders could have a material adverse effect on our business. Cancellation, reductions or delays of orders or contracts by our customers or in any of these programs, or regulatory or certification-related groundings or other delays or cancellations to new or existing aircraft programs or to the scheduled production increases for any aircraft programs, could also have a material adverse effect on our business. For example, The Boeing Company has grounded its Boeing 737 MAX passenger airliners worldwide as it works to resolve problems with that aircraft. The effect of any future action on our business is currently unknown, but any resulting change in production schedules could have a material adverse effect on our business.

The competitive nature of our business results in pressure for price concessions to our customers and increased pressure to reduce our costs.

We are subject to substantial competition in all of the markets we serve, and we expect this competition to continue. As a result, we have made significant price concessions to our customers in the aerospace, chemical processing and power generation markets from time to time, and we expect customer pressure for further price concessions to continue. Maintenance of our market share will depend, in part, on our ability to sustain a cost structure that enables us to be cost-competitive. If we are unable to adjust our costs relative to our pricing, our profitability will suffer. Our effectiveness in managing our cost structure and pricing for the value provided will be a key determinant of future profitability and competitiveness.

Reductions in government expenditures or changes in spending priorities could adversely affect our military aerospace business.

The budget for the U.S. Department of Defense may be reduced from current levels. In addition to debt reduction efforts already authorized, it is possible that the U.S. government could reduce or further delay its spending on, or reprioritize its spending away from, the military aerospace industry. Budgetary cuts could negatively affect our business.

Aerospace demand is primarily dependent on two manufacturers.

A significant portion of our aerospace products are sold to fabricators and are ultimately used in the production of new commercial aircraft. There are only two primary manufacturers of large commercial aircraft in the world, The Boeing Company and Airbus. A significant portion of our aerospace sales are dependent on the number of new aircraft built by these two manufacturers, which is in turn dependent on a number of factors over which we have little or no control. Those factors include demand for new aircraft from around the globe, success of new commercial and military aircraft programs and factors that impact manufacturing capabilities, such as the availability of raw materials and manufactured components, changes in highly exacting performance requirements and product specifications, U.S. and world economic conditions, changes in the regulatory environment and labor relations between the aircraft manufacturers and their work forces. A significant interruption or slowdown in the number of new aircraft built by the aircraft manufacturers could have a material adverse effect on our business. As noted above, future actions relating to the worldwide grounding of the Boeing 737 MAX passenger airliner by The Boeing Company could have a material adverse effect on our business.

Our operations are dependent on production levels at our Kokomo facility.

Our principal assets are located at our primary integrated production facility in Kokomo, Indiana and at our production facilities in Arcadia, Louisiana and in Mountain Home, North Carolina. The Arcadia and Mountain Home plants as well as all of the domestic and foreign service centers rely to a significant extent upon feedstock produced at the Kokomo facility. Any production failures, shutdowns or other significant problems at the Kokomo facility could have a material adverse effect on our financial condition and results of operations. We maintain property damage insurance to provide for reconstruction of damaged equipment, as well as business interruption insurance to mitigate losses resulting from any production shutdown caused by an insured loss. Although we believe that our insurance is adequate to cover any such losses, that may not be the case. Additionally, our insurance policies include deductibles that would require us to incur losses that could have an adverse effect on our financial results in the event a significant interruption occurs. One or more significant uninsured losses at our Kokomo facility may have a material adverse effect on our business.

In addition, from time to time we schedule planned outages on the equipment at our Kokomo facility for maintenance and upgrades. These projects are subject to a variety of risks and uncertainties, including a variety of market, operational and labor-related factors, many of which may be beyond our control. Should a planned shut down on a significant piece of equipment last substantially longer than originally planned, there could be a material adverse effect on our business.

Our production may be interrupted due to equipment failures, lack of critical spares, or other events affecting our factories.

Our manufacturing processes depend on certain sophisticated and high-value equipment, some of which has been in operation for a long period of time for which there may be only limited or no production alternatives. Failures of this equipment, or the lack of critical spares to timely repair this equipment, could result in production delays, revenue loss and significant repair costs. In addition, our factories rely on the availability of electrical power and natural gas, transportation for raw materials and finished products and employee access to our workplace that are subject to interruption in the event of severe weather conditions or other natural or manmade events. While we maintain backup resources to the extent practicable, a severe or prolonged equipment outage, failure or other interruptive event affecting areas where we have significant manufacturing operations may result in loss of manufacturing or shipping days, which could have a material adverse effect on our business. Natural or manmade events that interrupt significant manufacturing operations of our customers also could have a material adverse effect on our business.

Issues related to our agreements with Titanium Metals Corporation could require us to make significant payments and could disrupt our operations and materially affect our financial results.

We entered into a Conversion Services Agreement and an Access and Security Agreement with Titanium Metals Corporation (TIMET) in November 2006 that provide for the performance of certain titanium conversion services through November 2026. In 2012, TIMET was acquired by Precision Castparts Corp. which owns Special Metals Corporation, a direct competitor of ours. Events of default under the Conversion Services Agreement include (a) a change in control in which the successor does not assume the agreement, (b) a violation by us of certain non-compete obligations relating to the manufacture and conversion of titanium and (c) failure to meet agreed-upon delivery and quality requirements. If an event of default under the Conversion Services Agreement occurs, TIMET could require us to repay the unearned portion of the $50.0 million fee paid to us by TIMET when the agreement was signed, plus liquidated damages of $25.0 million. Our obligations to pay these amounts to TIMET are secured by a security interest in our four-high Steckel rolling mill, through which we process a substantial amount of our products. In addition, the Access and Security Agreement with TIMET includes, among other terms, an access right that would allow TIMET to use certain of our operating assets, including the four-high mill, to perform titanium conversion services in the event of our bankruptcy or the acceleration of our indebtedness. Exercise by TIMET of its rights under its security interest following a default and non-payment of the amounts provided in the Conversion Services Agreement or exercise of the access rights under the Access and Security Agreement could cause significant disruption in our Kokomo operations, which would have a material adverse effect on our business.

In addition, the Conversion Services Agreement contains a requirement that we reserve a significant amount of capacity exclusively for TIMET. That agreement does not contain a volume commitment on TIMET's part. The agreement also severely limits our ability to manufacture titanium for any customer other than TIMET. In recent years, our levels of business with TIMET have fluctuated.

During periods of lower demand in other alloy markets, some of our competitors may use their available capacity to produce higher volumes of high-performance alloys, which leads to increased competition in the high-performance alloy market.

We have experienced increased competition from competitors who produce both stainless steel and high-performance alloys. Due to continued under-utilization of capacity in the stainless steel market, we believe these competitors increased their production levels and sales activity in high-performance alloys to keep capacity in their mills as full as possible, while offering very competitive prices and delivery times. If the stainless market does not improve, continued competition from stainless steel producers could negatively impact our average selling price and reduce our gross profit margin.

In addition, as a result of the competition in our markets, we have made significant price concessions to our customers from time to time, and we expect customer pressure for further price concessions to continue. Maintenance of our market share will depend, in part, on our ability to sustain a cost structure that enables us to be cost-competitive. If we are unable to adjust our costs relative to our pricing, our profitability will suffer. Our effectiveness in managing our cost structure will be a key determinant of future profitability and competitiveness.

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 business. In recent years, several of our competitors have added capacity that represents direct competition with the Company's business. In addition, continued availability of lower-cost, substitute materials may also 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 our profit margin levels.

Rapid fluctuations in the prices of nickel, cobalt and other raw materials may materially adversely affect our business.

To the extent that we are unable to adjust to rapid fluctuations in the price of nickel, cobalt and other raw materials that we use in large quantities, there may be a negative effect on our gross profit margins. In fiscal 2019, nickel, a major component of many of our products, accounted for approximately 30% of our raw material costs, or approximately 14% of our total cost of sales. We enter into several different types of sales contracts with our customers, some of which allow us to pass on increases in nickel or other raw material prices to our customers. In other cases, we fix the nickel or other raw materials component of our prices for a period of time through the life of a long-term contract. In yet other cases, we price our products at the time of order, which allows us to establish prices with reference to known costs of our raw material inventory, but which does not allow us to offset an unexpected rise in the price of raw materials. We may not be able to successfully offset rapid increases in the price of nickel, cobalt or other raw materials in the future. In the event that raw material price increases occur that we are unable to pass on to our customers, our cash flows or results of operations could be materially adversely affected.

Our business model includes mill manufacturing and global distribution facilities, which create a long working capital cycle and contribute to a long position as it relates to commodity price risk, especially for product sold out of distribution facility inventory at spot prices. In addition, the type of high-performance products we produce require multiple production steps to create the final yielded product that is sold to the customer. These refining steps generate

high revert scrap pounds that are recycled back through the melt at metal value. This scrap cycle also contributes to a long position as it relates to commodity price risk.

Our results of operations may also be negatively impacted if both customer demand and raw material prices rapidly fall at the same time. Because we value our inventory utilizing the first-in, first-out inventory costing methodology, a rapid decrease in raw material costs has a negative effect on our operating results. In those circumstances, we recognize higher material cost in cost of sales relative to lower raw material market prices that drive the sales price.

In addition, we periodically enter into forward purchase agreements for our raw material supply. If we enter into a forward purchase agreement which is not matched to one or more customer contracts with fixed raw material prices, a rapid or prolonged decrease in the price of significant raw materials could adversely impact our business.

Our business is dependent on a number of raw materials that are subject to volatility in price and availability.

We use a number of raw materials in our products which are found in only a few parts of the world and are available from a limited number of suppliers. The availability and costs of these materials may be influenced by private or government cartels, changes in world politics, additional regulation, labor relations between the materials producers and their work force, unstable governments in exporting nations, inflation, general economic conditions and export quotas imposed by governments in nations with rare earth element supplies. The ability of key material suppliers to meet quality and delivery requirements or to provide materials on price and other terms acceptable to us is beyond our control and can also impact our ability to meet commitments to customers. Future shortages or price fluctuations in raw materials could result in decreased sales as well as margins, or otherwise adversely affect our business. The enactment of new or increased import duties on raw materials imported by us could also increase the costs to us of obtaining the raw materials and might adversely affect our business.

If suppliers increase the price of critical raw materials or are unable to meet our demands, we may not have alternative sources of supply. In some cases, we have entered into exclusive supply agreements with respect to raw materials, which could adversely affect our business if the exclusive supplier cannot meet quality and delivery requirements to provide materials on price and other terms acceptable to us. 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 fixed-price contracts, we may be unable to raise the price of products to cover all or part of the increased cost of the raw materials.

The manufacturing of the majority of our products is a complex process and requires long lead times. We may experience delays or shortages in the supply of raw materials. If we are 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.

We value our inventory using the FIFO method, which could put pressure on our margins.

The cost of our inventories is determined using the first-in, first-out (FIFO) method. Under the FIFO inventory costing method, the cost of materials included in cost of sales may be different than the current market price at the time of sale of finished product due to the length of time from the acquisition of raw material to the sale of the finished product. In a period of decreasing raw material costs, the FIFO inventory valuation normally results in higher costs of sales as compared to the last-in, first-out method. This could result in compression of the gross margin on our product sales.

Changes in tax rules and regulations, or interpretations thereof, may adversely affect our effective tax rates.

We are a U.S. based company with customers and suppliers in foreign countries. We import various raw materials used in our production processes, and we export goods to our foreign customers. The United States, the European Commission, countries in the EU, including the United Kingdom, and other countries where we do business may change relevant tax, border tax, accounting and other laws, regulations and interpretations, that may unfavorably impact our effective tax rate or result in other costs to us. In addition, the Company has deferred tax assets on its balance sheet which could be subjected to unfavorable impacts if tax rates are reduced, such as those that occurred at the end of calendar 2017.

Failure to successfully develop, commercialize, market and sell new applications and new products could adversely affect our business.

We believe that our proprietary alloys, technology, applications development, technical services and metallurgical manufacturing expertise provide us with a competitive advantage over other high-performance alloy producers. Our ability to maintain this competitive advantage depends on our ability to continue to offer products and technical services that have equal or better performance characteristics than competing products at competitive prices. Our future growth will depend, in part, on our ability to address the increasingly demanding needs of our customers by inventing new alloys, enhancing the properties of our existing alloys, timely developing new applications for our existing and new alloys, and timely developing, commercializing, marketing and selling new alloys and products. If we are not successful in these efforts, or if our new alloys/products and product enhancements do not adequately meet the requirements of the marketplace and achieve market acceptance, our business could be negatively affected.

We are subject to risks relating to our cybersecurity measures and to misappropriation of information generally.

We have put in place a number of systems, processes and practices designed to protect against intentional or unintentional misappropriation or corruption of our systems and information or disruption of our operations. These include, for example, encryption of network access. Despite such efforts, we are subject to breaches of security systems which may result in unauthorized access, misappropriation, corruption or disruption of the information we are trying to protect, in which case we could suffer material harm. Access to our proprietary information regarding new alloy formulations would allow our competitors to use that information in the development of competing products. Current employees have, and former employees may have, access to a significant amount of information regarding our operations which could be disclosed to our competitors or otherwise used to harm us. Any misappropriation or corruption of our systems and information or disruption of our operations could have a material adverse effect on our business.

Our information technology systems could be subject to attack.

Our information technology systems could be subject to sabotage by employees or third parties, including attacks in which the systems could be shut down with a demand for payment of "ransom", which could slow or stop production or otherwise adversely affect our business. Any such attack could disrupt our operations and could have a material adverse effect on our business.

An interruption in energy services may cause manufacturing curtailments or shutdowns.

We rely upon third parties for our supply of energy resources consumed in the manufacture of our products. 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 in the supply of energy resources could temporarily impair our ability to manufacture products for customers. Further, increases in energy costs, which are outside of our control, or changes in costs relative to energy costs paid by competitors, has and may continue to adversely affect our business. 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 business.

Our operations could result in injury to our workers or third parties.

Our manufacturing operations could result in harm to our workers or third parties in our facilities. Our manufacturing processes involve the use of heavy equipment, vehicles and chemicals, among other matters, that could lead to harm, injury, death or illness. In addition to harm to individuals, any such occurrences could result in reputational harm, adverse effects on employee morale, litigation and other costs, any of which could materially and adversely affect our business.

We may be adversely impacted by costs related to environmental, health and safety laws, regulations, and other liabilities.

We are subject to various foreign, federal, state and local environmental, health and safety laws and regulations, including those governing the discharge of pollutants into the environment, the storage, handling, use, treatment and disposal of hazardous substances and wastes and the health and safety of our employees. Under these laws and regulations, we may be held liable for all costs arising out of any release of hazardous substances on, under or from any of our current or former properties or any off-site location to which we sent or arranged to be sent wastes for disposal or treatment, and such costs may be material. We could also be held liable for any and all consequences arising out of human exposure to such substances or other hazardous substances that may be attributable to our products or other environmental damage. In addition, some of these laws and regulations require our facilities to operate under permits that are subject to renewal or modification. These laws, regulations and permits can require expensive pollution control equipment or operational changes to limit actual or potential impacts to the environment. Violations of these laws, regulations or permits can also result in the imposition of substantial penalties, permit revocations and/or facility shutdowns.

We have received permits from the environmental regulatory authorities in Indiana and North Carolina to close and to provide post-closure monitoring and care for certain areas of our Kokomo and Mountain Home facilities that were used for the storage and disposal of wastes, some of which are classified as hazardous under applicable regulations. We are required to monitor groundwater and to continue post-closure maintenance of the former disposal areas at each site. As a result, we are aware of elevated levels of certain contaminants in the groundwater and additional corrective action could be required. Additionally, it is possible that we could be required to undertake other corrective action for any other solid waste management unit or other conditions existing or determined to exist at our facilities. We are unable to estimate the costs of any further corrective action, if required. However, the costs of future corrective action at these or any other current or former sites could have a material adverse effect on our business.

We may also incur liability for alleged environmental damages associated with the off-site transportation and disposal of hazardous substances. Our operations generate hazardous substances, many of which we accumulate at our facilities for subsequent transportation and disposal or recycling by third parties off-site. Generators of hazardous substances which are transported to disposal sites where environmental problems are alleged to exist are subject to liability under CERCLA and state counterparts. In addition, we may have generated hazardous substances disposed of at sites which are subject to CERCLA or equivalent state law remedial action. We have been named as a potentially responsible party at one site. CERCLA imposes strict, joint and several liabilities for investigatory and cleanup costs upon hazardous substance generators, site owners and operators and other potentially responsible parties regardless of fault. If we are named as a potentially responsible party at other sites in the future, the costs associated with those future sites could have a material adverse effect on our business.

Environmental laws are complex, change frequently and have tended to become increasingly stringent over time. While we have budgeted for future capital and operating expenditures to comply with environmental laws, changes in any environmental law may increase our costs of compliance and liabilities arising from any past or future releases of, or exposure to, hazardous substances and may materially adversely affect our business. See “Business—Environmental Matters.”

Increased regulation of greenhouse gases or other environmental issues could have a material adverse impact on our results of operations, financial condition and cash flows.

Regulation and forms of legislation aimed at regulating environmental issues, including greenhouse gas emissions, have been and will likely continue to be considered globally. As a high-performance alloy manufacturer, we may be affected, both directly and indirectly, if environmental legislation requires the Company or its customers, suppliers or partners to adjust manufacturing or other relevant processes, or to otherwise incur costs of compliance, which could have a material adverse impact on our business.

Government regulation is increasing and if we fail to comply with such increased regulation, we could be subject to fines, penalties and expenditures.

The United States Congress has adopted several significant pieces of legislation, such as the Sarbanes-Oxley Act of 2002 and the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, that affect our operation as well as those of other publicly traded companies. In addition, regulations relating to data protection and privacy law have become increasingly stringent. We may be subject to significant fines and penalties if we fail to comply with these laws or their implementing regulations, and the increasingly stringent regulations could require us to make additional unforeseen expenditures. Any such fines, penalties or expenditures could have a material adverse effect on our business.

Regulations related to conflict minerals could adversely impact our business.

The Dodd-Frank Act and related SEC rules require disclosure of the use of tin, tantalum, tungsten and gold, known as conflict minerals, in products manufactured by public companies. These rules require a reasonable country of origin inquiry to determine whether such minerals originated from the Democratic Republic of Congo (the "DRC") or an adjoining country and, under some circumstances, whether such minerals helped finance the armed conflict in the DRC. Conflict minerals disclosures are required to be filed annually. There are costs associated with complying with these disclosure requirements, including costs to determine the origin of conflict minerals used in our products. Also, we may face disqualification as a supplier for customers and reputational challenges if the procedures we implement do not satisfy all concerned stakeholders. In addition, these rules could adversely affect the sourcing, supply and pricing of materials used in our products.

Our business is affected by federal rules, regulations and orders applicable to some of our customers who are government contractors.

A number of our products are manufactured and sold to customers who are parties to U.S. government contracts or subcontracts. Consequently, we are indirectly subject to various federal rules, regulations and orders applicable to government contractors. From time to time, we are also subject to government inquiries and investigations of our business practices due to our participation in government programs. These inquiries and investigations are costly and consuming of internal resources. Violations of applicable government rules and regulations could result in civil liability, in cancellation or suspension of existing contracts or in ineligibility for future contracts or subcontracts funded in whole or in part with federal funds, any of which could have a material adverse effect on our business.

We could be required to make additional contributions to our defined benefit pension plans or recognize higher related expense in our statement of operations as a result of adverse changes in interest rates and the capital markets.

Our estimates of liabilities and expenses for pension benefits incorporate significant assumptions, including the rate used to discount the future estimated liability, the long-term rate of return on plan assets and several assumptions relating to the employee workforce (salary increases, retirement age and mortality). We currently expect that we will be required to make future minimum contributions to our defined benefit pension plans. Many domestic and international competitors do not provide defined benefit plans and/or retiree health plans (which we do provide), and those competitors may have a resulting cost advantage. A decline in the value of plan investments in the future, an increase in costs or liabilities, including those caused by the lowering of the rate used to discount future payouts, or unfavorable changes in laws or regulations that govern pension plan funding could materially change the timing and amount of required pension funding or the amount of related expense recognized in our statement of operations. A requirement to fund any deficit created in the future could have a material adverse effect on our business.

If we are unable to recruit, hire and retain skilled and experienced personnel, our ability to effectively manage and expand our business will be harmed.

Our success largely depends on the skills, experience and efforts of our officers and other key employees who may terminate their employment at any time. The loss of any of our senior management team could harm our business. The announcement of the loss of one of our key employees could negatively affect our stock price. Our ability to retain our skilled workforce and our success in attracting and hiring new skilled employees will be a critical factor in determining

whether we will be successful in the future. We face challenges in hiring, training, managing and retaining employees in certain areas including metallurgical researchers, equipment technicians and sales and marketing staff. If we are unable to recruit, hire and retain skilled employees, our new product and alloy development and commercialization could be delayed and our marketing and sales efforts could be hindered, which would adversely impact our business.

The risks inherent in our international operations may adversely impact our revenues, results of operations and financial condition.

We anticipate that we will continue to derive a significant portion of our revenues from operations in international markets. As we continue to expand internationally, we will need to hire, train and retain qualified personnel for our direct sales efforts and retain distributors and train their personnel in countries where language, cultural or regulatory impediments may exist. Distributors, regulators or government agencies may not continue to accept our products, services and business practices. In addition, we purchase raw materials on the international market. The sale and shipment of our products and services across international borders, as well as the purchase of raw materials from international sources, subject us to the trade regulations of various jurisdictions, including tariffs and other possible punitive measures. Compliance with such regulations is costly. Any failure to comply with applicable legal and regulatory obligations could impact us in a variety of ways that include, but are not limited to, significant criminal, civil and administrative penalties, including imprisonment of individuals, fines and penalties, denial of export privileges, seizure of shipments and restrictions on certain business activities. Failure to comply with applicable legal and regulatory obligations could result in the disruption of our shipping, sales and service activities. Our international sales operations expose us and our representatives, agents and distributors to risks inherent in operating in foreign jurisdictions any one or more of which may adversely affect our business, including:

- our ability to obtain, and the costs associated with obtaining, U.S. export licenses and other required export or import licenses or approvals;
- changes in duties and tariffs, quotas, taxes, trade restrictions, license obligations and other non-tariff barriers to trade;
- policy changes affecting the market for our products;
- burdens of complying with the Foreign Corrupt Practices Act and a wide variety of foreign laws and regulations;
- business practices or laws favoring local companies;
- fluctuations in foreign currencies;
- restrictive trade policies of foreign governments;
- longer payment cycles and difficulties collecting receivables through foreign legal systems;
- difficulties in enforcing or defending agreements and intellectual property rights; and
- foreign political or economic conditions.

Any material decrease in our international revenues or inability to expand our international operations as a result of these or other factors would adversely impact our business.

Export sales could present risks to our business.

Export sales account for a significant percentage of our revenues, and we believe this will continue to be the case in the future. Risks associated with export sales include: political and economic instability, including weak conditions in the world's economies; accounts receivable collection; export controls; changes in legal and regulatory requirements; policy changes affecting the markets for our products; changes in tax laws and tariffs; trade duties; the effect of the United Kingdom's exit from the European Union and exchange rate fluctuations (which may affect sales to international

customers and the value of profits earned on export sales when converted into dollars). Any of these factors could materially adversely affect our business.

Although collective bargaining agreements are in place for certain employees, union or labor disputes could still disrupt the manufacturing process.

Our operations rely heavily on our skilled employees. Any labor shortage, disruption or stoppage caused by any deterioration in employee relations or difficulties in the renegotiation of labor contracts could reduce our operating margins and income. Approximately 55% percent of our U.S. employees are affiliated with unions or covered by collective bargaining agreements. The Company entered into two collective bargaining agreements with the United Steel Workers of America which cover eligible hourly employees at the Company's Arcadia, Louisiana and Kokomo, Indiana facilities. Failure to negotiate new labor agreements when required could result in a work stoppage at one or more of our facilities. In addition, other Company facilities could be subject to union organizing activity. Although we believe that our labor relations have generally been satisfactory, it is possible that we could become subject to additional work rules imposed by agreements with labor unions, or that work stoppages or other labor disturbances could occur in the future, any of which could reduce our operating margins and income and place us at a disadvantage relative to non-union competitors.

Product liability and product warranty risks could adversely affect our operating results.

We produce many critical products for commercial and military aircraft, industrial gas turbines, chemical processing plants and pharmaceutical production facilities. Failure of our products could give rise to substantial product liability and other damage claims as well as reputational harm. We maintain insurance addressing this risk, but there can be no assurance that the insurance coverage will be adequate or will continue to be available on terms acceptable to us.

Additionally, we manufacture our products to strict contractually-established specifications using complex manufacturing processes. If we fail to meet the contractual requirements for a product, we may be subject to warranty costs to repair or replace the product itself and additional costs related to customers' damages or the investigation and inspection of non-complying products. These costs are generally not insured.

Our business subjects us to risk of litigation claims, including those that might not be covered by insurance.

Litigation claims may relate to the conduct of our business, including claims pertaining to product liability, commercial disputes, employment actions, employee benefits, compliance with domestic and federal laws and personal injury. Due to the uncertainties of litigation, we might not prevail on claims made against us in the lawsuits that we currently face, and additional claims may 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 business, particularly in the event that adverse outcomes are not covered by insurance.

