

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington D.C. 20549

Form 10-K

(Mark One)

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

For the fiscal year ended December 31, 2017

OR

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

For the transition period from _____ to _____
Commission file number 001-10716

TRIMAS CORPORATION

(Exact Name of Registrant as Specified in Its Charter)

Delaware

(State or Other Jurisdiction of Incorporation or
Organization)

38-2687639

(IRS Employer Identification No.)

38505 Woodward Avenue, Suite 200

Bloomfield Hills, Michigan 48304

(Address of Principal Executive Offices, Including Zip Code)

(248) 631-5450

(Registrant's telephone number, including area code)

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

Title of Each Class:

Name of Each Exchange on Which Registered:

Common stock, \$0.01 par value

NASDAQ Stock Market LLC

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 and 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 and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted 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 and post such files). Yes No

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

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

Large accelerated filer

Accelerated filer

Non-accelerated filer
(Do not check if a smaller reporting company)

Smaller reporting company

Emerging growth company

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

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

The aggregate market value of the voting common equity held by non-affiliates of the Registrant as of June 30, 2017 was approximately \$943.0 million, based upon the closing sales price of the Registrant's common stock, \$0.01 par value, reported for such date on the NASDAQ Global Select Market. For purposes of this calculation only, directors, executive officers and the principal controlling shareholder or entities controlled by such controlling shareholder are deemed to be affiliates of the Registrant.

As of February 21, 2018, the number of outstanding shares of the Registrant's common stock, \$0.01 par value, was 45,724,453 shares.

Portions of the Registrant's Proxy Statement for the 2018 Annual Meeting of Stockholders are incorporated herein by reference in Part III of this Annual Report on Form 10-K to the extent stated herein.

TRIMAS CORPORATION INDEX

	<u>Page No.</u>
<u>Forward-Looking Statements</u>	<u>3</u>
<u>Trademarks and Service Marks</u>	<u>3</u>
<u>PART I.</u>	
<u>Item 1.</u>	<u>Business</u> 4
<u>Item 1A.</u>	<u>Risk Factors</u> 16
<u>Item 1B.</u>	<u>Unresolved Staff Comments</u> 24
<u>Item 2.</u>	<u>Properties</u> 24
<u>Item 3.</u>	<u>Legal Proceedings</u> 25
<u>Item 4.</u>	<u>Mine Safety Disclosures</u> 25
<u>Supplementary Item.</u>	<u>Executive Officers of the Company</u> 26
<u>PART II.</u>	
<u>Item 5.</u>	<u>Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities</u> 27
<u>Item 6.</u>	<u>Selected Financial Data</u> 29
<u>Item 7.</u>	<u>Management's Discussion and Analysis of Financial Condition and Results of Operations</u> 30
<u>Item 7A.</u>	<u>Quantitative and Qualitative Disclosures About Market Risk</u> 50
<u>Item 8.</u>	<u>Financial Statements and Supplementary Data</u> 51
<u>Item 9.</u>	<u>Changes in and Disagreements with Accountants on Accounting and Financial Disclosure</u> 90
<u>Item 9A.</u>	<u>Controls and Procedures</u> 90
<u>Item 9B.</u>	<u>Other Information</u> 92
<u>PART III.</u>	
<u>Item 10.</u>	<u>Directors, Executive Officers and Corporate Governance</u> 93
<u>Item 11.</u>	<u>Executive Compensation</u> 93
<u>Item 12.</u>	<u>Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters</u> 93
<u>Item 13.</u>	<u>Certain Relationships and Related Transactions, and Director Independence</u> 93
<u>Item 14.</u>	<u>Principal Accountant Fees and Services</u> 93
<u>PART IV.</u>	
<u>Item 15.</u>	<u>Exhibits and Financial Statement Schedules</u> 94
<u>Item 16.</u>	<u>Form 10-K Summary</u> 94
<u>Signatures</u>	<u>95</u>
<u>Exhibit Index</u>	<u>II-1</u>

Forward-Looking Statements

This report may contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934 about our financial condition, results of operations and business. These forward-looking statements can be identified by the use of forward-looking words, such as “may,” “could,” “should,” “estimate,” “project,” “forecast,” “intend,” “expect,” “anticipate,” “believe,” “target,” “plan” or other comparable words, or by discussions of strategy that may involve risks and uncertainties.

These forward-looking statements are subject to numerous assumptions, risks and uncertainties which could materially affect our business, financial condition or future results including, but not limited to: general economic and currency conditions; material and energy costs; risks and uncertainties associated with intangible assets, including goodwill or other intangible asset impairment charges; competitive factors; future trends; our ability to realize our business strategies; our ability to identify attractive acquisition candidates, successfully integrate acquired operations or realize the intended benefits of such acquisitions; the performance of our subcontractors and suppliers; supply constraints; market demand; technology factors; intellectual property factors; litigation; government and regulatory actions; our leverage; liabilities imposed by our debt instruments; labor disputes; changes to fiscal and tax policies; contingent liabilities relating to acquisition activities; information technology factors; the disruption of operations from catastrophic or extraordinary events, including natural disasters; the potential impact of Brexit; tax considerations relating to the Cequent spin-off; our future prospects; and other risks that are discussed in Part I, Item 1A, “*Risk Factors*.” The risks described in this report are not the only risks facing our Company. Additional risks and uncertainties not currently known to us or that we currently deemed to be immaterial also may materially adversely affect our business, financial position and results of operations or cash flows.

The cautionary statements set forth above should be considered in connection with any subsequent written or oral forward-looking statements that we or persons acting on our behalf may issue. We caution readers not to place undue reliance on the statements, which speak only as of the date of this report. We do not undertake any obligation to review or confirm analysts' expectations or estimates or to release publicly any revisions to any forward-looking statement to reflect events or circumstances after the date of this report or to reflect the occurrence of unanticipated events, except as required by law.

We disclose important factors that could cause our actual results to differ materially from our expectations implied by our forward-looking statements under Part II, Item 7, “*Management's Discussion and Analysis of Financial Condition and Results of Operations*,” and elsewhere in this report. These cautionary statements qualify all forward-looking statements attributed to us or persons acting on our behalf. When we indicate that an event, condition or circumstance could or would have an adverse effect on us, we mean to include effects upon our business, financial and other conditions, results of operations, prospects and ability to service our debt.

Trademarks and Service Marks

We own or have rights to trademarks, service marks or trade names that we use in connection with the operation of our business. Solely for convenience, some of the copyrights, trademarks, service marks and trade names referred to in this Annual Report on Form 10-K are listed without the ©, ® and ™ symbols, but we will assert, to the fullest extent under applicable law, our rights to our copyrights, trademarks, service marks, trade names and domain names. The trademarks, service marks and trade names of other companies appearing in this Annual Report on Form 10-K are, to our knowledge, the property of their respective owners.

PART I

Item 1. Business

Overview

We are a diversified industrial manufacturer of products for customers in the consumer products, aerospace, industrial, petrochemical, refinery and oil and gas end markets. Our wide range of innovative and quality product solutions are engineered and designed to address application-specific challenges that our customers face. We believe our businesses share important and distinguishing characteristics, including: well-recognized and leading brand names in the focused markets we serve; established distribution networks; innovative product technologies and features; customer approved processes and qualified products; relatively low ongoing capital investment requirements; strong cash flow conversion and long-term growth opportunities. We manufacture and supply products globally to a wide range of companies, with approximately 80% of our 2017 revenue generated from sales into North America. In addition, we generated more than 50% of our 2017 revenue from sales to less cyclical consumer product markets and aerospace markets with multi-year aircraft programs.

During 2017, our net sales were \$817.7 million and our operating profit was \$88.5 million.

Our Competitive Strengths

TriMas operates businesses in four reportable segments: Packaging, Aerospace, Energy and Engineered Components. Our businesses include Rieke® (reported in Packaging), TriMas Aerospace™ (reported in Aerospace), Lamons® (reported in Energy) and Norris Cylinder™ and Arrow® Engine Company (both reported in Engineered Components). We believe TriMas is a uniquely positioned, diversified industrial manufacturer because of a number of competitive strengths, including:

- *Well-Recognized and Established Brands.* We believe each of our go-to-market brands are well-recognized and firmly established in the focused markets we serve. We believe our brands represent high standards and a commitment to quality that our customers rely on when they make their supply chain and sourcing decisions. In most applications, the products we sell under our brands meet rigorous industry standards or customer qualifications, providing an advantage over a broad base of competitors. Moreover, we enhance our brands with ongoing investments in new products to help us capture additional customer share and identify new customer or market opportunities.
- *Innovative and Proprietary Manufacturing and Product Technologies.* We believe each of our businesses is well-positioned through years of refined manufacturing know-how, innovative product development and application engineering and solutions design. We believe our manufacturing competencies and installed capital base would be difficult and costly to replicate, providing us an advantage over prospective competitors. We continue to place a priority on investing in innovation to protect our product designs, brand names and manufacturing methods. For example, we have launched a Global Innovation Center in India to augment existing Rieke innovation teams located in the United Kingdom and United States, and we believe we have a robust pipeline of solutions that we expect to commercialize in support of our growth strategies. A further example of innovation related to TriMas Aerospace includes an investment in, and launch of, a new manufacturing location to support our expansion into a new-to-TriMas fastening product line supplied to aerospace OEMs. Additionally, our Lamons business introduced a new insulating gasket to prevent corrosion in water and waste water applications, thereby facilitating another avenue for long-term growth. TriMas continues to place a priority on driving growth through both product and process innovation within each of its businesses.
- *Customer-Focused Solutions Drive Deep and Long-Term Relationships.* We work collaboratively with our customers to design new product applications that help them satisfy rapidly changing preferences in today's consumer product marketplace. As a recognized leader in our markets, customers partner with us during both the product development and production lifecycle. This ongoing relationship, often developed over decades, coupled with our expertise in innovation and application engineering, positions us to win new and replacement business with our customers when they launch new products or programs. Customers look to TriMas' businesses for these product innovations because of our long-standing, trusted partnerships, which have provided the enabling technologies for their existing products, and our commitment to collaborate with them on designs for their future products.

Recent examples of customer-focused innovation within Rieke include a range of products designed to meet the requirements of the high-growth e-commerce retail channel and expand into new applications. These include a proprietary dispenser locking mechanism to protect the integrity of packages and prevent liquids from leaking during shipments, and a measured-dose dispenser that provides exact doses of highly-concentrated liquids for the health and beauty market.

- *Well-Established, Extensive Distribution Channels.* Each of our businesses provides products through established distribution channels that cater to the specific needs of our customers' purchasing behaviors. We developed many of these channels over decades, and believe they are a competitive differentiator for us across the markets we serve. In many cases, we provide products to end markets through our captive branch and warehouse distribution locations, while in other cases we supply to large and small distribution companies that provide our customers with flexible purchasing solutions. For example, Rieke accesses its markets through direct sales to end-use customers, as well as through leading distributors, where it has enjoyed favorable, long-standing relationships. TriMas Aerospace provides fasteners directly to OEM customers and through well-established aerospace distribution partners. Norris Cylinder markets its steel cylinders both directly to packaged gas companies, as well as to distributors and resellers. Our Lamons business operates with a primary manufacturing facility in Texas and sales branches strategically located near petrochemical and refining complexes, allowing Lamons to offer a high level of service to its customer base. Enabled by its branch network and close proximity to its customers, we believe Lamons' ability to deliver quick turn-around and customized solutions for its customers provides a competitive advantage.
- *TriMas Business Model.* We believe the diverse nature of the businesses we own and industries we serve, coupled with our light capital investment model, provide significant cash conversion opportunities. We implemented the TriMas Business Model ("TBM") in late 2016 to improve the management of our businesses. The TBM provides a platform to set near- and long-term performance objectives and goals, including safety, financial, and talent development, measure these against defined objectives, and utilize a reliable communication and escalation process that provides for flexibility and adjustments if market expectations change. We believe the TBM connects our operations, and allows us to benefit from sharing best practices across each of our businesses. The TBM has helped to drive improvement in our performance. For example, since August 2016, we have rationalized 13 manufacturing, warehousing and office locations, streamlined fixed expenses and selling, general and administrative expenses in certain of our businesses experiencing softer end markets, and increased our focus on optimizing inventory levels. We believe actions driven by the TBM have provided an economic benefit to us and have augmented our cash conversion characteristics and performance overall. Specifically, we reduced our debt from \$374.7 million at December 31, 2016 to \$303.1 million at December 31, 2017. We will continue to rely on the TBM to drive continuous improvement and employee motivation to better manage our operations and to unlock TriMas' value potential.

Our Strategies

Guided by our experienced management team and our commitment to operational excellence, we have pursued, and continue to advance, the following strategies:

- *Leverage our Businesses and Brands.* Each of our businesses sells products under well-recognized brand names in the focused markets they serve. We intend to leverage our operations and well-recognized brands to expand our product offerings to current and new customers and to introduce innovative products and adjacent offerings that fit within our business model and meet customer needs. We believe this disciplined approach will allow us to defend and expand our product offerings and grow our business over the longer term.
- *Drive Performance through Continuous Improvement.* A key tenet of the TBM is our commitment to operational excellence and continuous improvement. We adopted the use of Kaizen methodology within our operations, which is predicated on engaging our employees to improve all aspects of our operations. We believe our operating performance will continue to benefit from the use of Kaizen as a means to drive our decision-making processes.

- *Relentless Commitment to Cash Conversion.* Our operating and financial model, combined with management's disciplined approach to capital allocation and other investments, are strategic imperatives that we will continue to execute. Through focused management, we believe we have the ability to generate substantial free cash flow for reinvestment in our businesses consistent with our capital allocation priorities. We will manage indebtedness consistent with our long-term net leverage target and invest in organic growth in our most compelling market segments. We also expect to consider strategic bolt-on acquisitions that would fit within our current product areas, as well as other capital actions consistent with our long-term, financial principles.
- *Accelerate Growth and Achieve Market Leading Returns.* We use the TBM to drive management's decision-making processes to achieve our annual growth targets, as well as drive our businesses towards achieving market-leading returns. We believe our commitment to having well-defined strategies in place, setting and executing against annual goals and long-range targets, and operating in a data-driven environment will help us optimize our performance.

Our Reportable Segments

We report the results of our operations in four segments which had net sales and operating profit for the year ended December 31, 2017 as follows: Packaging (net sales: \$344.6 million; operating profit: \$80.4 million), Aerospace (net sales: \$184.3 million; operating profit: \$26.2 million), Energy (net sales: \$161.6 million; operating loss: \$5.4 million) and Engineered Components (net sales: \$127.3 million; operating profit: \$15.7 million). For information pertaining to the net sales and operating profit attributed to our reportable segments, refer to Note 19, "Segment Information," included in Item 8, "Financial Statements and Supplementary Data," within this Form 10-K.

Effective with the first quarter of 2018, we will realign our reportable segment structure from four segments to three. While there will be no changes to the current Packaging and Aerospace segments, we will combine the Energy and Engineered Components segments into a single segment, titled Specialty Products. This change is being made in connection with our recent business realignment efforts, to provide a more streamlined operating structure and to better leverage resources across the Lamons, Norris Cylinder and Arrow Engine businesses.

In addition to our reportable segments as presented, on June 30, 2015, we completed the spin-off of our Cequent businesses, comprised of the former Cequent Americas and Cequent Asia Pacific Europe Africa ("Cequent APEA") reportable segments, creating a new independent publicly traded company, Horizon Global Corporation ("Horizon"), through the distribution of 100% of the Company's interest in Horizon to holders of the Company's common stock. The results of the Cequent businesses are presented as discontinued operations for all periods presented in the financial statements attached hereto.

Each of our reportable segments is described in more detail on the following pages.

Packaging (42% of 2017 net sales)

Our Packaging segment is comprised primarily of Rieke, who we believe is a leading designer and manufacturer of specialty, highly-engineered closure and dispensing systems for a range of end markets, including steel and plastic industrial and consumer packaging applications. Rieke manufactures high-performance, value-added products that are designed to enhance its customers' ability to store, transport, process and dispense various products for the industrial, food and beverage, and health, beauty and home care markets. These enhancements help to enable our customers to distinguish their products and related applications from that of their competition.

Rieke's specialty closure portion of the business designs and manufactures industrial closure products in North America, Europe and Asia. We believe Rieke has significant market share for many of its key products, such as steel drum enclosures, plastic drum closures, plastic pail dispensers and plugs and plastic enclosures for sub-20 liter-sized containers.

The specialty dispensing portion of the business designs and manufactures products serving two primary markets:

- In the health, beauty and home care market segments, the products include foamers, lotion pumps, fine mist sprayers and other packaging solutions for the cosmetic, personal care and household product markets in North America, Europe, Asia, Latin America, Middle East, Australia and Africa, and pharmaceutical and personal care dispensers sold in Europe and Asia.
- In the food and beverage markets, the products include specialty plastic closures for bottles and jars, and dispensing pumps for North America, Europe, Asia and Australia.

Competitive Strengths

We believe Rieke benefits from the following competitive strengths:

- *Strong Product Innovation.* We believe that Rieke's product development capability and new product focus is a competitive advantage. Rieke's product development programs have provided innovative and proprietary product solutions, such as the Visegrip® steel flange and plug closure, and the all-plastic, environmentally safe, self-venting FlexSpout® flexible pouring spout. Recent examples of innovation within specialty dispensing include a range of products designed to meet the requirements of the high-growth e-commerce retail channel, a measured-dose dispenser which provides exact doses of highly-concentrated liquids in the health and beauty market, and customized product and branding solutions for customers in the global automotive aftermarket sector. Through its Global Innovation Center located near New Delhi, India as well as its centers in the United Kingdom and United States, Rieke is focused on driving innovation across a broad range of dispensing and closure solutions for its customers. Rieke's emphasis on highly-engineered solutions and product development has yielded numerous issued and enforceable patents, with many other patent applications pending.
- *Customized Solutions that Enhance Customer Loyalty and Relationships.* A significant portion of Rieke's products are customized designs for end-users, that are developed and engineered to address specific customer technical, marketing, and sustainability needs and help distinguish our customers' product from that of their competitors. For example, the customization of specialty plastic caps and closures including branding, unique colors, collar sizes, lining and venting results in substantial customer loyalty. The substantial investment in flexible manufacturing cells allows Rieke to offer both short lead-times for high volume products and extensive customization for low order volumes, which provides significant advantages to our consumer goods customer base. In addition, Rieke provides customized dispensing solutions including unique pump designs, precision metering, unique colors and special collar sizes to fit the customer's bottles. Rieke has also been successful in promoting the sale of complementary products in an effort to create preferred supplier status.
- *Leading Market Positions and Global Presence.* Rieke maintains a global network of manufacturing and distribution sites, to serve its increasingly global customer base. Rieke's global customers often desire supply chain capability and a flexible manufacturing footprint close to their end markets which result in shorter supply chains, reduced carbon footprint and better sustainability. To serve our customers in Asia, we have design and manufacturing capacity and offer highly engineered dispensing solutions through locations in China, India and Vietnam, and increased our Asian market sales coverage. Additionally, Rieke opened a new facility in San Miguel de Allende, Mexico during 2017, to replace an older facility in Mexico City, Mexico and provide additional manufacturing capacity to support growth. The majority of Rieke's manufacturing facilities around the world have advanced injection molding machines required to manufacture precision engineered dispensing and closure components, as well as automated, high-speed flexible assembly equipment for multi-component products.

We believe Rieke has significant opportunities to grow, including:

- *Innovate New Products and New Applications.* Rieke has focused its product development capabilities on consumer applications requiring special packaging forms, stylized containers and dispensing systems requiring a high degree of functionality and engineering, as well as evolving its industrial applications. Rieke has a consistent pipeline of new products ready for launch. For example, 42 patents were filed in 2017 and 41 patents were issued. Other recent examples include a range of products for the high-growth e-commerce retail channel, as well as various foamers, pumps and sprayers.
- *Globalize Product Opportunities.* Rieke successfully globalizes its products by customizing products to meet regional market requirements. Our global network of manufacturing and distribution sites ensures customers have a global product standard manufactured locally resulting in reduced order lead-times and product support where our customers require. Our sales teams are aligned to serve customers in the industrial, food and beverage, and health, beauty and home care markets, successfully selling products across the Rieke business. We believe Rieke is able to offer a wider variety of products to our global customers with enhanced service support and has entered into supply agreements with many of these customers based on our broad product offering.

- *Increase Global Presence.* Over the past few years, Rieke has increased its international manufacturing and sales presence, with advanced manufacturing capabilities in China, India, Vietnam and Mexico. We have also increased our sales coverage in Europe and Asia. By maintaining a presence in international locations, Rieke focuses on developing new markets and new applications for our products, capitalizing on our global design and manufacturing capabilities.

Marketing, Customers and Distribution

Rieke employs an internal sales force in North America, Europe and Asia. Rieke focuses its business and sales organization into the industrial, food and beverage, and health, beauty and home care end markets to better provide the breadth of its product portfolio and solutions to its customers. Rieke also uses third-party agents and distributors in key geographic markets, including Europe, South America and Asia. Rieke's agents and distributors primarily sell to container manufacturers and to users or fillers of containers.

Users or fillers that utilize or specify our products include agricultural chemical, food, industrial chemical, paint, personal care, petroleum, pharmaceutical and sanitary supply chemical companies such as BASF, BMW/Mini, McDonald's, Mercedes, Pennzoil Quaker State, Reckitt Benckiser (UK) Healthcare and Sherwin-Williams, among others.

Rieke's end customers include, but are not limited to, Colgate, Conagra Brands, Dial Corporation, Ecolab, L'Oreal, Method, Nestlé, Purna Pharmaceuticals, PZ Cussons, RB (formerly known as Reckitt Benckiser), Starbucks, Thornton & Ross and Unilever. We also supply major container manufacturers around the world such as Berenfield, Berlin Packaging, BWAY/Mauser, Cleveland Steel Container, Greif, North Coast Container and Tricobraun. Rieke maintains a customer service center that provides technical support as well as other technical assistance to customers.

Rieke has manufacturing and distribution facilities in the United States, Mexico, the United Kingdom, Germany, China, India and Vietnam.

Competition

Rieke has a broad range of products in both closures and dispensing systems, and therefore has various competitors in each of our product offerings. We do not believe that there is a single competitor that matches our entire product offering. Depending on the product and customers served, Rieke's competitors include Albea, Aptar, Bericap, Berry Global, Greif, Phoenix Closures, Silgan, Technocraft and TKPC.

Aerospace (22% of 2017 net sales)

Our Aerospace segment is comprised of Monogram Aerospace Fasteners™, Allfast Fastening Systems®, Mac Fasteners™ and Martinic Engineering™, collectively known as TriMas Aerospace. We believe TriMas Aerospace is a leading designer and manufacturer of a diverse range of products, including highly-engineered fasteners, collars, blind bolts, rivets and precision-machined components, for use in focused markets within the aerospace industry. In general, these products are customer-specific and are manufactured utilizing customer-qualified and proprietary processes. The products also satisfy rigorous customer approvals or meet unique aerospace industry standards, and as such, we believe there are a limited set of competitors.

We provide products to commercial, maintenance and repair ("MRO"), and military aerospace applications and platforms through sales to OEMs, supply chain distributors, MRO/aftermarket providers and tier one suppliers. Our customer-specified and/or qualified products are used in production of significant long-term aircraft programs, including several Boeing and Airbus commercial jetliner programs. Based on Boeing and Airbus' future aircraft delivery projections, it is estimated that commercial production will remain at strong levels through at least 2020.

We believe our brands are well established and recognized in their markets.

- *Monogram Aerospace Fasteners.* We believe Monogram Aerospace Fasteners ("Monogram") is a leader in permanent blind bolts and temporary fasteners used in commercial, business and military aircraft construction and assembly. Certain Monogram products contain patent protection, with additional patents pending. We believe Monogram is a leader in the development of blind bolt fastener technology for the aerospace industry, specifically in high-strength, rotary-actuated blind bolts that allow sections of aircraft to be joined together when access is limited to only one side of the airframe, providing cost efficiencies over conventional two piece fastening devices.

- *Allfast Fastening Systems.* We believe Allfast Fastening Systems (“Allfast”) is a leading brand of solid and blind rivets, blind bolts, temporary fasteners and installation tools for the aerospace industry with content on substantially all commercial, military and business aviation platforms in production and in service. Certain Allfast products contain patent protection.
- *Mac Fasteners.* The Mac Fasteners brand consists of alloy and stainless steel aerospace fasteners, globally utilized by OEMs, aftermarket repair companies and commercial and military aircraft producers.
- *Martinic Engineering.* The Martinic Engineering (“Martinic”) brand consists of highly-engineered, precision machined, complex machine-to-print parts for commercial and military aerospace applications, including auxiliary power units, as well as electrical, hydraulic and pneumatic systems.

Competitive Strengths

We believe TriMas Aerospace benefits from the following competitive strengths:

- *Broad Product Portfolio of Established Brands.* We believe that TriMas Aerospace is a leading designer and manufacturer of fasteners and other complex, machined components for the aerospace industry. The combination of the Monogram, Allfast and Mac Fasteners brands enables TriMas Aerospace to offer a wide range of fastener products which address a broad scope of customer requirements, providing scale to customers who continue to rationalize their supply base. In several of the product categories, including rotary-actuated blind bolts and blind and solid rivets, TriMas Aerospace has a meaningful market share with well-known and established brands.
- *Product Innovation.* We believe that TriMas Aerospace’s engineering, research and development capability and new product focus are competitive advantages. For many years, TriMas Aerospace’s product development programs have provided innovative and proprietary product solutions, such as a new Composi-Lite™ derivative affording significant installed weight savings in concert with fuel efficient aircraft designs. We believe our customer-focused approach to provide cost-effective technical solutions will drive the development of new products and create new opportunities for growth.
- *Leading Manufacturing Capabilities and Processes.* We believe that TriMas Aerospace is a leading manufacturer of precision engineered components for the aerospace industry. Given industry regulatory as well as customer requirements, these products need to be manufactured within tight tolerances and specifications, often out of hard-to-work-with materials including titanium, inconel and specialty steels. Many of TriMas Aerospace’s products, facilities and manufacturing processes are required to be qualified and/or certified. Key certifications in TriMas Aerospace include: AS9100:2009 Revision D; ISO9001:2008; TSO; and NADCAP for non-destructive testing, heat treatment, wet processes and materials testing. While proprietary products and patents are important, having proprietary manufacturing processes and capabilities makes TriMas Aerospace’s products difficult to replicate. We believe TriMas Aerospace’s manufacturing processes, capabilities and quality focus create a competitive strength for the business.

Strategies

We believe TriMas Aerospace has significant opportunities to grow, based on the following strategies:

- *Develop, Qualify, and Commercialize New Fastener Products.* TriMas Aerospace has a history of successfully developing and introducing new products and there are currently new product initiatives underway. We focus on expanding our current products into new applications on the aircraft, as well as securing qualified products onto new programs. TriMas Aerospace products contain patent protection, with additional patents pending, and are manufactured using proprietary manufacturing processes and “know-how.” Monogram has developed new fastener products that offer a flush break upon installation and is developing and testing other fasteners designs which offer improved clamping characteristics on composite structures. TriMas Aerospace has also expanded its fastener offerings to include other fastening product applications on current aircraft, including a suite of collar families used in traditional two-sided assembly. The close working relationship between our sales and engineering teams and our customers’ engineering teams is key to developing future products desired and required by our customers.

- *Leverage Strengths and Integrate TriMas Aerospace Brands.* The combined product sets of Monogram, Allfast and Mac Fasteners uniquely position us to benefit from platform-wide supply opportunities. In addition, our aerospace platform should benefit from leveraging combined purchasing activities and other back-office functions indirect labor, joint commercial and product development efforts, and sharing of best practices among previously separate businesses. TriMas Aerospace customers will benefit from a combined product portfolio of proprietary products and product development efforts. Through the application of the TriMas Business Model to further integrate our sales teams and leverage best practices, Monogram and Allfast can cross-sell products into each other's legacy set of customers.

Marketing, Customers and Distribution

TriMas Aerospace serves both OE and aftermarket customers on a wide variety of platforms. Given the focused nature of many of our products, TriMas Aerospace relies upon a global sales force that is knowledgeable of both OE customers and the established network of independent distributors. Although the markets for fasteners and complex machine components are highly competitive, we provide products and services primarily for specialized markets, and compete principally on technology, quality and service. TriMas Aerospace works directly with aircraft manufacturers to develop and test new products and improve existing products. TriMas Aerospace's primary customers include OEMs such as Airbus, Boeing, Bombardier and Embraer; supply chain distributors such as Adept Fasteners, KLX, Inc., Peerless Aerospace Fasteners and Wesco Aircraft Hardware; tier one suppliers such as Hamilton Sunstrand (United Technologies Corp.), Parker-Hannifin, and Spirit Aero Systems; and the United States government.

TriMas Aerospace's manufacturing facilities are located in the United States, and it exports products to Europe, South America and Asia.

Competition

Depending on the product and customers served, our primary competitors include Ateliers de la Haute Garonne ("AHG"), Arconic, Inc., Cherry Aerospace (Precision Castparts Corp.) and LISI Aerospace. We believe that we are a leader in the blind bolt market with significant market share in all blind fastener product categories in which we compete.

Energy (20% of 2017 net sales)

Our Energy segment is comprised primarily of Lamons, who we believe is a leading designer, manufacturer and distributor of industrial sealing, fastener and specialty products for the petrochemical, petroleum refining, oil field, water/waste water treatment and other industrial markets. These products are used in recurring MRO activities, as well as in the construction of new facilities or capacity expansions for industrial OEMs. Our sealing and fastener solutions typically represent a low-cost element of an overall project spend, but many times are needed with quick-turn capabilities to minimize our customers' facility down-time, as well as operate in harsh conditions with severe consequences of failure. As a result, we believe customers often choose to work with Lamons, given its long-standing, reputable brand name, known for quality products and expedited customer service.

Competitive Strengths

We believe Lamons benefits from the following competitive strengths:

- *Comprehensive Product Offering.* We offer a full suite of custom and standard metallic and nonmetallic gasket and bolt products to the petroleum refining, petrochemical, oil field and industrial markets. Over the years, Lamons has expanded its product offering to include custom-manufactured, specialty bolts of various sizes and made-to-order configurations and other CNC-machined components, isolation gasket kits, capabilities to produce high quality sheet jointing used in the manufacture of soft gaskets, and PTFE for our chemical customers. While many competitors manufacture and distribute either gaskets or bolts, supplying both provides us with an advantage to customers who prefer to deal with fewer suppliers.

- *Established and Extensive Distribution Channels.* Lamons utilizes an established hub-and-spoke distribution system whereby our primary manufacturing facility supplies products to our own branches and a highly knowledgeable network of worldwide distributors and licensees, which are located in close proximity to our primary customers. Our primary manufacturing facility is in Houston, Texas with company-managed branches strategically located around the world to serve our global customer base. Enabled by its branch network and close proximity to its customers, Lamons' ability to provide quick turn-around and customized solutions for its customers provides a competitive advantage. This established network of branches, enhanced by third-party distributors, allows us to add new customers in various locations and to increase distribution to existing customers. Our experienced in-house sales support teams work with our global network of distributors and licensees to create a strong market presence in all aspects of the oil, gas and petrochemical refining industries.
- *Leading Market Positions and Strong Brand Name.* We believe we are one of the largest gasket and bolt suppliers to the energy market. We believe that Lamons is known as a quality brand and offers premium service to the industry. We also believe that our facilities have the latest proprietary technology and equipment to be able to produce urgent requirement gaskets and bolts locally to meet our customers' demands.

Strategies

Lamons, similar to other market participants, has been faced with several market challenges including a reduction of its upstream oil production business as a result of the decline in oil prices, as well as downstream business postponement of refinery shutdowns and customer capital expenditures. We believe Lamons has opportunities to improve its margins, while maintaining its market leadership, including:

- *Optimizing its Footprint to Drive Lower-Costs.* Over the past 18 months, we have continued to work through reducing our cost structure through ongoing manufacturing, overhead and administrative productivity initiatives, and global sourcing of certain higher volume, standard products. We have performed a comprehensive review of our physical footprint and have closed or consolidated locations to reduce and realign our fixed cost structure to current market demand levels. We have also reconfigured our Texas facility to increase efficiency and reduce our operating cost structure, allowing for incremental capacity. In addition to our core domestic manufacturing facility in Houston, we have sourcing capabilities in China. We believe expanding our new Matrix[®] product will further increase profitability, as we manufacture our own sealing material domestically in the U.S. compared to reliance on comparable products from our competitors.
- *Improve Operational Efficiency at all Locations.* We believe that there are additional opportunities to improve our operational efficiency through continued implementation of lean-based manufacturing initiatives. Through improved production planning, inventory management, and order fulfillment processes, we believe Lamons can improve its margins, while reducing product lead-times and increasing customer fill-rates.
- *Expand Engineered and Specialty Products Offering.* Over the past few years, we have launched several new highly-engineered and specialty products and have broadened our specialty bolt offering. Examples of new products include: WRI-LP gaskets, a hydrofluoric acid gasket solution; inhibitor gaskets designed to prevent corrosion in offshore platform flanges; IsoTek[™] Gaskets, an engineered sealing solution for flanged pipe connections; hose products; and intelligent bolts which provide more reliable load indication. In addition to providing revenue growth opportunities, specialty products tend to have higher margins than the equivalent standard product.

Marketing, Customers and Distribution

Lamons relies upon a combination of a direct sales force and an established network of independent distributors and licensees with familiarity of our end user customers. Sealing and fastening products are supplied directly to major customers through our sales and service facilities in major regional markets, or through a large network of independent distributors/licensees. The close proximity of the sales and distribution network to the customer makes it possible for Lamons to respond to customer-specific engineered applications and provide a high degree of customer service. We sell to our international customers either through our newer sales and service facilities located in region, licensees or through our many distributors. Our primary customers include BP, Dow Chemical, ExxonMobil, DNOW, MRC and Valero.

Lamons' primary manufacturing facility and certain branches are located in the United States, with additional international branch locations in Belgium, Canada, Singapore, Spain and Thailand.

Competition

Lamons's primary competitors include ERIKS, Flexitallic Group, Garlock (EnPro), GHX, Klinger and Lone Star. Most of Lamons' competitors supply either gaskets or bolts. We believe that providing both gaskets and bolts, as well as our hub-and-spoke distribution model, provides us a competitive advantage with many customers. We believe that our broader product portfolio and strong brand name enables us to maintain our market leadership position as one of the largest gasket and bolt suppliers to the energy market.

Engineered Components (16% of 2017 net sales)

Our Engineered Components segment is comprised of Norris Cylinder and Arrow Engine Company. We believe Norris Cylinder is a leading designer, manufacturer and distributor of highly-engineered steel cylinders for use in industrial end markets. We believe Arrow Engine Company is a leading designer, manufacturer and distributor of a variety of natural gas powered wellhead engines, compressors and replacement parts for use in oil and natural gas production. In general, these products are highly-engineered, customer-specific items that are sold into focused markets with few competitors.