Our insurance may not provide enough coverage or may not be available on terms that are acceptable to us.

We maintain various forms of insurance, including insurance covering claims related to our properties and risks associated with our operations. Our existing property and liability insurance coverages contain exclusions and limitations on coverage. From time-to-time, in connection with renewals of insurance, we have experienced additional exclusions and limitations on coverage, larger self-insured retentions and deductibles and significantly higher premiums. We were required to obtain new property insurance coverage for fiscal 2020 as a result of adjustments in the business strategy of our previous property insurance carrier. This resulted in lower levels of coverage, a higher deductible and higher premiums. As a result, in the future, our insurance coverage may not cover claims to the extent that it has in the past and the costs that we incur to procure insurance may increase significantly, either of which could have an adverse effect on our business. Furthermore, the insurance industry, or our carriers specifically, may continue to alter their business models in manners that are unfavorable to us, resulting in insufficient or more costly coverage, which could adversely affect our business.

We depend on our Information Technology (IT) infrastructure to support the current and future information requirements of our operations which exposes us to risk.

Management relies on IT infrastructure, including hardware, network, software, people and processes, to provide useful information to support assessments and conclusions about operating performance. Our inability to produce relevant or reliable measures of operating performance in an efficient, cost-effective and well-controlled fashion may have significant negative impacts on our business.

We are in the process of upgrading several components of our infrastructure from software that will no longer be supported by the manufacturer at the end of calendar 2019 to versions that will be supported in the future. If we fail to complete these upgrades, we will not receive security updates for the relevant software, which could compromise the security of some of our information.

Failure to protect our intellectual property rights could adversely affect our business.

We rely on a combination of confidentiality, invention assignment and other types of agreements and trade secret, trademark and patent law to establish, maintain, protect and enforce our intellectual property rights. Our efforts in regard to these measures may be inadequate, however, to prevent others from misappropriating our intellectual property rights. In addition, laws in some non-U.S. countries affecting intellectual property are uncertain in their application, which can affect the scope or enforceability of our intellectual property rights. Any of these events or factors could diminish or cause us to lose the competitive advantages associated with our intellectual property, which could have a material adverse effect on our business.

Any significant delay or problems in any future expansion of our operations could materially adversely affect our business, financial condition and results of operations.

We have undertaken, and may continue to undertake,significant capital projects in order to enhance, expand and/or upgrade our facilities and operational capabilities. Our ability to achieve the anticipated increased revenues or otherwise realize acceptable returns on these investments or other strategic capital projects that we may undertake is subject to a number of risks, many of which are beyond our control, including the ability of management to ensure the necessary resources are in place to properly execute these projects on time and in accordance with planned costs, the ability of key suppliers to deliver the necessary equipment according to schedule, customer demand (which fluctuates as a result of the cyclical markets in which we operate, as well as other factors) and our ability to implement these projects with minimal impact to our existing operations. In addition, the cost to implement any given strategic capital project ultimately may prove to be greater than originally anticipated. If we are not able to achieve the anticipated results from the implementation of any of our strategic capital projects, or if we incur unanticipated implementation costs or delays, our business may be materially adversely affected.

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

We intend to continue to strategically position our businesses in order to improve our ability to compete. Strategies we may employ include seeking new or expanding existing specialty market niches for our products, expanding our global presence, acquiring businesses complementary to existing strengths and continually evaluating the performance and strategic fit of our existing business units. From time to time, management of the Company holds discussions with management of other companies to explore acquisitions, joint ventures and other business combination opportunities as well as possible business unit dispositions. As a result, the relative makeup of our business is subject to change. Acquisitions, joint ventures and other business combinations involve various inherent risks, such as: assessing accurately the value, strengths, weaknesses, contingent and other liabilities and potential profitability of acquisition or other transaction candidates; the potential loss of key personnel of an acquired business; our ability to achieve identified financial and operating synergies anticipated to result from an acquisition or other transaction; diversion of the attention of certain management personnel from their day-to-day duties; and unanticipated changes in business and economic conditions affecting an acquisition or other transaction. International acquisitions could be affected by many additional factors,

including, without limitation, export controls, exchange rate fluctuations, domestic and foreign political conditions and deterioration in domestic and foreign economic conditions.

A global recession or disruption in global financial markets could adversely affect us.

A global recession or disruption in the global financial markets, including any significant tariff impositions or trade wars, presents risks and uncertainties that we cannot predict. During recessionary economic conditions or financial market disruptions, we face risks that may include:

- declines in revenues and profitability from reduced or delayed orders by our customers;
- supply problems associated with any financial constraints faced by our suppliers;
- restrictions on our access to credit sources;
- reductions to our banking group or to our committed credit availability due to combinations or failures of financial institutions; and
- increases in corporate tax rates to finance government spending programs.

Political and social turmoil could adversely affect our business.

The war on terrorism, as well as political and social turmoil, could put pressure on economic conditions in the United States and worldwide. These political, social and economic conditions could make it difficult for us, our suppliers and our customers to forecast accurately and plan future business activities, and could adversely affect the financial condition of our suppliers and customers and affect customer decisions as to the amount and timing of purchases from us. As a result, our business could be materially adversely affected.

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

Goodwill 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 intangible assets could have a material adverse effect on our business.

Healthcare costs, including those related to healthcare legislation, have and may continue to impact our business.

The Patient Protection and Affordable Care Act and other recent legislation relating to healthcare have increased our annual employee healthcare cost obligations. In addition, costs associated with healthcare generally, including our retiree healthcare plans, are expected to continue to increase. This area of law is expected to continue to change, and we cannot predict the effect that healthcare legislation or regulation, and the costs of healthcare in general, will ultimately have on our business.

Our working capital requirements may negatively affect our liquidity and capital resources.

Our working capital requirements can vary significantly, depending in part on the timing of our delivery obligations under various customer contracts and the payment terms with our customers and suppliers. If our working capital needs exceed our cash flows from operations, we would look to our cash balances and availability for borrowings under our existing credit facility to satisfy those needs, as well as potential sources of additional capital, which may not be available on satisfactory terms and in adequate amounts, if at all.

Risks Related to Shares of Our Common Stock

Our stock price is subject to fluctuations that may not be related to our performance as a result of being traded on a public exchange.

The stock market can be highly volatile. The market price of our common stock is likely to be similarly volatile, and investors in our common stock may experience a decrease in the value of their stock, including decreases unrelated to our operating performance or prospects. The price of our common stock could be subject to wide fluctuations in response to a number of factors, including, but not limited to, those described elsewhere in this "Risk Factors" section and those listed below:

- fluctuations in the market price of nickel (or other raw materials, such as cobalt, molybdenum or ferrochrome) or energy;
- market conditions in the end markets into which our customers sell their products, principally aerospace, power generation and chemical processing;
- implementation of barriers to free trade between the United States and other countries;
- announcements of technological innovations or new products and services by us or our competitors;
- the operating and stock price performance of other companies that investors may deem comparable to us;
- announcements by us of acquisitions, alliances, joint development efforts or corporate partnerships in the high-temperature resistant alloy and corrosion-resistant alloy markets;
- market conditions in the technology, manufacturing or other growth sectors; and
- rumors relating to us or our competitors.

Payment of dividends will depend on our future financial condition and performance.

Although our Board of Directors currently intends to continue the payment of regular quarterly cash dividends on shares of our common stock, the timing and amount of future dividends will depend on the Board's assessment of our operations, financial condition, projected liabilities, compliance with contractual restrictions in our credit agreement, restrictions imposed by applicable law and other factors. We cannot guarantee that we will continue to declare dividends at the same or similar rates.

Provisions of our certificate of incorporation and by-laws could discourage potential acquisition proposals and could deter or prevent a change in control.

Some provisions in our certificate of incorporation and by-laws, as well as Delaware statutes, may have the effect of delaying, deterring or preventing a change in control. These provisions, including those regulating the nomination of directors, may make it more difficult for other persons, without the approval of our Board of Directors, to launch takeover attempts that a stockholder might consider to be in his or her best interest. These provisions could limit the price that some investors might be willing to pay in the future for shares of our common stock.

Item 1B. Unresolved Staff Comments

There are no unresolved comments by the staff of the U.S. Securities and Exchange Commission.

Item 2. Properties

Manufacturing Facilities. The Company owns manufacturing facilities in the following locations:

- Kokomo, Indiana—manufactures and sells all product forms, other than tubular and wire goods;
- Arcadia, Louisiana—manufactures and sells welded and seamless tubular goods; and
- Mountain Home, North Carolina—manufactures and sells high-performance alloy wire and bar.

The Kokomo plant, the Company's primary production facility, is located on approximately 180 acres of industrial property and includes over 1.0 million square feet of building space. There are three sites consisting of (1) a headquarters and research laboratory; (2) primary and secondary melting, forge press and several smaller hot mills; and (3) the Company's four-high Steckel rolling mill and sheet product cold working equipment, including two cold rolling mills and three annealing furnaces. All alloys and product forms other than tubular and wire goods are produced in Kokomo.

The Arcadia plant is located on approximately 42 acres of land and includes 202,500 square feet of buildings on a single site. Arcadia uses feedstock produced in Kokomo to fabricate welded and seamless high-performance alloy pipe and tubing and purchases extruded tube hollows to produce seamless titanium tubing. Manufacturing processes at Arcadia require cold pilger mills, weld mills, draw benches, annealing furnaces and pickling facilities.

The Mountain Home plant is located on approximately 29 acres of land and includes approximately 100,000 square feet of building space. The Mountain Home facility is primarily used to manufacture finished high-performance alloy wire. Finished wire products are also warehoused at this facility.

The owned facilities located in the United States are subject to a mortgage which secures the Company's obligations under its U.S. revolving credit facility with a group of lenders led by Wells Fargo Capital Finance, LLC. For more information, see Note 8 to the Consolidated Financial Statements included in this Annual Report on Form 10-K.

Service and Sales Centers. The service and sales centers, which stock and sell all product forms, contain equipment capable of precision laser and water jet processing services to cut and shape products to customers' precise specifications. The Company owns service and sales centers in the following locations:

- Openshaw, England
- Lenzburg, Switzerland

The Openshaw plant, located near Manchester, England, consists of approximately 5 acres of land and over 85,000 square feet of buildings on a single site.

In addition, the Company leases service and sales centers, which stock and sell all product forms, in the following locations:

- LaPorte, Indiana
- La Mirada, California
- Houston, Texas
- Windsor, Connecticut

- Shanghai, China

Sales Centers. The Company leases sales centers, which sell all product forms, in the following locations:

- Paris, France
- Zurich, Switzerland
- Singapore
- Milan, Italy
- Tokyo, Japan

On January 1, 2015, the company entered into a capital lease agreement for the building that houses the assets and operations of LaPorte Custom Metal Processing (LCMP). The capital asset and obligation are recorded at the present value of the minimum lease payments. The asset is included in Property, plant and equipment, net on the Consolidated Balance Sheet and is depreciated over the 20 year lease term. The long-term component of the capital lease obligation is included in Long-term obligations (See Note 19. Long-term Obligations).

All owned and leased service and sales centers not described in detail above are single site locations and are less than 100,000 square feet, except for the LaPorte service center which is approximately 230,000 square feet.

Item 3. Legal Proceedings

The Company is subject to extensive federal, state and local laws and regulations. Future developments and increasingly stringent regulations could require the Company to make additional unforeseen expenditures for these matters. The Company is regularly involved in litigation, both as a plaintiff and as a defendant, relating to its business and operations. Such litigation includes, without limitation, federal and state EEOC administrative and judicial actions, litigation of commercial matters and litigation and administrative actions relating to environmental matters. For more information, see "Item 1. Business—Environmental Matters." Litigation and administrative actions may result in substantial costs and may divert management's attention and resources, and the level of future expenditures for legal matters cannot be determined with any degree of certainty. In January 2017, a customer based in the United Kingdom wrote to the Company making a claim in relation to certain product sold to that customer by the Company. This writing was followed up by claim correspondence in 2018 and 2019. The Company has engaged its legal advisors in the United Kingdom to respond to the claim, and correspondence between the parties' respective counsel remains ongoing. To date, the insurers have not accepted coverage responsibility for the claim but have agreed to fund expenses of legal counsel selected by the Company through the date of the determination regarding coverage. The Company intends to pursue such coverage as and if necessary while vigorously defending against the customer claim. Liability for the claim is disputed, and the amount of the claim, if any, remains unclear. Nonetheless, based on the facts presently known, management does not expect expenditures for pending legal proceedings to have a material effect on the Company's financial position, results of operations or liquidity.

Item 4. Mine Safety Disclosures

Not applicable.

Part II

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

The Company's common stock is listed on the NASDAQ Global Market ("NASDAQ") and traded under the symbol "HAYN".

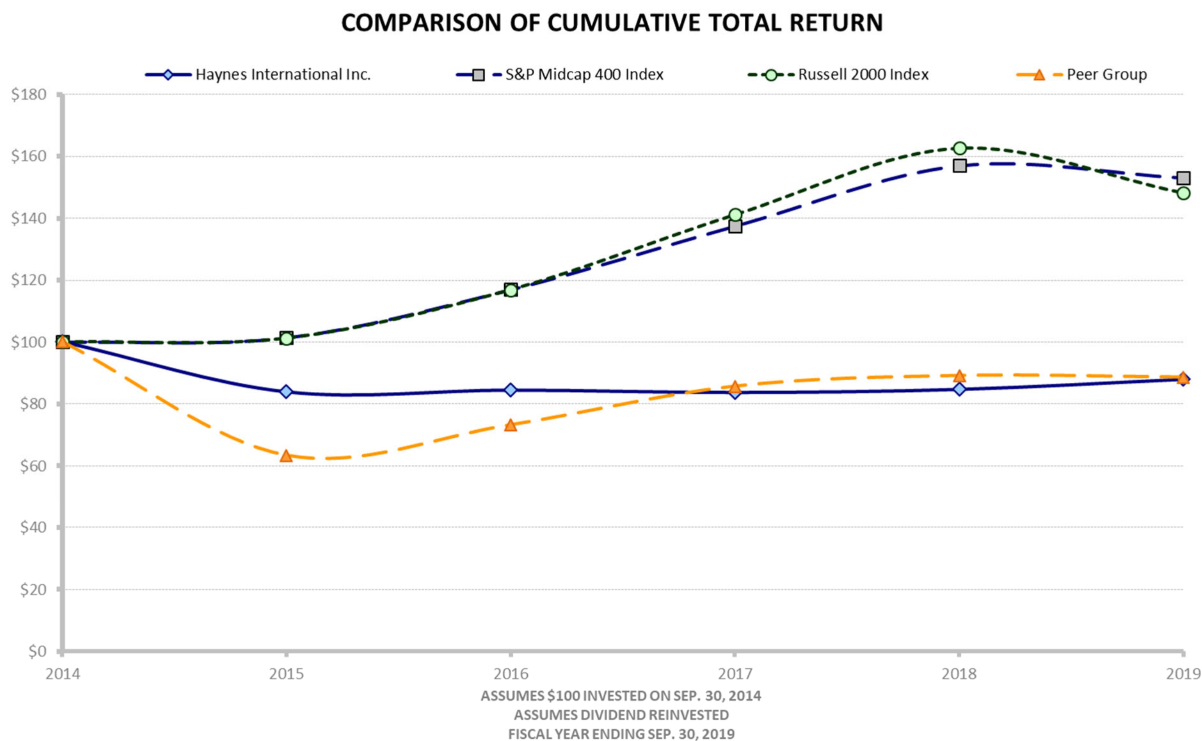
As of November 1, 2019, there were approximately 49 holders of record of the Company's common stock.

The Company has historically paid quarterly cash dividends. While it is the Company's intention to continue to pay quarterly cash dividends for fiscal 2020 and beyond, any decision to pay future cash dividends will be made by the Company's Board of Directors and will depend upon the Company's earnings, financial condition and other factors.

Cumulative Total Stockholder Return

The graph below compares the cumulative total stockholder return on the Company's common stock to the cumulative total return of the Russell 2000 Index, S&P MidCap 400 Index, and the Company's Peer Group for each of the last five fiscal years ended September 30. The cumulative total return assumes an investment of $100 on September 30, 2014 and the reinvestment of any dividends during the period. The Russell 2000 is a broad-based index that includes smaller market capitalization stocks. The S&P MidCap 400 Index is the most widely used index for mid-sized companies. Management believes that the S&P MidCap 400 is representative of companies with similar market and economic characteristics to Haynes. Furthermore, we also believe the Russell 2000 Index is representative of the Company's current market capitalization status and this index is also provided on a comparable basis. The companies included in the Company's Peer Group Index did not change in fiscal 2019 and consist of: Allegheny Technologies, Inc., Arconic, Inc., Carpenter Technology Corp., Commercial Metals, Inc., Global Brass and Copper Holdings, Inc., Insteel Industries, Inc., Kaiser Aluminum Corporation, Materion Corporation, Olympic Steel, Inc., and Universal Stainless & Alloy Products, Inc.. Management believes that the companies included in the Peer Group, taken as a whole, provide a meaningful comparison in terms of competition, product offerings and other relevant factors. The total stockholder return for the Peer Group is weighted according to the respective issuer's stock market capitalization at the beginning of each period.

COMPARISON OF 5 YEAR CUMULATIVE TOTAL RETURN
Among Haynes, The Russell 2000 Index, The S&P MidCap 400 Index and our Peer Group



	2014	2015	2016	2017	2018	2019
Haynes International, Inc.	100.00	83.96	84.54	83.77	84.75	87.96
Russell 2000	100.00	101.25	116.91	141.15	162.66	148.20
S&P MidCap 400	100.00	101.40	116.94	137.42	156.95	153.04
New Peer Group	100.00	63.39	73.25	85.70	89.13	88.62

Item 6. Selected Financial Data

This information should be read in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the consolidated financial statements and related notes thereto included elsewhere in this Annual Report on Form 10-K.

Amounts below are in thousands, except backlog, which is in millions, share and per share information and average nickel price.

	Year Ended September 30,				
	2015	2016	2017	2018	2019
Statement of Operations Data:					
Net revenues	$ 487,635	$ 406,359	$ 395,209	$ 435,326	$ 490,215
Cost of sales	385,769	344,774	349,520	379,491	424,712
Selling, general and administrative expense	42,418	38,953	41,569	47,030	44,195
Research and technical expense	3,598	3,698	3,855	3,785	3,592
Operating income (loss)	55,850	18,934	265	5,020	17,716
Nonoperating retirement benefit expense	8,356	14,736	16,803	8,238	3,446
Interest expense (income), net	318	447	679	836	900
Provision for (benefit from) income taxes	16,690	(1,269)	(7,027)	17,697	3,625
Net income (loss)	$ 30,486	$ 5,020	$ (10,190)	$ (21,751)	$ 9,745
Net income (loss) per share:					
Basic	$ 2.45	$ 0.40	$ (0.83)	$ (1.75)	$ 0.78
Diluted	$ 2.45	$ 0.40	$ (0.83)	$ (1.75)	$ 0.78
Dividends declared per common share	$ 0.88	$ 0.88	$ 0.88	$ 0.88	$ 0.88
Weighted average shares outstanding:					
Basic	12,331,805	12,361,483	12,397,099	12,419,564	12,445,212
Diluted	12,344,209	12,366,197	12,397,099	12,419,564	12,480,908

Note that the Company implemented ASU 2017-07, Compensation – Retirement Benefits (Topic 715) on October 1, 2018 on a retrospective basis. This guidance requires non-service costs components of retirement expense to be reclassified outside of operating income to a new category titled "Nonoperating retirement benefit expense" in the statement of operations. Gross margins were favorably impacted by the reclassification of the non-service cost components of retirement expense. All prior periods have been adjusted for this change in accounting.

	September 30,				
	2015	2016	2017	2018	2019
Balance Sheet Data:					
Working capital	$ 332,015	$ 310,872	$ 300,468	$ 304,151	$ 311,793
Property, plant and equipment, net	185,351	199,182	192,556	179,400	169,966
Total assets	638,191	649,601	621,819	588,694	593,800
Total debt	4,574	8,256	7,896	8,127	7,979
Long-term portion of debt	4,574	8,256	7,896	7,980	7,809
Accrued pension and postretirement benefits[1]	217,837	255,346	208,476	170,180	215,741
Stockholders' equity	341,989	311,299	333,772	333,220	296,275
Cash dividends paid	10,952	10,988	11,009	11,013	11,011

	2015	2016	2017	2018	2019
Consolidated Backlog at Fiscal Quarter End[2]:					
1st quarter	$ 215.5	$ 204.7	$ 167.3	$ 205.7	$ 237.8
2nd quarter	220.4	193.5	170.8	212.3	253.0
3rd quarter	192.9	187.2	180.9	220.6	254.9
4th quarter	185.8	168.3	177.3	216.0	235.2

	Year Ended September 30,				
	2015	2016	2017	2018	2019
Average nickel price per pound[3]	$ 4.49	$ 4.63	$ 5.10	$ 5.68	$ 8.02

(1) Significant increases in the pension and postretirement benefits liability occurred in fiscal 2016 and fiscal 2019, primarily due to reductions in the discount rate used to value the future liability. Conversely, significant decreases occurred in fiscal 2017 and fiscal 2018 primarily due to the increase in the discount rate used to value the future liability. This has been reflected actuarially as a change to the Pension and Postretirement Benefits Liability and a corresponding change to the accumulated Other Comprehensive Loss account. On a prospective basis, if interest rates were to rise, this would cause a decrease in the liability and accumulated other comprehensive loss.

(2) The Company defines backlog to include firm commitments from customers for delivery of product at established prices. There are orders in the backlog at any given time which include prices that are subject to adjustment based on changes in raw material costs, which can vary from approximately 30%-50% of the orders. Historically, approximately 75% of the backlog orders have shipped within six months and approximately 90% have shipped within 12 months. The backlog figures do not typically reflect that portion of the business conducted at service and sales centers on a spot or "just-in-time" basis.

(3) Represents the average price for a cash buyer as reported by the London Metals Exchange for the 30 days ending on the last day of the period presented.

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

Please refer to page 2 of this Annual Report on Form 10-K for a cautionary statement regarding forward-looking information.

Overview of Business

The Company is one of the world's largest producers of high-performance nickel- and cobalt-based alloys in flat product form, such as sheet, coil and plate. The Company is focused on developing, manufacturing, marketing and distributing technologically advanced, high-performance alloys, which are used primarily in the aerospace, chemical processing and industrial gas turbine industries. The global specialty alloy market consists of three primary sectors: stainless steel, general-purpose nickel alloys and high-performance nickel- and cobalt-based alloys. The Company competes primarily in the high-performance nickel- and cobalt-based alloy sector, which includes high-temperature resistant alloys, or HTA products, and corrosion-resistant alloys, or CRA products. The Company believes it is one of the principal producers of high-performance alloy flat products in sheet, coil and plate forms. The Company also produces its products as seamless and welded tubulars and in bar, billet and wire forms.

The Company has manufacturing facilities in Kokomo, Indiana; Arcadia, Louisiana; and Mountain Home, North Carolina. The Kokomo facility specializes in flat products, the Arcadia facility specializes in tubular products and the Mountain Home facility specializes in wire and bar products. The Company distributes its products primarily through its direct sales organization, which includes 12 service and/or sales centers in the United States, Europe and Asia. All of these centers are Company-operated.

Overview of Markets

The following table includes a breakdown of net revenues, shipments and average selling prices to the markets served by the Company for the periods shown.

	Year Ended September 30,									
	2015		2016		2017		2018		2019	
	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total
Net Revenues (dollars in millions)										
Aerospace	$ 215.1	44.1 %	$ 197.4	48.6 %	$ 192.5	48.7 %	$ 226.9	52.1 %	$ 258.1	52.7 %
Chemical processing	111.6	22.9	72.3	17.8	70.5	17.8	79.2	18.2	89.7	18.3
Industrial gas turbine	74.4	15.3	68.1	16.8	61.5	15.6	52.4	12.0	59.4	12.1
Other markets	59.8	12.2	45.0	11.0	43.2	10.9	53.4	12.3	57.9	11.8
Total product	460.9	94.5	382.8	94.2	367.7	93.0	411.9	94.6	465.1	94.9
Other revenue[1]	26.7	5.5	23.6	5.8	27.5	7.0	23.4	5.4	25.1	5.1
Net revenues	$ 487.6	100.0 %	$ 406.4	100.0 %	$ 395.2	100.0 %	$ 435.3	100.0 %	$ 490.2	100.0 %
U.S.	$ 287.7	59.0 %	$ 233.6	57.5 %	$ 235.5	59.6 %	$ 258.3	59.3 %	$ 300.7	61.3 %
Foreign	$ 199.9	41.0 %	$ 172.8	42.5 %	$ 159.7	40.4 %	$ 177.0	40.7 %	$ 189.5	38.7 %
Shipments by Market (millions of pounds)										
Aerospace	9.2	45.3 %	8.7	48.3 %	8.8	48.6 %	9.8	53.3 %	10.3	51.5 %
Chemical processing	4.3	21.2	2.8	15.6	3.2	17.7	3.9	21.2	4.3	21.5
Industrial gas turbine	4.7	23.2	5.0	27.8	4.5	24.9	2.9	15.8	3.4	17.0
Other markets	2.1	10.3	1.5	8.3	1.6	8.8	1.8	9.8	2.0	10.0
Total Shipments	20.3	100.0 %	18.0	100.0 %	18.1	100.0 %	18.4	100.0 %	20.0	100.0 %
Average Selling Price Per Pound										
Aerospace	$ 23.27		$ 22.64		$ 21.76		$ 23.05		$ 25.11	
Chemical processing	25.97		26.68		22.28		20.54		20.80	
Industrial gas turbine	15.99		13.71		13.77		18.27		17.44	
Other markets	28.98		30.74		26.36		29.14		28.35	
Total product[2]	22.75		21.31		20.30		22.38		23.21	
Total average selling price	24.07		22.62		21.81		23.66		24.46	

(1) Other revenue consists of toll conversion, royalty income, scrap sales and revenue recognized from the TIMET agreement (see Note 16 in the Notes to the Consolidated Financial Statements). Other revenue does not include associated shipment pounds.