We believe Norris Cylinder and Arrow Engine are well established and recognized in their respective markets.

- We believe that Norris Cylinder is a leading provider of a complete line of large, intermediate and small size, high and low-pressure steel cylinders for the transportation, storage and dispensing of compressed gases. Norris Cylinder's large high-pressure seamless gas cylinders are used principally for shipping, storing and dispensing oxygen, nitrogen, argon, helium and other compressed gases for industrial and health care markets. In addition, Norris Cylinder offers a complete line of steel cylinders used to contain and dispense acetylene gas for the welding and cutting industries. Norris Cylinder's products meet the rigorous standards required by the Department of Transportation ("DOT") or International Standards Organization ("ISO"), which certifies a cylinder's adequacy to perform in specific applications. Norris Cylinder markets cylinders primarily to domestic and international industrial gas producers and distributors, welding equipment distributors and equipment manufacturers. Given this customer base, Norris Cylinder tends to grow in times of increased industrial and infrastructure investment.
- We believe that Arrow Engine is a leading provider of natural gas powered wellhead engines, compressors and replacement parts, all engineered for use in oil and natural gas production and other industrial and commercial markets. As Arrow's engines can operate from the natural gas produced at the wellhead, we believe Arrow is uniquely positioned to provide its products for remote pump jack installations. Arrow Engine distributes its products through a worldwide distribution network with a particularly strong presence in the United States and Canada. Arrow Engine manufactures its own engine line and also offers a wide variety of spare parts for various industrial engines not manufactured by Arrow Engine, including selected engines manufactured and sold under the Caterpillar®, Waukesha® and Ajax® brands. Arrow Engine has expanded its product line to include compressors and compressor packaging, as well as certain gas production equipment.

Strategies

We believe the businesses within the Engineered Components segment have opportunities to grow, based on the following:

- ***Strong Product Innovation.*** Norris Cylinder and Arrow Engine have a history of successfully creating and introducing new products and there are currently several product initiatives underway. Norris Cylinder developed a process for manufacturing ISO cylinders from higher tensile strength steel, which allows for a lighter weight cylinder at the same gas service pressure. Norris Cylinder was the first to gain United Nations certification by the US Department of Transportation for its ISO cylinders, and as such remains the first manufacturer approved to distribute ISO cylinders domestically. Norris Cylinder has also created new designs for seamless acetylene applications in marine and international markets. Arrow Engine continues to introduce new products in the area of industrial engine spare parts for various industrial engines not manufactured by Arrow Engine, including selected engines manufactured and sold under the Caterpillar®, Waukesha® and Ajax® brands. Arrow Engine has also launched an offering of customizable compressors and gas production equipment, which are used by existing end customers in the oil and natural gas extraction markets, as well as developed a natural gas compressor used for compressed natural gas ("CNG") filling stations.

- *Entry into New Markets and Development of New Customers.* Engineered Components has opportunities to grow its businesses by offering its products to new customers, markets and geographies. Norris Cylinder is the only manufacturer of high and low-pressure steel cylinders in North America. Norris Cylinder is selling its cylinders internationally primarily into Europe, South and Central America, and the Asia Pacific region as well as pursuing new end markets such as cylinders for use as hydrogen fuel cells in storage (cell towers) and transport (fork trucks), in breathing air applications and in fire suppression. Arrow Engine continues to expand its product portfolio to serve new customers and new applications for oil and natural gas production in all areas of the industry, including shale drilling. Although tempered by lower drilling levels over the past few years, Arrow Engine has also been focused on expanding its international sales, particularly in Mexico, Indonesia and Venezuela.
- *Manage Capacity to Reflect Expected Demand Levels.* Norris Cylinder has deployed previously acquired assets in both its Huntsville, Alabama and Longview, Texas facilities to mitigate risk, improve efficiency and support its future expected growth, increasing its manufacturing flexibility for both large and small high pressure cylinders. Norris Cylinder is in process of installing equipment to produce higher volume cylinders more efficiently, which will allow higher technology products to be produced on the existing forge asset. Norris Cylinder also flexes its operating cost structure in coordination with movements in demand. Arrow Engine has been unfavorably impacted by reductions in drilling activity driven by the decline in oil prices. In response, we re-aligned Arrow Engine's business to reflect the current demand levels by lowering costs and maximizing resources until the end market recovers, including closing or consolidating four of its former locations. We have also variabilized Arrow Engine's cost structure to respond quickly to end market changes and enhance flexibility, driving low cost sourcing efforts, and focusing on additional productivity and Lean initiatives.

Marketing, Customers and Distribution

Customers of our Engineered Components businesses operate in the oil, gas, industrial and commercial end markets. Given the focused nature of many of our products, we rely upon a combination of a direct sales force and an established network of independent distributors with familiarity of the end-users. In many of the markets this segment serves, its companies' brand names are virtually synonymous with product applications. The narrow end-user base of many of these products makes it possible for this segment to respond to customer-specific engineered applications and provide a high degree of customer service. Our OEM and aftermarket customers include Airgas/Air Liquide, Chesapeake, Kidde-Fenwal, Natural Gas Compression Systems, Praxair and Total Operations and Production Services ("TOPS"). In years with higher levels of drilling activity, DNOW and Weatherford were larger customers of engines, parts and compressor products.

Engineering Components manufacturing facilities are located in the United States.

Competition

Norris Cylinder competes against Worthington, Beijing Tianhai Industry Co., Faber and Vitkovice Cylinders. In May 2012, the U.S. International Trade Commission made a unanimous final determination that Norris Cylinder had been materially injured by imports of DOT high pressure steel cylinders that were being subsidized by the Government of China, as well as being dumped in the U.S. market by producers in China. As a result, antidumping and countervailing duties were imposed on the subject imports for a five year period to create a fairer competitive environment in the United States. The duties were extended for an additional five year period during 2017, and will be subject to renewal in 2022. Arrow Engine tends to compete against natural gas powered, lower horsepower, multi-cylinder engines from manufacturers such as Caterpillar, Chevy, Cummins and Ford industrial engines and electric motors. In general, Norris Cylinder and Arrow Engine supply highly engineered, non-commodity, customer-specific products with large shares of small markets supplied by a limited number of competitors.

TriMas' Acquisition Strategy

We believe that TriMas has significant opportunities to grow through disciplined, strategic acquisitions that enhance the strengths of our core businesses. We typically seek "bolt-on" acquisitions, in which we acquire another industry participant or adjacent product lines that expand our existing product offerings, gain access to new customers, end markets and distribution channels, expand our geographic footprint and/or capitalize on scale and cost efficiencies. Strategically, our primary focus is on bolt-on acquisition candidates in the Packaging segment, as this segment has a higher growth and margin profile. While we would also consider opportunistic bolt-on acquisitions in our other segments, such transactions are of secondary focus.

Materials and Supply Arrangements

Our largest raw material purchases are for steel, polyethylene and other resins, aluminum, titanium and copper. Raw materials and other supplies used in our operations are normally available from a variety of competing suppliers. In addition to raw materials, we purchase a variety of components and finished products from low-cost sources in China, India, Mexico, South Korea, Thailand and Vietnam.

Steel is purchased primarily from steel mills and service centers with pricing contracts principally in the three-to-six month time frame. Changing global dynamics for steel production and supply will continue to present a challenge to our business. Polyethylene is generally a commodity resin with multiple suppliers capable of providing product globally.

Historically, we have experienced volatility in costs of our raw material purchases, and have worked with our suppliers to manage costs and disruptions in supply. We also utilize pricing programs to pass increased steel, resin and other raw material costs to customers. Although we may experience delays in our ability to implement price increases, we have been generally able to recover such increased costs.

Employees and Labor Relations

As of December 31, 2017, we employed approximately 4,000 people, of which approximately 46% were located outside the United States and 16% were unionized. We currently have collective bargaining agreements covering five facilities worldwide, two of which are in the United States. Two of the three facilities outside the United States with collective bargaining agreements are associated with state-controlled unions.

We believe employee relations are good and are not aware of any present active union organizing activities at any of our other facilities. We cannot predict the impact of any further unionization of our workplace. Our labor agreement with the United Automobile, Aerospace and Agricultural Implement Workers of America at our TriMas Aerospace facility in Commerce, California expires in August 2018 and we expect to enter into timely negotiations regarding the extension of our agreement.

Seasonality and Backlog

Our business does not experience significant seasonal fluctuation, other than our fourth quarter, which has tended to be the lowest net sales quarter of the year given holiday shutdowns by certain of our customers and other customers deferring capital spending to the new year. We do not consider sales order backlog to be a material factor in our businesses. Our TriMas Aerospace customers often provide a forward view of build rates and need for products, but firm orders do not extend for more than a few months, and are not guaranteed and subject to change.

Environmental Matters

We are subject to increasingly stringent environmental laws and regulations, including those relating to air emissions, wastewater discharges and chemical and hazardous waste management and disposal. Some of these environmental laws hold owners or operators of land or businesses liable for their own and for previous owners' or operators' releases of hazardous or toxic substances or wastes. Other environmental laws and regulations require the obtainment and compliance with environmental permits. To date, costs of complying with environmental, health and safety requirements have not been material. However, the nature of our operations and our long history of industrial activities at certain of our current or former facilities, as well as those acquired, could potentially result in material environmental liabilities.

Current laws and regulations have not had a material impact on our business, capital expenditures or financial position. However, we must comply with existing and pending climate change legislation, regulation and international treaties or accords. Future events, including those relating to climate change or greenhouse gas regulation could require us to incur expenses related to the modification or curtailment of operations, installation of pollution control equipment or investigation and cleanup of contaminated sites.

Intangible Assets

Our identified intangible assets, consisting of customer relationships, trademarks and trade names and technology, are recorded at approximately \$194.2 million at December 31, 2017, net of accumulated amortization. The valuation of each of the identified intangibles was performed using broadly accepted valuation methodologies and techniques.

Customer Relationships. We have developed and maintained stable, long-term selling relationships with customer groups for specific branded products and/or focused market product offerings within each of our businesses. Useful lives assigned to customer relationship intangibles range from five to 25 years and have been estimated using historic customer retention and turnover data. Other factors considered in evaluating estimated useful lives include the diverse nature of focused markets and products of which we have significant share, how customers in these markets make purchases and these customers' position in the supply chain. We also monitor and evaluate the impact of other evolving risks including the threat of lower cost competitors and evolving technology.

Trademarks and Trade Names. Each of our businesses designs and manufactures products for focused markets under various trade names and trademarks (see discussion above by reportable segment). Our trademark/trade name intangibles are well-established and considered long-lived assets that require maintenance through advertising and promotion expenditures. Because it is our practice and intent to maintain and to continue to support, develop and market these trademarks/trade names for the foreseeable future, we consider our rights in these trademarks/trade names to have an indefinite life, except as otherwise dictated by applicable law.

Technology. We hold a number of United States and foreign patents, patent applications, and proprietary product and process-oriented technologies within all four of our reportable segments. We have, and will continue to dedicate, technical resources toward the further development of our products and processes in order to maintain our competitive position in the industrial, commercial and consumer end markets that we serve. Estimated useful lives for our technology intangibles range from one to 30 years and are determined in part by any legal, regulatory or contractual provisions that limit useful life. For example, patent rights have a maximum limit of 20 years in the United States. Other factors considered include the expected use of the technology by the operating groups, the expected useful life of the product and/or product programs to which the technology relates, and the rate of technology adoption by the industry.

International Operations

Approximately 14.0% of our net sales for the year ended December 31, 2017 were derived from sales by our businesses located outside of the United States, and we may expand our international operations through organic growth actions and acquisitions. In addition, approximately 16.2% of our long-lived assets as of December 31, 2017 were located outside of the United States. We operate manufacturing facilities in Belgium, Canada, China, Germany, India, Mexico, Singapore, Spain, Thailand, the United Kingdom and Vietnam. In addition to the net sales derived from sales by our businesses located outside of the United States, we also generated approximately \$79.8 million of export sales from the United States. For information pertaining to the net sales and long-lived assets attributed to our international operations, refer to Note 19, "*Segment Information*," included in Item 8, "*Financial Statements and Supplementary Data*," within this Form 10-K.

Website Access to Company Reports

We use our corporate website, www.trimascorp.com, as a channel for routine distribution of important information, including news releases, company presentation, links to our businesses' websites and financial information. We post filings as soon as reasonably practicable after they are electronically filed with, or furnished to, the Securities and Exchange Commission ("SEC"), including our annual, quarterly, and current reports on Forms 10-K, 10-Q, and 8-K, our proxy statements and any amendments to those reports or statements. All such postings and filings are available under our Investors section of the website free of charge. The SEC also maintains a website, www.sec.gov, that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC. The content on any website referred to in this Annual Report on Form 10-K is not incorporated by reference into this Annual Report on Form 10-K unless expressly noted.

Item 1A. Risk Factors

You should carefully consider each of the risks described below, together with information included elsewhere in this Annual Report on Form 10-K and other documents we file with the SEC. The risks and uncertainties described below are those that we have identified as material, but are not the only risks and uncertainties facing us. Additional risks and uncertainties not currently known to us or that we currently believe are immaterial may also impact our business operations, financial results and liquidity.

Risks Relating to our Business

Our businesses depend upon general economic conditions and we serve some customers in highly cyclical industries; as such, we may be subject to the loss of sales and margins due to an economic downturn or recession.

Our financial performance depends, in large part, on conditions in the markets that we serve in both the U.S. and global economies. Some of the industries that we serve are highly cyclical, such as the consumer products, industrial goods, petrochemical, oil and gas and aerospace industries. When combined with ongoing customer consolidation activity and periodic inventory initiatives, an uncertain macro-economic and political climate could lead to reduced demand from our customers, variations in timing of sales to our customers, increased price competition for our products, increased risk of excess and obsolete inventories, uncollectible receivables, and higher overhead costs as a percentage of revenue, all of which could impact our operating margins. If our customers are adversely affected by these factors, we may experience lower product volume orders, which could have an unfavorable impact on our revenue and operating profit. Our inability to forecast precisely the level of our customers' orders can cause inefficiencies within our installed manufacturing capacity and result in sub-optimal business and financial results.

We are dependent on our manufacturing facilities for the production of our highly engineered products, which subjects us to risks associated with disruptions and changing technology and manufacturing techniques that could place us at a competitive disadvantage.

If our manufacturing facilities become unavailable either temporarily or permanently due to labor disruptions or circumstances beyond our control, such as geopolitical developments or logistical complications arising from acts of war, cyber-attacks, weather, global climate change, earthquakes or other natural disasters, we may be unable to shift production to other facilities or to make up for lost production. For example, our Aerospace manufacturing facilities are predominately located in southern California, an area known for earthquakes, and are thus vulnerable to damage. Any new facility would need to comply with the necessary regulatory requirements, satisfy our specialized manufacturing requirements and require specialized equipment. Even though we carry business interruption insurance policies, any business interruption losses could exceed the coverage available or be excluded from our insurance policies. Any disruption of our ability to operate our business could result in a material decrease in our revenues or significant additional costs to replace, repair or insure our assets, which could have a material adverse impact on our financial condition and results of operations.

In addition, we believe that our customers rigorously evaluate their suppliers on the basis of price competitiveness, product quality, reliability and timeliness of delivery, technical expertise and development capability, new product innovation, product design capability, manufacturing expertise, operational flexibility, customer service and overall management. Our success depends on our ability to continue to meet our customers' changing expectations with respect to these criteria. We may be unable to install, maintain and certify equipment needed to produce products or upgrade or transition our manufacturing facilities without impacting production rates or requiring other operational efficiency measures at our facilities. We anticipate that we will remain committed to product research and development, advanced manufacturing techniques and service to remain competitive, which entails significant costs; however, we may be unable to address technological advances, implement new and more cost-effective manufacturing techniques, or introduce new or improved products, whether in existing or new markets, so as to maintain our businesses' competitive positions or to grow our businesses as desired.

Many of the markets we serve are highly competitive, which could limit sales volumes and reduce our operating margins.

Many of our products are sold in competitive markets. We believe that the principal points of competition in our markets are price, product quality, delivery performance, design and engineering capabilities, product development, conformity to customer specifications, customer service and effectiveness of distribution. Maintaining and improving our competitive position will require continued investment by us in manufacturing, engineering, quality standards, marketing, customer service and support of our distribution networks. We may have insufficient resources in the future to continue to make such investments and, even if we make such investments, we may not be able to maintain or improve our competitive position. We also face the risk of lower-cost foreign manufacturers located in China, Southeast Asia, India and other regions competing in the markets for our products and we may be driven as a consequence of this competition to increase our investment overseas. Making overseas investments can be highly complicated and we may not always realize the advantages we anticipate from any such investments. Competitive pressure may limit the volume of products that we sell and reduce our operating margins.

We may be unable to successfully implement our business strategies.

We have a long history of acquisitions and divestitures, and we continuously evaluate strategic opportunities and other investment activities. From time to time, we may engage in one or more strategic transactions. If we do so, it may or may not meet the intended strategic objective. These strategic transactions may require integration expense and actions that may negatively affect our results of operations and that could not have been fully anticipated beforehand. In addition, attractive strategic transaction opportunities may not be identified or pursued in the future, financing for strategic transactions may be unavailable on satisfactory terms and we may be unable to accomplish our strategic objectives in effecting a particular strategic transaction. We may encounter various risks in pursuing such strategic transactions, including the possible inability to integrate an acquired business into our operations, the disruption of our ongoing business, diversion of management's attention, increased expenses, increased debt obligations to finance such strategic transactions, unanticipated problems or liabilities, the failure of such transactions to be completed, or the failure to realize the financial and strategic benefits contemplated at the time of a transaction, some or all of which could materially and adversely affect our business strategy and financial condition and results of operations.