(2) Total product price per pound excludes "Other Revenue".

Aerospace demand in fiscal 2015 was recovering and resupplying from a period of customer destocking within the supply chain the previous year. Fiscal 2015 proved to be a record year in volume for the Company in aerospace shipments at that time. Aerospace demand moderated slightly in fiscal 2016 due to delays in the transition to new engine platforms combined with some softness in demand driven by lower oil and fuel costs. As these issues normalized, pounds shipped increased slightly in fiscal 2017, although at a lower average selling price, resulting in a decline in aerospace revenues in fiscal 2017. Underpinning demand for new engines is a desire for more fuel-efficiency and lower emissions, which had been tempered with previous decreases in fuel prices. The slight pull-back was temporary, and in fiscal 2018 aerospace volume hit record levels and revenue increased 17.9%. Growth continued in fiscal 2019, with continued traction of the new generation engine platforms in spite of the grounding of the Boeing 737MAX aircraft. Fiscal 2019 sales into the aerospace market represented a record year in both volume, increasing 4.4%, and revenue, increasing 13.8%, in each case as compared to last fiscal year. One of the Company's core focus initiatives was to increase prices, which contributed to the revenue increase. Sales into the aerospace market represented 52.7% of the Company's overall revenue in fiscal 2019. Management anticipates that the maintenance, repair and overhaul business will continue at a steady-to-increasing pace due to required maintenance schedules for the rising number of engines in service year-over-year.

Chemical processing industry revenue declined in fiscal 2015, then took a sizable step down in fiscal 2016 and decreased again in fiscal 2017. Sales into this market in fiscal 2015 and the second half of fiscal 2016 included some high-

value special application projects with high average selling prices per pound, but overall base-volumes in this market were low in both fiscal 2015 and 2016 compared to prior years. Fiscal 2017 volume shipments increased, but at a lower average price per pound, resulting in lower chemical processing revenue in fiscal 2017 compared to fiscal 2016. Chemical processing revenue in fiscal 2018 increased 12.3% due to recovery in the base business, as well as a moderate increase in specialty application projects. This growth continued in fiscal 2019 with net revenues into the chemical processing market increasing 13.2%, which represents 18.3% of total net revenues. The main driver of demand in this market is capital spending in the chemical processing sector driven by end-user demand for housing, automotive, energy and agricultural products. The chemical processing market is sensitive to oil prices, currency fluctuations and fiscal policies as well as world economic conditions and GDP growth. Additional drivers of demand in this market were the increase in North American production of natural gas liquids and the further downstream processing of chemicals that may utilize equipment that requires high-performance alloys. Increased sales to the chemical processing industry in fiscal 2018 and 2019 were related to improvement in global spending in the chemical processing sector combined with the Company's focus initiatives aimed at improving volumes.

Sales to the industrial gas turbine market declined each year from fiscal 2016 to 2018 and fiscal 2018 volumes represented less than half the volume of fiscal 2012 peak levels. Reported significant overcapacity in large-frame turbines primarily used for electrical generation combined with growth in renewable energy facilities has taken a toll on demand for large frame gas turbines. Two of the large OEM producers of large-frame turbines have reported weak demand and announced restructuring plans in their power generation businesses. This period of weak demand is not expected to recover quickly and may not recover to peak demand level, however management believes that long-term demand in this market will stabilize due to higher activity in power generation and alternative power systems. Industrial gas turbines are beneficial in electric generating facilities due to low capital cost at installation, fewer emissions than traditional fossil fuel-fired facilities and favorable natural gas prices provided by availability of non-conventional (shale) gas supplies. Management anticipates that the maintenance, repair and overhaul business will continue at a steady to increasing pace due to required maintenance schedules.

Volume shipped into the other markets category declined in fiscal 2016 and improved in each of fiscal 2017, 2018 and 2019. Sales to this market in fiscal 2015 included some high-value special application projects with high average selling prices per pound. The industries in this category focus on upgrading overall product quality, improving product performance through increased efficiency, prolonging product life and lowering long-term costs. Companies in these industries are looking to achieve these goals through the use of "advanced materials" which support the increased use of high-performance alloys in an expanding number of applications. In addition to supporting and expanding the traditional businesses of oil and gas, flue-gas desulfurization, automotive and heat treating, the Company expects increased levels of activity in non-traditional markets such as fuel cells and alternative energy applications in the long term.

Other revenue consists primarily of toll conversion, but also includes royalty income, scrap sales and revenue recognized from the TIMET agreement. The demand for toll conversion includes TIMET conversion demand completed on the Company's four-high Steckel hot rolling mill in Kokomo, Indiana, as well as conversion work completed through LaPorte Customer Metal Products. Other revenue demand levels can vary year-to-year based upon demand drivers in the respective markets of our tolling customers. In fiscal 2019 other revenue represented 5.1% of net sales. Other revenue does not include associated shipment pounds as the metal is not owned by the Company.

Completion of Planned Equipment Outage and Upgrade

The Company undertook a significant planned equipment outage and upgrade in the cold-finishing production area during the first quarter and a portion of the second quarter of fiscal 2019, upgrading certain components of one of the three annealing lines beginning in mid-October 2018. The duration was fifteen weeks, with the upgraded annealing line placed back into service in late January 2019. The outage required to complete these upgrades had a significant impact on the Company's financial results in the first quarter of fiscal 2019, as well as a moderate financial impact on the second quarter of fiscal 2019. Start-up costs, including higher processing costs and lower yields, impacted product costs in the second quarter and represented a temporary margin headwind. This margin challenge continued through the third and fourth quarters as the higher-cost product produced during the start-up has shipped through the Company's foreign service centers and is reflected in cost of sales. This margin headwind has alleviated as of the end of the fourth quarter and is not

expected to impact the first or subsequent quarters of fiscal year 2020. The upgraded line is expected to be one of the key drivers to revenue growth moving forward.

Summary of Capital Spending

Capital spending was $11.1 million and $10.0 million in fiscal 2018 and 2019, respectively, and the forecast for capital spending in fiscal 2020 is approximately $12.0 million, which represents a level below the Company's depreciation levels.

Decrease in Discount Rate for Pension and Retiree Healthcare Liabilities

Due to the lower interest rate environment, a significant decrease in the discount rate used in the actuarial valuation of the Company's pension and retiree healthcare liabilities was required. This contributed to the $46.4 million increase in the long-term liabilities for Pension and Other Postretirement Benefits and the corresponding increase in Accumulated Other Comprehensive Loss on the balance sheet at September 30, 2019 (see Note 9 in the Company's Notes to Consolidated Financial Statements in this Annual Report on Form 10-K). In addition, this is expected to increase expense related to pension and retiree healthcare in fiscal year 2020 by $4.8 million, reflected mostly in the Nonoperating Retirement Benefit Expense in the Statement of Operations.

Volumes, Competition and Pricing

Volume shipped in the fourth quarter of fiscal 2019 was 5.4 million pounds, the Company's highest quarterly volume in four and a half years. The strong quarterly shipment performance put volume for fiscal 2019 at 20.0 million pounds, thus alleviating the margin headwind associated with lower volumes. The prior three years' volumes were at lower levels with volumes for fiscal 2016, 2017 and 2018 at 18.0 million, 18.1 million and 18.4 million pounds, respectively.

Record volume shipped into the aerospace market during fiscal 2019 was 10.3 million pounds, the highest in the Company's history. In addition, volume shipped into the chemical processing market in fiscal 2019 increased 11.8% to 4.3 million pounds, industrial gas turbine volumes increased 18.9% to 3.4 million pounds and other markets increased 11.5% to 2.0 million pounds. These strong growth rates are reflective of demand levels in these markets combined with several focus initiatives that are underway to improve volume levels.

The product average selling price per pound in fiscal 2019 was $23.21, which is a 3.7% increase over last fiscal year. The increase is partly driven by the realization of price increases primarily in the aerospace market, which continues to be an area of strategic focus. Sales into the aerospace market had an average selling price per pound of $25.11, which is higher by 8.9% over last fiscal year. Also impacting the average price per pound in fiscal 2019 were product mix and raw material pricing. In addition, volumes and revenue of specialty application projects were higher in fiscal 2019 compared to last fiscal year and were comprised of small/medium size projects as opposed to the individual large projects as has been the case in some historical fiscal years.

The average market price of nickel as reported by the London Metals Exchange for the last three years was $4.70 per pound in fiscal 2017, $5.95 in fiscal 2018, and $6.08 in fiscal 2019. The London Metals Exchange price for the 30-days ending September 30, 2019 was $8.02 per pound. The Company values inventory utilizing the first-in, first-out ("FIFO") inventory costing methodology. In a period of decreasing raw material costs, the FIFO inventory valuation normally results in higher costs of sales as compared to the last-in, first out method. Conversely, in a period of rising prices, the FIFO inventory valuation normally results in lower costs of sales as compared to the last-in, first out method.

Gross Profit Margin Trend Performance

The following tables show net revenue, gross profit margin and gross profit margin percentage for fiscal 2018 and fiscal 2019.

	Trend of Gross Profit Margin and Gross Profit Margin Percentage for Fiscal 2018			
	Quarter Ended			
	December 31	March 31	June 30	September 30
Net revenues	$ 89,693	$ 110,206	$ 113,114	$ 122,313
Gross Profit Margin	9,075	13,513	15,363	17,884
Gross Profit Margin %	10.1%	12.3%	13.6%	14.6%

	Trend of Gross Profit Margin and Gross Profit Margin Percentage for Fiscal 2019			
	Quarter Ended			
	December 31	March 31	June 30	September 30
Net revenues	$ 107,069	$ 127,474	$ 126,032	$ 129,640
Gross Profit Margin	11,335	14,683	18,175	21,310
Gross Profit Margin %	10.6%	11.5%	14.4%	16.4%

Gross margins ended fiscal year 2019 at $21.3 million, or 16.4% of net sales, which is the highest in three years. This margin improvement is in spite of two headwinds compressing margins in terms of the fall in the market price of cobalt and the shipment of the last of the higher cost product produced during the cold-finishing outage and upgrade. Both of these headwinds are expected to be alleviated moving into fiscal 2020. As described above, several focus initiatives are underway to improve margins including improving volumes and pricing, mix management and cost reductions. The fourth quarter volume was 5.4 million pounds, the Company's highest quarterly volume in four and a half years, which drove favorable fixed cost absorption contributing to improved margins. Price increases notably in the aerospace market and a significant emphasis on costs reductions also contributed to margin enhancement.

Note that the Company implemented ASU 2017-07, Compensation – Retirement Benefits (Topic 715) on October 1, 2018 on a retrospective basis. This guidance requires non-service costs components of retirement expense to be reclassified outside of operating income to a new category titled "Nonoperating retirement benefit expense" in the statement of operations. Gross margins were favorably impacted by the reclassification of the non-service cost components of retirement expense. All prior periods have been adjusted for this change in accounting.

Controllable Working Capital

Controllable working capital, which includes accounts receivable, inventory, accounts payable and accrued expenses, was $282.5 million at September 30, 2019, a decrease of $9.4 million or 3.2% from $291.9 million at September 30, 2018. This decrease resulted primarily from inventory decreasing $14.2 million, partially offset by an increase of accounts receivable of $3.5 million and decreases of accounts payable and accrued expenses of $1.3 million in the aggregate. As compared to the third quarter ended June 30, 2019, controllable working capital decreased $4.5 million, or 1.6%. This decrease resulted primarily from inventory decreasing $10.3 million and accounts receivable decreasing $0.8 million, partially offset by decreases in accounts payable and accrued expenses of $6.5 million in the aggregate.

Dividends Declared

On November 14, 2019, the Company announced that the Board of Directors declared a regular quarterly cash dividend of $0.22 per outstanding share of the Company's common stock. The dividend is payable December 16, 2019 to stockholders of record at the close of business on December 2, 2019. The aggregate cash payout based on current shares outstanding will be approximately $2.8 million, or approximately $11.0 million on an annualized basis.

Backlog

Set forth below is information relating to the Company's backlog and the 30-day average nickel price per pound as reported by the London Metals Exchange. This information should be read in conjunction with the consolidated financial statements and related notes thereto and the remainder of "Management's Discussion and Analysis of Financial Condition and Results of Operations" included in this Annual Report on Form 10-K.

	Quarter Ended				Quarter Ended			
	December 31, 2017	March 31, 2018	June 30, 2018	September 30, 2018	December 31, 2018	March 31, 2019	June 30, 2019	September 30, 2019
Backlog								
Dollars (in thousands)	$ 205,718	$ 212,312	$ 220,596	$ 216,020	$ 237,802	$ 253,003	$ 254,947	$ 235,204
Pounds (in thousands)	8,073	7,764	7,646	7,260	8,392	8,855	9,072	8,064
Average selling price per pound	$ 25.48	$ 27.35	$ 28.85	$ 29.75	$ 28.34	$ 28.57	$ 28.10	$ 29.17
Average nickel price per pound								
London Metals Exchange[(1)]	$ 5.18	$ 6.08	$ 6.85	$ 5.68	$ 4.92	$ 5.93	$ 5.43	$ 8.02

(1) Represents the average price for a cash buyer as reported by the London Metals Exchange for the 30 days ending on the last day of the period presented.

Backlog was $235.2 million at September 30, 2019, a decrease of approximately $19.7 million, or 7.7%, from $254.9 million at June 30, 2019. The backlog dollars decreased during the fourth quarter of fiscal 2019 due to an 11.1% decrease in backlog pounds partially offset by a 3.8% increase in backlog average selling price. The increase in average selling price was due to a higher-value product mix and higher selling prices in the backlog.

The backlog increased by $19.2 million, or 8.9%, from $216.0 million at September 30, 2018 to $235.2 million at September 30, 2019 due to an 11.1% increase in backlog pounds partially offset by a 2.0% decrease in backlog average selling price. The increase in backlog pounds was primarily driven by increases in demand in the aerospace and industrial gas turbines markets.

Revenues by geographic area

Net revenues in fiscal 2017, 2018 and 2019 were generated primarily by the Company's U.S. operations. Sales to domestic customers comprised approximately 60%, 59% and 61% of the Company's net revenues in fiscal 2017, 2018 and 2019, respectively. In addition, the majority of the Company's operating costs are incurred in the U.S., as all of its manufacturing facilities are located in the U.S. It is expected that net revenues will continue to be highly dependent on the Company's domestic sales and manufacturing facilities in the U.S.

The Company's foreign and export sales were approximately $159.7 million, $177.0 million and $189.5 million for fiscal 2017, 2018 and 2019, respectively. Additional information concerning foreign operations and export sales is set forth in Note 14 to the Consolidated Financial Statements included in this Annual Report on Form 10-K.

Quarterly Market Information

	Quarter Ended				Quarter Ended			
	December 31, 2017	March 31, 2018	June 30, 2018	September 30, 2018	December 31, 2018	March 31, 2019	June 30, 2019	September 30, 2019
Net revenues (in thousands)								
Aerospace	$ 46,839	$ 59,033	$ 59,646	$ 61,380	$ 54,607	$ 68,858	$ 66,321	$ 68,318
Chemical processing	13,356	21,148	21,364	23,301	18,920	21,761	21,197	27,773
Industrial gas turbine	13,421	11,755	11,866	15,308	14,083	13,685	15,870	15,792
Other markets	9,238	12,724	14,863	16,592	14,285	16,958	15,666	11,037
Total product revenue	82,854	104,660	107,739	116,581	101,895	121,262	119,054	122,920
Other revenue	6,839	5,546	5,375	5,732	5,174	6,212	6,978	6,720
Net revenues	$ 89,693	$ 110,206	$ 113,114	$ 122,313	$ 107,069	$ 127,474	$ 126,032	$ 129,640
Shipments by markets (in thousands of pounds)								
Aerospace	2,023	2,578	2,645	2,598	2,112	2,857	2,579	2,731
Chemical processing	687	1,000	1,018	1,150	898	971	1,126	1,315
Industrial gas turbine	876	640	622	728	811	757	893	946
Other markets	332	479	498	524	509	580	523	432
Total shipments	3,918	4,697	4,783	5,000	4,330	5,165	5,121	5,424
Average selling price per pound								
Aerospace	$ 23.15	$ 22.90	$ 22.55	$ 23.63	$ 25.86	$ 24.10	$ 25.72	$ 25.02
Chemical processing	19.44	21.15	20.99	20.26	21.07	22.41	18.83	21.12
Industrial gas turbine	15.32	18.37	19.08	21.03	17.36	18.08	17.77	16.69
Other markets	27.83	26.56	29.85	31.66	28.06	29.24	29.95	25.55
Total average selling price (product only; excluding other revenue)	21.15	22.28	22.53	23.32	23.53	23.48	23.25	22.66
Total average selling price (including other revenue)	22.89	23.46	23.65	24.46	24.73	24.68	24.61	23.90

Results of Operations

Year Ended September 30, 2019 Compared to Year Ended September 30, 2018

($ in thousands, except per share figures)

	Year Ended September 30,				Change	
	2018		2019		Amount	%
Net revenues	$ 435,326	100.0 %	$ 490,215	100.0 %	$ 54,889	12.6 %
Cost of sales	379,491	87.2 %	424,712	86.6 %	45,221	11.9 %
Gross profit	55,835	12.8 %	65,503	13.4 %	9,668	17.3 %
Selling, general and administrative expense	47,030	10.8 %	44,195	9.0 %	(2,835)	(6.0)%
Research and technical expense	3,785	0.9 %	3,592	0.7 %	(193)	(5.1)%
Operating income (loss)	5,020	1.2 %	17,716	3.6 %	12,696	252.9 %
Nonoperating retirement benefit expense	8,238	1.9 %	3,446	0.7 %	(4,792)	(58.2)%
Interest income	(82)	(0.0)%	(86)	(0.0)%	(4)	4.9 %
Interest expense	918	0.2 %	986	0.2 %	68	7.4 %
Income (loss) before income taxes	(4,054)	(0.9)%	13,370	2.7 %	17,424	(429.8)%
Provision for (benefit from) income taxes	17,697	4.1 %	3,625	0.7 %	(14,072)	(79.5)%
Net income (loss)	$ (21,751)	(5.0)%	$ 9,745	2.0 %	$ 31,496	(144.8)%
Net income (loss) per share:						
Basic	$ (1.75)		$ 0.78			
Diluted	$ (1.75)		$ 0.78			
Weighted average shares outstanding:						
Basic	12,419,564		12,445,212			
Diluted	12,419,564		12,480,908			

The following table includes a breakdown of net revenues, shipments and average selling prices to the markets served by the Company for the periods shown.

By market

	Year Ended September 30,		Change	
	2018	2019	Amount	%
Net revenues (dollars in thousands)				
Aerospace	$ 226,898	$ 258,104	$ 31,206	13.8 %
Chemical processing	79,169	89,651	10,482	13.2 %
Industrial gas turbine	52,350	59,430	7,080	13.5 %
Other markets	53,417	57,946	4,529	8.5 %
Total product revenue	411,834	465,131	53,297	12.9 %
Other revenue	23,492	25,084	1,592	6.8 %
Net revenues	$ 435,326	$ 490,215	$ 54,889	12.6 %
Pounds by market (in thousands)				
Aerospace	9,844	10,279	435	4.4 %
Chemical processing	3,855	4,310	455	11.8 %
Industrial gas turbine	2,866	3,407	541	18.9 %
Other markets	1,833	2,044	211	11.5 %
Total shipments	18,398	20,040	1,642	8.9 %
Average selling price per pound				
Aerospace	$ 23.05	$ 25.11	$ 2.06	8.9 %
Chemical processing	20.54	20.80	0.26	1.3 %
Industrial gas turbine	18.27	17.44	(0.83)	(4.5)%
Other markets	29.14	28.35	(0.79)	(2.7)%
Total product (excluding other revenue)	22.38	23.21	0.83	3.7 %
Total average selling price (including other revenue)	$ 23.66	$ 24.46	$ 0.80	3.4 %

Net Revenues. Net revenues were $490.2 million in fiscal 2019, an increase of 12.6% from $435.3 million in fiscal 2018, due to an increase in average selling price per pound combined with an increase in volume. The average product selling price was $23.21 per pound in fiscal 2019, an increase of 3.7%, or $0.83, from $22.38 per pound in fiscal 2018. Volume was 20.0 million pounds in fiscal 2019, an increase of 8.9% from 18.4 million pounds in fiscal 2018, with increases in each of the major markets. The average product selling price per pound increased as a result of price increases as well as other pricing considerations (such as customer mix, timing of customer agreement adjustors, etc.) and higher value product mix, which increased average selling price per pound by approximately $1.24 and $0.06, respectively, partially offset by lower raw material market prices, which decreased the average selling price per pound by approximately $0.47.

Sales to the aerospace market were $258.1 million in fiscal 2019, an increase of 13.8% from $226.9 million in fiscal 2018, due to an 8.9% increase in the average selling price per pound, or $2.06, combined with a 4.4% increase in volume. Demand in the aerospace market remains solid with volume in fiscal 2019 at record levels. However, uncertainty exists related to the Boeing 737MAX production schedule and the timing of lifting of the global grounding. The average selling price per pound increase reflects a higher value product mix and other pricing considerations, which increased average selling price per pound by approximately $2.72, partially offset by a change in market prices of raw materials, which decreased average selling price per pound by approximately $0.66.

Sales to the chemical processing market were $89.7 million in fiscal 2019, an increase of 13.2% from $79.2 million in fiscal 2018, due to an 11.8% increase in volume, combined with a 1.3%, or $0.26, increase in the average selling price per pound. Volumes increased in fiscal 2019 from both base business and special projects as compared to fiscal 2018. The average selling price per pound increase reflects a change in market prices of raw materials and other pricing considerations, which increased average selling price per pound by approximately $0.89, partially offset by a change to a lower-value product mix, which decreased average selling price per pound by approximately $0.63.

Sales to the industrial gas turbine market were $59.4 million in fiscal 2019, an increase of 13.5% from $52.4 million in fiscal 2018, due to an 18.9% increase in volume partially offset by a 4.5%, or $0.83, decrease in the average selling price per pound. The increase in volume was primarily due to an increase in small and medium frame engine builds, combined with a resupply of material into the supply chain. Demand for large-frame turbines in the energy market continues to be weak. The decrease in average selling price per pound primarily reflects a change to a lower-value product mix and lower market raw material prices, which decreased average selling price per pound by approximately $1.67 and $0.32, respectively, partially offset by increased base prices and other pricing considerations which increased the average selling price per pound by approximately $1.16.

Sales to other markets were $57.9 million in fiscal 2019, an increase of 8.5% from $53.4 million in fiscal 2018, due to an 11.5% increase in volume, partially offset by a 2.7%, or $0.79, decrease in average selling price per pound. The increase in volume is due primarily to an increase in demand in the flue-gas desulfurization market. The decrease in average selling price reflects lower market raw material prices and a lower-value product mix, which decreased average selling price per pound by approximately $1.34, partially offset by other pricing considerations, which increased average selling price per pound by approximately $0.55.

Other Revenue. Other revenue was $25.1 million in fiscal 2019, an increase of 6.8% from $23.5 million in fiscal 2018. The increase in other revenue is primarily attributable to increased toll conversion services.

Cost of Sales. Cost of sales was $424.7 million, or 86.6% of net revenues, in fiscal 2019 compared to $379.5 million, or 87.2% of net revenues, in fiscal 2018. Cost of sales in fiscal 2019 increased by $45.2 million primarily due to higher volumes.

Gross Profit. As a result of the above factors, gross margin was $65.5 million for fiscal 2019, an increase of $9.7 million from $55.8 million in fiscal 2018. Gross margin as a percentage of net revenue increased to 13.4% in fiscal 2019 as compared to 12.8% in fiscal 2018.

Selling, General and Administrative Expense. Selling, general and administrative expense was $44.2 million for fiscal 2019, a decrease of $2.8 million, or 6.0%, from $47.0 million in fiscal 2018. The significant drivers of the decrease in fiscal 2019 included two events that took place during fiscal 2018. First, expense of $1.5 million was recorded in fiscal 2018 related to certain legal and due diligence costs incurred in a terminated strategic acquisition initiative. Second, expense of $1.3 million was recorded in fiscal 2018 related to the retirement of the Company's Chief Executive Officer. As a result of the above-mentioned charges in fiscal 2018, selling, general and administrative expense as a percentage of net revenues decreased to 9.0% for fiscal 2019 compared to 10.8% for the same period of fiscal 2018.

Research and Technical Expense. Research and technical expense was $3.6 million, or 0.7% of revenue, for fiscal 2019, compared to $3.8 million, or 0.9% of net revenue, in fiscal 2018.

Operating Income/(Loss). As a result of the above factors, operating income in fiscal 2019 was $17.7 million, compared to operating income of $5.0 million in fiscal 2018.

Nonoperating retirement benefit expense. Nonoperating retirement benefit expense was $3.4 million in fiscal 2019, compared to $8.2 million in the same period of fiscal 2018. The reduction in expense was primarily driven by higher discount rates which resulted in lower retirement liabilities and ultimately lower expense.

Income Taxes. Income tax expense was $3.6 million during fiscal 2019, a difference of $14.1 million from an expense of $17.7 million in the same period of fiscal 2018. The lower tax expense for fiscal 2019 as compared to fiscal 2018 is primarily attributable to the passage of the Tax Cuts and Jobs Act during fiscal 2018, which required the Company to revalue its deferred tax asset based on the lowering of the statutory tax rate of 35% to 21% (24.5% in fiscal 2018). Note 7 to the consolidated financial statements in this Annual Report on Form 10-K for the year ended September 30, 2019 sets forth additional information regarding the impact of the Tax Cuts and Jobs Act. The Company's effective tax rate (ETR) for fiscal 2019 was adversely affected by the forfeiture of stock compensation which increased the ETR by approximately 4.7%.

Net Income/(Loss). As a result of the above factors, net income for fiscal 2019 was $9.7 million, an increase of $31.5 million from net loss of $(21.8) million in fiscal 2018.

Year Ended September 30, 2018 Compared to Year Ended September 30, 2017

($ in thousands, except per share figures)

	Year Ended September 30,				Change	
	2017		2018		Amount	%
Net revenues	$ 395,209	100.0 %	$ 435,326	100.0 %	$ 40,117	10.2 %
Cost of sales	349,520	88.4 %	379,491	87.2 %	29,971	8.6 %
Gross profit	45,689	11.6 %	55,835	12.8 %	10,146	22.2 %
Selling, general and administrative expense	41,569	10.5 %	47,030	10.8 %	5,461	13.1 %
Research and technical expense	3,855	1.0 %	3,785	0.9 %	(70)	(1.8)%
Operating income (loss)	265	0.1 %	5,020	1.2 %	4,755	1,794.3 %
Nonoperating retirement benefit expense	16,803	4.3 %	8,238	1.9 %	(8,565)	(51.0)%
Interest income	(186)	(0.0)%	(82)	(0.0)%	104	(55.9)%
Interest expense	865	0.2 %	918	0.2 %	53	6.1 %
Income (loss) before income taxes	(17,217)	(4.4)%	(4,054)	(0.9)%	13,163	(76.5)%
Provision for (benefit from) income taxes	(7,027)	(1.8)%	17,697	4.1 %	24,724	(351.8)%
Net income (loss)	$ (10,190)	(2.6)%	$ (21,751)	(5.0)%	$ (11,561)	113.5 %
Net income (loss) per share:						
Basic	$ (0.83)		$ (1.75)			
Diluted	$ (0.83)		$ (1.75)			
Weighted average shares outstanding:						
Basic	12,397,099		12,419,564			
Diluted	12,397,099		12,419,564			

The following table includes a breakdown of net revenues, shipments and average selling prices to the markets served by the Company for the periods shown.

By market

	Year Ended September 30,		Change	
	2017	**2018**	**Amount**	**%**
Net revenues **(dollars in thousands)**				
Aerospace	$ 192,515	$ 226,898	$ 34,383	17.9 %
Chemical processing	70,467	79,169	8,702	12.3 %
Industrial gas turbine	61,523	52,350	(9,173)	(14.9)%
Other markets	43,203	53,417	10,214	23.6 %
Total product revenue	367,708	411,834	44,126	12.0 %
Other revenue	27,501	23,492	(4,009)	(14.6)%
Net revenues	$ 395,209	$ 435,326	$ 40,117	10.2 %
Pounds by market **(in thousands)**				
Aerospace	8,847	9,844	997	11.3 %
Chemical processing	3,163	3,855	692	21.9 %
Industrial gas turbine	4,468	2,866	(1,602)	(35.9)%
Other markets	1,639	1,833	194	11.8 %
Total shipments	18,117	18,398	281	1.6 %
Average selling price per pound				
Aerospace	$ 21.76	$ 23.05	$ 1.29	5.9 %
Chemical processing	22.28	20.54	(1.74)	(7.8)%
Industrial gas turbine	13.77	18.27	4.50	32.7 %
Other markets	26.36	29.14	2.78	10.5 %
Total product (excluding other revenue)	20.30	22.38	2.08	10.2 %
Total average selling price (including other revenue)	$ 21.81	$ 23.66	$ 1.85	8.5 %

Net Revenues. Net revenues were $435.3 million in fiscal 2018, an increase of 10.2% from $395.2 million in fiscal 2017, due to an increase in average selling price per pound combined with an increase in volume. The average product selling price was $22.38 per pound in fiscal 2018, an increase of 10.2%, or $2.08, from $20.30 per pound in fiscal 2017. Volume was 18.4 million pounds in fiscal 2018, an increase of 1.6% from 18.1 million pounds in fiscal 2017 with increases in the aerospace, chemical processing and other markets, however the increase was nearly offset by a dramatic drop in industrial gas turbine volumes of 35.9%. The average product selling price per pound increased as a result of higher raw material market prices, price increases and other pricing considerations, which increased average selling price per pound by approximately $1.14, combined with a higher value product mix, which increased the average selling price per pound by approximately $0.94.

Sales to the aerospace market were $226.9 million in fiscal 2018, an increase of 17.9% from $192.5 million in fiscal 2017, due to an 11.3%, increase in volume, combined with a 5.9%, or $1.29, increase in the average selling price per pound. The increase in volume reflects the increase in new engine platform sales combined with the Company's enhanced capacity from the cold-finishing capital investment. The average selling price per pound increase reflects a change in market prices of raw materials and other pricing consideration, which increased average selling price per pound by approximately $1.32, partially offset by a slightly lower-value mix, which decreased average selling price per pound by approximately $0.03.

Sales to the chemical processing market were $79.2 million in fiscal 2018, an increase of 12.3% from $70.5 million in fiscal 2017, due to a 21.9% increase in volume, partially offset by a 7.8%, or $1.74, decrease in the average selling price per pound. Volumes increased in fiscal 2018 from low levels in both base business and special projects in fiscal 2017. The average selling price per pound decrease reflects a lower-value product mix driven by the higher base-business volumes of commodity alloys combined with a change in market prices of raw materials and other pricing considerations, which decreased average selling price per pound by approximately $1.42 and $0.32, respectively.

Sales to the industrial gas turbine market were $52.4 million in fiscal 2018, a decrease of 14.9% from $61.5 million in fiscal 2017, due to a 35.9% decrease in volume partially offset by a 32.7%, or $4.50, increase in the average selling price per pound. The decrease in volume was primarily due to weak demand, along with a lower level of ingot orders shipped in fiscal 2018 compared to the same period of fiscal 2017. Demand for large-frame industrial gas turbines has been weak due to an over-build in the industry as well as growth in renewable energy facilities. The two large OEM producers of large-frame turbines announced significant restructurings in their power generation businesses. The increase in average selling price per pound primarily reflects a change to a higher-value product mix and higher market raw material prices and other pricing considerations, which increased average selling price per pound by approximately $2.63 and $1.87, respectively.

Sales to other markets were $53.4 million in fiscal 2018, an increase of 23.6% from $43.2 million in fiscal 2017, due to an 11.8% increase in volume, combined with a 10.5%, or $2.78, increase in average selling price per pound. The increase in volume is due primarily to increases in demand in the flue-gas desulfurization market. The increase in average selling price reflects higher market raw material prices and other pricing considerations along with a higher-value product mix, which increased average selling price per pound by approximately $2.00 and $0.80, respectively.

Other Revenue. Other revenue was $23.5 million in fiscal 2018, a decrease of 14.6% from $27.5 million in fiscal 2017. The decrease in other revenue is primarily attributable to decreased conversion services.

Cost of Sales. Cost of sales was $379.5 million, or 87.2% of net revenues, in fiscal 2018 compared to $349.5 million, or 88.4% of net revenues, in fiscal 2017. Cost of sales in fiscal 2018 increased by $30.0 million as compared to fiscal 2017 primarily due to higher volumes, a higher-value product mix and costs associated with relocating the Lebanon service center to LaPorte as previously announced.

Gross Profit. As a result of the above factors, gross margin was $55.8 million for fiscal 2018, an increase of $10.1 million from $45.7 million in fiscal 2017. Gross margin as a percentage of net revenue increased to 12.8% in fiscal 2018 as compared to 11.6% in fiscal 2017.

Selling, General and Administrative Expense. Selling, general and administrative expense was $47.0 million for fiscal 2018, an increase of $5.5 million, or 13.1%, from $41.6 million in fiscal 2017. The significant drivers of the increase in fiscal 2018 included two events that took place during the third quarter of fiscal 2018. First, expense of $1.5 million was recorded related to certain legal and due diligence costs incurred in a strategic acquisition initiative that reached late stage negotiations but ultimately did not result in an executed purchase agreement. Second, expense of $1.3 million was recorded related to the retirement of the Company's Chief Executive Officer. A portion of the increase in cost was attributable to higher management incentive compensation expense of $1.1 million and $0.5 million of increased bad debt expense. As a result of the above-mentioned charges, selling, general and administrative expense as a percentage of net revenues increased to 10.8% for fiscal 2018 compared to 10.5% for the same period of fiscal 2017.

Research and Technical Expense. Research and technical expense was $3.8 million, or 0.9% of revenue, for fiscal 2018, compared to $3.9 million, or 1.0% of net revenue, in fiscal 2017.

Operating Income/(Loss). As a result of the above factors, operating income in fiscal 2018 was $5.0 million, compared to operating income of $0.3 million in fiscal 2017.

Nonoperating retirement benefit expense. Nonoperating retirement benefit expense was $8.2 million for fiscal 2018 compared to $16.8 million in the same period of fiscal 2017. The increase in expense was primarily driven by lower discount rates which resulted in higher retirement liabilities and ultimately higher expense.

Income Taxes. Income tax expense was $17.7 million during fiscal 2018, a difference of $24.7 million from a benefit of $7.0 million in the same period of fiscal 2017. The higher tax expense for fiscal 2018 as compared to fiscal 2017 is primarily attributable to the passage of the Tax Cuts and Jobs Act during fiscal 2018, which required the Company to revalue its deferred tax asset based on the lowering of the statutory tax rate of 35% to 21% (24.5% in fiscal 2018). Note 7 to the consolidated financial statements in this Annual Report on Form 10-K for the year ended September 30, 2018 sets forth additional information regarding the impact of the Tax Cuts and Jobs Act.

Net Income/(Loss). As a result of the above factors, net loss for fiscal 2018 was $(21.8) million (which includes a $20.9 million impact of the Tax Cuts and Jobs Act and other special charges), an increase in loss of $11.6 million from net loss of $(10.2) million in fiscal 2017.

Liquidity and Capital Resources

Comparative cash flow analysis (2018 to 2019)

The Company had cash and cash equivalents of $31.0 million, inclusive of $9.3 million that was held by foreign subsidiaries in various currencies at September 30, 2019, compared to $9.8 million at September 30, 2018. Additionally, there were zero borrowings against the line of credit outstanding as of September 30, 2019. During fiscal 2019, the Company's primary sources of cash were cash on-hand and the revolving credit facility which was drawn against during the first six months of fiscal 2019, but repaid in full by March 31, 2019.

Net cash provided by operating activities was $43.0 million in fiscal 2019 compared to net cash used in operating activities of $(13.7) million in fiscal 2018, a difference of $56.7 million. The improvement is primarily driven by a reduction in inventory value during fiscal 2019 of $11.7 million (net of foreign currency impacts) compared to a $29.9 million (net of foreign currency impacts) increase in inventory during the same period of fiscal 2018 along with $3.7 million of income tax refunds during fiscal 2019 as compared to a $2.0 million of tax payments during the same period of fiscal 2018.

Net cash used in investing activities was $10.0 million in fiscal 2019, which was lower than cash used in investing activities during the same period of fiscal 2018 of $11.1 million, driven by lower additions to property, plant and equipment.

Net cash used in financing activities was $11.3 million in fiscal 2019, which was lower than cash used in financing activities during the same period of fiscal 2018 of $11.5 million, as a result of, among other factors, proceeds received from the exercise of stock options during fiscal 2019. Dividends paid of $11.0 million in fiscal 2019, was comparable to the prior year. Additionally, during fiscal 2019, the Company borrowed $16.6 million from the revolving credit facility, which was fully repaid by the end of the second quarter.

Comparative cash flow analysis (2017 to 2018)

During fiscal 2018, the Company's primary source of cash was cash on-hand and the revolving credit facility which was temporarily drawn against in the fourth quarter of fiscal 2018, but paid back to zero by September 30, 2018. At September 30, 2018, the Company had cash and cash equivalents of $9.8 million, inclusive of $7.3 million that was held by foreign subsidiaries in various currencies, compared to $46.3 million at September 30, 2017.

Net cash used in operating activities was $13.7 million in fiscal 2018 compared to net cash provided by operating activities of $7.7 million in fiscal 2017. The cash used in operating activities during fiscal 2018 was driven by increases in controllable working capital (inventory, accounts receivable, accounts payable and accrued expenses) of $32.3 million (excluding the impact of foreign exchange) compared to cash used of $2.8 million in fiscal 2017, as well as higher pension contributions of $8.8 million as compared to $6.8 million during fiscal 2017. These factors were partially offset by income generated from operations excluding the impacts of expense that do not impact cash such as depreciation and amortization expense, pension expense and income tax expense.

Net cash used in investing activities in fiscal 2018 of $11.1 million was lower than cash used in investing activities in fiscal 2017 of $15.0 million by $3.9 million as a result of lower additions to property, plant and equipment, primarily driven by capital spend in cold-finish during fiscal 2017 that did not repeat in fiscal 2018.

Net cash used in financing activities in fiscal 2018 of $11.5 million included $11.0 million of dividend payments and approximately $0.2 million of stock re-purchases made to satisfy taxes in relation to the vesting of restricted stock, which is comparable to the prior year. Additionally, during the fourth quarter of fiscal 2018, the Company borrowed $4.2 million from the revolving credit facility which was fully repaid during the quarter.

Future sources of liquidity

The Company's sources of liquidity for fiscal 2020 are expected to consist primarily of cash generated from operations, cash on-hand and, if needed, borrowings under the U.S. revolving credit facility. At September 30, 2019, the Company had cash of $31.0 million, an outstanding balance of zero on the U.S. revolving credit facility and access to a total of approximately $120.0 million under the U.S. revolving credit facility, subject to a borrowing base formula and certain reserves. Management believes that the resources described above will be sufficient to fund planned capital expenditures, regular quarterly dividends and working capital requirements over the next twelve months.

U.S. revolving credit facility

The Company and Wells Fargo Capital Finance, LLC ("Wells Fargo") entered into a Third Amended and Restated Loan and Security Agreement (the "Amended Agreement") with certain other lenders with an effective date of July 14, 2011. On July 7, 2016, the Company amended the agreement to, among other things, extend the term through July 7, 2021 and reduce unused line fees and certain administrative fees. The maximum revolving loan amount under the Amended Agreement is $120.0 million, subject to a borrowing base formula and certain reserves. The Amended Agreement permits an increase in the maximum revolving loan amount from $120.0 million up to an aggregate amount of $170.0 million at the request of the borrower. Borrowings under the U.S. revolving credit facility bear interest, at the Company's option, at either Wells Fargo's "prime rate", plus up to 0.75% per annum, or the adjusted Eurodollar rate used by the lender, plus up to 2.0% per annum. As of September 30, 2019, the U.S. revolving credit facility had a zero balance.

The Company must pay monthly, in arrears, a commitment fee of 0.20% per annum on the unused amount of the U.S. revolving credit facility total commitment. For letters of credit, the Company must pay 1.5% per annum on the daily outstanding balance of all issued letters of credit, plus customary fees for issuance, amendments and processing.

The Company is subject to certain covenants as to fixed charge coverage ratios and other customary covenants, including covenants restricting the incurrence of indebtedness, the granting of liens and the sale of assets. The covenant pertaining to fixed charge coverage ratios is only effective in the event the amount of excess availability under the revolver is less than 10.0% of the maximum credit revolving loan amount. The Company is permitted to pay dividends and repurchase common stock if certain financial metrics are met (most of which do not apply in the case of regular quarterly dividends less than $20.0 million in the aggregate in a year and repurchases in connection with the vesting of shares of restricted stock). As of September 30, 2019, the most recent required measurement date under the Amended Agreement, management believes the Company was in compliance with all applicable financial covenants under the Amended Agreement. Borrowings under the U.S. revolving credit facility are collateralized by a pledge of substantially all of the U.S. assets of the Company, including the equity interests in its U.S. subsidiaries, but excluding the four-high Steckel rolling mill and related assets, which are pledged to Titanium Metals Corporation ("TIMET") to secure the performance of the Company's obligations under a Conversion Services Agreement with TIMET (see discussion of TIMET at Note 16 in the Company's Notes to Consolidated Financial Statements in this Annual Report on Form 10-K). The U.S. revolving credit facility is also secured by a pledge of a 65% equity interest in each of the Company's direct foreign subsidiaries.

Future uses of liquidity

The Company's primary uses of cash over the next twelve months are expected to consist of expenditures related to:

- Funding operations;
- Capital spending;
- Dividends to stockholders; and
- Pension and postretirement plan contributions.

Capital investment in fiscal 2019 was $10.0 million, and the plan for capital spending in fiscal 2020 is $12.0 million.

Contractual Obligations

The following table sets forth the Company's contractual obligations for the periods indicated, as of September 30, 2019:

Contractual Obligations	Payments Due by Period				
	Total	Less than 1 year	1-3 Years	3-5 Years	More than 5 years
			(in thousands)		
Credit facility fees[1]	$ 510	$ 280	$ 230	$ —	$ —
Operating lease obligations	4,852	2,542	1,713	536	61
Capital and finance lease obligations	16,685	993	2,013	2,056	11,623
Raw material contracts (primarily nickel)	26,296	26,296	—	—	—
Capital projects and other commitments	2,108	2,108	—	—	—
Pension plan[2]	101,812	6,000	12,000	12,000	71,812
Non-qualified pension plans	719	95	190	190	244
Other postretirement benefits[3]	47,234	4,155	9,281	9,859	23,939
Environmental post-closure monitoring	606	97	144	151	214
Total	$ 200,822	$ 42,566	$ 25,571	$ 24,792	$ 107,893

(1) As of September 30, 2019, the revolver balance was zero, therefore no interest is due. However, the Company is obligated to the Bank for unused line fees and quarterly management fees.

(2) The Company has a funding obligation to contribute $101,812 to the domestic pension plan. These payments will be tax deductible. All benefit payments under the domestic pension plan will come from the plan and not the Company.

(3) Represents expected other postretirement benefits based upon anticipated timing of payments.

Inflation or Deflation

The Company may be favorably or unfavorably impacted by inflation or deflation, resulting in a material impact on its operating results. The Company attempts to pass onto customers both increases in consumable costs and material costs because of the value-added contribution the material makes to the final product, however, a rapid increase in raw material costs may not be able to be successfully offset by adjustments to customer selling prices. In the event of raw material price declines, the Company's customers may delay order placement, resulting in lower volumes. In the event that raw material price increases that the Company is unable to pass on to its customers occur, the Company's cash flows or results of operations could be materially adversely affected.

Critical Accounting Policies and Estimates

Overview

Management's Discussion and Analysis of Financial Condition and Results of Operations discusses the Company's consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States of America. The preparation of these financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. On an on-going basis, management evaluates its estimates and judgments, including those related to bad debts, inventories, income taxes, asset impairments, retirement benefits, matters related to product liability and other lawsuits and environmental matters. The process of determining significant estimates is fact specific and takes into account factors such as historical experience, current and expected economic conditions, product mix, pension asset mix and, in some cases, actuarial techniques and various other factors that are believed to be reasonable under the circumstances. The results of this process form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. The Company routinely reevaluates these significant factors and makes adjustments

where facts and circumstances dictate. Actual results may differ from these estimates under different assumptions or conditions.

The Company's accounting policies are more fully described in Note 2 in the Notes to the Consolidated Financial Statements included in Item 8 of this Annual Report on Form 10-K. The Company has identified certain critical accounting policies, which are described below. The following listing of policies is not intended to be a comprehensive list of all of the Company's accounting policies. In many cases, the accounting treatment of a particular transaction is specifically dictated by generally accepted accounting principles, with no need for management's judgment in their application. There are also areas in which management's judgment in selecting any available alternative would not produce a materially different result.

Revenue Recognition

The Company recognizes revenue when performance obligations under the terms of customer contracts are satisfied which occurs when control of the goods and services has been transferred to the customer. Allowances for sales returns are recorded as a component of net sales in the periods in which the related sales are recognized. The Company determines this allowance based on historical experience. Additionally, the Company recognizes revenue attributable to an up-front fee received from Titanium Metals Corporation ("TIMET") as a result of a twenty-year agreement, entered into on November, 17, 2006 to provide conversion services to TIMET. See Note 16 Deferred Revenue for a description of accounting treatment relating to this up-front fee.

Pension and Postretirement Benefits

The Company has defined benefit pension and postretirement plans covering most of its current and former employees. Significant elements in determining the assets or liabilities and related income or expense for these plans are the expected return on plan assets (if any), the discount rate used to value future payment streams, expected trends in health care costs and other actuarial assumptions. Annually, the Company evaluates the significant assumptions to be used to value its pension and postretirement plan assets and liabilities based on current market conditions and expectations of future costs. If actual results are less favorable than those projected by management, additional expense may be required in future periods.

The selection of the U.S. pension plan's (the Plan) assumption for the expected long-term rate of return on plan assets is based upon the Plan's target allocation of 60% equities and 40% bonds, and the expected rate of return for each equity/bond asset class. Based upon the target allocation and each asset class's expected return, the Plan's return on assets assumption is 7.25%, and is unchanged since last year's assumption. The return on assets is based on fair value of the plan assets and their investment allocation at the beginning of the fiscal year. The Company also realizes that historical performance is no guarantee of future performance.

In the short term, substantial decreases in plan assets will result in higher plan funding contribution levels and higher pension expenses. A decrease of 25 basis points in the expected long-term rate of return on plan assets would result in an increase in annual pension expense of about $503,000. To the extent that the actual return on plan assets during the year exceeds or falls short of the assumed long-term rate of return, an asset gain or loss is created. For funding purposes, gains and losses are generally amortized over a 7-year period. As an example, each $1.0 million in asset loss created by unfavorable investment performance results in seven annual payments (contributions) of approximately $160,000 depending upon the precise effective interest rate in the valuation and the timing of the contribution.

Decreases in discount rates used to value future payment streams will result in higher liabilities for pension and postretirement plans. A decrease of 25 basis points would result in $10.3 million higher liability for the U.S. pension plan and $4.8 million higher liability for the postretirement plan. This increase in liability would also increase the accumulated other comprehensive loss that would be amortized as higher pension and postretirement expense over an amortization period of approximately 6.5 and 7.2 years, respectively.

Salaried employees hired after December 31, 2005 and hourly employees hired after June 30, 2007 are not covered by the pension plan; however, they are eligible for an enhanced matching program of the defined contribution plan (401(k)). Effective December 31, 2007, the U.S. pension plan was amended to freeze benefits for all non-union employees in the U.S. Effective September 30, 2009, the U.K. pension plan was amended to freeze benefits for employees in the plan.

During the fourth quarter of fiscal 2018, the Company transferred assets of $13,576 to a third-party insurance company in exchange for the assumption of pension liability for approximately 397 retired participants. The pension liability for those retirees is not included in the projected benefit obligation as of September 30, 2018 and September 30, 2019.

Impairment of Long-lived Assets and Other Intangible Assets

The Company reviews long-lived assets for impairment whenever events or circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of long-lived assets to be held and used is measured by a comparison of the carrying amount of the asset to the undiscounted future cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds its estimated future cash flows, an impairment charge is recognized in the amount by which the carrying amount exceeds the fair value of the asset. The Company reviews assets for impairment annually or more frequently if events or circumstances indicate that the carrying amount may be impaired on trademark and patent intangible assets.

Income Taxes

The Company accounts for deferred tax assets and liabilities using enacted tax rates for the effect of temporary differences between book and tax basis of recorded assets and liabilities. A valuation allowance is required if it is more likely than not that some portion or all of the deferred tax assets will not be realized. The determination of whether or not a valuation allowance is needed is based upon an evaluation of both positive and negative evidence. In its evaluation of the need for a valuation allowance, the Company assesses prudent and feasible tax planning strategies. The ultimate amount of deferred tax assets realized could be different from those recorded, as influenced by potential changes in enacted tax laws and the availability of future taxable income.