Trends in oil and natural gas prices may affect the demand for, and profitability of, our energy-related products and services, which could have a material adverse effect on our business, consolidated results of operations, and consolidated financial condition.

The oil and gas industry historically has experienced periodic downturns. Demand for our energy-related products, such as pump jack engines and compressors, gaskets, fasteners, hoses and compression products is sensitive to the level of production activity of, and the corresponding capital spending by, oil and natural gas companies. The level of production activity is directly affected by trends in oil (and related derivatives) and natural gas prices, which have been at lower levels over the past two years, and may continue to remain at depressed levels and be subject to future volatility.

Prices for oil and natural gas are subject to large fluctuations in response to changes in the supply of and demand for oil and natural gas, market uncertainty, geopolitical developments, alternative production methods and a variety of other factors that are beyond our control. Even the perception of longer-term lower oil and natural gas prices can reduce or defer major capital expenditures by our customers in the oil and gas industry. Given the long-term nature of many large-scale development projects, a significant or extended downturn in the oil and gas industry could result in the reduction in demand for our energy-related products, and could have a material adverse effect on our business, consolidated results of operations and consolidated financial condition.

Compliance with and changes in tax laws, including recently enacted tax reform legislation in the United States, could materially and adversely impact our financial condition, results of operations and cash flows.

We are subject to extensive tax liabilities, including federal, state and foreign income taxes and transactional taxes such as excise, sales and use, payroll, franchise, withholding and property taxes. Many tax liabilities are subject to periodic audits by taxing authorities, and such audits could subject us to additional tax as well as interest and penalties. New tax laws and regulations and changes in existing tax laws and regulations could result in increased expenditures by us for tax liabilities in the future and could materially and adversely impact our financial condition, results of operations and cash flows.

Recently enacted tax reform legislation in the United States includes substantial changes to U.S. tax law, including a reduction in the corporate tax rate, a limitation on deductibility of interest expense, a limitation on the use of net operating losses to offset future taxable income, the allowance of immediate expensing of capital expenditures and deemed repatriation of foreign earnings. The Company made a reasonable estimate of the effects on the existing deferred tax balances and one-time transition tax; however, the ultimate impact of this tax reform is uncertain due to subsequent clarification of the tax law and refinement of estimated amounts and the Company's business and financial condition could be adversely affected.

Our business may be exposed to risks associated with an increasingly concentrated customer base.

While no individual customer accounted for 10% or more of our consolidated net sales for 2017, 2016 or 2015, our customer base has become, and may further become, increasingly concentrated as a result of customer consolidations and/or through our sales growth to new and existing customers. In 2017, our Packaging, Aerospace and Engineered Components reportable segments each had either one or two customers that comprised more than 10% of its segment revenue. As a result of these factors, certain customers may expose our business and results of operations to greater volatility. The mix and type of customers, and sales to any single customer, may vary significantly from quarter to quarter and from year to year, and have a significant impact on our financial condition, results of operations and cash flows. If customers do not place orders, or they substantially reduce, delay or cancel orders, we may not be able to replace the business, which may have a significant adverse impact on our results of operations and financial condition. Major customers may also seek pricing, payment, intellectual property-related, or other commercial terms that are less favorable to us, which may have a negative impact on our business. The concentration of our customer base also increases our risks related to the financial condition of our customers, and the deterioration in financial condition of customers or the failure of customers to perform their obligations could have a material adverse effect on our results of operations and cash flows.

Increases in our raw material or energy costs or the loss of critical suppliers could adversely affect our profitability and other financial results.

We are sensitive to price movements in our raw materials supply base. Our largest material purchases are for steel, polyethylene and other resins, aluminum, titanium and copper. Prices for these products fluctuate with market conditions, and have generally increased over time. We may be unable to offset the impact with price increases on a timely basis due to outstanding commitments to our customers, competitive considerations or our customers' resistance to accepting such price increases and our financial performance could be adversely impacted. A failure by our suppliers to continue to supply us with certain raw materials or component parts on commercially reasonable terms, or at all, could have a material adverse effect on us. To the extent there are energy supply disruptions or material fluctuations in energy costs, our margins could be materially adversely impacted.

Our ability to deliver products that satisfy customer requirements is dependent on the performance of our subcontractors and suppliers, as well as on the availability of raw materials and other components.

We rely on other companies, including subcontractors and suppliers, to provide and produce raw materials, integrated components and sub-assemblies and production commodities included in, or used in the production of, our products. If one or more of our suppliers or subcontractors experiences delivery delays or other performance problems, we may be unable to meet commitments to our customers or incur additional costs and penalties. In some instances, we depend upon a single source of supply. Any service disruption from one of these suppliers, either due to circumstances beyond the supplier's control, such as geopolitical developments or logistical complications due to weather, global climate change, earthquakes or other natural disasters, or as a result of performance problems or financial difficulties, could have a material adverse effect on our ability to meet commitments to our customers or increase our operating costs.

We have significant goodwill and intangible assets, and future impairment of our goodwill and intangible assets could have a material negative impact on our financial results.

At December 31, 2017, our goodwill and intangible assets were approximately \$513.6 million and represented approximately 49.7% of our total assets. Based on the results of our annual goodwill and indefinite-lived intangible asset impairment tests, we recorded pre-tax goodwill and indefinite-lived intangible asset impairment charges in 2016 of approximately \$98.9 million within our Aerospace reporting unit. Due to a significant decline in profitability levels in our Energy and engine products reporting units, we recorded pre-tax goodwill and indefinite-lived intangible asset impairment charges in 2015 of approximately \$75.7 million. If we experience declines in sales and operating profit or do not meet our current and forecasted operating budget, we may be subject to additional goodwill and/or other intangible asset impairments in the future. While the fair value of our remaining goodwill exceeds its carrying value, significantly worse financial performance of our businesses, significantly different assumptions regarding future performance of our businesses or significant declines in our stock price could result in future impairment losses. Because of the significance of our goodwill and intangible assets, and based on the magnitude of historical impairment charges, any future impairment of these assets could have a material adverse effect on our financial results.

We have debt principal and interest payment requirements that may restrict our future operations and impair our ability to meet our obligations.

As of December 31, 2017, we have approximately \$303.1 million of outstanding debt. We are subject to variable interest rates on our revolving credit and accounts receivable facilities. We may experience increases in our interest expense as a result of general increases in interest rate levels. Based on amounts outstanding as of December 31, 2017, a 1% increase in the per annum interest rate for our variable rate debt would increase our interest expense by approximately \$0.1 million annually.

Our degree of leverage and level of interest expense may have important consequences, including:

- our leverage may place us at a competitive disadvantage as compared with our less leveraged competitors and make us more vulnerable in the event of a downturn in general economic conditions or in any of our businesses;
- our flexibility in planning for, or reacting to, changes in our businesses and the industries in which we operate may be limited;
- a substantial portion of our cash flow from operations will be dedicated to the payment of interest and principal on our indebtedness, thereby reducing the funds available to us for operations, capital expenditures, acquisitions, future business opportunities or obligations to pay rent in respect of our operating leases; and
- our operations are restricted by our debt instruments, which contain certain financial and operating covenants, and those restrictions may limit, among other things, our ability to borrow money in the future for working capital, capital expenditures, acquisitions, rent expense or other purposes.

Our ability to service our debt and other obligations will depend on our future operating performance, which will be affected by prevailing economic conditions and financial, business and other factors, many of which are beyond our control. Our business may not generate sufficient cash flow, and future financings may not be available to provide sufficient net proceeds, to meet these obligations or to successfully execute our business strategies. See "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources.*"

Restrictions in our debt instruments limit our ability to take certain actions and breaches thereof could impair our liquidity.

Our revolving credit facility and the indenture governing our senior notes contain covenants that restrict our ability to:

- pay dividends or redeem or repurchase capital stock;
- incur additional indebtedness and grant liens;
- make acquisitions and joint venture investments; and
- sell assets.

Our debt instruments also require us to comply with financial covenants relating to, among other things, interest coverage and leverage. Our accounts receivable facility contains covenants similar to those in our credit agreement and includes additional requirements regarding our receivables. We may not be able to satisfy these covenants in the future or be able to pursue our strategies within the constraints of these covenants. Substantially all of the assets of our domestic subsidiaries (other than our special purpose receivables subsidiary) are pledged as collateral. Borrowings under the foreign currency sub limit are secured by a pledge of the assets of the foreign subsidiary borrowers that are party to our revolving credit facility. A breach of a covenant contained in our debt instruments could result in an event of default under one or more of our debt instruments, our accounts receivable facility and our lease financing arrangements. Such breaches would permit the lenders to declare all amounts borrowed thereunder to be due and payable, and the commitments of such lenders to make further extensions of credit could be terminated. In addition, such breach may cause a termination of our accounts receivable facility. Each of these circumstances could materially and adversely impair our liquidity.

We may face liability associated with the use of products for which patent ownership or other intellectual property rights are claimed.

We may be subject to claims or inquiries regarding alleged unauthorized use of a third party's intellectual property. An adverse outcome in any intellectual property litigation could subject us to significant liabilities to third parties, require us to license technology or other intellectual property rights from others, require us to comply with injunctions to cease marketing or using certain products or brands, or require us to redesign, re-engineer, or re-brand certain products or packaging, any of which could affect our business, financial condition and operating results. If we are required to seek licenses under patents or other intellectual property rights of others, we may not be able to acquire these licenses on acceptable terms, if at all. In addition, the cost of responding to an intellectual property infringement claim, in terms of legal fees and expenses and the diversion of management resources, whether or not the claim is valid, could have a material adverse effect on our business, results of operations and financial condition.

We may be unable to adequately protect our intellectual property.

While we believe that our patents, trademarks, know how and other intellectual property have significant value, it is uncertain that this intellectual property or any intellectual property acquired or developed by us in the future, will provide a meaningful competitive advantage. Our patents or pending applications may be challenged, invalidated or circumvented by competitors or rights granted thereunder may not provide meaningful proprietary protection. Moreover, competitors may infringe on our patents or successfully avoid them through design innovation. Policing unauthorized use of our intellectual property is difficult and expensive, and we may not be able to, or have the resources to, prevent misappropriation of our proprietary rights, particularly in countries where the laws may not protect such rights as fully as in the U.S. The cost of protecting our intellectual property may be significant and have a material adverse effect on our financial condition and future results of operations

We may incur material losses and costs as a result of product liability, recall and warranty claims brought against us.

We are subject to a variety of litigation incidental to our businesses, including claims for damages arising out of use of our products, claims relating to intellectual property matters and claims involving employment matters and commercial disputes. We currently carry insurance and maintain reserves for potential product liability claims. However, our insurance coverage may be inadequate if such claims do arise and any liability not covered by insurance could have a material adverse effect on our business. Although we have been able to obtain insurance in amounts we believe to be appropriate to cover such liability to date, our insurance premiums may increase in the future as a consequence of conditions in the insurance business generally or our situation in particular. Any such increase could result in lower operating profit or cause the need to reduce our insurance coverage. In addition, a future claim may be brought against us that could have a material adverse effect on us. Any product liability claim may also include the imposition of punitive damages, the award of which, pursuant to certain state laws, may not be covered by insurance. Our product liability insurance policies have limits that, if exceeded, may result in material costs that could have an adverse effect on our future profitability. In addition, warranty claims are generally not covered by our product liability insurance. Further, any product liability or warranty issues may adversely affect our reputation as a manufacturer of high-quality, safe products, divert management's attention, and could have a material adverse effect on our business.

In addition, the Lamons business within our Energy reportable segment is a party to lawsuits related to asbestos contained in gaskets formerly manufactured by it or its predecessors. Some of this litigation includes claims for punitive and consequential as well as compensatory damages. We are not able to predict the outcome of these matters given that, among other things, claims may be initially made in jurisdictions without specifying the amount sought or by simply stating the minimum or maximum permissible monetary relief, and may be amended to alter the amount sought. Of the 5,256 claims pending at December 31, 2017, 49 set forth specific amounts of damages (other than those stating the statutory minimum or maximum). See Note 14, "*Commitments and Contingencies*," included in Item 8, "*Financial Statements and Supplementary Data*," within this Form 10-K for additional information.

Total settlement costs (exclusive of defense costs) for all such cases, some of which were filed over 20 years ago, have been approximately \$8.5 million. All relief sought in the asbestos cases is monetary in nature. To date, approximately 40% of our costs related to settlement and defense of asbestos litigation have been covered by our primary insurance. Effective February 14, 2006, we entered into a coverage-in-place agreement with our first level excess carriers regarding the coverage to be provided to us for asbestos-related claims when the primary insurance is exhausted. The coverage-in-place agreement makes asbestos defense costs and indemnity insurance coverage available to us that might otherwise be disputed by the carriers and provides a methodology for the administration of such expenses. Nonetheless, we believe it is likely that there will be a period within the next 12 months, prior to the commencement of coverage under this agreement and following exhaustion of our primary insurance coverage, during which we likely will be solely responsible for defense costs and indemnity payments, the duration of which would be subject to the scope of damage awards and settlements paid. During this period, we may incur significant litigation costs in defending these matters. We also may be required to incur additional defense costs and pay damage awards or settlements or become subject to equitable remedies in the future that could adversely affect our businesses.

Our business may be materially and adversely affected by compliance obligations and liabilities under environmental laws and regulations.

We are subject to increasingly stringent environmental laws and regulations, including those relating to air emissions, wastewater discharges and chemical and hazardous waste management and disposal. Some of these environmental laws hold owners or operators of land or businesses liable for their own and for previous owners' or operators' releases of hazardous or toxic substances or wastes. Other environmental laws and regulations require the obtainment and compliance with environmental permits. To date, costs of complying with environmental, health and safety requirements have not been material. However, the nature of our operations and our long history of industrial activities at certain of our current or former facilities, as well as those acquired, could potentially result in material environmental liabilities.

While we must comply with existing and pending climate change legislation, regulation and international treaties or accords, current laws and regulations have not had a material impact on our business, capital expenditures or financial position. Future events, including those relating to climate change or greenhouse gas regulation, could require us to incur expenses related to the modification or curtailment of operations, installation of pollution control equipment or investigation and cleanup of contaminated sites.

Our borrowing costs may be impacted by our credit ratings developed by various rating agencies.

Two major ratings agencies, Standard & Poor's and Moody's, evaluate our credit profile on an ongoing basis and have each assigned ratings for our long-term debt. If our credit ratings were to decline, our ability to access certain financial markets may become limited, the perception of us in the view of our customers, suppliers and security holders may worsen and as a result, we may be adversely affected.

We have significant operating lease obligations and our failure to meet those obligations could adversely affect our financial condition.

We lease many of our manufacturing and distribution branch facilities, and certain capital equipment. Our rental expense in 2017 under these operating leases was approximately \$16.7 million. A failure to pay our rental obligations would constitute a default allowing the applicable landlord to pursue any remedy available to it under applicable law, which would include taking possession of our property and, in the case of real property, evicting us. These leases are categorized as operating leases and are not considered indebtedness for purposes of our debt instruments.

We may be subject to further unionization and work stoppages at our facilities or our customers may be subject to work stoppages, which could seriously impact the profitability of our business.

As of December 31, 2017, approximately 16% of our work force was unionized under several different unions and bargaining agreements. We have collective bargaining agreements covering five facilities worldwide, two of which are in the United States. We are not aware of any present active union organizing drives at any of our other facilities. We cannot predict the impact of any further unionization of our workplace. Our labor agreement with the United Automobile, Aerospace and Agricultural Implement Workers of America at our Aerospace facility in Los Angeles, California, expires in August 2018 and we expect to enter into timely negotiations regarding its extension.

Many of our direct or indirect customers have unionized work forces. Strikes, work stoppages or slowdowns experienced by these customers or their suppliers could result in slowdowns or closures of assembly plants where our products are included. In addition, organizations responsible for shipping our customers' products may be impacted by occasional strikes or other activity. Any interruption in delivery of our customers' products may reduce demand for our products and have a material adverse effect on us.

Healthcare costs for active employees may exceed projections and may negatively affect our financial results.

We maintain a range of healthcare benefits for our active employees pursuant to labor contracts and otherwise. Healthcare benefits for active employees are provided through comprehensive hospital, surgical and major medical benefit provisions or through health maintenance organizations, all of which are subject to various cost-sharing features. Some of these benefits are provided for in fixed amounts negotiated in labor contracts with the respective unions. If our costs under our benefit programs for active employees exceed our projections, our business and financial results could be materially adversely affected. Additionally, foreign competitors and many domestic competitors provide fewer benefits to their employees, and this difference in cost could adversely impact our competitive position.

A growing portion of our sales may be derived from international sources, which exposes us to certain risks which may adversely affect our financial results and impact our ability to service debt.

We have operations outside of the United States. Approximately 14.0% of our net sales for the year ended December 31, 2017 were derived from sales by our subsidiaries located outside of the U.S. In addition, we may expand our international operations through internal growth or acquisitions. International operations, particularly sales to emerging markets and manufacturing in non-U.S. countries, are subject to risks that are not present within U.S. markets, which include, but are not limited to, the following:

- volatility of currency exchange between the U.S. dollar and currencies in international markets;
- changes in local government regulations and policies including, but not limited to, foreign currency exchange controls or monetary policy, governmental embargoes, repatriation of earnings, expropriation of property, duty or tariff restrictions, investment limitations and tax policies;
- political and economic instability and disruptions, including labor unrest, civil strife, acts of war, guerrilla activities, insurrection and terrorism;

- legislation that regulates the use of chemicals;
- disadvantages of competing against companies from countries that are not subject to U.S. laws and regulations, including the Foreign Corrupt Practices Act ("FCPA");
- compliance with international trade laws and regulations, including export control and economic sanctions, such as anti-dumping duties;
- difficulties in staffing and managing multi-national operations;
- limitations on our ability to enforce legal rights and remedies;
- tax inefficiencies in repatriating cash flow from non-U.S. subsidiaries that could affect our financial results and reduce our ability to service debt;
- reduced protection of intellectual property rights; and
- other risks arising out of foreign sovereignty over the areas where our operations are conducted.