Recently Issued Accounting Pronouncements

See Note 2—Summary of Significant Accounting Policies of Notes to Consolidated Financial Statements for information regarding New Accounting Standards.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Market risk is the potential loss arising from adverse changes in market rates and prices. The Company is exposed to various market risks, including changes in interest rates, foreign currency exchange rates and the price of raw materials, particularly nickel.

Changes in interest rates affect the Company's interest expense on variable rate debt. All of the Company's revolver availability was at a variable rate at September 30, 2018 and 2019. The Company's outstanding variable rate debt was zero at September 30, 2018 and 2019. The Company has not entered into any derivative instruments to hedge the effects of changes in interest rates.

The foreign currency exchange risk exists primarily because the Company's foreign subsidiaries maintain receivables and payables denominated in currencies other than their functional currency. Foreign currency forward contracts are entered into as a means to partially offset the impact of cash transactions occurring at the foreign affiliates in currencies other than the entities' functional currency. The U.S. operations transact their foreign sales in U.S. dollars, thereby avoiding fluctuations in foreign exchange rates. The Company is not party to any currency contracts as of September 30, 2019.

Fluctuations in the price of nickel and cobalt, subject the Company to commodity price risk. The Company manages its exposure to this market risk through internally established policies and procedures, including negotiating raw material escalators within product sales agreements and continually monitoring and revising customer quote amounts to reflect the fluctuations in market prices for nickel. The Company does not presently use derivative instruments to manage this market risk but may in the future. The Company monitors its underlying market risk exposure from a rapid change in nickel prices on an ongoing basis and believes that it can modify or adapt its strategies as necessary. The Company periodically purchases raw material forward with certain suppliers. However, there is a risk that the Company may not be able to successfully offset a rapid increase or decrease in the cost of raw material in the future.

Item 8. Financial Statements and Supplementary Data

HAYNES INTERNATIONAL, INC. AND SUBSIDIARIES

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Audited Consolidated Financial Statements of Haynes International, Inc. and Subsidiaries as of September 30, 2019 and 2018 and for the years ended September 30, 2019, September 30, 2018 and September 30, 2017

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of Haynes International, Inc.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Haynes International, Inc. and subsidiaries (the "Company") as of September 30, 2019 and 2018, the related consolidated statements of operations, comprehensive income (loss), stockholders' equity, and cash flows for each of the three years in the period ended September 30, 2019, and the related notes (collectively referred to as the "financial statements"). We also have audited the Company's internal control over financial reporting as of September 30, 2019, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Company as of September 30, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended September 30, 2019, in conformity with accounting principles generally accepted in the United States of America. Also, in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of September 30, 2019, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by COSO.

Basis for Opinions

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

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

Our audits of the financial statements included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures to respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

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

and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company’s assets that could have a material effect on the financial statements.

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

/s/ Deloitte & Touche LLP

Indianapolis, IN
November 14, 2019

We have served as the Company's auditor since fiscal year 1998.

HAYNES INTERNATIONAL, INC. AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS
(in thousands, except share and per share data)

	September 30, 2018	September 30, 2019
ASSETS		
Current assets:		
Cash and cash equivalents	$ 9,802	$ 31,038
Accounts receivable, less allowance for doubtful accounts of $1,130 and $441 at September 30, 2018 and September 30, 2019, respectively	73,437	76,979
Inventories	273,045	258,802
Income taxes receivable	7,240	1,757
Other current assets	2,825	3,297
Total current assets	366,349	371,873
Property, plant and equipment, net	179,400	169,966
Deferred income taxes	25,454	34,132
Other assets	7,163	7,756
Goodwill	4,789	4,789
Other intangible assets, net	5,539	5,284
Total assets	$ 588,694	$ 593,800
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 37,140	$ 34,497
Accrued expenses	17,463	18,833
Accrued pension and postretirement benefits	5,095	4,250
Deferred revenue—current portion	2,500	2,500
Total current liabilities	62,198	60,080
Long-term obligations (less current portion) (Note 19)	8,443	8,609
Deferred revenue (less current portion)	17,829	15,329
Deferred income taxes	1,919	2,016
Accrued pension benefits (less current portion)	62,072	101,812
Accrued postretirement benefits (less current portion)	103,013	109,679
Total liabilities	255,474	297,525
Commitments and contingencies (Notes 10 and 11)	—	—
Stockholders' equity:		
Common stock, $0.001 par value (40,000,000 shares authorized, 12,546,591 and 12,566,969 shares issued and 12,504,478 and 12,513,500 shares outstanding at September 30, 2018 and September 30, 2019, respectively)	13	13
Preferred stock, $0.001 par value (20,000,000 shares authorized, 0 shares issued and outstanding)	—	—
Additional paid-in capital	251,053	253,843
Accumulated earnings	126,588	125,296
Treasury stock, 42,113 shares at September 30, 2018 and 53,469 shares at September 30, 2019	(1,869)	(2,239)
Accumulated other comprehensive loss	(42,565)	(80,638)
Total stockholders' equity	333,220	296,275
Total liabilities and stockholders' equity	$ 588,694	$ 593,800

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

HAYNES INTERNATIONAL, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except share and per share data)

	Year Ended September 30, 2017	Year Ended September 30, 2018	Year Ended September 30, 2019
Net revenues	$ 395,209	$ 435,326	$ 490,215
Cost of sales	349,520	379,491	424,712
Gross profit	45,689	55,835	65,503
Selling, general and administrative expense	41,569	47,030	44,195
Research and technical expense	3,855	3,785	3,592
Operating income	265	5,020	17,716
Nonoperating retirement benefit expense	16,803	8,238	3,446
Interest income	(186)	(82)	(86)
Interest expense	865	918	986
Income (loss) before income taxes	(17,217)	(4,054)	13,370
Provision for (benefit from) income taxes	(7,027)	17,697	3,625
Net income (loss)	$ (10,190)	$ (21,751)	$ 9,745
Net income (loss) per share:			
Basic	$ (0.83)	$ (1.75)	$ 0.78
Diluted	$ (0.83)	$ (1.75)	$ 0.78
Weighted Average Common Shares Outstanding			
Basic	12,397	12,420	12,445
Diluted	12,397	12,420	12,481
Dividends declared per common share	$ 0.88	$ 0.88	$ 0.88

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

HAYNES INTERNATIONAL, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
(in thousands)

	Year Ended September 30, 2017	Year Ended September 30, 2018	Year Ended September 30, 2019
Net income (loss)	$ (10,190)	$ (21,751)	$ 9,745
Other comprehensive income (loss), net of tax:			
Pension and postretirement	39,624	32,029	(34,453)
Foreign currency translation adjustment	2,205	(1,900)	(3,620)
Other comprehensive income (loss)	41,829	30,129	(38,073)
Comprehensive income (loss)	$ 31,639	$ 8,378	$ (28,328)

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

HAYNES INTERNATIONAL, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(in thousands, except share data)

	Common Stock		Additional Paid-in	Accumulated	Treasury	Accumulated Other Comprehensive	Total Stockholders'
	Shares	Par	Capital	Earnings	Stock	Income (Loss)	Equity
Balance September 30, 2016	12,491,149	$ 12	$ 246,625	$ 180,565	$ (1,380)	$ (114,523)	$ 311,299
Net income (loss)				(10,190)			(10,190)
Dividends paid ($0.88 per share)				(11,009)			(11,009)
Other comprehensive income (loss)						41,829	41,829
Tax impact of forfeited vested options							—
Issue restricted stock (less forfeitures)	24,625	1	(1)				—
Purchase of treasury stock	(6,017)				(266)		(266)
Stock compensation			2,109				2,109
Balance September 30, 2017	12,509,757	$ 13	$ 248,733	$ 159,366	$ (1,646)	$ (72,694)	$ 333,772
Net income (loss)				(21,751)			(21,751)
Dividends paid ($0.88 per share)				(11,027)			(11,027)
Other comprehensive income (loss)						30,129	30,129
Issue restricted stock (less forfeitures)	1,658						—
Purchase of treasury stock	(6,937)				(223)		(223)
Stock compensation			2,320				2,320
Balance September 30, 2018	12,504,478	$ 13	$ 251,053	$ 126,588	$ (1,869)	$ (42,565)	$ 333,220
Net income (loss)				9,745			9,745
Dividends paid and accrued ($0.88 per share)				(11,037)			(11,037)
Other comprehensive income (loss)						(38,073)	(38,073)
Exercise of stock options	12,084		215				215
Issue restricted stock (less forfeitures)	8,294						—
Purchase of treasury stock	(11,356)				(370)		(370)
Stock compensation			2,575				2,575
Balance September 30, 2019	12,513,500	$ 13	$ 253,843	$ 125,296	$ (2,239)	$ (80,638)	$ 296,275

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

HAYNES INTERNATIONAL, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Year Ended September 30, 2017	Year Ended September 30, 2018	Year Ended September 30, 2019
Cash flows from operating activities:			
Net income (loss)	$ (10,190)	$ (21,751)	$ 9,745
Adjustments to reconcile net income (loss) to net cash provided by (used in) operating activities:			
Depreciation	21,601	22,627	18,871
Amortization	496	527	255
Pension and post-retirement expense - U.S. and U.K.	23,435	14,110	8,819
Change in long-term obligations	(15)	(7)	316
Stock compensation expense	2,109	2,320	2,575
Deferred revenue	(7,488)	(2,500)	(2,500)
Deferred income taxes	(10,072)	23,115	1,872
Loss on disposition of property	612	250	138
Change in assets and liabilities:			
Accounts receivable	755	(12,590)	(5,002)
Inventories	(6,982)	(29,905)	11,702
Other assets	287	(2,120)	(1,080)
Accounts payable and accrued expenses	3,476	10,220	(204)
Income taxes	709	(7,406)	5,534
Accrued pension and postretirement benefits	(11,052)	(10,627)	(7,994)
Net cash provided by (used in) operating activities	7,681	(13,737)	43,047
Cash flows from investing activities:			
Additions to property, plant and equipment	(15,006)	(11,085)	(10,041)
Net cash provided by (used in) investing activities	(15,006)	(11,085)	(10,041)
Cash flows from financing activities:			
Revolving credit facility borrowings	—	4,200	16,600
Revolving credit facility repayments	—	(4,200)	(16,600)
Dividends paid	(11,009)	(11,013)	(11,011)
Proceeds from exercise of stock options	—	—	215
Payment for purchase of treasury stock	(266)	(223)	(370)
Payments on long-term obligation	(166)	(258)	(150)
Net cash provided by (used in) financing activities	(11,441)	(11,494)	(11,316)
Effect of exchange rates on cash	351	(210)	(454)
Increase (decrease) in cash and cash equivalents:	(18,415)	(36,526)	21,236
Cash, cash equivalents and restricted cash:			
Beginning of period	64,743	46,328	9,802
End of period	$ 46,328	$ 9,802	$ 31,038
Supplemental disclosures of cash flow information:			
Interest (net of capitalized interest)	$ 807	$ 860	$ 928
Income taxes paid (refunded), net	$ 2,335	$ 1,965	$ (3,650)
Capital expenditures incurred, but not yet paid	$ 1,910	$ 703	$ 490
Dividends declared but not yet paid	$ —	$ 14	$ 26
Lease obligation incurred	$ 4,100	$ —	$ —

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

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(in thousands, except share and per share data and as otherwise noted)

Note 1. Background and Organization

Description of Business

Haynes International, Inc. and its subsidiaries (the "Company", "Haynes", "we", "our" or "us") develops, manufactures, markets and distributes technologically advanced, high-performance alloys primarily for use in the aerospace, industrial gas turbine and chemical processing industries. The Company's products are high-temperature resistant alloys ("HTA") and corrosion-resistant alloys ("CRA"). The Company's HTA products are used by manufacturers of equipment that is subjected to extremely high temperatures, such as jet engines for the aerospace industry, gas turbine engines for power generation, waste incineration and industrial heating equipment. The Company's CRA products are used in applications that require resistance to extreme corrosion, such as chemical processing, power plant emissions control and hazardous waste treatment. The Company produces its high-performance alloys primarily in sheet, coil and plate forms. In addition, the Company produces its products as seamless and welded tubulars, and in slab, bar, billets and wire forms.

High-performance alloys are characterized by highly engineered, often proprietary, metallurgical formulations primarily of nickel, cobalt and other metals with complex physical properties. The complexity of the manufacturing process for high-performance alloys is reflected in the Company's relatively high average selling price per pound, compared to the average selling price of other metals, such as carbon steel sheet, stainless steel sheet and aluminum. The high-performance alloy industry has significant barriers to entry such as the combination of (i) demanding end-user specifications, (ii) a multi-stage manufacturing process and (iii) the technical sales, marketing and manufacturing expertise required to develop and sell new applications.

Note 2. Summary of Significant Accounting Policies

A. Principles of Consolidation and Nature of Operations

The consolidated financial statements include the accounts of Haynes International, Inc. and its wholly-owned subsidiaries. All intercompany transactions and balances are eliminated. The Company has manufacturing facilities in Kokomo, Indiana; Mountain Home, North Carolina; and Arcadia, Louisiana with service centers in LaPorte, Indiana; LaMirada, California; Houston, Texas; Windsor, Connecticut; Openshaw, England; Lenzburg, Switzerland; Shanghai, China; and sales offices in Paris, France; Zurich, Switzerland; Singapore; Milan, Italy; and Tokyo, Japan.

B. Cash and Cash Equivalents

The Company considers all highly liquid investment instruments, including investments with original maturities of three months or less at acquisition, to be cash equivalents, the carrying value of which approximates fair value due to the short maturity of these investments.

C. Accounts Receivable

The Company maintains allowances for doubtful accounts for estimated losses resulting from the inability of its customers to make required payments. The Company markets its products to a diverse customer base, both in the United States of America and overseas. Trade credit is extended based upon evaluation of each customer's ability to perform its obligation, which is updated periodically.

D. Revenue Recognition

The Company recognizes revenue when performance obligations under the terms of customer contracts are satisfied which occurs when control of the goods and services has been transferred to the customer. Allowances for sales returns are recorded as a component of net sales in the periods in which the related sales are recognized. The Company determines this allowance based on historical experience. Additionally, the Company recognizes revenue attributable to an up-front fee received from Titanium Metals Corporation (TIMET) as a result of a twenty-year agreement entered into on November 17, 2006 to provide conversion services to TIMET. See Note 16, Deferred Revenue for a description of accounting treatment relating to this up-front fee.

E. Inventories

Inventories are stated at the lower of cost or net realizable value. The cost of inventories is determined using the first-in, first-out (FIFO) method. The Company writes down its inventory for estimated obsolescence or unmarketable inventory in an amount equal to the difference between the cost of inventory and the estimated market or scrap value, if applicable, based upon assumptions about future demand and market conditions.

F. Goodwill and Other Intangible Assets

The Company has goodwill, trademarks, customer relationships and other intangibles as of September 30, 2019. As the customer relationships have a definite life, they are amortized over fifteen years. The Company reviews customer relationships for impairment whenever events or circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of the assets is measured by a comparison of the carrying amount of the asset to the undiscounted future cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds its estimated future cash flows, an impairment charge is recognized in the amount by which the carrying amount exceeds the fair value of the asset.

Goodwill and trademarks (indefinite lived) are tested for impairment at least annually as of January 31 for goodwill and August 31 for trademarks (the annual impairment testing dates), or more frequently if impairment indicators exist. If the carrying value of the trademarks exceeds the fair value (determined using an income approach, based upon a discounted cash flow of an assumed royalty rate), impairment of the trademark may exist resulting in a charge to earnings to the extent of the impairment. The impairment test for goodwill is performed by comparing the fair value of a reporting unit with its carrying amount and recognizing an impairment loss in the event that the carrying amount is greater than the fair value. Any goodwill impairment loss recognized would not exceed the total carrying amount of goodwill allocated to that reporting unit. No impairment was recognized in the years ended September 30, 2017, 2018 or 2019 because the fair value exceeded the carrying values.

During fiscal 2017, 2018 and 2019, there were no changes in the carrying amount of goodwill.

Amortization of the patents, customer relationships and other intangibles was $496, $527 and $255 for the years ended September 30, 2017, 2018 and 2019, respectively. The following represents a summary of intangible assets at September 30, 2018 and 2019:

September 30, 2018	Gross Amount	Accumulated Amortization	Carrying Amount
Patents	$ 4,030	$ (3,977)	$ 53
Trademarks	3,800	—	3,800
Customer relationships	2,100	(574)	1,526
Other	291	(131)	160
	$ 10,221	$ (4,682)	$ 5,539

September 30, 2019	Gross Amount	Accumulated Amortization	Carrying Amount
Patents	$ —	$ —	$ —
Trademarks	$ 3,800	$ —	$ 3,800
Customer relationships	2,100	(718)	1,382
Other	291	(189)	102
	$ 6,191	$ (907)	$ 5,284

Estimated future Aggregate Amortization Expense: Year Ended September 30,	
2020	$ 198
2021	185
2022	133
2023	129
2024	126
Thereafter	713

G. Property, Plant and Equipment

Additions to property, plant and equipment are recorded at cost with depreciation calculated primarily by using the straight-line method based on estimated economic useful lives, which are generally as follows:

Buildings and improvements	40 years
Machinery and equipment	5 — 14 years
Land improvements	20 years

Expenditures for maintenance and repairs and minor renewals are charged to expense; major renewals are capitalized. Upon retirement or sale of assets, the cost of the disposed assets and the related accumulated depreciation are removed from the accounts and any resulting gain or loss is credited or charged to operations.

The Company records capitalized interest for long-term construction projects to capture the cost of capital committed prior to the placed in service date as a part of the historical cost of acquiring the asset. Interest is not capitalized when the balance on the revolver is zero.

The Company reviews long-lived assets for impairment whenever events or circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of long-lived assets to be held and used is measured by a comparison of the carrying amount of the asset to the undiscounted future cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds its estimated future cash flows, an impairment charge is recognized in the amount by which the carrying amount exceeds the fair value of the asset. No impairment was recognized during the years ended September 30, 2017, 2018 or 2019.

H. Environmental Remediation

When it is probable that a liability has been incurred or an asset of the Company has been impaired, a loss is recognized assuming the amount of the loss can be reasonably estimated. The measurement of environmental liabilities by the Company is based on currently available facts, present laws and regulations and current technology. Such estimates take into consideration the expected costs of post-closure monitoring based on historical experience.

I. Pension and Postretirement Benefits

The Company has defined benefit pension and postretirement plans covering most of its current and former employees. Significant elements in determining the assets or liabilities and related income or expense for these plans are the expected return on plan assets, the discount rate used to value future payment streams, expected trends in health care costs and other actuarial assumptions. Annually, the Company evaluates the significant assumptions to be used to value

its pension and postretirement plan assets and liabilities based on current market conditions and expectations of future costs. If actual results are less favorable than those projected by management, additional expense may be required in future periods. Salaried employees hired after December 31, 2005 and hourly employees hired after June 30, 2007 are not covered by the pension plan; however, they are eligible for an enhanced matching program of the defined contribution plan (401(k)). Effective December 31, 2007, the U.S. pension plan was amended to freeze benefits for all non-union employees in the U.S. Effective September 30, 2009, the U.K. pension plan was amended to freeze benefits for employees in the plan. Effective January 1, 2007, a plan amendment of the postretirement medical plan caps the Company's liability related to retiree health care costs at $5,000 annually.

J. Foreign Currency Exchange

The Company's foreign operating entities' financial statements are denominated in the functional currencies of each respective country, which are the local currencies. All assets and liabilities are translated to U.S. dollars using exchange rates in effect at the end of the year, and revenues and expenses are translated at the weighted average rate for the year. Translation gains or losses are recorded as a separate component of comprehensive income (loss) and transaction gains and losses are reflected in the consolidated statements of operations.

Gains and losses arising from the impact of foreign currency exchange rate fluctuations on transactions in foreign currency are included in selling, general and administrative expense. Beginning in the third quarter of fiscal 2018, the Company entered into foreign currency forward contracts (See Note 20, Foreign Currency Forward Contracts). The purpose of these forward contracts is to reduce income statement volatility resulting from the transaction gains and losses.

K. Research and Technical Costs

Research and technical costs related to the development of new products and processes are expensed as incurred. Research and technical costs for the years ended September 30, 2017, 2018 and 2019 were $3,855, $3,785 and $3,592, respectively.

L. Income Taxes

The Company accounts for deferred tax assets and liabilities using enacted tax rates for the effect of temporary differences between book and tax basis of recorded assets and liabilities. A valuation allowance is required if it is more likely than not that some portion or all of the deferred tax assets will not be realized. The determination of whether or not a valuation allowance is needed is based upon an evaluation of both positive and negative evidence. In its evaluation of the need for a valuation allowance, the Company utilizes prudent and feasible tax planning strategies. The ultimate amount of deferred tax assets realized could be different from those recorded, as influenced by potential changes in enacted tax laws and the availability of future taxable income. The Company records uncertain tax positions on the basis of a two-step process whereby (1) it is determined whether it is more likely than not that the tax positions will be sustained based on the technical merits of the position and (2) for those tax positions that meet the more-likely-than-not recognition threshold, we recognize the largest amount of tax benefit that is greater than 50 percent likely to be realized upon ultimate settlement with the related tax authority (See Note 7, Income Taxes).

M. Stock-based Compensation

As described in Note 12, the Company has incentive compensation plans that provide for the issuance of restricted stock, restricted stock units, performance shares, stock options and stock appreciation rights to key employees and non-employee directors. To date, the Company has only issued restricted stock, performance shares and stock options. The Company recognizes compensation expense under the fair-value based method as a component of operating expenses.

N. Financial Instruments and Concentrations of Risk

The Company may periodically enter into forward currency exchange contracts to minimize the variability in the Company's operating results arising from foreign exchange rate movements. The Company does not engage in foreign

currency speculation. At September 30, 2018 and 2019, the Company had no foreign currency exchange contracts outstanding. To date, all foreign currency contracts have been settled prior to the end of the month in which they were initiated.

Financial instruments which potentially subject the Company to concentrations of credit risk consist of cash and cash equivalents and accounts receivable. At September 30, 2019, and periodically throughout the year, the Company has maintained cash balances in excess of federally insured limits. The carrying amounts of cash and cash equivalents, accounts receivable and accounts payable approximate fair value because of the relatively short maturity of these instruments.

During 2017, 2018 and 2019, the Company did not have sales to any group of affiliated customers that were greater than 10% of net revenues. The Company generally does not require collateral with the exception of letters of credit with certain foreign sales. Credit losses amounted to $228, $688 and $530 in fiscal 2017, 2018 and 2019, respectively, and were within management's expectations. The Company does not believe it is significantly vulnerable to the risk of near-term severe impact from business concentrations with respect to customers, suppliers, products, markets or geographic areas.

O. Accounting Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America (U.S. GAAP) requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. On an on-going basis, management evaluates its estimates and judgments, including those related to bad debts, inventories, income taxes, asset impairment, retirement benefits and environmental matters. The process of determining significant estimates is fact specific and takes into account factors such as historical experience, current and expected economic conditions, product mix, pension asset mix and in some cases, actuarial techniques, and various other factors that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. The Company routinely reevaluates these significant factors and makes adjustments where facts and circumstances dictate. Actual results may differ from these estimates under different assumptions or conditions.

P. Earnings Per Share

The Company accounts for earnings per share using the two-class method. The two-class method is an earnings allocation that determines net income per share for each class of common stock and participating securities according to participation rights in undistributed earnings. Non-vested restricted stock awards that include non-forfeitable rights to dividends are considered participating securities. Basic earnings per share is computed by dividing net income available to common stockholders for the period by the weighted average number of common shares outstanding for the period. The computation of diluted earnings per share is similar to basic earnings per share, except the denominator is increased to

include the number of additional common shares that would have been outstanding if the potentially dilutive common shares had been issued.

Basic and diluted net income per share were computed as follows:

(in thousands, except share and per share data)	Years ended September 30, 2017	2018	2019
Numerator: Basic and Diluted			
Net income (loss)	$ (10,190)	$ (21,751)	$ 9,745
Dividends	(11,009)	(11,027)	(11,037)
Undistributed income (loss)	(21,199)	(32,778)	(1,292)
Percentage allocated to common shares [(a)]	100.0 %	100.0 %	100.0 %
Undistributed income (loss) allocated to common shares	(21,199)	(32,778)	(1,292)
Dividends paid on common shares outstanding	10,905	10,933	10,987
Net income (loss) available to common shares	(10,294)	(21,845)	9,695
Denominator: Basic and Diluted			
Weighted average common shares outstanding	12,397,099	12,419,564	12,445,212
Adjustment for dilutive potential common shares	—	—	35,696
Weighted average shares outstanding - Diluted	12,397,099	12,419,564	12,480,908
Basic net income (loss) per share	$ (0.83)	$ (1.75)	$ 0.78
Diluted net income (loss) per share	$ (0.83)	$ (1.75)	$ 0.78
Number of stock option shares excluded as their effect would be anti-dilutive	310,417	329,276	371,151
Number of restricted stock shares excluded as their effect would be anti-dilutive	107,854	91,008	—
[(a)] Percentage allocated to common shares - weighted average			
Common shares outstanding	12,397,099	12,419,564	12,445,212
Unvested participating shares	—	—	—
	12,397,099	12,419,564	12,445,212

Q. Recently Issued Accounting Pronouncements

In May 2014, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (ASU) 2014-09, *Revenue from Contracts with Customers (Topic 606)*. The objective of the update is to 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. This update provides a five-step analysis of transactions to determine when and how revenue is recognized, along with expanded disclosure requirements. 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. In adopting this accounting standard update using the modified retrospective method, the Company had no cumulative effect to record on the Consolidated Statement of Stockholders’ Equity. See Note 3 for further explanation, including all newly expanded disclosure requirements.