Existing free trade laws and regulations, such as the North American Free Trade Agreement, provide certain beneficial duties and tariffs qualifying imports and exports, subject to compliance with the applicable classification and other requirements. Changes in laws or policies governing the terms of foreign trade, and in particular increased trade restrictions, tariffs or taxes on imports from countries where we manufacture or purchase products could have a material adverse effect on our business and financial results.

In addition, we could be adversely affected by violations of the FCPA and similar worldwide anti-bribery laws as well as export controls and economic sanction laws. The FCPA and similar anti-bribery laws in other jurisdictions generally prohibit companies and their intermediaries from making improper payments to non-U.S. officials for the purpose of obtaining or retaining business.

Our acquisition and disposition agreements by which we have acquired or sold companies, include indemnification provisions that may not fully protect us and may result in unexpected liabilities.

Certain of the agreements related to the acquisition and disposition of businesses require indemnification against certain liabilities related to the operations of the company for the previous owner. We cannot be assured that any of these indemnification provisions will fully protect us, and as a result we may incur unexpected liabilities that adversely affect our profitability and financial position.

A major failure of our information systems could harm our business; increased IT security threats and more sophisticated and targeted computer crime could pose a risk to our systems, networks, and products.

We depend on integrated information systems to conduct our business. We may experience operating problems with our information systems as a result of system failures, viruses, computer hackers or other causes. Any significant disruption or slowdown of our systems could cause customers to cancel orders or cause standard business processes to become inefficient or ineffective.

In addition, increased global IT security threats and more sophisticated and targeted computer crime pose a risk to the security of our systems and networks and the confidentiality, availability and integrity of our data and communications. While we attempt to mitigate these risks by employing a number of measures, including employee training, comprehensive monitoring of our networks and systems, and maintenance of backup and protective systems, our networks and systems remain potentially vulnerable to advanced persistent threats. Depending on their nature and scope, such threats could potentially lead to the compromising of confidential information and communications, improper use of our systems and networks, manipulation and destruction of data, defective products, production downtimes and operational disruptions, which in turn could adversely affect our reputation, competitiveness and results of operations.

We depend on the services of key individuals and relationships, the loss of which could materially harm us.

Our success will depend, in part, on the efforts of our key leadership, including key technical, commercial and manufacturing personnel. Our future success will also depend on, among other factors, our ability to retain or attract other qualified personnel. The loss of the services of any of our key employees or the failure to retain or attract employees could have a material adverse effect on us.

The results of the United Kingdom’s referendum on withdrawal from the European Union may have a negative effect on global economic conditions, financial markets and our business.

In June 2016, a majority of voters in the United Kingdom elected to withdraw from the European Union in a national referendum. In March 2017, the United Kingdom government initiated the exit process under Article 50 of the Treaty of the European Union, commencing a period of up to two years for the United Kingdom and the other European Union member states to negotiate the terms of the withdrawal. Uncertainty exists over the terms of the United Kingdom's departure from the European Union and the future relationship between the United Kingdom and the European Union, including with respect to the laws and regulations that will apply as the United Kingdom determines which European Union laws to replace or replicate. The results of the referendum have adversely affected the British Pound and may continue to have an impact on other foreign currencies. The United Kingdom's withdrawal from the European Union has given rise to calls for the governments of other European Union member states to consider withdrawal. These developments, or the perception that any of them could occur, have had and may continue to have a material adverse effect on global economic conditions and the stability of global financial markets, and may significantly reduce global market liquidity and restrict the ability of key market participants to operate in certain financial markets. Any of these factors could depress economic activity and restrict our access to capital, which could have a material adverse effect on our business, financial condition and results of operations and reduce the price of our equity shares. We operate manufacturing facilities internationally, including in the United Kingdom. Accordingly, the results of the referendum may have an adverse impact on our international operations, particularly in the United Kingdom.

Our reputation, ability to do business, and results of operations may be impaired by legal compliance risks.

While we strive to maintain high standards, our internal controls and compliance systems may not always protect us from acts committed by our employees, agents, or business partners that would violate U.S. and/or non-U.S. laws or adequately protect our confidential information, including the laws governing payments to government officials, bribery, fraud, anti-kickback and false claims rules, competition, export and import compliance, money laundering, and data privacy laws, as well as the improper use of proprietary information or social media. Any such allegations, violations of law or improper actions could subject us to civil or criminal investigations in the U.S. and in other jurisdictions, could lead to substantial civil or criminal, monetary and non-monetary penalties, and related shareholder lawsuits, could lead to increased costs of compliance, could damage our reputation and could have a material effect on our financial statements.

If the Cequent spin-off does not qualify as a tax-free transaction, the Company and its shareholders could be subject to substantial tax liabilities.

The separation of our former Cequent businesses from TriMas was conditioned on our receipt of an opinion from our tax advisors, in form and substance satisfactory to us, that the distribution of shares of our Cequent businesses in the spin-off qualifies as tax-free to the Cequent businesses, the Company and our shareholders for U.S. federal income tax purposes under Sections 355 and 368(a)(1)(D) and related provisions of the U.S. Internal Revenue Code of 1986, as amended (the “Code”), the Company and other members of our consolidated tax reporting group. The opinion relied on, among other things, various assumptions and representations as to factual matters made by the Company and the Cequent businesses which, if inaccurate or incomplete in any material respect, could jeopardize the conclusions reached by our advisor in its opinion. The opinion is not binding on the Internal Revenue Service (“IRS”), or the courts, and there is no assurance that the IRS or the courts will not challenge the qualification of the spin-off as a transaction under Sections 355 and 368(a) of the Code or that any such challenge would not prevail.

If the spin-off were determined not to qualify under Section 355 of the Code, each U.S. holder of our common shares who received shares of the Cequent businesses in connection with the spin-off would generally be treated as having received a taxable distribution of property in an amount equal to the fair market value of the shares of the Cequent businesses that were received. That distribution would be taxable to each such shareholder as a dividend to the extent of our current and accumulated earnings and profits. For each such shareholder, any amount that exceeded our earnings and profits would be treated first as a non-taxable return of capital to the extent of such shareholder’s tax basis in his or her common shares of the Company with any remaining amount being taxed as a capital gain. We would be subject to tax as if we had sold common shares in a taxable sale for their fair market value and we would recognize taxable gain in an amount equal to the excess of the fair market value of such common shares over our tax basis in such common shares, which could have a material adverse impact on our financial condition, results of operations and cash flows.

Item 1B. Unresolved Staff Comments

Not applicable.

Item 2. Properties
Properties

Our principal manufacturing facilities range in size from approximately 10,000 square feet to approximately 255,000 square feet. Except as set forth in the table below, all of our manufacturing facilities are owned. The leases for our manufacturing facilities have terms that expire from 2018 through 2029 and are generally renewable, at our option, for various terms, provided that we are not in default under the lease agreements. Substantially all of our owned U.S. real properties are subject to liens in connection with our credit facility. Our executive offices are located in Bloomfield Hills, Michigan under a lease through February 2028. Our buildings have been generally well maintained, are in good operating condition and are adequate for current production requirements.

The following list sets forth the location of our principal owned and leased manufacturing and other facilities used in continuing operations and identifies the principal reportable segment utilizing such facilities as of December 31, 2017:

	Packaging	Aerospace	Energy	Engineered Components
United States:				
Alabama				Huntsville
Arkansas	Atkins ⁽¹⁾			
Arizona		Tempe ⁽¹⁾ Tolleson		
California	Irwindale ⁽¹⁾ Rohnert Park ⁽¹⁾	City of Industry Commerce ⁽¹⁾ Stanton ⁽¹⁾		
Indiana	Auburn Hamilton ⁽¹⁾			
Kansas		Ottawa		
Ohio	New Albany ⁽¹⁾			
Oklahoma				Tulsa
Texas			Houston ⁽¹⁾	Longview
International:				
Belgium			Geel, Antwerp ⁽¹⁾	
Canada			Sarnia, Ontario ⁽¹⁾	
China	Haining City ⁽¹⁾ Hangzhou ⁽¹⁾			
Germany	Neunkirchen			
India	Baddi New Delhi ⁽¹⁾			
Mexico	San Miguel de Allende ⁽¹⁾			
Singapore			Singapore ⁽¹⁾	
Thailand			Muang Rayong ⁽¹⁾	
United Kingdom	Leicester			
Vietnam	Thu Dau Mot ⁽¹⁾			

⁽¹⁾ Represents a leased facility. All such leases are operating leases.

Item 3. Legal Proceedings

See Note 14, "*Commitments and Contingencies*" included in Item 8, "*Financial Statements and Supplementary Data*," within this Form 10-K.

Item 4. Mine Safety Disclosures

Not applicable.

Supplementary Item. Executive Officers of the Company

As of December 31, 2017, the following were executive officers of the Company:

Thomas A. Amato. Mr. Amato, age 54, was appointed the Company's president and chief executive officer in July 2016. Previously, he served as chief executive officer and president of Metaldyne, LLC, an international engineered products manufacturing company, from 2009 through 2015, and co-president and chief integration officer of Metaldyne Performance Group, a global manufacturing company formed in mid-2014 and taken public in the same year, from August 2014 through December 2015. Prior to 2009, he served as chairman, chief executive officer, and president of Metaldyne Corporation, a global components manufacturer, and co-chief executive officer of Asahi Tec, a Japanese casting and forging company. Prior to this, Mr. Amato worked at MascoTech in positions of increasing responsibility, and successfully completed several acquisitions and divestitures. During this time, one of his roles was vice president of corporate development for TriMas. From 1987 to 1994, Mr. Amato worked at Imperial Chemical Industries, a large multinational chemical company, as an applications development engineer and, eventually, a group leader.

Robert J. Zalupski. Mr. Zalupski, age 58, was appointed the Company's chief financial officer in January 2015. Previously, he served as vice president, finance and treasurer of the Company since 2003 and assumed responsibility for corporate development in March 2010. He joined the Company as director of finance and treasury in 2002, prior to which he worked in the Detroit office of Arthur Andersen. From 1996 through 2001, Mr. Zalupski was a partner in the audit and business advisory services practice of Arthur Andersen providing audit, business consulting, and risk management services to both public and privately held companies in the manufacturing, defense, and automotive industries. Prior to 1996, Mr. Zalupski held various positions of increasing responsibility within the audit practice of Arthur Andersen serving public and privately held clients in a variety of industries.

Joshua A. Sherbin. Mr. Sherbin, age 54, was appointed the Company's general counsel and corporate secretary in 2005, vice president and chief compliance officer in May 2008, and senior vice president in March 2016. Prior to joining the Company, he was employed as the North American corporate counsel and corporate secretary for Valeo, a diversified Tier 1 international automotive supplier headquartered in Europe. Prior to joining Valeo in 1997, Mr. Sherbin was senior counsel, assistant corporate secretary for Kelly Services, Inc., an employment staffing company, from 1995 to 1997. From 1988 until 1995, he was an associate with the law firm Butzel Long in its general business practice.

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

Our common stock, par value \$0.01 per share, is listed for trading on the NASDAQ Global Select Market under the symbol "TRS." As of February 21, 2018, there were 250 holders of record of our common stock.

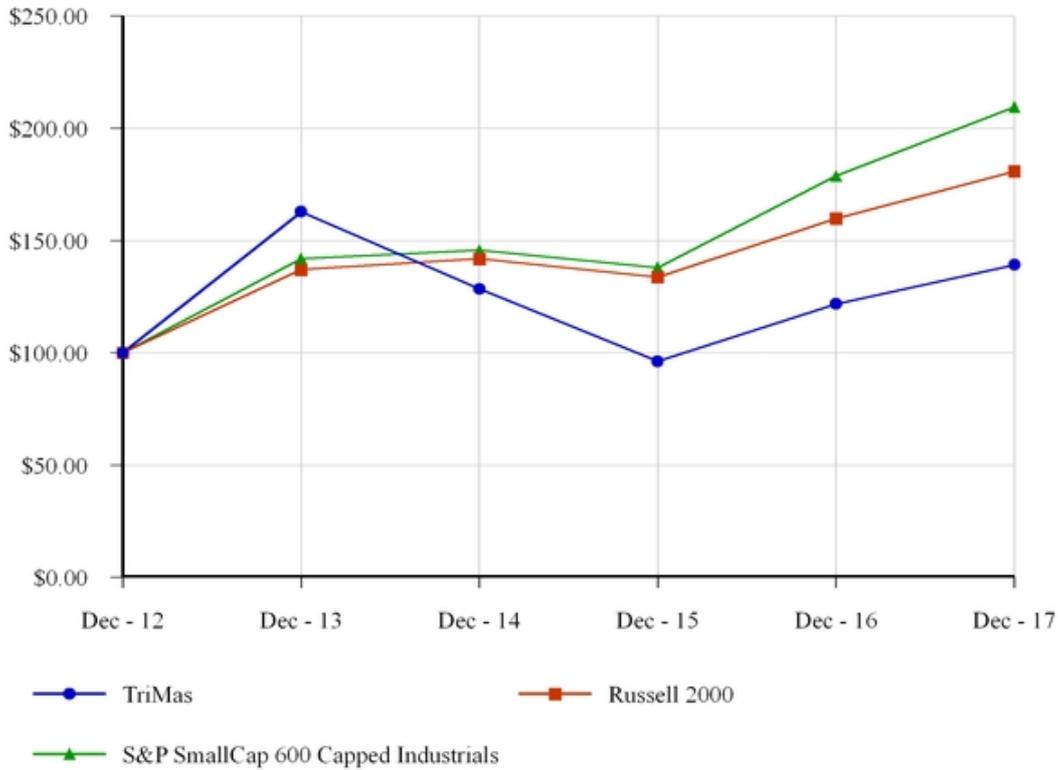
Our credit agreement and the indenture governing our senior notes restrict the payment of dividends on common stock, as such we did not pay dividends in 2017 or 2016. Our current policy is to retain earnings to repay debt and finance our operations and acquisitions. See the discussion under Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources" and Note 11 to the Company's financial statements captioned "Long-term Debt," included in Item 8, "Financial Statements and Supplementary Data," within this Form 10-K.

The high and low sales prices per share of our common stock by quarter, as reported on the NASDAQ through December 31, 2017, are shown below:

	Price range of common stock	
	High Price	Low Price
Year ended December 31, 2017		
4th Quarter	\$ 28.85	\$ 24.50
3rd Quarter	\$ 27.20	\$ 20.10
2nd Quarter	\$ 23.55	\$ 19.75
1st Quarter	\$ 24.25	\$ 20.00
Year ended December 31, 2016		
4th Quarter	\$ 24.10	\$ 17.26
3rd Quarter	\$ 20.12	\$ 17.00
2nd Quarter	\$ 18.74	\$ 15.63
1st Quarter	\$ 18.62	\$ 14.76

Performance Graph

The following graph compares the cumulative total stockholder return from December 31, 2012 through December 31, 2017 for TriMas common stock, the Russell 2000 Index and the S&P SmallCap 600 Capped Industrials Index. We have assumed that dividends have been reinvested (and taking into account the value of Horizon Global shares distributed in the spin-off) and returns have been weighted-averaged based on market capitalization. The graph assumes that \$100 was invested on December 31, 2012 in each of TriMas common stock, the stocks comprising the Russell 2000 Index and the stocks comprising the S&P SmallCap 600 Capped Industrials Index.



Item 6. Selected Financial Data

The financial data for each of the five years presented has been derived from our financial statements and notes to those financial statements, which have been audited by Deloitte & Touche LLP. The following data should be read in conjunction with Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations," and our audited financial statements included in Item 8, "Financial Statements and Supplementary Data," within this Form 10-K. The following tables set forth our selected historical financial data from continuing operations for the five years ended December 31, 2017 (dollars and shares in thousands, except per share data).

	Year ended December 31,				
	2017	2016	2015	2014	2013
Statement of Operations Data:					
Net sales	\$ 817,740	\$ 794,020	\$ 863,980	\$ 887,300	\$ 799,700
Gross profit	219,140	210,480	236,110	237,010	226,040
Operating profit (loss) ^(a)	88,490	(44,000)	(4,250)	86,650	97,210
Income (loss) from continuing operations ^(a)	30,960	(39,800)	(28,660)	46,890	59,240
Per Share Data:					
Basic:					
Continuing operations ^(a)	\$ 0.68	\$ (0.88)	\$ (0.64)	\$ 1.03	\$ 1.34
Weighted average shares	45,683	45,407	45,124	44,882	40,926
Diluted:					
Continuing operations ^(a)	\$ 0.67	\$ (0.88)	\$ (0.64)	\$ 1.02	\$ 1.32
Weighted average shares	45,990	45,407	45,124	45,269	41,396

	Year ended December 31,				
	2017	2016	2015	2014	2013
Balance Sheet Data:					
Total assets ^{(b), (c)}	\$ 1,033,200	\$ 1,051,650	\$ 1,170,300	\$ 1,625,430	\$ 1,268,990
Total debt ^{(b), (c)}	303,080	374,650	419,630	630,810	294,620
Goodwill and other intangibles ^{(a), (c)}	513,610	529,000	652,790	757,500	445,840

^(a)During 2016 and 2015, we recorded goodwill and indefinite-lived intangible asset impairment charges totaling approximately \$98.9 million and \$75.7 million, respectively. See Note 7, "Goodwill and Other Intangibles Assets," included in Item 8, "Financial Statements and Supplementary Data," within this Form 10-K for further information.

^(b)During 2015, we completed the spin-off of our Cequent businesses, thereby reducing the amount of our total assets and total debt as compared to prior periods. See Note 5, "Discontinued Operations" included in Item 8, "Financial Statements and Supplementary Data," within this Form 10-K for further information.

^(c)During 2014, we acquired 100% of the equity interest in Allfast Fastening Systems, thereby increasing the amount of our total assets, total debt and goodwill and other intangibles.

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

The statements in the discussion and analysis regarding industry outlook, our expectations regarding the performance of our business and the other non-historical statements in the discussion and analysis are forward-looking statements. These forward-looking statements are subject to numerous risks and uncertainties, including, but not limited to, the risks and uncertainties described in Item 1A "Risk Factors." Our actual results may differ materially from those contained in or implied by any forward-looking statements. You should read the following discussion together with Item 8, "Financial Statements and Supplementary Data."

Introduction

We are a diversified industrial manufacturer of products for customers in the consumer products, aerospace, industrial, petrochemical, refinery and oil and gas end markets. Our wide range of innovative and quality product solutions are engineered and designed to address application-specific challenges that our customers face. We believe our businesses share important and distinguishing characteristics, including: well-recognized and leading brand names in the focused markets we serve; established distribution networks; innovative product technologies and features; customer approved processes and qualified products; relatively low ongoing capital investment requirements; strong cash flow conversion and long-term growth opportunities. We manufacture and supply products globally to a wide range of companies. We are principally engaged in four reportable segments: Packaging, Aerospace, Energy and Engineered Components.

On June 30, 2015, we completed the spin-off of our Cequent businesses, creating a new independent publicly-traded company, Horizon Global Corporation ("Horizon"). On June 30, 2015, our stockholders received two shares of Horizon common stock for every five shares of TriMas common stock that they held as of the close of business on June 25, 2015. The financial position, results of operations and cash flows of Horizon are reflected as discontinued operations for all periods presented through the date of the spin-off.

Key Factors and Risks Affecting Our Reported Results

Our businesses and results of operations depend upon general economic conditions and we serve some customers in cyclical industries that are highly competitive and are themselves significantly impacted by changes in economic conditions. There has been low overall economic growth, particularly in the United States, and global economic conditions have been relatively stable over the past couple of years.

During 2017, there were three significant factors impacting our reported results.

The first factor was the enactment of the Tax Cuts and Jobs Act (the "Tax Reform Act") on December 22, 2017. There were two primary sections of the Tax Reform Act that impacted our 2017 results: a one-time mandatory tax on previously deferred foreign earnings, for which we recorded a charge of \$9.0 million, and the revaluation our net deferred tax assets to the new 21% corporate tax rate, for which we recorded a charge of \$3.7 million. These two charges significantly increased our income tax provision and effective tax rate in 2017. The Company should, however, benefit from the prospective impacts of the Tax Reform Act in 2018 and beyond, primarily as a result of the reduction in the U.S. corporate tax rate from 35% to 21%.

The second factor affecting our 2017 results was the refinancing of our long-term debt in September 2017, whereby we issued \$300 million principal of 4.875% senior unsecured notes due October 2025 ("Senior Notes") at par value in a private placement offering. Proceeds from the Senior Notes offering were used to repay all outstanding obligations of our former senior secured term loan A facility due 2020 ("Term Loan A Facility"), repay a portion of outstanding obligations under our accounts receivable facility and pay fees and expenses related to the refinancing. In connection with the Senior Notes offering, we also amended our existing credit agreement ("Credit Agreement") to increase the level of permitted foreign currency borrowings, resize our revolving loan commitments and extend the maturity to September 2022. We believe the refinancing enhances our capital structure, while also extending maturity dates and locking-in fixed rate debt at favorable long-term rates. We paid fees and expenses of approximately \$10.8 million in connection with refinancing-related activities, of which approximately \$6.0 million was capitalized as deferred financing fees and \$4.8 million was expensed, which was primarily related to the termination of interest rate swap agreements. In addition, we recorded non-cash charges of approximately \$2.0 million related to the write-off of previously capitalized deferred financing fees.

The third factor affecting our 2017 results was Hurricane Harvey, which primarily impacted our Energy reportable segment. While we sustained limited structural damage, our manufacturing facility in Houston, Texas was closed for one week at the end of August, and certain of our branch locations in Texas and Louisiana were closed for up to two weeks following the storm due to flooding in the surrounding region. When we initially resumed operations, our facilities did not operate at full capacity or efficiency. In addition, many of our customers' facilities were temporarily idled as these companies evaluated the impact of the storm before resuming operations. We increased our staffing levels in mid-September to ensure we could meet our customers' requirements as they assessed the condition of their facilities and product requirements. While we were able to respond to the immediate customer demand and achieve expected sales levels, we also incurred higher-than-normal operating costs due to the inability to efficiently plan and schedule required production. In addition, customer demand was for standard products rather than our more highly-engineered products, and previously scheduled refinery turnaround maintenance activity was deferred into 2018, both of which resulted in a less favorable product sales mix. As a result of lower absorption due to the lost production days, the higher cost of production when we resumed operations, and the less favorable product sales mix, we estimate our operating profit was negatively impacted by approximately \$4 million for 2017.

In addition to these 2017 events, the most significant external factor affecting our financial results has been the impact of lower oil prices, which declined beginning in the fourth quarter of 2014, and have not recovered to prior levels. This decline has most directly impacted the Arrow Engine business within our Engineered Components reportable segment, which serves the upstream oil and natural gas markets at the well site. Arrow Engine has experienced a more than 75% decline in net sales from pre-2015 levels as a result of the low oil-related activity and end-market demand, although 2017 sales were slightly higher than 2016 given some stabilization in oil prices and increased oil-related activity. We expect net sales to remain at a low level compared with historical levels until the price of oil increases and remains higher over a sustained period where our customers decide to increase their activity levels and related well-site investments. In response to the reduced demand, we have lowered the cost structure of Arrow Engine over the past two years to align with current demand levels, which allowed it to attain approximately break-even operating profit during both 2016 and 2017.

Low oil prices have also impacted the Lamons business within our Energy reportable segment. Historically, a portion of the Lamons business has served the upstream market, in addition to primarily serving petrochemical facilities and oil refineries in the downstream oil and gas markets. There have been minimal upstream sales in our Energy reportable segment in the past two years. In addition to the impact of lower oil prices, petrochemical plants and refinery customers have extended the time between planned maintenance shutdown activity, and we experienced decreases in engineering and construction ("E&C") customer activity. Our sales and margin levels over the past few years have declined from historical levels due to the mix of product sales and inefficiencies that resulted from the shift in activity levels. The current lower oil prices have continued to place further pressure on the top-line and predictability of customer order patterns. Given these factors, we have been realigning the business and its fixed cost structure with the current business environment, aggressively closing and consolidating facilities and seeking alternate lower-cost sources for input costs, including exits in 2017 of our Wolverhampton, United Kingdom and Reynosa, Mexico manufacturing facilities, as well as a branch location in British Columbia, Canada. We are now realizing the benefit of the cost savings and operational efficiencies associated with leveraging the new lower fixed cost structure and other initiatives, as evidenced by our improvement in year-over-year operating profit in 2017, albeit tempered in 2017 by the impact of Hurricane Harvey. We will continue to evaluate the cost structure and physical footprint of the business.

One other recent factor impacting our businesses was within our Aerospace reportable segment, where in 2016 we experienced a reduction in sales and significantly lower profit margins compared to the prior year. These reductions resulted from production and scheduling challenges in one of our Aerospace fastener facilities, significantly lower fixed cost absorption and manufacturing inefficiencies as we adjusted to changes in demand levels and customer order patterns, and integration costs associated with our November 2015 machined components facility acquisition. We established plans to address these matters, and have been executing against those plans, as evidenced by improved operating profit margins in 2017 compared to 2016.

Each year, our businesses target cost savings from continuous improvement and productivity initiatives in an effort to lower input costs or improve throughput and yield rates with a goal of at least covering inflationary and market cost increases. In addition, we continuously review our costs to ensure alignment between current demand and cost structure.

Critical factors affecting our ability to succeed include: our ability to create organic growth through product development, cross selling and extending product-line offerings, and our ability to quickly and cost-effectively introduce new products; our ability to acquire and integrate companies or products that supplement existing product lines, add new distribution channels, expand our geographic coverage or enable better absorption of overhead costs; our ability to manage our cost structure more efficiently via supply chain management, internal sourcing and/or purchasing of materials, selective outsourcing and/or purchasing of support functions, working capital management, and greater leverage of our administrative functions.

Our overall business does not experience significant seasonal fluctuation, other than our fourth quarter, which has tended to be the lowest net sales quarter of the year given holiday shutdowns by certain customers or other customers deferring capital spending to the new year. Given the short-cycle nature of most of our businesses, we do not consider sales order backlog to be a material factor. A growing portion of our sales is derived from international sources, which exposes us to certain risks, including currency risks.

We are sensitive to price movements in our raw materials supply base. Our largest material purchases are for steel, aluminum, polypropylene, polyethylene and other resins and utility-related inputs. Historically, we have experienced volatility in costs of steel and resin and have worked with our suppliers to manage costs and disruptions in supply. We also utilize pricing programs to pass increased steel, aluminum and resin costs to customers. Although we may experience delays in our ability to implement price increases, we have, over time, been generally able to mitigate the impact of increased costs. We may experience disruptions in supply in the future and may not be able to pass along higher costs associated with such disruptions to our customers in the form of price increases.

Certain of our businesses are sensitive to oil price movements. As noted earlier, our Arrow Engine business is most directly impacted by volatility in oil prices. Arrow Engine's pumpjack and other engine sales and related parts, which comprise a significant portion of the business, are impacted by oil and gas drilling levels, rig counts, well completion activities and commodity pricing. In addition, a portion of our Lamons business serves upstream customers at oil well sites that have been impacted by lower oil prices. The majority of this business supplies products for refineries and chemical plants which, in times of fluctuating oil prices, may or may not decide to incur capital expenditures for preventive maintenance or capacity expansion activities, both of which require use of our gaskets and bolts. Our Packaging reportable segment may be impacted by oil prices, as it is a significant driver of resin cost, although we generally are able to maintain profit levels when oil prices change due to escalator/de-escalator clauses in contracts with many of our customers.

Segment Information and Supplemental Analysis

The following table summarizes financial information for our four reportable segments (dollars in thousands):

	Year ended December 31,					
	2017	As a Percentage of Net Sales	2016	As a Percentage of Net Sales	2015	As a Percentage of Net Sales
Net Sales						
Packaging	\$ 344,570	42.1 %	\$ 341,340	43.0 %	\$ 334,270	38.7 %
Aerospace	184,310	22.5 %	174,920	22.0 %	176,480	20.4 %
Energy	161,580	19.8 %	158,990	20.0 %	193,390	22.4 %
Engineered Components	127,280	15.6 %	118,770	15.0 %	159,840	18.5 %
Total	\$ 817,740	100.0 %	\$ 794,020	100.0 %	\$ 863,980	100.0 %
Gross Profit						
Packaging	\$ 116,590	33.8 %	\$ 120,980	35.4 %	\$ 120,610	36.1 %
Aerospace	48,690	26.4 %	35,390	20.2 %	58,580	33.2 %
Energy	30,110	18.6 %	29,690	18.7 %	23,720	12.3 %
Engineered Components	23,750	18.7 %	24,420	20.6 %	33,200	20.8 %
Total	\$ 219,140	26.8 %	\$ 210,480	26.5 %	\$ 236,110	27.3 %
Selling, General and Administrative						
Packaging	\$ 38,510	11.2 %	\$ 42,770	12.5 %	\$ 41,990	12.6 %
Aerospace	22,370	12.1 %	27,170	15.5 %	29,700	16.8 %
Energy	31,100	19.2 %	42,420	26.7 %	46,790	24.2 %
Engineered Components	7,760	6.1 %	8,870	7.5 %	11,750	7.4 %
Corporate expenses	29,830	N/A	32,480	N/A	32,120	N/A
Total	\$ 129,570	15.8 %	\$ 153,710	19.4 %	\$ 162,350	18.8 %
Operating Profit (Loss)						
Packaging	\$ 80,380	23.3 %	\$ 77,840	22.8 %	\$ 78,470	23.5 %
Aerospace	26,190	14.2 %	(90,810)	(51.9)%	28,320	16.0 %
Energy	(5,410)	(3.3)%	(13,840)	(8.7)%	(97,160)	(50.2)%
Engineered Components	15,740	12.4 %	15,300	12.9 %	18,240	11.4 %
Corporate	(28,410)	N/A	(32,490)	N/A	(32,120)	N/A
Total	\$ 88,490	10.8 %	\$ (44,000)	(5.5)%	\$ (4,250)	(0.5)%
Capital Expenditures						
Packaging	\$ 17,140	5.0 %	\$ 19,880	5.8 %	\$ 13,670	4.1 %
Aerospace	3,370	1.8 %	3,950	2.3 %	5,010	2.8 %
Energy	3,090	1.9 %	2,800	1.8 %	7,610	3.9 %
Engineered Components	3,740	2.9 %	4,670	3.9 %	2,320	1.5 %
Corporate	9,460	N/A	30	N/A	50	N/A
Total	\$ 36,800	4.5 %	\$ 31,330	3.9 %	\$ 28,660	3.3 %
Depreciation						
Packaging	\$ 12,240	3.6 %	\$ 12,390	3.6 %	\$ 11,110	3.3 %
Aerospace	5,900	3.2 %	5,460	3.1 %	4,380	2.5 %
Energy	5,170	3.2 %	2,810	1.8 %	3,100	1.6 %
Engineered Components	3,460	2.7 %	3,450	2.9 %	3,640	2.3 %
Corporate	180	N/A	280	N/A	340	N/A
Total	\$ 26,950	3.3 %	\$ 24,390	3.1 %	\$ 22,570	2.6 %
Amortization						
Packaging	\$ 9,390	2.7 %	\$ 9,730	2.9 %	\$ 9,810	2.9 %
Aerospace	8,630	4.7 %	8,630	4.9 %	8,910	5.0 %
Energy	1,380	0.9 %	1,470	0.9 %	1,690	0.9 %
Engineered Components	520	0.4 %	640	0.5 %	560	0.4 %
Corporate	—	N/A	—	N/A	—	N/A
Total	\$ 19,920	2.4 %	\$ 20,470	2.6 %	\$ 20,970	2.4 %

Results of Operations

Year Ended December 31, 2017 Compared with Year Ended December 31, 2016

The principal factors impacting us during the year ended December 31, 2017, compared with the year ended December 31, 2016 were:

- the impact of improved throughput and productivity in our Aerospace reportable segment, enabling this segment to achieve higher sales and profit levels in 2017;
- the continued benefits of the realigned footprint within our Energy reportable segment, with lower ongoing operating costs following several facility consolidations and closures;
- the impact of Hurricane Harvey, primarily within our Energy reportable segment;
- the impact of fees and expenses related to our issuance of Senior Notes and other refinancing activities in 2017;
- the impact of the Tax Reform Act, primarily impacting our 2017 income tax expense; and
- approximately \$98.9 million goodwill and intangible asset impairment charges in 2016 in our Aerospace reportable segment.

Overall, net sales increased approximately \$23.7 million, or approximately 3.0%, to \$817.7 million in 2017, as compared to \$794.0 million in 2016, as sales increased in all four reportable segments. Sales within our Aerospace reportable segment increased approximately \$9.4 million, primarily as a result of improved manufacturing throughput to meet customer demand levels. Sales in our Engineered Components reportable segment increased approximately \$8.5 million due to increased U.S. industrial and oilfield activity. Sales within our Packaging reportable segment increased by approximately \$5.0 million, excluding the impact of currency exchange, primarily due to increased demand for our industrial closures and food and beverage products in North America. Sales within our Energy reportable segment increased approximately \$2.3 million, excluding the impact of currency exchange, as higher sales in North America resulting from improved delivery performance were partially offset by lower sales in Europe as a result of the closure of our Wolverhampton, United Kingdom facility. These increases were partially offset by approximately \$1.4 million of net unfavorable currency exchange, primarily in our Packaging reportable segment, as our reported results in U.S. dollars were negatively impacted as a result of the stronger U.S. dollar relative to foreign currencies.

Gross profit margin (gross profit as a percentage of sales) approximated 26.8% and 26.5% in 2017 and 2016, respectively. Gross profit margin increased primarily due to improved manufacturing efficiency levels and reduced manufacturing spend, primarily within our Aerospace reportable segment, and as a result of the footprint realignment actions within our Energy reportable segment. This increase was partially offset by costs associated with the closure and consolidation of manufacturing facilities in India and Mexico within our Packaging reportable segment, and the Mexico facility within our Energy reportable segment. In addition, gross profit was impacted by approximately \$0.8 million of unfavorable currency exchange, as our reported results in U.S. dollars were negatively impacted as a result of the stronger U.S. dollar relative to foreign currencies.

Operating profit (loss) margin (operating profit (loss) as a percentage of sales) approximated 10.8% and (5.5)% in 2017 and 2016, respectively. Operating profit increased \$132.5 million, to \$88.5 million in 2017, as compared to an operating loss of \$44.0 million in 2016. Operating profit and margin increased primarily due to approximately \$98.9 million in goodwill and intangible asset impairment charges in our Aerospace reportable segment in 2016 that did not repeat in 2017. Operating profit and margin also increased as a result of higher sales levels across all reportable segments and productivity initiatives to improve scheduling and throughput, particularly in our Aerospace reportable segment, and the impact of our footprint realignment activities within our Energy reportable segment. These factors were partially offset by the costs incurred in 2017 associated with footprint consolidation and relocation projects within our Packaging and Energy reportable segments.