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)*. This standard contains principles that will require an entity to recognize leases on the balance sheet by recording a right-of-use asset and a lease liability. The standard also contains other changes to the current lease guidance that may result in changes to how entities determine which contractual arrangements qualify as a lease, the accounting for executory costs, such as property taxes and insurance, as well as which lease origination costs will be capitalizable. This standard is effective for fiscal years beginning after December 15, 2018, including interim periods within those years. Early adoption of this standard is permitted. The standard allows the use of the modified retrospective transition method, whereby the new guidance will be applied at the beginning

of the earliest period presented in the financial statements of the period of adoption. The modified retrospective transition approach includes certain practical expedients that entities may elect to apply in transition. In July 2018, the FASB amended ASC 842 to provide another transition method, allowing a cumulative effect adjustment to the opening balance of retained earnings during the period of adoption. The Company will adopt this standard effective October 1, 2019 using the modified retrospective transition method which does not require adjustments to comparative periods or require modified disclosures for those periods. In addition, the Company anticipates electing certain practical expedients and transition reliefs, including the short-term lease recognition exemption, which excludes leases with a term of 12 months or less from recognition on the balance sheet, recognizing lease components and nonlease components together as a single lease component, and the transition relief package which, among other things, includes not reassessing the lease classification or whether a contract is or contains a lease. The Company is continuing to finalize new processes and internal controls required to comply with the new lease standard. The adoption of ASC 842 will not have a material impact on the Statement of Operations or Statement of Cash Flows. The recording of right-of-use assets and lease liabilities is expected to not have a material impact on the Company's Consolidated Balance Sheet.

In November 2016, the FASB issued ASU 2016-18, *Statement of Cash Flows (Topic 230)*. This new guidance requires that a statement of cash flows explain the change during the period in the total of cash, cash equivalents, and amounts generally described as restricted cash and restricted cash equivalents. Therefore, amounts generally described as restricted cash and cash equivalents should be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period amounts shown on the statement of cash flows. This update is effective for fiscal years beginning after December 15, 2017. The Company adopted this standard, effective October 1, 2018 and adjusted retrospectively. This application resulted in the addition of restricted cash of $5,446 to cash and cash equivalents for the beginning period of the year ended September 30, 2017 and reduced cash generated from restricted cash on the Consolidated Statement of Cash Flows.

In March 2017, the FASB issued ASU 2017-07, *Compensation – Retirement Benefits (Topic 715)*. This new guidance requires entities to (1) disaggregate the service cost component from the other components of net benefit cost and present it with other current compensation costs for related employees in the income statement and (2) present the other components elsewhere in the income statement and outside of income from operations if that subtotal is presented. In addition, the ASU requires entities to disclose the income statement lines that contain the other components if they are not presented on appropriately described separate lines. The amendments in this ASU also only allow the service cost component to be eligible for capitalization. This new guidance was effective for fiscal years beginning after December 15, 2017, including interim periods within those annual periods, with early adoption permitted. The Company adopted the standard on October 1, 2018. The amendments are applied retrospectively for the presentation of the service cost component and the other components of net periodic pension cost and net periodic postretirement benefit cost in the income statement and prospectively, for the capitalization of the service cost component of net periodic pension cost and net periodic postretirement benefit in assets. As a result of the retrospective change in presentation, the Company reclassified $15,979 and $824 from cost of sales and selling, general and administrative expense, respectively, to nonoperating retirement benefit expense on the Consolidated Statements of Operations for the fiscal year ended September 30, 2017. For the fiscal year ended September 30, 2018, the Company reclassified $8,157 and $81 from cost of sales and selling, general and administrative expense, respectively, to nonoperating retirement benefit expense on the Consolidated Statements of Operations The Company used the practical expedient allowed in the standard upon transition that permitted entities to use their previously disclosed service cost and other costs from the prior years' pension and other postretirement benefit plan footnotes in the comparative periods as appropriate estimates when retrospectively changing the presentation of these costs in the income statement.

In February 2018, the FASB issued ASU 2018-02, *Income Statement – Reporting Comprehensive Income (Topic 220) Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income*, which allows a reclassification from accumulated other comprehensive income (loss) to accumulated earnings for standard tax effects resulting from the Tax Cuts and Jobs Act. This update is effective for fiscal years beginning after December 15, 2018, with early adoption permitted. The Company will adopt this standard during the first quarter of fiscal 2020 and it is expected to have an impact of increasing accumulated other comprehensive loss and increasing retained earnings by approximately $13,300.

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement (Topic 820)*. This new guidance removes and modifies disclosure requirements on fair value statements. This update is effective for fiscal years beginning after December 15, 2019. The Company is currently evaluating the impact, if any, on its disclosures in the Notes to Consolidated Financial Statements.

In August 2018, the FASB issued ASU 2018-14, *Compensation-Retirement Benefits-Defined Benefit Plans-General (Subtopic 715-20)*. This new guidance removes and modifies disclosure requirements for employers that sponsor defined benefit pension or other postretirement plans. Some disclosure requirements that are removed include, among others, amounts in accumulated other comprehensive income expected to be recognized as components of net periodic benefit cost over the next fiscal year and the effects of a one-percentage-point change in assumed health care cost trend rates on the (a) aggregate of the service and interest cost components of net periodic benefit costs and (b) benefit obligation for postretirement health care benefits. This update is effective for fiscal years beginning after December 15, 2020. Early adoption is permitted. The Company early adopted this standard, effective October 1, 2018.

In June 2016, the FASB issued ASU 2016-05, *Financial Instruments – Credit Losses (Topic 326)* which introduced the expected credit losses methodology for the measurement of credit losses on financial assets measured at amortized cost basis, replacing the previous incurred loss methodology. The new current expected credit loss (CECL) methodology does not have a minimum threshold for recognition of impairment losses, and entities will need to measure expected credit losses on assets that have a low risk of loss. This update is effective for fiscal years beginning after December 15, 2019. The Company is currently evaluating the impact, if any, on the Companies Consolidated Financial Statements.

Note 3. Revenues from Contracts with Customers

On October 1, 2018, the Company adopted Accounting Standards Codification Topic 606 (ASC 606), *Revenue from Contracts with Customers*. This new guidance requires the Company to apply a five-step analysis to: (i) identify the contract with a customer; (ii) identify the performance obligations in the contract; (iii) determine the transaction price; (iv) allocate the transaction price to the performance obligations in the contract; and (v) recognize revenue when, or as, the Company satisfies a performance obligation. This new guidance was adopted using the modified retrospective method. The adoption of ASC 606 did not result in the need to recognize a cumulative effect of initial application as an adjustment to retained earnings. In accordance with ASC 606, the Company has presented reserves for sales returns within accrued expenses on the Consolidated Balance Sheet which differs from previous periods which included these reserves as contra-assets within accounts receivable.

Performance Obligations

Revenue is recognized when performance obligations under the terms of contracts with the customer are satisfied, which occurs when control of the goods and services has been transferred to the customer. This predominately occurs upon shipment or delivery of the product or when the service is performed.

The Company may occasionally have customer agreements involving production and shipment of goods that would require revenue to be recognized over time in accordance with the new guidance due to there being no alternative use for the product without significant economic loss and enforceable right to payment including a normal profit margin from the customer in the event of contract termination. Over-time recognition was a change from the accounting for these products, which was point-in-time prior to the adoption of the new standard. As of October 1, 2018 and September 30, 2019, the Company did not have any customer agreements that would require revenue to be recorded over time.

Each customer purchase order or contract for goods transferred represents a single performance obligation for which revenue is recognized at either a point in time or over-time as described in the preceding paragraph. The standard terms and conditions of a customer purchase order include limited warranties and the right of customers to have products that do not meet specifications repaired or replaced, at the Company’s option. Such warranties do not represent a separate performance obligation.

The customer agreement with Titanium Metals Corporation ("TIMET") (See Note 16) includes the performance obligation to provide conversion services for up to ten million pounds of titanium metal annually over a twenty-year period which ends in fiscal 2027. The transaction price under this contract included a $50,000 up-front fee as well as conversion service fees based upon the fulfillment of conversion services requested at the option of TIMET. In accordance with ASC 606, the $50,000 fee is allocated to the obligation to provide manufacturing capacity over time and, therefore, is recognized in income on a straight-line basis over the 20-year term of that agreement. The fees for conversion services are based on quantity of service and are recognized as revenue at the time the service is performed.

Transaction Price

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

Revenue is measured as the amount of consideration expected to be received in exchange for the transfer of goods or services to customers. Revenue is derived from product sales or conversion services, and is reported net of sales discounts, rebates, incentives, returns and other allowances offered to customers, if applicable. Payment terms vary from customer to customer depending upon credit worthiness, prior payment history and other credit considerations.

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

Contract Balances

As of September 30, 2018 and September 30, 2019, accounts receivable with customers were $74,567 and $77,420, respectively. Allowance for doubtful accounts as of September 30, 2018 and September 30, 2019 were $1,130 and $441, respectively, and are presented within accounts receivable, less allowance for doubtful accounts on the consolidated balance sheet.

Contract liabilities are recognized when the Company has received consideration from a customer to transfer goods or services at a future point in time when the Company performs under the purchase order or contract. As of September 30, 2018 and September 30, 2019, no contract liabilities have been recorded except for $20,329 and $17,829, respectively, for the TIMET agreement.

Practical Expedients

The Company has elected to use the practical expedient that permits the omission of disclosure for remaining performance obligations which are expected to be satisfied within one year or less. Aside from the TIMET agreement, the Company does not have any remaining performance obligations in excess of one year or contracts that it does not have the right to invoice as of September 30, 2019.

Disaggregation of Revenue

Revenue is disaggregated by end-use markets. The following table includes a breakdown of net revenues to the markets served by the Company for the fiscal years ended September 30, 2017, 2018 and 2019.

	Year Ended September 30,		
	2017	2018	2019
Net revenues (dollars in thousands)			
Aerospace	$ 192,515	$ 226,898	$ 258,104
Chemical processing	70,467	79,169	89,651
Industrial gas turbine	61,523	52,350	59,430
Other markets	43,203	53,417	57,946
Total product revenue	367,708	411,834	465,131
Other revenue	27,501	23,492	25,084
Net revenues	$ 395,209	$ 435,326	$ 490,215

See Note 14 for revenue disaggregated by geography and product group.

Note 4. Inventories

Inventories are stated at the lower of cost or net realizeable value. The cost of inventories is determined using the first-in, first-out ("FIFO") method. The following is a summary of the major classes of inventories:

	September 30, 2018	September 30, 2019
Raw Materials	$ 17,897	$ 17,935
Work-in-process	147,921	138,859
Finished Goods	105,640	100,590
Other	1,587	1,418
	$ 273,045	$ 258,802

Note 5. Property, Plant and Equipment

The following is a summary of the major classes of property, plant and equipment:

	September 30,	
	2018	2019
Land and land improvements	$ 9,462	$ 9,446
Buildings and improvements	45,327	45,486
Machinery and equipment	281,329	293,542
Construction in process	7,292	2,770
	343,410	351,244
Less accumulated depreciation	(164,010)	(181,278)
	$ 179,400	$ 169,966

As of September 30, 2018 and 2019, the Company had $200 and $135, respectively, of assets under a capital lease for equipment related to the service center operation in Shanghai, China. Additionally, the Company had $7,483 and $7,070 of assets under capital or finance leases for two buildings at the LaPorte, Indiana service center as of September 30, 2018 and 2019, respectively.

Note 6. Accrued Expenses

The following is a summary of the major classes of accrued expenses:

	September 30,	
	2018	2019
Employee compensation	$ 8,825	$ 9,936
Taxes, other than income taxes	2,673	2,744
Employee termination liabilities	1,562	384
Professional fees	1,225	471
Management incentive compensation	1,104	2,297
Utilities	982	924
Accrued product returns	—	985
Capital lease obligation, current	147	170
Other	945	922
	$ 17,463	$ 18,833

Note 7. Income Taxes

On December 22, 2017, the United States enacted the Tax Cuts and Jobs Act ("the Act"), which made significant changes to U.S. federal income tax law including, among other things, lowering corporate income tax rates, permitting bonus depreciation that will allow for full expensing of qualified property and imposing a repatriation tax on deemed repatriated earnings of foreign subsidiaries. Beginning October 1, 2017 and continuing through September 30, 2018, the Company's U.S. income was taxed at a 24.5% federal tax rate after which time the federal tax rate applicable to the Company was lowered to 21.0%. During fiscal 2018, deferred tax assets were revalued to the lower statutory rates of 21.0% which resulted in increased tax expense during fiscal 2018 of $16,633. An additional component of the Act, the transition tax applied on accumulated earnings and profits of controlled foreign corporations, resulted in increased tax expense of $2,170 during fiscal 2018.

On December 22, 2017, the United States Securities and Exchange Commission ("SEC") issued Staff Accounting Bulletin No. 118 ("SAB 118"), which provides guidance on accounting for the tax effects of the Tax Act. As of September 30, 2019, the Company has completed its accounting for the income tax effects of the Act..

The components of income (loss) before provision for income taxes and the provision for income taxes are as follows:

	Year Ended September 30,		
	2017	2018	2019
Income (loss) before income taxes:			
U.S.	$ (25,090)	$ (16,650)	$ 790
Foreign	7,873	12,596	12,580
Total	$ (17,217)	$ (4,054)	$ 13,370
Provision for (benefit from) income taxes:			
Current:			
U.S. Federal	$ 933	$ (7,690)	$ (267)
Foreign	1,652	2,404	2,259
State	401	(137)	2
Total	2,986	(5,423)	1,994
Deferred:			
U.S. Federal	(8,781)	25,141	1,423
Foreign	—	—	132
State	(1,427)	(2,496)	62
Valuation allowance	195	475	14
Total	(10,013)	23,120	1,631
Total provision for (benefit from) income taxes	$ (7,027)	$ 17,697	$ 3,625

The provision for income taxes applicable to results of operations differed from the U.S. federal statutory rate as follows:

	Year Ended September 30,		
	2017	2018	2019
Statutory federal tax rate	35.00 %	24.53 %	21.00 %
Tax provision for income taxes at the statutory rate	$ (6,026)	$ (1,059)	$ 2,808
Foreign tax rate differentials	(1,103)	(685)	(157)
Provision for state taxes, net of federal taxes	(371)	(45)	247
U.S. tax on distributed and undistributed earnings of foreign subsidiaries	452	240	486
Manufacturer's deduction	—	(86)	—
Tax credits	(409)	(511)	(499)
Transition tax	—	2,170	—
Federal and state tax rate change impact on deferred tax asset	192	16,633	314
Net operating loss carryback	—	407	—
Change in valuation allowance	195	475	14
Stock compensation	—	—	655
Other, net	43	158	(243)
Provision for income taxes at effective tax rate	$ (7,027)	$ 17,697	$ 3,625
Effective tax rate	40.8 %	(436.5)%	27.1 %

During fiscal 2017, the Company's effective tax rate was higher than the federal statutory rate, primarily due to the Company incurring a pre-tax loss in the United States and pre-tax income in the United Kingdom which has a lower effective tax rate than the statutory rate. When incurring a pre-tax loss, the effective tax rate of the Company will be higher than the statutory rate if certain tax jurisdictions with lower tax rates incur pre-tax income as a partial offset to the pre-tax loss in the United States.

During fiscal 2018, the Company's effective tax rate was negative relative to the statutory rate primarily due to the Act that resulted in significant impacts on the value of the deferred tax asset as well a one-time transition tax on income generated by foreign entities. The Act lowered the statutory rate from 35% to 21%, however, the 2018 statutory rate is calculated to be 24.53% based on the fiscal year-end date of September 30, 2018.

During fiscal 2019, the Company's effective tax rate was higher than the federal statutory rate primarily due to state income taxes, the global intangible low-tax income tax (GILTI) and the forfeiture of stock options, restricted stock and performance share awards that occurred during the year.

Deferred tax assets (liabilities) are comprised of the following:

	September 30,	
	2018	2019
Deferred tax assets:		
Pension and postretirement benefits	$ 38,343	$ 48,367
TIMET Agreement	4,775	4,163
Inventories	2,091	1,706
Accrued compensation and benefits	1,387	770
Accrued expenses and other	2,977	3,308
Tax attributes	4,178	4,441
Valuation allowance	(1,661)	(1,675)
Total deferred tax assets	$ 52,090	$ 61,080
Deferred tax liabilities:		
Property, plant and equipment, net	$ (27,521)	$ (27,873)
Intangible and other	(1,034)	(1,091)
Total deferred tax liabilities	$ (28,555)	$ (28,964)
Net deferred tax assets (liabilities)	$ 23,535	$ 32,116

As of September 30, 2019, the Company had state tax net operating loss carryforwards of $14,093, tax credits of $3,719 and foreign net operating loss carryforwards of $1,786. These tax attributes begin to expire in 2026, 2024, and 2020, respectively. The Company has recorded a valuation allowance against the foreign net operating loss carryforwards of $415 and federal and state tax credits of $1,260 because management does not believe that it is more likely than not that net operating loss carryforwards will be realized.

Undistributed earnings of certain of the Company's foreign subsidiaries amounted to approximately $71,311 at September 30, 2019. The Company considers those earnings reinvested indefinitely and, accordingly, aside from the one-time transition tax associated with the Act, no additional provision for U.S. income taxes has been provided. Determination of the amount of unrecognized deferred U.S. income tax liability is not practicable because of the complexities associated with its hypothetical calculation.

As of September 30, 2019, the Company is open to examination in the U.S. for the 2016 through 2019 tax years and in various foreign jurisdictions from 2016 through 2019. The Company is also open to examination in various states in the U.S., none of which were individually material.

As of September 30, 2018 and 2019, the Company had no uncertain tax positions.

Note 8. Debt

U.S. revolving credit facility

The Company and Wells Fargo Capital Finance, LLC ("Wells Fargo") entered into a Third Amended and Restated Loan and Security Agreement (the "Amended Agreement") with certain other lenders with an effective date of July 14, 2011. On July 7, 2016, the Company amended the agreement to, among other things, extend the term through July 7, 2021 and reduce unused line fees and certain administrative fees. The maximum revolving loan amount under the Amended Agreement is $120.0 million, subject to a borrowing base formula and certain reserves. The Amended Agreement permits an increase in the maximum revolving loan amount from $120.0 million up to an aggregate amount of $170.0 million at the request of the Company. Borrowings under the U.S. revolving credit facility bear interest, at the Company's option, at either Wells Fargo's "prime rate," plus up to 0.75% per annum, or the adjusted Eurodollar rate used by the lender, plus up

to 2.0% per annum. As of September 30, 2019, the U.S. revolving credit facility had a zero balance. In addition, the Company must pay monthly, in arrears, a commitment fee of 0.20% per annum on the unused amount of the U.S. revolving credit facility total commitment. For letters of credit, the Company must pay 1.5% per annum on the daily outstanding balance of all issued letters of credit, plus customary fees for issuance, amendments and processing. The Company is subject to certain covenants such as fixed charge coverage ratios and other customary covenants, including covenants restricting the incurrence of indebtedness, the granting of liens and the sale of assets. The covenant pertaining to fixed charge coverage ratios is only effective in the event the amount of excess availability under the revolver is less than 10.0% of the maximum credit revolving loan amount. The Company is permitted to pay dividends and repurchase common stock if certain financial metrics are met (which do not apply in the case of regular quarterly dividends less than $20.0 million in the aggregate in a year and repurchases in connection with the vesting of shares of restricted stock). Borrowings under the U.S. revolving credit facility are collateralized by a pledge of substantially all of the U.S. assets of the Company, including the equity interests in its U.S. subsidiaries, but excluding the four-high Steckel rolling mill and related assets, which are pledged to Titanium Metals Corporation ("TIMET") to secure the performance of the Company's obligations under a Conversion Services Agreement with TIMET (see discussion of TIMET at Note 16). The U.S. revolving credit facility is also secured by a pledge of a 65% equity interest in each of the Company's direct foreign subsidiaries.

The Company's U.K. subsidiary (Haynes International Ltd.) has an overdraft facility of 1,700 Pounds Sterling ($2,093), all of which was available on September 30, 2019. The Company's French subsidiary (Haynes International, S.A.R.L.) has an overdraft banking facility of 240 Euro ($261), all of which was available on September 30, 2019. The Company's Swiss subsidiary (Haynes International AG) has an overdraft banking facility of 400 Swiss Francs ($406), all of which was available on September 30, 2019.

Note 9. Pension Plan and Retirement Benefits

Defined Contribution Plans

The Company sponsors a defined contribution plan (401(k)) for substantially all U.S. employees. The Company contributes an amount equal to 50% of an employee's contribution to the plan up to a maximum contribution of 3% of the employee's salary, except for all salaried employees and certain hourly employees (those hired after June 30, 2007 that are not eligible for the U.S. pension plan). The Company contributes an amount equal to 60% of an employee's contribution to the plan up to a maximum contribution of 6% of the employee's salary for these groups. Expenses associated with this plan for the years ended September 30, 2017, 2018 and 2019 totaled $1,590, $1,811 and $1,940, respectively.

The Company sponsors certain profit sharing plans for the benefit of employees meeting certain eligibility requirements. There were no contributions to these plans for the years ended September 30, 2017, 2018 and 2019.

Defined Benefit Plans

The Company has non-contributory defined benefit pension plans which cover most employees in the U.S. and the U.K.

Benefits provided under the Company's U.S. defined benefit pension plan are based on years of service and the employee's final compensation. The Company's funding policy is to contribute annually an amount deductible for federal income tax purposes based upon an actuarial cost method using actuarial and economic assumptions designed to achieve adequate funding of benefit obligations.

The Company has non-qualified pensions for former executives of the Company. Non-qualified pension plan expense for the years ended September 30, 2017, 2018 and 2019 was $19, $34 and $98, respectively. Accrued liabilities in the amount of $716 and $719 for these benefits are included in accrued pension and postretirement benefits liability at September 30, 2018 and 2019, respectively.

In addition to providing pension benefits, the Company provides certain health care and life insurance benefits for retired employees. Substantially all domestic employees become eligible for these benefits, if they reach normal

retirement age while working for the Company. The Company's liability related to total retiree health care costs is limited to $5,000 annually.

The Company made contributions of $6,000, $8,000, and $4,500 to fund its domestic Company-sponsored pension plan for the years ended September 30, 2017, 2018 and 2019, respectively. The Company's U.K. subsidiary made contributions of $804, $782 and $737 for the years ended September 30, 2017, 2018 and 2019, respectively, to the U.K. pension plan.

During the fourth quarter of fiscal 2018, the Company transferred assets of $13,576 to a third-party insurance company in exchange for the assumption of pension liability for approximately 397 retired participants. The pension liability for those retirees is not included in the projected benefit obligation as of September 30, 2018 or September 30, 2019.

The Company uses a September 30 measurement date for its plans. The status of employee pension benefit plans and other postretirement benefit plans is summarized below:

	Defined Benefit Pension Plans		Postretirement Health Care Benefits	
	Year Ended September 30,		Year Ended September 30,	
	2018	2019	2018	2019
Change in Benefit Obligation:				
Projected benefit obligation at beginning of year	$ 310,803	$ 278,280	$ 117,424	$ 108,013
Service cost	5,536	5,239	336	318
Interest cost	10,801	10,652	4,311	4,353
Actuarial gains (losses)	(19,756)	42,130	(10,395)	4,245
Benefits paid	(14,178)	(13,734)	(3,663)	(3,095)
Transfer to third-party insurance company	(13,576)	—	—	—
Administrative expenses	(1,350)	(1,089)	—	—
Projected benefit obligation at end of year	$ 278,280	$ 321,478	$ 108,013	$ 113,834
Change in Plan Assets:				
Fair value of plan assets at beginning of year	$ 224,094	$ 222,273	$ —	$ —
Actual return on assets	18,501	13,230	—	—
Employer contributions	8,782	5,237	3,663	3,095
Benefits paid	(14,178)	(13,734)	(3,663)	(3,095)
Transfer to third-party insurance company	(13,576)	—	—	—
Administrative expenses	(1,350)	(1,089)	—	—
Fair value of plan assets at end of year	$ 222,273	$ 225,917	$ —	$ —
Funded Status of Plan:				
Unfunded status	$ (56,007)	$ (95,561)	$ (108,013)	$ (113,834)

The actuarial gains incurred during the fiscal year ended September 30, 2018 were primarily driven from an increases in discount rates applied against future expected benefit payments and resulted in a decrease in the benefit obligation for both the Defined Benefit Pension Plan and Postretirement Health Care Plan. Conversely, the actuarial losses incurred during the fiscal year ended September 30, 2019 were primarily driven from a decrease in discount rates applied against future expected benefit payments and resulted in an increase in the benefit obligation for both the Defined Benefit Pension Plan and Postretirement Health Care Plan. The benefit obligation, as of September 30, 2018 was also reduced by the transfer of a portion of the benefit obligation to a third-party insurance company in the amount of $13,576.