Interest expense increased approximately \$0.7 million, to \$14.4 million in 2017, as compared to \$13.7 million in 2016. The increase in interest expense was primarily due to an increase in our interest rates, which more than offset lower average borrowings. Our weighted average borrowings decreased to approximately \$381.8 million in 2017, from approximately \$454.1 million in 2016. The effective weighted average interest rate on our outstanding variable rate borrowings, including our Credit Agreement and accounts receivable facilities, increased to approximately 2.8% for 2017, from approximately and 2.2% for 2016. In addition, in September 2017, we repaid our former Term Loan A facility with proceeds from the Senior Notes, which bear interest at 4.875%.

We incurred debt financing and related expenses of approximately \$6.6 million in 2017 related to costs associated with the issuance of our Senior Notes, repayment of all outstanding obligations of the Term Loan A Facility, termination of the interest rate swaps and the amendment of our Credit Agreement.

Other expense, net increased approximately \$0.7 million to \$1.2 million in 2017, from \$0.5 million in 2016. The increase was primarily due to an increase in losses on transactions denominated in foreign currencies.

Income tax expense increased approximately \$53.7 million, to \$35.3 million of tax expense in 2017, as compared to \$18.4 million of tax benefit in 2016. The effective income tax rate for 2017 was 53.2%, compared to 31.7% for 2016. During 2017, we reported domestic and foreign pre-tax income of approximately \$50.8 million and \$15.5 million, respectively, and recognized tax benefits of approximately \$2.0 million due to a change in an uncertain tax position for which the statute of limitations expired and research and manufacturing tax incentives. We also recognized approximately \$12.7 million of income tax expense as a result of the Tax Reform Act, including \$3.7 million of provisional expense related to revaluing our net deferred tax assets at the lower U.S. corporate tax rate, and \$9.0 million of provisional tax expense related to the deemed repatriation of approximately \$110.0 million of undistributed non-U.S. subsidiary earnings. We also incurred tax charges of approximately \$0.5 million directly attributable to increases in valuation allowances on certain deferred tax assets including foreign tax operating loss carryforwards. In 2016, we reported domestic pre-tax losses of approximately \$69.9 million and foreign pre-tax income of \$11.6 million, and recognized tax benefits of approximately \$2.2 million due to a change in an uncertain tax position for which the statute of limitations expired and research and manufacturing tax incentives. In addition, we were unable to record tax benefit of approximately \$5.1 million related to pre-tax goodwill impairment charges in the U.S. We also incurred tax charges of approximately \$2.1 million directly attributable to increases in valuation allowances on certain deferred tax assets including foreign tax operating loss carryforwards.

Net income (loss) increased approximately \$70.8 million to income of \$31.0 million in 2017, from a loss of \$39.8 million in 2016. The increase was primarily the result of an approximately \$132.5 million increase in operating profit, partially offset by an increase in income tax expense of approximately \$53.7 million, an increase in debt financing and related expenses of approximately \$6.6 million in connection with the refinancing of our our long-term debt, an increase in interest expense of approximately \$0.7 million and increases in other expenses, net of approximately \$0.7 million.

See below for a discussion of operating results by reportable segment.

Packaging. Net sales increased approximately \$3.3 million, or 0.9%, to \$344.6 million in 2017, as compared to \$341.3 million in 2016. Sales of our industrial closures increased approximately \$2.7 million due to higher demand in North America and Europe. Sales of our food and beverage products increased approximately \$2.3 million due to increased demand in North America. Additionally, sales of our health, beauty and home care products were flat year-over-year, as higher demand in Asia and Europe was offset by lower demand in North America. The sales increase was partially offset by approximately \$1.7 million of unfavorable currency exchange, as our reported results in U.S. dollars were negatively impacted as a result of the stronger U.S. dollar relative to foreign currencies.

Packaging's gross profit decreased approximately \$4.4 million to \$116.6 million, or 33.8% of sales, in 2017, as compared to \$121.0 million, or 35.4% of sales, in 2016. While sales increased, gross profit dollars and margin decreased, primarily as a result of costs associated with facility moves. During 2017, we ramped up production in our new manufacturing facility in Mexico, incurring approximately \$1.9 million higher costs than in the former, and now closed Mexican facility in 2016, as costs related to the capacity expansion plus inefficiencies and start-up costs more than offset initial move costs incurred in 2016. In addition, we incurred approximately \$1.1 million of costs in 2017 to consolidate manufacturing facilities in India. Gross profit also declined due to an unfavorable product sales mix in North America and by approximately \$0.9 million due to unfavorable currency exchange, as our reported results in U.S. dollars were negatively impacted as a result of the stronger U.S. dollar relative to foreign currencies.

Packaging's selling, general and administrative expenses decreased approximately \$4.3 million to \$38.5 million, or 11.2% of sales, in 2017, as compared to \$42.8 million, or 12.5% of sales, in 2016. The decrease was primarily due to higher costs incurred in 2016 in connection with re-organizing our go-to-market strategy based on global product categories, as well as generally lower go-forward spending levels resulting from this reorganization. Additionally, we recognized approximately \$1.0 million of severance and other costs related to the move of our Mexican facilities during 2016, and recorded an approximate \$1.0 million charge in 2017 to reserve an outstanding accounts receivable amount for a European customer who filed for bankruptcy.

Packaging's operating profit increased approximately \$2.5 million to \$80.4 million, or 23.3% of sales, in 2017, as compared to \$77.8 million, or 22.8% of sales, in 2016. Operating profit increased primarily due to lower ongoing selling, general and administrative expenses associated with our re-organization efforts as well as an approximate \$2.5 million gain on the sale of the former Mexico facility. These impacts were partially offset by the charge recorded in 2017 to reserve an outstanding accounts receivable amount, costs associated with our India facility consolidation and new facility in Mexico and approximately \$0.6 million of unfavorable currency exchange.

Aerospace. Net sales increased approximately \$9.4 million, or 5.4%, to \$184.3 million in 2017, as compared to \$174.9 million in 2016. We continued to improve production scheduling and manufacturing efficiencies, which enabled us to increase daily production rates and ship higher levels of net sales in 2017 as compared to 2016. Sales to our distribution customers increased approximately \$7.0 million, as order patterns from our customers continued to stabilize and increase in 2017 as compared to the lower and more volatile levels throughout 2016. Sales to our OE customers increased approximately \$2.4 million.

Gross profit within Aerospace increased approximately \$13.3 million to \$48.7 million, or 26.4% of sales, in 2017, from \$35.4 million, or 20.2% of sales, in 2016, primarily as a result of higher sales levels. Further, in 2016, we incurred additional costs and experienced lower fixed cost absorption associated with production scheduling and manufacturing inefficiencies, primarily in our Commerce, California facility. We have improved the efficiency levels during 2017 and reduced manufacturing spend levels despite higher demand level in this facility.

Selling, general and administrative expenses decreased approximately \$4.8 million to \$22.4 million, or 12.1% of sales, in 2017, as compared to \$27.2 million, or 15.5% of sales, in 2016, primarily due to approximately \$2.0 million of lower estimated uncollectable accounts receivable expenses as a result of collection of previously reserved customer balances and approximately \$2.8 million of reduced professional fees and certain administrative support costs.

Operating profit (loss) within Aerospace increased approximately \$117.0 million to an operating profit of \$26.2 million, or 14.2% of sales, in 2017, as compared to an operating loss of \$90.8 million, or 51.9% of sales, in 2016. Operating profit and related margin increased primarily due to approximately \$98.9 million in goodwill and intangible asset impairment charges in our Aerospace reportable segment in 2016 that did not repeat in 2017. Operating profit also increased as a result of higher sales levels, improved production scheduling and manufacturing efficiencies and lower selling, general and administrative expenses.

Energy. Net sales increased approximately \$2.6 million, or 1.6%, to \$161.6 million in 2017, as compared to \$159.0 million in 2016. Sales increased approximately \$6.6 million in North America and by approximately \$0.3 million in Asia primarily due to increased customer demand following improvements in our on-time delivery and increasing our share of turnaround activity. These increases were more than offset by a decrease in net sales of approximately \$4.3 million in Europe, primarily due to exiting our facility in the United Kingdom.

Gross profit within Energy increased approximately \$0.4 million to \$30.1 million, or 18.6% of sales, in 2017, as compared to \$29.7 million, or 18.7% of sales, in 2016. Gross profit increased due to higher sales levels and savings achieved from ongoing footprint realignment initiatives, the impact of which was muted by higher costs, inefficiencies and a less favorable product sales mix as a result of Hurricane Harvey. In addition, we recorded approximately \$1.6 million higher facility closure costs in 2017 than in 2016, primarily related to costs incurred in 2017 to close our Mexico facility and costs incurred in 2016 to close our United Kingdom facility.

Selling, general and administrative expenses within Energy decreased approximately \$11.3 million to \$31.1 million, or 19.2% of sales, in 2017, as compared to \$42.4 million, or 26.7% of net sales, in 2016. Selling, general and administrative expenses decreased by approximately \$7.2 million as a result of elimination of costs related to closed facilities and by approximately \$1.0 million as a result of an increase in reserves for past due accounts receivable in 2016 that did not repeat in 2017. The remaining \$3.1 million decrease was primarily due to lower ongoing costs associated with the Company's current operating footprint following completion of significant realignment activities.

Operating loss within Energy decreased approximately \$8.4 million to a \$5.4 million loss, or 3.3% of sales, in 2017, as compared to a \$13.8 million loss, or 8.7% of sales, in 2016, primarily as a result of lower selling, general and administrative expenses related to prior footprint realignment activities.

Engineered Components. Net sales in 2017 increased approximately \$8.5 million, or 7.2%, to \$127.3 million, as compared to \$118.8 million in 2016. Sales of our oil-field engines and compression-related products increased by approximately \$4.4 million primarily due to increases in drilling activity in the United States and Canada and the continued stabilization of oil prices. Sales of our industrial cylinders increased by approximately \$4.1 million, primarily due to increased U.S. industrial activity and enhanced responsiveness to support shorter customer order lead-times.

Gross profit within Engineered Components decreased approximately \$0.6 million to \$23.8 million, or 18.7% of sales, in 2017, from \$24.4 million, or 20.6% of sales, in 2016. Gross profit from sales of our engines and compression-related products increased approximately \$1.1 million due to higher sales levels and leveraging our lower fixed cost structure. Gross profit and related margin from sales of our industrial cylinders decreased approximately \$1.7 million as a result of higher steel costs and a less favorable product mix.

Selling, general and administrative expenses decreased approximately \$1.1 million to \$7.8 million, or 6.1% of sales, in 2017, as compared to \$8.9 million, or 7.5% of sales, in 2016, primarily due to lowering our ongoing operating costs consistent with current demand levels.

Operating profit within Engineered Components increased approximately \$0.4 million to \$15.7 million, or 12.4% of sales, in 2017, as compared to \$15.3 million, or 12.9% of sales, in 2016. Operating profit improved primarily due to increased sales levels of our oil-field engines and compression-related products and better leveraging of our lower fixed cost structure, while operating profit margin as a percentage of sales decreased due to higher steel costs and a less favorable product mix of industrial cylinders sales.

Corporate Expenses. Corporate expenses included in operating profit consist of the following (dollars in millions):

	Year ended December 31,	
	2017	2016
Corporate operating expenses	\$ 10.0	\$ 14.6
Employee costs and related benefits	18.4	17.9
Corporate expenses	<u>\$ 28.4</u>	<u>\$ 32.5</u>

Corporate expenses included in operating profit decreased approximately \$4.0 million to \$28.4 million in 2017, from \$32.5 million in 2016. Corporate operating expenses decreased \$4.6 million, primarily due to separation costs incurred in 2016 associated with the change in our President and CEO as well as elimination of several corporate positions during 2017. Employee costs and related benefits increased approximately \$0.5 million, primarily due to an increase in expense related to the timing and estimated attainment of our incentive compensation plans.

Year Ended December 31, 2016 Compared with Year Ended December 31, 2015

The principal factors impacting us during the year ended December 31, 2016 compared with the year ended December 31, 2015 were:

- the impact of lower oil prices, primarily impacting sales and profit levels in our Engineered Components and Energy reportable segments;
- costs incurred and savings achieved from our Financial Improvement Plan ("FIP") and other cost savings actions, spread across all of our reportable segments, with the largest amounts within our Energy reportable segment;
- the impact of production and scheduling costs and inefficiencies, as well as the impact of lower distribution customer sales, all within our Aerospace reportable segment;
- the impact of a November 2015 acquisition of the Tolleson, Arizona machined components facility from Parker-Hannifin Corporation within our Aerospace reportable segment;
- the impact of a stronger U.S. dollar, primarily in our Packaging and Energy reportable segments;
- the spin-off of the Cequent businesses in 2015, including costs incurred to affect and reclassifying to discontinued operations for all periods presented, and amending our credit agreement; and
- an approximate \$98.9 million goodwill and intangible asset impairment charge in 2016 in our Aerospace reportable segment and an approximate \$74.1 million goodwill impairment charge in 2015 within our Energy and Engineered Components reportable segments.

Overall, net sales decreased approximately \$70.0 million, or approximately 8.1%, to \$794.0 million in 2016, as compared to \$864.0 million in 2015, primarily as a result of the impact of lower oil prices and oil-related activity on our Energy and Engineered Components reportable segments, which more than offset growth in our Packaging reportable segment and \$10.6 million of additional sales from the recent acquisition in our Aerospace reportable segment. Our Energy and Engineered Components reportable segments had a combined sales decrease of approximately \$74.3 million (excluding the effects of foreign currency), primarily as a result of lower oil prices and related activity. Sales within our Aerospace reportable segment declined approximately \$1.6 million, as declines in distribution and OE sales were mostly offset by the acquisition-related sales. Sales were further impacted by approximately \$8.6 million of unfavorable currency exchange, as our reported results in U.S. dollars were negatively impacted as a result of the stronger U.S. dollar relative to foreign currencies. These decreases were partially offset by approximately \$14.5 million in increased sales within our Packaging reportable segment, excluding the impact of foreign currency, primarily due to sales growth of our health, beauty and home care end market products.

Gross profit margin (gross profit as a percentage of sales) approximated 26.5% and 27.3% in 2016 and 2015, respectively. Gross profit decreased \$25.6 million, to \$210.5 million in 2016, as compared to \$236.1 million in 2015. Of this decrease in gross profit, approximately \$17.4 million is primarily due to overall lower sales levels and less favorable product sales mix in our Aerospace and Engineered Components reportable segments. In addition, within our Aerospace reportable segment, gross profit decreased by approximately \$7.7 million due to manufacturing inefficiencies and lower fixed cost absorption and approximately \$5.5 million to adjust certain inventory parts to estimated net realizable value as well as the result of a higher year-over-year physical inventory shrink and scrap rate. Partially offsetting these impacts was an increase of gross profit within our Energy reportable segment of approximately \$6.0 million, primarily due to lower restructuring costs as compared to the prior year.

Operating loss margin (operating loss as a percentage of sales) approximated 5.5% and 0.5% in 2016 and 2015, respectively. Operating loss increased approximately \$39.7 million, to \$44.0 million in 2016, as compared to \$4.3 million in 2015, primarily due to approximately \$98.9 million in goodwill and intangible asset impairment charges in our Aerospace reportable segment in 2016 as compared to \$74.1 million in goodwill impairment charges in our Energy and Engineered Components reportable segments in 2015. In addition, operating loss increased due to our \$25.6 million decrease in gross profit. These impacts were partially offset by a reduction of selling, general and administrative expenses of \$8.7 million, primarily due to costs savings associated with the execution of our FIP and other cost savings actions within our Energy and Engineered Components reportable segments.

Interest expense decreased approximately \$0.4 million, to \$13.7 million in 2016, as compared to \$14.1 million in 2015. The decrease in interest expense was primarily due to a decrease in our weighted average variable rate borrowings to approximately \$454.1 million in 2016, from approximately \$631.8 million in 2015, primarily due to the distribution from Horizon to the Company in connection with the Cequent spin-off in June 2015, which the Company used to reduce outstanding borrowings. The effective weighted average interest rate on our outstanding variable rate borrowings, including our Credit Agreement and accounts receivable facilities, was approximately 2.2% for 2016 and 1.9% for 2015. Historically, a portion of our interest expense was allocated to the Cequent businesses and was recorded as discontinued operations.

We incurred debt financing and related expenses of approximately \$2.0 million in 2015 related to the amendment of our Credit Agreement in conjunction with the spin-off of the Cequent businesses during the second quarter of 2015.

Other expense, net decreased approximately \$1.3 million to \$0.5 million in 2016, from \$1.8 million in 2015. The decrease was primarily due to the impact of realized currency gains and losses and reductions of certain indemnification assets related to uncertain tax liabilities in 2015 that did not repeat in 2016.

The effective income tax rate for 2016 was 31.7%, compared to (29.6)% for 2015. During 2016, we reported domestic and foreign pre-tax losses of approximately \$69.9 million and \$11.6 million, respectively, and recognized tax benefits of approximately \$2.2 million due to a change in an uncertain tax position for which the statute of limitations expired and research and manufacturing tax incentives. In addition, we were unable to record tax benefit of approximately \$5.1 million related to pre-tax goodwill impairment charges in the U.S. We also incurred tax charges of approximately \$2.1 million directly attributable to increases in valuation allowances on certain deferred tax assets including foreign tax operating loss carryforwards. In 2015, we reported domestic and foreign pre-tax losses of approximately \$(3.2) million and \$(19.0) million, respectively, and recognized tax benefits of approximately \$3.1 million due to a change in an uncertain tax position for which the statute of limitations expired and research and manufacturing tax incentives. In addition, we were unable to record tax benefit of approximately \$11.4 million related to pre-tax goodwill impairment charges in the U.S. and certain other jurisdictions. We also incurred tax charges of approximately \$3.8 million directly attributable to increases in valuation allowances on certain deferred tax assets including foreign tax operating loss carryforwards.