Amounts recognized in the consolidated balance sheets are as follows:

	Defined Benefit Pension Plans		Postretirement Health Care Benefits		Non-Qualified Pension Plans		All Plans Combined	
	September 30,		September 30,		September 30,		September 30,	
	2018	2019	2018	2019	2018	2019	2018	2019
Accrued pension and postretirement benefits:								
Current	$ —	$ —	$ (5,000)	$ (4,155)	$ (95)	$ (95)	$ (5,095)	$ (4,250)
Non-current	(56,007)	(95,561)	(103,013)	(109,679)	(621)	(624)	(159,641)	(205,864)
Accrued pension and postretirement benefits	$ (56,007)	$ (95,561)	$ (108,013)	$ (113,834)	$ (716)	$ (719)	$ (164,736)	$ (210,114)
Accumulated other comprehensive loss:								
Net loss	38,808	80,711	21,891	24,650	—	—	60,699	105,361
Prior service cost	1,839	2,066	—	—	—	—	1,839	2,066
Total accumulated other comprehensive loss	$ 40,647	$ 82,777	$ 21,891	$ 24,650	$ —	$ —	$ 62,538	$ 107,427

The non-current portion of the defined benefit pension plan portion of accrued pension and postretirement benefits amounts to $56,007 and $95,561 in fiscal 2018 and 2019, respectively. These amounts include the UK pension plan net pension asset of $5,444 and $5,627, respectively, which is included in Other assets on the consolidated balance sheets as well as the US pension plan accrued pension liability of $61,451 and $101,188, respectively, which are recorded in accrued pension benefit (less current portion) on the consolidated balance sheet.

The accumulated benefit obligation for the pension plans was $269,386 and $309,410 at September 30, 2018 and 2019, respectively.

The cost of the Company's postretirement benefits is accrued over the years employees provide service to the date of their full eligibility for such benefits. The Company's policy is to fund the cost of claims on an annual basis.

The components of net periodic pension cost and postretirement health care benefit cost are as follows:

	Defined Benefit Pension Plans		
	Year Ended September 30,		
	2017	2018	2019
Service cost	$ 6,282	$ 5,536	$ 5,239
Interest cost	10,577	10,801	10,652
Expected return on assets	(14,419)	(15,157)	(14,907)
Amortization of prior service cost	808	374	228
Recognized actuarial loss	11,267	4,910	1,449
Net periodic cost	$ 14,515	$ 6,464	$ 2,661

	Postretirement Health Care Benefits		
	Year Ended September 30,		
	2017	2018	2019
Service cost	$ 350	$ 336	$ 318
Interest cost	4,292	4,311	4,353
Recognized actuarial loss	4,278	2,999	1,487
Net periodic cost	$ 8,920	$ 7,646	$ 6,158

Assumptions

A 5.0% (5.0%-2018) annual rate of increase for the costs of covered health care benefits for ages under 65 and a 5.0% (5.0%-2018) annual rate of increase for ages over 65 were assumed for 2019 and remained at 5.0% for the under 65 and over 65 age groups in the years thereafter.

The actuarial present value of the projected pension benefit obligation and postretirement health care benefit obligation for the plans at September 30, 2018 and 2019 were determined based on the following assumptions:

	September 30, 2018	September 30, 2019
Discount rate (postretirement health care)	4.13 %	3.13 %
Discount rate (U.S. pension plan)	4.00 %	2.88 %
Discount rate (U.K. pension plan)	2.80 %	1.70 %
Rate of compensation increase (U.S. pension plan only)	2.50 %	2.50 %

The net periodic pension and postretirement health care benefit costs for the plans were determined using the following assumptions:

	Defined Benefit Pension and Postretirement Health Care Plans		
	Year Ended September 30,		
	2017	2018	2019
Discount rate (postretirement health care plan)	3.50 %	3.75 %	4.13 %
Discount rate (U.S. pension plan)	3.25 %	3.63 %	4.00 %
Discount rate (U.K. pension plan)	2.30 %	2.50 %	2.80 %
Expected return on plan assets (U.S. pension plan)	7.50 %	7.25 %	7.25 %
Expected return on plan assets (U.K. pension plan)	2.70 %	3.30 %	3.20 %
Rate of compensation increase (U.S. pension plan only)	3.50 %	2.50 %	2.50 %

Plan Assets and Investment Strategy

The Company's pension plan assets by level within the fair value hierarchy at September 30, 2018 and 2019, are presented in the table below. The pension plan assets were accounted for at fair value. 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 U.S and International equities, and Fixed Income are held in mutual funds and common /

collective funds which are valued using net asset value (NAV) provided by the administrator of the fund. For more information on a description of the fair value hierarchy, see Note 17.

	September 30, 2018			
	Level 1 Active Markets for Identical Assets	Level 2 Other Observable Inputs	NAV	Total
U.S. Pension Plan Assets:				
U.S. common stock mutual funds	$ —	$ —	$ 72,947	$ 72,947
Common /collective funds				
Bonds	—	—	80,250	80,250
U.S. common stock	—	—	32,547	32,547
International equity	—	—	16,152	16,152
Total U.S.	$ —	$ —	$ 201,896	$ 201,896
U.K. Plan Assets:				
Equities	$ —	$ —	$ 8,150	$ 8,150
Bonds	—	—	9,781	9,781
Other	—	—	2,446	2,446
Total U.K.	$ —	$ —	$ 20,377	$ 20,377
Total pension plan assets	$ —	$ —	$ 222,273	$ 222,273

	September 30, 2019			
	Level 1 Active Markets for Identical Assets	Level 2 Other Observable Inputs	NAV	Total
U.S. Pension Plan Assets:				
U.S. common stock mutual funds	$ —	$ —	$ 67,954	$ 67,954
Common /collective funds				
Bonds	—	—	81,871	81,871
U.S. common stock	—	—	30,292	30,292
International equity	—	—	24,561	24,561
Total U.S.	$ —	$ —	$ 204,678	$ 204,678
U.K. Plan Assets:				
Equities	$ —	$ —	$ 6,585	$ 6,585
Bonds	—	—	12,106	12,106
Other	—	—	2,548	2,548
Total U.K.	$ —	$ —	$ 21,239	$ 21,239
Total pension plan assets	$ —	$ —	$ 225,917	$ 225,917

The primary financial objectives of the plans are to minimize cash contributions over the long term and preserve capital while maintaining a high degree of liquidity. A secondary financial objective is, where possible, to avoid significant downside risk in the short run. The objective is based on a long-term investment horizon so that interim fluctuations should be viewed with appropriate perspective.

It is the policy of the U.S. pension plan to invest assets with an allocation to equities as shown below. The balance of the assets is maintained in fixed income investments, and in cash holdings, to the extent permitted by the plan documents.

Asset classes as a percent of total assets:

Asset Class	Target[1]
Equity	60 %
Fixed Income	40 %
Real Estate and Other	— %

[1] From time to time the Company may adjust the target allocation by an amount not to exceed 10%.

In determining the expected rate of return on U.S. plan assets, the Company takes into account the target plan's allocation at September 30, 2019 of 60% equities and 40% fixed income. The Company assumes an approximately 3.00% to 4.00% equity risk premium above the broad bond market yields of 4.00% to 6.00%. Note that over very long historical periods, the realized risk premium has been higher. The Company believes that its assumption of a 7.25% long-term rate of return on plan assets is comparable to other companies, given the target allocation of the plan assets; however, there exists the potential for the use of a lower rate in the future.

The U.K. pension plan assets follow a more conservative investment objective due to the higher funding status of the plan.

Contributions and Benefit Payments

The Company has not yet determined the amounts to contribute to its domestic pension plans, domestic other postretirement benefit plans and the U.K. pension plan in fiscal 2020.

Pension and postretirement health care benefits, which include expected future service, are expected to be paid out of the respective plans as follows:

Fiscal Year Ending September 30	Pension	Postretirement Health Care
2020	$ 14,858	$ 4,155
2021	15,282	4,487
2022	15,830	4,794
2023	16,281	4,965
2024	16,682	4,894
2025 - 2029 (in total)	86,758	23,939

Note 10. Commitments

The Company leases certain transportation vehicles, warehouse facilities, office space and machinery and equipment under cancelable and non-cancelable leases, most of which expire within 10 years and may be renewed by the Company. Rent expense under such arrangements totaled $4,082, $3,892 and $3,500 for the years ended September 30, 2017, 2018 and 2019, respectively. Rent expense does not include income from sub-lease rentals totaling $153, $156 and $147 for the years ended September 30, 2017, 2018 and 2019, respectively. Future minimum rental commitments under non-cancelable operating leases at September 30, 2019, are as follows:

	Operating
2020	$ 2,542
2021	1,254
2022	460
2023	277
2024	259
2025 and thereafter	60
	$ 4,852

Future minimum rental commitments under non-cancelable operating leases have not been reduced by minimum sub-lease rentals of $73 due in the future.

Note 11. Legal, Environmental and Other Contingencies

Legal

The Company is regularly involved in litigation, both as a plaintiff and as a defendant, relating to its business and operations, including environmental, commercial, employment and federal and/or state Equal Employment Opportunity Commission administrative actions. Future expenditures for environmental, employment, intellectual property and other legal matters cannot be determined with any degree of certainty. In January 2017, a customer based in the United Kingdom wrote to the Company making a claim in relation to certain product sold to that customer by the Company. This writing was followed up by claim correspondence in 2018 and 2019. The Company has engaged its legal advisors in the United Kingdom to respond to the claim, and correspondence between the parties' respective counsel remains ongoing. To date, the insurers have not accepted coverage responsibility for the claim but have agreed to fund expenses of legal counsel selected by the Company through the date of the determination regarding coverage. The Company intends to pursue such coverage as and if necessary while vigorously defending against the customer claim. Liability for the claim is disputed, and the amount of the claim, if any, remains unclear. Based on the facts presently known, management does not believe that the claim will have a material effect on the Company's financial position, results of operations or cash flows.

Environmental

The Company has received permits from the Indiana Department of Environmental Management and the North Carolina Department of Environment and Natural Resources to close and provide post-closure environmental monitoring and care for certain areas of its Kokomo, Indiana and Mountain Home, North Carolina facilities, respectively.

The Company is required to, among other things, monitor groundwater and to continue post-closure maintenance of the former disposal areas at each site. As a result, the Company is aware of elevated levels of certain contaminants in the groundwater, and additional testing and corrective action by the Company could be required. The Company is unable to estimate the costs of any further corrective action at these sites, if required. Accordingly, the Company cannot assure that the costs of any future corrective action at these or any other current or former sites would not have a material effect on the Company's financial condition, results of operations or liquidity.

As of September 30, 2019, the Company has accrued $606 for post-closure monitoring and maintenance activities, of which $508 is included in long-term obligations as it is not due within one year. Accruals for these costs are calculated by estimating the cost to monitor and maintain each post-closure site and multiplying that amount by the number of years remaining in the post-closure monitoring.

Expected maturities of post-closure monitoring and maintenance activities (discounted) included in long-term obligations are as follows at September 30, 2019.

2021	$	74
2022		64
2023		81
2024		60
2025 and thereafter		229
	$	508

On February 11, 2016, the Company voluntarily reported to the Louisiana Department of Environmental Quality a leak that it discovered in one of its chemical cleaning operations at its Arcadia, Louisiana facility. As a result of the discovery, the Company is working with that department to determine the extent of the issue and appropriate remediation.

Note 12. Stock-based Compensation

Restricted Stock Plan

On February 23, 2009, the Company adopted a restricted stock plan that reserved 400,000 shares of common stock for issuance. Additionally, on March 1, 2016, the Company adopted the 2016 Incentive Compensation Plan which provides for grants of restricted stock, restricted stock units and performance shares, among other awards. Up to 275,000 shares of restricted stock, restricted stock units and performance shares may be granted in the aggregate under this plan. Following the adoption of the 2016 Incentive Compensation Plan, the Company ceased granting awards from the 2009 restricted stock plan, although awards remain outstanding thereunder.

Grants of restricted stock are comprised of shares of the Company's common stock subject to transfer restrictions, which vest in accordance with the terms and conditions established by the Compensation Committee. The Compensation Committee may set vesting requirements based on the achievement of specific performance goals or the passage of time.

Restricted shares are subject to forfeiture if employment or service terminates prior to the vesting date or if any applicable performance goals are not met. The Company will assess, on an ongoing basis, the probability of whether the performance criteria will be achieved. The Company will recognize compensation expense over the performance period if it is deemed probable that the goals will be achieved. The fair value of the Company's restricted stock is determined based upon the closing price of the Company's common stock on the trading day immediately preceding the grant date. The plan provides for the adjustment of the number of shares covered by an outstanding grant and the maximum number of shares for which restricted stock may be granted in the event of a stock split, extraordinary dividend or distribution or similar recapitalization event.

The shares of time-based restricted stock granted to employees vest on the third anniversary of their grant date if the recipient is still an employee of the Company on such date. The shares of restricted stock granted to non-employee directors will vest on the earlier of (a) the first anniversary of the date of grant or (b) the failure of such non-employee director to be re-elected at an annual meeting of the stockholders of the Company as a result of such non-employee director being excluded from the nominations for any reason other than cause.

The following table summarizes the activity under the 2009 restricted stock plan and the 2016 Incentive Compensation Plan with respect to restricted stock for the year ended September 30, 2019:

	Number of Shares	Weighted Average Fair Value At Grant Date
Unvested at September 30, 2018	81,993	$ 37.28
Granted	28,238	$ 33.96
Forfeited / Canceled	(19,944)	$ 37.41
Vested	(28,449)	$ 39.02
Unvested at September 30, 2019	61,838	$ 34.94
Expected to vest	61,838	$ 34.94

Compensation expense related to restricted stock for the years ended September 30, 2017, 2018 and 2019 was $1,340, $836, and $631, respectively. The remaining unrecognized compensation expense related to restricted stock at September 30, 2019 was $976, to be recognized over a weighted average period of 1.36 years. During fiscal 2019, the Company repurchased 11,356 shares of stock from employees at an average purchase price of $32.60 to satisfy required withholding taxes upon vesting of restricted stock-based compensation.

Deferred Restricted Stock

On November 20, 2017, the Company adopted a deferred compensation plan that allows directors and officers the option to defer receipt of cash and stock compensation. Beginning on November 21, 2017, the Company granted

shares of restricted stock from the 2016 Incentive Compensation Plan with respect to which elections were made by certain individuals to defer receipt to a future period. Such shares vest in accordance with the parameters of the 2016 Incentive Compensation Plan, however, receipt of the shares and any corresponding dividends are deferred until the end of the deferral period. In the event the deferred shares are forfeited prior to the vesting date, deferred dividends pertaining to those shares will also be forfeited. During the deferral period, the participants who elected to defer shares will not have voting rights with respect to those shares.

The following table summarizes the activity under the 2016 Incentive Compensation Plan with respect to deferred restricted stock for the year ended September 30, 2019.

	Number of Shares	Weighted Average Fair Value At Grant Date
Unvested and deferred at September 30, 2018	16,550	$ 31.76
Granted	12,500	$ 33.98
Vested and deferred	(16,550)	31.76
Unvested and deferred at September 30, 2019	12,500	$ 33.98
Vested and deferred at September 30, 2019	16,550	$ 31.76

Compensation expense related to deferred restricted stock for the year ended September 30, 2017, 2018 and 2019 was $0, $438 and $442, respectively. The remaining unrecognized compensation expense related to restricted stock at September 30, 2019 was $71, to be recognized over a weighted average period of 0.17 years.

Performance Shares

Beginning in fiscal 2017, the Company granted to certain employees target numbers of performance shares under the 2016 Incentive Compensation Plan. The number of performance shares that will ultimately be earned, as well as the number of shares that will be distributed in settling those earned performance shares, if any, will not be determined until the end of the performance period. Performance shares earned will depend on the calculated total shareholder return of the Company at the end of the three-year period commencing from the beginning of the fiscal year in which the award was granted as compared to the total shareholder return of the Company's peer group, as defined by the Compensation Committee for this purpose. The fair value of the performance shares is estimated as of the date of the grant using a Monte Carlo simulation model.

The following table summarizes the activity under the 2016 Incentive Compensation Plan with respect to performance shares for the nine months ended September 30, 2019.

	Number of Shares	Weighted Average Fair Value At Grant Date
Unvested at September 30, 2018	30,344	$ 49.32
Granted	24,282	$ 44.93
Forfeited / Canceled	(16,073)	$ 58.99
Unvested at September 30, 2019	38,553	$ 42.52

Compensation expense related to the performance shares for the years ended September 30, 2017, 2018 and 2019 was $336, $500 and $738, respectively. The remaining unrecognized compensation expense related to performance shares at September 30, 2019 was $967, to be recognized over a weighted average period of 1.17 years.

Stock Option Plans

The Company's 2016 Incentive Compensation Plan and its previous stock option plans authorize, or formerly authorized, the granting of non-qualified stock options to certain key employees and non-employee directors for the

purchase of a maximum of 1,925,000 shares of the Company's common stock. On March 1, 2016, the Company adopted the 2016 Incentive Compensation Plan which provides for grants of up to 425,000 stock options and stock appreciation rights. Following the adoption of the 2016 Incentive Compensation Plan, the Company ceased granting awards from its previous stock option plans, although awards remain outstanding from a plan that was adopted in January 2007, which provided for the grant of options to purchase up to 500,000 shares of the Company's common stock. Each plan provides for the adjustment of the maximum number of shares for which options may be granted in the event of a stock split, extraordinary dividend or distribution or similar recapitalization event. Unless the Compensation Committee determines otherwise, options are exercisable for a period of ten years from the date of grant and vest $33^{1}/_{3}$% per year over three years from the grant date. The amount of compensation cost recognized in the financial statements is measured based upon the grant date fair value.

The Company has elected to use the Black-Scholes option pricing model to estimate fair value, which incorporates various assumptions including volatility, expected life, risk-free interest rates and dividend yields. The volatility is based on historical volatility of the Company's common stock over the most recent period commensurate with the estimated expected term of the stock option granted. The Company uses historical volatility because management believes such volatility is representative of prospective trends. The expected term of an award is based on historical exercise data. The risk-free interest rate assumption is based upon observed interest rates appropriate for the expected term of the awards. The dividend yield assumption is based on the Company's history and expectations regarding dividend payouts at the time of the grant. The following assumptions were used for grants during fiscal years 2017, 2018 and 2019:

Grant Date	Fair Value	Dividend Yield	Risk-free Interest Rate	Expected Volatility	Expected Life
May 24, 2019 (Part 1)	$ 8.75	2.88 %	2.11 %	40 %	5 years
May 24, 2019 (Part 2)	$ 7.94	2.88 %	2.11 %	40 %	5 years
May 24, 2019 (Part 3)	$ 7.23	2.88 %	2.11 %	40 %	5 years
February 25, 2019	$ 10.86	2.52 %	2.47 %	41 %	5 years
November 21, 2018	$ 10.61	2.59 %	2.88 %	41 %	5 years
September 17, 2018	$ 11.03	2.55 %	2.89 %	40 %	5 years
June 1, 2018	$ 13.92	2.07 %	2.68 %	41 %	5 years
November 21, 2017	$ 9.74	2.77 %	2.06 %	42 %	5 years
November 22, 2016	$ 11.50	2.15 %	1.79 %	37 %	5 years

The stock-based employee compensation expense for stock options for the years ended September 30, 2017, 2018 and 2019 was $433, $546 and $764, respectively. The remaining unrecognized compensation expense at September 30, 2019 was $1,823, to be recognized over a weighted average vesting period of 1.62 years.

The following table summarizes the activity under the stock option plans for the year ended September 30, 2019:

	Number of Shares	Aggregate Intrinsic Value (000s)	Weighted Average Exercise Prices	Weighted Average Remaining Contractual Life
Outstanding at September 30, 2018	410,675		$ 42.72	
Granted	235,483		$ 33.86	
Exercised	(12,084)		$ 17.82	
Canceled	(151,683)		$ 45.79	
Outstanding at September 30, 2019	482,391	$ 682	$ 38.05	7.47 yrs.
Vested or expected to vest	439,999	$ 630	$ 37.98	4.38 yrs.
Exercisable at September 30, 2019	213,040	$ 84	$ 43.24	5.14 yrs.

Note 13. Quarterly Data (unaudited)

The unaudited quarterly results of operations of the Company for the years ended September 30, 2018 and 2019 are as follows:

	2018			
	Quarter Ended			
	December 31	March 31	June 30	September 30
Net revenues	$ 89,693	$ 110,206	$ 113,114	$ 122,313
Gross profit	9,075	13,513	15,363	17,884
Gross profit percentage of net revenues	10.1%	12.3%	13.6%	14.6%
Net income (loss)	(22,526)	(2,068)	713	2,130
Net income (loss) per share:				
Basic	$ (1.82)	$ (0.17)	$ 0.06	$ 0.17
Diluted	$ (1.82)	$ (0.17)	$ 0.06	$ 0.17

	2019			
	Quarter Ended			
	December 31	March 31	June 30	September 30
Net revenues	$ 107,069	$ 127,474	$ 126,032	$ 129,640
Gross profit	11,335	14,683	18,175	21,310
Gross profit percentage of net revenues	10.6%	11.5%	14.4%	16.4%
Net income (loss)	(1,603)	1,509	3,802	6,037
Net income (loss) per share:				
Basic	$ (0.13)	$ 0.12	$ 0.30	$ 0.48
Diluted	$ (0.13)	$ 0.12	$ 0.30	$ 0.48

Note that the Company implemented ASU 2017-07, Compensation – Retirement Benefits (Topic 715) on October 1, 2018 on a retrospective basis. This guidance requires non-service costs components of retirement expense to be reclassified outside of operating income to a new category titled "Nonoperating retirement benefit expense" in the statement of operations. Gross margins were favorably impacted by the reclassification of the non-service cost components of retirement expense. All prior periods have been adjusted for this change in accounting.

Note 14. Segment Reporting

The Company operates in one business segment: the design, manufacture, marketing and distribution of technologically advanced, high-performance alloys for use in the aerospace, industrial gas turbine, chemical processing and other industries. The Company has operations in the United States, Europe and Asia, which are summarized below.

Sales between geographic areas are made at negotiated selling prices. Revenues from external customers are attributed to the geographic areas presented based on the destination of product shipments.

	Year Ended September 30,		
	2017	2018	2019
Net Revenue by Geography:			
United States	$ 235,500	$ 258,275	$ 300,728
Europe	98,096	113,967	119,246
China	18,997	24,640	24,329
Other	42,616	38,444	45,912
Net Revenues	$ 395,209	$ 435,326	$ 490,215
Net Revenue by Product Group:			
High-temperature resistant alloys	$ 320,119	$ 352,614	$ 392,172
Corrosive-resistant alloys	75,090	82,712	98,043
Net revenues	$ 395,209	$ 435,326	$ 490,215

	September 30,	
	2018	2019
Long-lived Assets by Geography:		
United States	$ 172,689	$ 163,158
Europe	6,522	6,661
China	189	147
Total long-lived assets	$ 179,400	$ 169,966

Note 15. Valuation and Qualifying Accounts

	Balance at Beginning of Period	Charges (credits) to Expense	Deductions[1]	Balance at End of Period
Allowance for doubtful accounts receivables:				
September 30, 2019	1,130	530	(1,219)	441
September 30, 2018	620	688	(178)	1,130
September 30, 2017	402	228	(10)	620

(1) Uncollectible accounts written off net of recoveries.

Note 16. Deferred Revenue

On November 17, 2006, the Company entered into a twenty-year agreement to provide conversion services to Titanium Metals Corporation (TIMET) for up to ten million pounds of titanium metal annually. TIMET paid the Company a $50,000 up-front fee and will also pay the Company for its processing services during the term of the agreement (20 years) at prices established by the terms of the agreement. TIMET may exercise an option to have ten million additional pounds of titanium converted annually, provided that it offers to loan up to $12,000 to the Company for certain capital expenditures which may be required to expand capacity. In addition to the volume commitment, the Company has granted TIMET a first priority security interest in its four-high Steckel rolling mill, along with rights of access if the Company enters into bankruptcy or defaults on any financing arrangements. The Company has agreed not to manufacture titanium products (other than cold reduced titanium tubing). The Company has also agreed not to provide titanium hot-rolling conversion services to any entity other than TIMET for the term of the Conversion Services Agreement. The agreement contains certain default provisions which could result in contract termination and damages, including liquidated damages of $25,000 and the Company being required to return the unearned portion of the up-front fee. The Company considered each provision and the likelihood of the occurrence of a default that would result in liquidated damages. Based on the nature of the events that could trigger the liquidated damages clause, and the availability of the cure periods set forth in the agreement, the Company determined and continues to believe that none of these circumstances are reasonably likely to occur. Therefore, events resulting in liquidated damages have not been factored in as a reduction to the amount of

revenue recognized over the life of the contract. The cash received of $50,000 is recognized in income on a straight-line basis over the 20-year term of the agreement. If an event of default occurred and was not cured within any applicable grace period, the Company would recognize the impact of the liquidated damages in the period of default and re-evaluate revenue recognition under the contract for future periods. The portion of the up-front fee not recognized in income is shown as deferred revenue on the consolidated balance sheet.

Note 17. Fair Value Measurements

The fair value hierarchy has three levels based on the inputs used to determine fair value:

- Level 1—Quoted prices in active markets that are unadjusted and accessible at the measurement date for identical, unrestricted assets or liabilities;
- Level 2—Quoted prices for identical assets and liabilities in markets that are not active, quoted prices for similar assets and liabilities in active markets or financial instruments for which significant inputs are observable, either directly or indirectly; and
- Level 3—Prices or valuations that require inputs that are both significant to the fair value measurement and unobservable.

When available, the Company uses unadjusted quoted market prices to measure fair value. If quoted market prices are not available, fair value is based upon internally-developed models that use, where possible, current market-based or independently-sourced market parameters such as interest rates and currency rates. Items valued using internally-generated models are classified according to the lowest level input or value driver that is significant to the valuation. The valuation model used depends on the specific asset or liability being valued.

U.S and International equities, Fixed Income, and Other Investments held in the Company's pension plan are held in mutual funds and common / collective funds which are valued using net asset value (NAV) provided by the administrator of the fund. 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 shares outstanding. These investments are not classified in the fair value hierarchy in accordance with guidance included in ASU 2015-07, *Fair Value Measurement (Topic 820): Disclosures for Investments in Certain Entities That Calculate Net Asset Value per Share (or Its Equivalent)*.

The fair value of Cash and Cash Equivalents is determined using Level 1 information.

The following table represents the Company's fair value hierarchy for its financial assets and liabilities measured at fair value on a recurring basis as of September 30, 2018 and 2019:

	September 30, 2018 Fair Value Measurements at Reporting Date Using:				
	Level 1	**Level 2**	**Level 3**	**NAV**	**Total**
Assets:					
Pension plan assets	$ —	$ —	$ —	$ 222,273	$ 222,273
Total fair value	$ —	$ —	$ —	$ 222,273	$ 222,273

	September 30, 2019 Fair Value Measurements at Reporting Date Using:				
	Level 1	**Level 2**	**Level 3**	**NAV**	**Total**
Assets:					
Pension plan assets	$ —	$ —	$ —	$ 225,917	$ 225,917
Total fair value	$ —	$ —	$ —	$ 225,917	$ 225,917

The Company had no other financial assets or liabilities as of September 30, 2018 or 2019.

Note 18. Comprehensive Income (Loss) and Changes in Accumulated Other Comprehensive Income (Loss) by Component

Comprehensive income (loss) includes changes in equity that result from transactions and economic events from non-owner sources. Comprehensive income (loss) consists of net income (loss) and other comprehensive income (loss) items, including pension and foreign currency translation adjustments, net of tax when applicable.

Comprehensive Income (Loss)

	Year Ended September 30,								
	2017			2018			2019		
	Pre-tax	Tax	Net	Pre-tax	Tax	Net	Pre-tax	Tax	Net
Net income (loss)			$ (10,190)			$ (21,751)			$ 9,745
Other comprehensive income (loss):									
Pension and postretirement:									
Net gain (loss) arising during period	$ 46,401	$ (17,095)	29,306	$ 33,518	$ (7,576)	25,942	$ (48,052)	11,266	(36,786)
Amortization of prior service cost	808	(298)	510	374	(99)	275	228	(58)	170
Amortization of (gain) loss	15,517	(5,709)	9,808	7,887	(2,075)	5,812	2,935	(772)	2,163
Foreign currency translation adjustment	2,205	—	2,205	(1,900)	—	(1,900)	(3,620)	—	(3,620)
Other comprehensive income (loss)	$ 64,931	$ (23,102)	41,829	$ 39,879	$ (9,750)	30,129	$ (48,509)	$ 10,436	(38,073)
Total comprehensive income (loss)			$ 31,639			$ 8,378			$ (28,328)

Accumulated Other Comprehensive Income (Loss)

	Year Ended September 30, 2018			
	Pension Plan	Postretirement Plan	Foreign Exchange	Total
Accumulated other comprehensive income (loss) as of September 30, 2017	$ (43,012)	$ (21,691)	$ (7,991)	$ (72,694)
Other comprehensive income (loss) before reclassifications	17,658	8,284	(1,900)	24,042
Amounts reclassified from accumulated other comprehensive income (loss)				
Amortization of Pension and Postretirement Plan items [(1)]	374	—	—	374
Actuarial losses [(1)]	4,888	2,999	—	7,887
Tax benefit	(1,381)	(793)	—	(2,174)
Net current-period other comprehensive income (loss)	21,539	10,490	(1,900)	30,129
Accumulated other comprehensive income (loss) as of September 30, 2018	$ (21,473)	$ (11,201)	$ (9,891)	$ (42,565)

	Year Ended September 30, 2019			
	Pension Plan	Postretirement Plan	Foreign Exchange	Total
Accumulated other comprehensive income (loss) as of September 30, 2018	$ (21,473)	$ (11,201)	$ (9,891)	$ (42,565)
Other comprehensive income (loss) before reclassifications	(33,578)	(3,209)	(3,620)	(40,407)
Amounts reclassified from accumulated other comprehensive income (loss)				
Amortization of Pension and Postretirement Plan items [(1)]	228	—	—	228
Actuarial losses [(1)]	1,449	1,487	—	2,936
Tax benefit	(437)	(393)	—	(830)
Net current-period other comprehensive income (loss)	(32,338)	(2,115)	(3,620)	(38,073)
Accumulated other comprehensive loss as of September 30, 2019	$ (53,811)	$ (13,316)	$ (13,511)	$ (80,638)

(1) These accumulated other comprehensive income components are included in the computation of net periodic pension cost.

Note 19. Long-term Obligations

On January 1, 2015, the Company entered into a capital lease agreement for the building that houses the assets and operations of LaPorte Custom Metal Processing (LCMP). The capital asset and obligation are recorded at the present value of the minimum lease payments. The asset is included in Property, plant and equipment, net on the Consolidated Balance Sheet and is depreciated over the 20 year lease term. The long term component of the capital lease obligation is included in Long term obligations.

The Company entered into a twenty-year "build-to-suit" lease for a building that houses the assets and operations of the service center located in LaPorte, Indiana that was relocated from Lebanon, Indiana. During the first quarter of fiscal 2017, the Company took occupancy of the building. The Company retained substantially all of the construction risk and was deemed to be the owner of the facility for accounting purposes, even though it is not the legal owner. Construction costs incurred relative to the buildout of the facility of approximately $4,100 are included in Property, plant and equipment, net on the Consolidated Balance Sheet and depreciated over the 20-year lease term. The Company accounts for the related build-to-suit liability as a financing obligation.

As of September 30, 2019, future minimum lease rental payments applicable to the lease obligations were as follows.

2020	$ 995
2021	1,000
2022	1,012
2023	1,024
2024	1,032
Thereafter	11,540
Total minimum lease payments	16,603
Less amounts representing interest	(8,624)
Present value of net minimum lease payments	7,979
Less current obligation	(170)
Total long-term lease obligation	$ 7,809

The lease obligations are included in Long-term obligations (less current portion) on the Consolidated Balance Sheet.

	September 30, 2018	September 30, 2019
Capital lease rental payments	$ 4,207	$ 4,126
Finance lease rental payments	3,920	3,853
Environmental post-closure monitoring and maintenance activities	504	606
Long-term disability	—	251
Deferred dividends	14	40
Less amounts due within one year	(202)	(267)
Long-term obligations (less current portion)	$ 8,443	$ 8,609

Note 20. Foreign Currency Forward Contracts

Beginning in the third quarter of fiscal 2018, the Company entered into foreign currency forward contracts. The purpose of these forward contracts is to reduce income statement volatility resulting from foreign currency denominated transactions. The Company has not designated the contacts as hedges; therefore, changes in fair value are recognized in earnings. All of these contracts are designed to be settled within the same fiscal quarter they are entered into and, accordingly, as of September 30, 2018 and 2019, there are no contracts that remain unsettled. As a result, there is no impact to the balance sheet as of September 30, 2018 or September 30, 2019. Foreign exchange hedging gains and losses are recorded within Selling, General and Administrative expenses on the Consolidated Statements of Operations along with foreign currency transactional gains and losses as follows.

	Year Ended September 30, 2018	Year Ended September 30, 2019
Foreign currency transactional gain (loss)	$ 411	$ 1,071
Foreign exchange forward contract gain (loss)	(918)	(1,638)
Net gain (loss) included in selling, general and administrative expense	$ (507)	$ (567)

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

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

The Company maintains disclosure controls and procedures designed to ensure that information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the rules and forms of the U.S. Securities and Exchange Commission, including to ensure that information required to be disclosed by the Company that it files or submits under the Exchange Act is accumulated and communicated to the Company's management, including its principal executive and financial officers, as appropriate to allow timely decisions regarding required disclosure. Pursuant to Rule 13a-15(b) of the Exchange Act the Company has performed, under the supervision and with the participation of the Company's management, including the Company's Chief Executive Officer and Chief Financial Officer, an evaluation of the effectiveness of the Company's disclosure controls and procedures as of the end of the period covered by this report. Based upon that evaluation, the Chief Executive Officer and the Chief Financial Officer concluded that the Company's disclosure controls and procedures were effective as of September 30, 2019.

Changes in Internal Control Over Financial Reporting

During the quarter ended September 30, 2019, the Company has not had any material changes to its internal control over Financial Reporting.

Management's Annual Report on Internal Control Over Financial Reporting

The management of the Company is responsible for establishing and maintaining adequate internal control over financial reporting (as defined by Exchange Act rules 13a-15(f) and 15d-15(f)) for the Company. With the participation of the Chief Executive Officer and Chief Financial Officer, management conducted an evaluation of the effectiveness of the Company's internal control over financial reporting based on the framework and criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations (COSO) of The Treadway Commission (2013). Based on the Company's assessment, management has concluded that, as of September 30, 2019, the Company's internal control over financial reporting is effective based on those criteria.

All internal control systems, no matter how well designed, have inherent limitations. Therefore, even those systems determined to be effective may not prevent or detect misstatements and can provide only reasonable assurance with respect to financial statement preparation and presentation. 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.

The Company's effectiveness of internal control over financial reporting as of September 30, 2019 has been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in its attestation report which is included herein.

Michael L. Shor
President & Chief Executive Officer
November 14, 2019

Daniel W. Maudlin
Vice President of Finance and Chief Financial Officer
November 14, 2019

Item 9B. Other Information

None.

Part III

Item 10. Directors, Executive Officers and Corporate Governance

The information included under the caption "Business—Executive Officers of the Company" in this Annual Report on Form 10-K, and under the captions "Election of Directors", "Corporate Governance—Code of Ethics", "Corporate Governance—Corporate Governance Committee and Director Nominations", "Corporate Governance—Board Committee Structure", "Corporate Governance—Family Relationships" and "Corporate Governance—Independence of the Board of Directors and Committee Members" in the Proxy Statement to be issued in connection with the meeting of the Company's stockholders on February 25, 2020 is incorporated herein by reference.

Item 11. Executive Compensation

The information included under the captions "Executive Compensation", "Corporate Governance—Compensation Committee Interlocks and Insider Participation" and "Corporate Governance—Director Compensation Program" in the Proxy Statement to be issued in connection with the meeting of the Company's stockholders on February 25, 2020 is incorporated herein by reference in response to this item.

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

The information contained under the captions "Security Ownership of Certain Beneficial Owners" and "Security Ownership of Management" in the Proxy Statement to be issued in connection with the meeting of the Company's stockholders on February 25, 2020 is incorporated herein by reference in response to this item. For additional information regarding the Company's stock option plans, please see Note 12 in the Notes to Consolidated Financial Statements in this report.

Equity Compensation Plan Information

The following table provides information as of September 30, 2019 regarding shares of the Company's common stock issuable pursuant to its stock option and restricted stock plans:

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in the second column)
Equity compensation plans approved by security holders[1]	482,391	$ 38.05	213,580 [2]

(1) For a description of the Company's equity compensation plans, see Note 12 to the Consolidated Financial Statements in Item 8.

(2) Includes (i) 104,009 shares of stock options or stock appreciation rights and (ii) 109,571 shares of restricted stock, restricted stock units, performance shares or performance units.

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

The information contained under the caption "Corporate Governance—Independence of Board of Directors and Committee Members" and under "Conflict of Interest and Related Party Transactions" in the Proxy Statement to be issued in connection with the meeting of the Company's stockholders on February 25, 2020 is incorporated herein by reference in response to this item.

Item 14. Principal Accountant Fees and Services

The information included under the caption "Ratification of the Appointment of Independent Registered Public Accounting Firm" in the Proxy Statement to be issued in connection with the meeting of the Company's stockholders on February 25, 2020 is incorporated herein by reference in response to this item.

Part IV

Item 15. Exhibits, Financial Statement Schedules

(a) *Documents filed as part of this Report.*

1. *Financial Statements:*

   The Financial Statements are set forth under Item 8 in this Annual Report on Form 10-K.

2. *Financial Statement Schedules:*

   Financial Statement Schedules are omitted as they are not required, are not applicable or the information is shown in the Notes to the Consolidated Financial Statements.

(b) *Exhibits*. See Index to Exhibits, which is incorporated herein by reference.

(c) *Financial Statement Schedules:* None

INDEX TO EXHIBITS

Exhibit Number	Description
3.1	Second Restated Certificate of Incorporation of Haynes International, Inc. (incorporated by reference to Exhibit 3.1 to the Haynes International, Inc. Registration Statement on Form S-1, Registration No. 333-140194).
3.2	Amended and Restated By-laws of Haynes International, Inc. (incorporated by reference to Exhibit 3.2 to the Haynes International, Inc. Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2018).
4.1	Specimen Common Stock Certificate (incorporated by reference to Exhibit 4.01 to the Haynes International, Inc. Quarterly Report on Form 10-Q for the fiscal quarter ended December 31, 2009).
10.1	Form of Termination Benefits Agreements by and between Haynes International, Inc. and certain of its employees, conformed to give effect to all amendments thereto (incorporated by reference to Exhibit 10.1 to the Company's Annual Report on Form 10-K for the year ended September 30, 2011).
10.2	Third Amended and Restated Loan and Security Agreement by and among Haynes International, Inc., Haynes Wire Company, the Lenders (as defined therein), Wells Fargo Capital Finance, LLC, as agent for the Lenders, and JPMorgan Chase Bank, N.A., as documentation agent (incorporated by reference to Exhibit 10.1 to Haynes International, Inc. Current Report on Form 8-K filed July 20, 2011).
10.3	Form of Director Indemnification Agreement between Haynes International, Inc. and certain of its directors named in the schedule to the Exhibit (incorporated by reference to Exhibit 10.21 to the Haynes International, Inc. Registration Statement on Form S-1, Registration No. 333-140194).
10.4	Conversion Services Agreement by and between the Company and Titanium Metals Corporation, dated November 17, 2006 (incorporated by reference to Exhibit 10.22 to the Haynes International, Inc. Registration Statement on Form S-1, Registration No. 333-140194). Portions of this exhibit have been omitted pursuant to a request for confidential treatment and filed separately with the Securities and Exchange Commission.
10.5	Access and Security Agreement by and between the Company and Titanium Metals Corporation, dated November 17, 2006 (incorporated by reference to Exhibit 10.23 to the Haynes International, Inc. Registration Statement on Form S-1, Registration No. 333-140194).
10.6	Haynes International, Inc. 2007 Stock Option Plan as adopted by the Board of Directors on January 18, 2007 (incorporated by reference to Exhibit 10.25 to the Haynes International, Inc. Registration Statement on Form S-1, Registration No. 333-140194).
10.7	Form of Non-Qualified Stock Option Agreement used in conjunction with grants made pursuant to the Haynes International, Inc. 2007 Stock Option Plan (incorporated by reference to Exhibit 10.26 to the Haynes International, Inc. Registration Statement on Form S-1, Registration No. 333-140194).
10.8	Second Amended and Restated Haynes International, Inc. Stock Option Plan as adopted by the Board of Directors on January 22, 2007 (incorporated by reference to Exhibit 10.27 to the Haynes International, Inc. Registration Statement on Form S-1, Registration No. 333-140194).
10.9	Form of Non-Qualified Stock Option Agreements between Haynes International, Inc. and certain of its executive officers and directors named in the schedule to the Exhibit pursuant to the Haynes International, Inc. Second Amended and Restated Stock Option Plan (incorporated by reference to Exhibit 10.28 to the Haynes International, Inc. Registration Statement on Form S-1, Registration No. 333-140194).
10.11	Haynes International, Inc. 2009 Restricted Stock Plan (incorporated by reference to Exhibit 10.02 to the Haynes International, Inc. Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2009).
10.12	Summary of 2019 Management Incentive Plan and Deferred Compensation Plan (incorporated by reference to Item 5.02 of the Haynes International, Inc. Form 8-K filed November 21, 2018).
10.13	Amendment No.1 to the Haynes International, Inc. 2009 Restricted Stock Plan (incorporated by reference to Exhibit 10.02 to the Haynes International, Inc. Form 10-Q for the fiscal quarter ended December 31, 2011).
10.14	Amendment No. 2 to the Haynes International, Inc. 2009 Restricted Stock Plan (incorporated by reference to Exhibit 10.01 to the Haynes International, Inc. Form 10-Q for the fiscal quarter ended March 31, 2013).
10.15	Amendment No. 3 to the Haynes International, Inc. 2009 Restricted Stock Plan (incorporated by reference to Exhibit 10.01 to the Haynes International, Inc. Form 10-Q for the fiscal quarter ended December 31, 2014).
10.16	Amendment No. 4 to the Haynes International, Inc. 2009 Restricted Stock Plan (incorporated by reference to Exhibit 10.02 to the Haynes International, Inc. Form 10-Q for the fiscal quarter ended December 31, 2014).

Exhibit Number	Description
10.17	Amendment No. 1 to Third Amended and Restated Loan and Security Agreement by and among Haynes International, Inc., Haynes Wire Company, the Lenders (as defined therein), Wells Fargo Capital Finance, LLC, as agent for the Lenders, and JPMorgan Chase Bank, N.A., as documentation agent (incorporated by reference to Exhibit 10.1 to the Haynes International, Inc. Current Report on Form 8-K filed September 20, 2013).
10.18	Amendment No. 2 to Third Amended and Restated Loan and Security Agreement by and among Haynes International, Inc., the Lenders (as defined therein), Wells Fargo Capital Finance, LLC, as agent for the Lenders, and JPMorgan Chase Bank, N.A., as documentation agent (incorporated by reference to Exhibit 10.1 to the Haynes International, Inc. Current Report on Form 8-K filed July 13, 2016).
10.19	Haynes International, Inc. 2016 Incentive Compensation Plan (incorporated by reference to Exhibit 10.1 to the Haynes International, Inc. Current Report on Form 8-K filed March 7, 2016).
10.20	Form of Restricted Stock Award Agreement between Haynes International, Inc. and certain of its directors, issued pursuant to the Haynes International, Inc. 2016 Incentive Compensation Plan (incorporated by reference to Exhibit 10.22 to the Haynes International, Inc. Form 10-K for the fiscal year ended September 30, 2017).
10.21	Form of Performance Share Award Agreement between Haynes International, Inc. of certain of its officers, issued pursuant to the Haynes International, Inc. 2016 Incentive Compensation Plan (incorporated by reference to Exhibit 10.23 to the Haynes International, Inc. Form 10-K for the fiscal year ended September 30, 2017).
10.22	Form of Non-Qualified Stock Option Agreement between Haynes International, Inc. and certain of its officers, issued pursuant to the Haynes International, Inc. 2016 Incentive Compensation Plan (incorporated by reference to Exhibit 10.24 to the Haynes International, Inc. Form 10-K for the fiscal year ended September 30, 2017).
10.23	Form of Restricted Stock Award Agreement between Haynes International, Inc. and certain of its officers and other employees, issued pursuant to the Haynes International, Inc. 2016 Incentive Compensation Plan (incorporated by reference to Exhibit 10.25 to the Haynes International, Inc. Form 10-K for the fiscal year ended September 30, 2017).
10.24	Form of Indemnification Agreement between the Company and certain of its officers (incorporated by reference to Exhibit 10.24 the Haynes International Form 10K filed November 15, 2018).
10.25	Executive Employment Agreement, effective as of September 1, 2018, by and between the Company and Michael L. Shor (incorporated by reference to Exhibit 10.25 to the Haynes International, Inc. Form 10-K filed November 15, 2018).
10.26	Resignation and General Release Agreement, effective as of May 29, 2018, by and between the Company and Mark M. Comerford (incorporated by reference to Exhibit 10.2 to the Haynes International, Inc. Form 10-Q for the fiscal quarter ended June 30, 2018).
21.1	Subsidiaries of the Registrant (incorporated by reference to Exhibit 21.1 to the Haynes International, Inc. Form 10-K for the fiscal year ended September 30, 2018).
23.1**	Consent of Deloitte & Touche LLP.
31.1**	Rule 13a-14(a)/15d-4(a) Certification of Chief Executive Officer
31.2**	Rule 13a-14(a)/15d-14(a) Certification of Chief Financial Officer
32.1**	Section 1350 Certifications
101**	The following materials from the Company's Annual Report on Form 10-K for the fiscal year ended September 30, 2019 formatted in Extensible Business Reporting Language (XBRL): (i) the Consolidated Balance Sheets; (11) the Consolidated Statements of Operations; (iii) the Consolidated Statements of Comprehensive Income (Loss); (iv) the Consolidated Statements of Stockholders Equity; (v) the Consolidated Statements of Cash Flows; and (vi) related notes.

** Filed herewith

SIGNATURES

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

HAYNES INTERNATIONAL, INC.

By: /s/ MICHAEL L. SHOR
Michael L. Shor
President and Chief Executive Officer
Date: November 14, 2019

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

Signature	Title	Date
/s/ MICHAEL L. SHOR Michael L. Shor	President and Chief Executive Officer; Director (Principal Executive Officer)	November 14, 2019
/s/ DANIEL W. MAUDLIN Daniel W. Maudlin	Vice President of Finance and Chief Financial Officer (Principal Financial Officer)	November 14, 2019
/s/ DAVID S. VAN BIBBER David S. Van Bibber	Controller and Chief Accounting Officer (Principal Accounting Officer)	November 14, 2019
/s/ ROBERT H. GETZ Robert H. Getz	Chairman of the Board, Director	November 14, 2019
/s/ DONALD C. CAMPION Donald C. Campion	Director	November 14, 2019
/s/ JOHN C. COREY John C. Corey	Director	November 14, 2019
/s/ DAWNE S. HICKTON Dawne S. Hickton	Director	November 14, 2019
/s/ WILLIAM P. WALL William P. Wall	Director	November 14, 2019

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statement Nos. 333-215172, 333-145499 and 333-134989 and on Forms S-8 of our report dated November 14, 2019, relating to the consolidated financial statements of Haynes International, Inc. and the effectiveness of Haynes International, Inc.'s internal control over financial reporting, appearing in this Annual Report on Form 10-K of Haynes International, Inc. for the year ended September 30, 2019.

/s/ Deloitte & Touche LLP

Indianapolis, Indiana
November 14, 2019

Exhibit 31.1

CERTIFICATIONS

I, Michael L. Shor, certify that:

1. I have reviewed this Annual Report on Form 10-K of Haynes International, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statement made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the period presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal controls over financial reporting (as defined in Exchange Act Rules 13a-159f) and 15(d)-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: November 14, 2019

/s/ MICHAEL L. SHOR

Michael L. Shor

President and Chief Executive Officer

Exhibit 31.2

CERTIFICATIONS

I, Daniel W. Maudlin, certify that:

1. I have reviewed this Annual Report on Form 10-K of Haynes International, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statement made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the period presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal controls over financial reporting (as defined in Exchange Act Rules 13a-159f) and 15(d)-15(f)) for the registrant and have:

    (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

    (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

    (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

    (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

    (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

    (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: November 14, 2019

/s/ DANIEL W. MAUDLIN

Daniel W. Maudlin
Vice President of Finance and
Chief Financial Officer

Exhibit 32.1

Certifications Pursuant to 18 U.S.C. Section 1350
As Adopted Pursuant to Section 906 of the
Sarbanes—Oxley Act of 2002

I, Daniel W. Maudlin, the Vice President Finance and Chief Financial Officer of Haynes International, Inc., certify that (i) the Annual Report on Form 10-K for the fiscal year ended September 30, 2019 (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, and (ii) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of Haynes International, Inc. as of the dates and for the periods set forth therein.

/s/ DANIEL W. MAUDLIN

Daniel W. Maudlin
Vice President Finance and
Chief Financial Officer

November 14, 2019

Date

I, Michael L. Shor, the President and Chief Executive Officer of Haynes International, Inc., certify that (i) the Annual Report on Form 10-K for the fiscal year ended September 30, 2019 (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, and (ii) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of Haynes International, Inc. as of the dates and for the periods set forth therein.

/s/ MICHAEL L. SHOR

Michael L. Shor
President and Chief Executive Officer

November 14, 2019

Date