Loss from continuing operations decreased approximately \$11.1 million to \$39.8 million in 2016, from a loss of \$28.7 million in 2015. The decrease was primarily the result of an approximately \$39.7 million decrease in operating profit, which includes an approximate \$23.2 million increase in goodwill and intangible asset impairment charges. The decrease was partially offset by a decrease in income tax benefit (expense) of approximately \$24.9 million, a decrease in debt financing and related expenses of approximately \$2.0 million, decreases in other expenses, net of approximately \$1.3 million and a decrease in interest expense of approximately \$0.4 million.

See below for a discussion of operating results by reportable segment.

Packaging. Net sales increased approximately \$7.1 million, or 2.1%, to \$341.3 million in 2016, as compared to \$334.3 million in 2015. Sales of our health, beauty and home care products increased approximately \$10.5 million, due to growth in the European, North American and Asian markets. Sales of our industrial products increased approximately \$3.4 million, primarily due to increased demand in the North American market. Sales of our food and beverage products also increased approximately \$0.7 million, primarily due to increased demand in the United States. These increases were partially offset by approximately \$7.5 million of unfavorable currency exchange, as our reported results in U.S. dollars were negatively impacted as a result of the stronger U.S. dollar relative to foreign currencies.

Packaging's gross profit increased approximately \$0.4 million to \$121.0 million, or 35.4% of sales, in 2016, as compared to \$120.6 million, or 36.1% of sales, in 2015. Gross profit increased approximately \$5.2 million due to higher sales levels, excluding the impact of unfavorable foreign exchange, and by approximately \$1.1 million due to improved overhead cost absorption and a more favorable product sales mix. These increases were partially offset by approximately \$1.5 million of start-up costs for the new Mexican manufacturing facility, the impact of the reduction of an estimated acquisition liability of approximately \$1.2 million during 2015, which did not repeat in 2016, and approximately \$3.2 million of unfavorable currency exchange, as our reported results in U.S. dollars were negatively impacted as a result of the stronger U.S. dollar relative to foreign currencies.

Packaging's selling, general and administrative expenses increased approximately \$0.8 million to \$42.8 million, or 12.5% of sales, in 2016, as compared to \$42.0 million, or 12.6% of sales, in 2015. The increase was primarily due to approximately \$1.0 million of severance and other costs related to the closure of our existing Mexico manufacturing facility and establishment and move to the new manufacturing facility in Mexico, as well as the impact of the reduction in the Arminak contingent liability of approximately \$1.1 million in 2015. In addition, professional fees increased approximately \$1.7 million as a result of our front end reorganization to operate on a global versus regional basis, combined with other growth and product initiatives. These increases were partially offset by a decrease in selling, general and administrative expenses of approximately \$1.7 million due the impact of foreign currency, with the remainder of the decrease primarily related to lower employee related costs as a result of execution of the FIP.

Packaging's operating profit decreased approximately \$0.6 million to \$77.8 million, or 22.8% of sales, in 2016, as compared to \$78.5 million, or 23.5% of sales, in 2015. Although sales levels increased, operating profit and related margin declined primarily due to the reduction in acquisition and contingent liabilities in 2015, which did not repeat in 2016, costs related to the closure and move from our existing facility in Mexico to a new facility, higher professional fees and unfavorable currency exchange, which the incremental profit generated on higher sales levels and lower employee costs mostly offset.

Aerospace. Net sales decreased approximately \$1.6 million, or 0.9%, to \$174.9 million in 2016, as compared to \$176.5 million in 2015. Sales to distribution customers declined by approximately \$8.3 million, primarily as a result of certain large customers continuing planned reductions of their investment in on-hand inventory levels of certain fastener products. Sales to OE customers decreased approximately \$4.0 million, as while demand continued at expected levels, we experienced scheduling and production constraints, primarily in the first half of 2016, which impacted our ability to meet current demand. These decreases were partially offset by approximately \$10.6 million of increased sales related to the November 2015 machined components facility acquisition.

Gross profit within Aerospace decreased approximately \$23.2 million to \$35.4 million, or 20.2% of sales, in 2016, from \$58.6 million, or 33.2% of sales, in 2015. Of this decrease in gross profit, approximately \$8.6 million is due to a less favorable product sales mix, with lower margin standard fasteners and machined component products comprising a larger percentage of the total sales. In addition, approximately \$7.7 million of the reduction is due to manufacturing inefficiencies and lower fixed cost absorption as a result of lower organic sales levels plus the first half 2016 production and scheduling challenges in our Commerce, CA facility. Approximately \$5.5 million relates to adjustments to inventory, reducing certain inventory parts to estimated net realizable value and as a result of higher year-over-year physical shrink and scrap rates, and approximately \$1.4 million is related to integration and new product qualification costs for the acquired machined components facility.

Selling, general and administrative expenses decreased approximately \$2.5 million to \$27.2 million, or 15.5% of sales, in 2016, as compared to \$29.7 million, or 16.8% of sales, in 2015, primarily due to cost savings associated with the FIP, as well as costs related to warehouse consolidation and other sales-related reorganizations incurred in 2015 that did not repeat in 2016.

Operating profit within Aerospace decreased approximately \$119.1 million to an operating loss of \$90.8 million, or 51.9% of sales, in 2016, as compared to \$28.3 million, or 16.0% of sales, in 2015. Operating profit and related margin decreased primarily due to approximately \$98.9 million of goodwill and indefinite-lived intangible asset impairment charges in the fourth quarter of 2016. Operating profit also declined as a result of the current product sales mix, manufacturing inefficiencies and lower fixed cost absorption, inventory adjustments and integration expenses, which were partially offset by cost savings associated with the FIP.

Energy. Net sales for 2016 decreased approximately \$34.4 million, or 17.8%, to \$159.0 million, as compared to \$193.4 million in 2015. Sales decreased by approximately \$24.8 million in the United States and by approximately \$7.1 million in our international branches, due to weaker upstream and downstream demand, primarily from the major oil and petrochemical refinery customers. Sales further declined by approximately \$1.4 million due to lower sales resulting from branch closures in Brazil, China and the Netherlands, and approximately \$1.1 million of net unfavorable currency exchange, as our reported results in U.S. dollars were negatively impacted as a result of the stronger U.S. dollar relative to foreign currencies.

Gross profit within Energy increased approximately \$6.0 million to \$29.7 million, or 18.7% of sales, in 2016, as compared to \$23.7 million, or 12.3% of sales, in 2015. The decline in sales resulted in approximately \$4.1 million lower gross profit. However, gross profit increased year-over-year primarily due to approximately \$4.8 million of lower restructuring-related costs as compared to the prior year and approximately \$4.0 million lower material costs as a result of costs incurred in 2015 as part of the U.S. West Coast port delays, which caused us to temporarily produce certain products in higher cost facilities to meet demand levels. The remainder of the increase in gross profit is primarily due to lower labor and fixed costs as a result of the cost savings actions as part of the FIP.

Selling, general and administrative expenses within Energy decreased approximately \$4.4 million to \$42.4 million, or 26.7% of sales, in 2016, as compared to \$46.8 million, or 24.2% of sales, in 2015, primarily as a result of higher costs in 2015 associated with execution of the FIP. In addition, we incurred approximately \$1.9 million of costs in 2015 associated with the resolution of a previous legal claim, net of insurance recoveries.

Operating profit within Energy increased approximately \$83.3 million to \$13.8 million, or 8.7% of sales, in 2016, as compared to \$97.2 million, or 50.2% of sales, in 2015, primarily as a result of a \$72.5 million goodwill and indefinite-lived intangible assets impairment charge during 2015, which did not repeat in 2016. Additionally, operating profit improved as a result of savings and lower year-over-year costs from our restructuring efforts, as well as 2015 costs associated with the West Coast port delays and legal claim which did not repeat in 2016.

Engineered Components. Net sales in 2016 decreased approximately \$41.0 million, or 25.7%, to \$118.8 million, as compared to \$159.8 million in 2015. Sales of our engines and compression-related products declined approximately \$21.4 million as a result of reduced levels of oil and gas drilling and well completions in the U.S. and Canada in response to lower oil prices. Sales of our industrial cylinders decreased by approximately \$19.6 million, primarily due to the impact of customer consolidation and lower demand for large high pressure gas cylinders in industrial applications.

Gross profit within Engineered Components decreased approximately \$8.8 million to \$24.4 million, or 20.6% of sales, in 2016, from \$33.2 million, or 20.8% of sales, in 2015, primarily as a result of the decreased sales levels. Gross profit margin from sales of our engine and compression-related products decreased as a result of lower fixed cost absorption despite cost reductions to better align our cost structure with current demand levels. Gross profit margin from sales of our industrial cylinders remained relatively flat, as increases resulting from lower input costs and a more favorable product mix of higher margin specialty cylinders in place of higher volume large high pressure gas cylinders were offset by the impact of lower sales levels and lower fixed cost absorption.

Selling, general and administrative expenses decreased approximately \$2.9 million to \$8.9 million, or 7.5% of sales, in 2016, as compared to \$11.8 million, or 7.4% of sales, in 2015. The decrease in selling, general and administrative expenses was primarily a result of our FIP and other cost savings initiatives for engine and compression-related products, as we reduced costs given the low oil-related activity to better align our cost structure with current demand levels. In addition, selling, general and administrative expenses were lowered for industrial cylinder products as a result of lower demand for gas cylinders in industrial applications.

Operating profit within Engineered Components decreased approximately \$2.9 million to \$15.3 million, or 12.9% of sales, in 2016, as compared to \$18.2 million, or 11.4% of sales, in 2015. Operating profit declined primarily due to lower sales levels, partially offset by a \$3.2 million goodwill impairment charge in the fourth quarter of 2015 that did not recur in 2016. Despite the decrease in sales, operating profit margin increased due to execution of our FIP and other cost savings actions, which allowed the engine business to remain near break-even levels despite the reduction in net sales.

Corporate Expenses. Corporate expenses included in operating profit consist of the following (dollars in millions):

	Year ended December 31,	
	2016	2015
Corporate operating expenses	\$ 14.6	\$ 12.4
Employee costs and related benefits	17.9	19.7
Corporate expenses	\$ 32.5	\$ 32.1

Corporate expenses included in operating profit increased approximately \$0.4 million to \$32.5 million in 2016, from \$32.1 million in 2015. Corporate operating expenses increased primarily due to approximately \$4.7 million of costs incurred in 2016 associated with change in our President and CEO as well as Vice President of Human Resources. These increases were partially offset by a decrease in third-party professional fees and other corporate costs of approximately \$1.6 million, approximately \$0.5 million of FIP related costs that were incurred in 2015 that did not repeat in 2016 and a favorable property tax assessment settlement in 2016 of approximately \$0.4 million for a former business unit. Employee costs and related benefits decreased approximately \$1.8 million, primarily due to lower headcount following the Cequent spin-off as well as lower employee levels following the FIP, which were partially offset by an increase in expense related to the timing of our long-term incentive compensation.

Discontinued Operations. The results of discontinued operations consists of our former Cequent businesses, which were spun-off on June 30, 2015. Loss from discontinued operations, net of income tax expenses, was \$4.7 million for the year ended December 31, 2015. See Note 5, "Discontinued Operations," to our consolidated financial statements attached herein.

Liquidity and Capital Resources

Cash Flows

Cash flows provided by operating activities of continuing operations in 2017 were approximately \$120.1 million, as compared to \$80.5 million in 2016. Significant changes in cash flows provided by operating activities of continuing operations and the reasons for such changes are as follows:

- In 2017, the Company generated \$111.2 million in cash flows, based on the reported net income of \$31.0 million and after considering the effects of non-cash items related to losses on dispositions of businesses and other assets, depreciation, amortization, changes in deferred income taxes, debt financing and related expenses, stock-based compensation and other operating activities. In 2016, the Company generated \$82.9 million based on the reported net loss of \$39.8 million and after considering the effects of similar non-cash items as well as non-cash effects related to impairment of goodwill and indefinite-lived intangible assets.
- Decreases in accounts receivable resulted in a source of cash of approximately \$1.2 million and \$8.0 million in 2017 and 2016, respectively. The decreases in accounts receivable are due primarily to the timing of sales and collection of cash within the periods. Days sales outstanding of receivables decreased by two days in 2017 as compared to 2016, primarily as a result of our increased focus on collections activity.
- We reduced our investment in inventory by approximately \$4.4 million and \$5.2 million in 2017 and 2016, respectively, primarily due to our facility consolidation efforts, as we have not needed to increase our inventory in stock to support the increase in year-over-year sales levels. Our days sales in inventory decreased by three days in 2017 as compared to 2016.
- Increases in accounts payable and accrued liabilities resulted in a source of cash of approximately \$3.6 million in 2017, primarily due to the timing of payments made to suppliers and mix of vendors and related terms. Decreases in accounts payable and accrued liabilities resulted in a cash use of approximately \$18.1 million in 2016, primarily a result of lower purchases of inventory and other supplies given the lower sales demand. Our days accounts payable on hand remained flat year-over-year.

Net cash used for investing activities in 2017 was approximately \$32.4 million, as compared to \$31.1 million in 2016. During 2017, we incurred approximately \$36.8 million in capital expenditures as we have continued our investment in growth, capacity and productivity-related capital projects. Cash received from the disposition of assets was approximately \$4.5 million in 2017. During 2016, we invested approximately \$31.3 million in capital expenditures and received cash from the disposition of assets of approximately \$0.2 million.

Net cash used for financing activities in 2017 was approximately \$80.8 million, as compared to \$48.1 million in 2016. During 2017, we issued \$300.0 million principal amount of Senior Notes, repaid approximately \$257.9 million on our former Term Loan A Facility and made net repayments of approximately \$116.0 million on our revolving credit and accounts receivable facilities. In connection with refinancing our long-term debt in 2017, we paid approximately \$6.1 million of debt financing fees. We also used a net cash amount of approximately \$0.8 million related to our stock compensation arrangements and other financing activities. During 2016, we made net repayments of approximately \$13.9 million on our term loan facilities and \$30.9 million on our revolving credit and accounts receivable facilities. We also made deferred purchase price payments related to our previous acquisitions of approximately \$2.5 million and used a net cash amount of approximately \$0.8 million related to our stock compensation arrangements and other financing activities.

Our Debt and Other Commitments

In September 2017, we issued \$300.0 million principal amount of 4.875% senior notes due October 15, 2025 at par value in a private placement under Rule 144A of the Securities Act of 1933, as amended. We used the proceeds from the offering to fully repay the \$250.9 million principal, plus \$0.4 million related interest, outstanding on our former Term Loan A Facility, repay approximately \$41.7 million of outstanding obligations under our accounts receivable facility, pay fees and expenses of \$5.0 million related to the Senior Notes offering, pay fees and expenses of \$1.1 million related to amending our Credit Agreement, with the remaining amount retained as cash on our consolidated balance sheet. Of the \$5.0 million of fees and expenses related to the Senior Notes, approximately \$4.9 million was capitalized as debt issuance costs and approximately \$0.1 million was recorded as debt financing and related expenses in the consolidated statement of operations.

The Senior Notes accrue interest at a rate of 4.875% per annum, payable semi-annually in arrears on April 15 and October 15, commencing on April 15, 2018, and mature on October 15, 2025. The payment of principal and interest is jointly and severally guaranteed, on a senior unsecured basis by certain named subsidiaries of the Company (each a "Guarantor" and collectively the "Guarantors"). The Senior Notes are *pari passu* in right of payment with all existing and future senior indebtedness and subordinated to all existing and future secured indebtedness to the extent of the value of the assets securing such indebtedness. For the twelve months ended December 31, 2017, our consolidated subsidiaries that do not guarantee the Senior Notes represented approximately 14% of the total of guarantor and non-guarantor net sales, treating each as a consolidated group and excluding intercompany transactions between guarantor and non-guarantor subsidiaries. In addition, our non-guarantor subsidiaries represented approximately 33% and 48% of the total guarantor and non-guarantor assets and liabilities, respectively, as of December 31, 2017, treating the guarantor and non-guarantor subsidiaries each as a consolidated group and excluding intercompany transactions between such groups.

Prior to October 15, 2020, we may redeem up to 35% of the principal amount of the Senior Notes at a redemption price of 104.875% of the principal amount, plus accrued and unpaid interest, if any, to the redemption date, with the net cash proceeds of one or more equity offerings provided that each such redemption occurs within 90 days of the date of closing of each such equity offering. In addition, we may redeem all or part of the Senior Notes at a redemption price equal to 100% of the principal amount thereof, plus accrued and unpaid interest, if any, to the redemption date, plus a "make whole" premium.

In September 2017, we also amended our Credit Agreement, pursuant to which we were able to extend the maturity date, increase the permitted borrowings denominated in specific foreign currencies from \$75.0 million to \$125.0 million, remove the Term Loan A Facility and resize the revolving credit facility. We incurred fees and expenses of approximately \$1.1 million related to the amendment, all of which was capitalized as debt issuance costs. We also recorded non-cash debt financing and related expenses of \$2.0 million related to the write-off of previously capitalized deferred financing fees.

Below is a summary of key terms under the Credit Agreement as of December 31, 2017, and the key terms of the previous credit agreement in place immediately prior to entering into the amended Credit Agreement on September 20, 2017 (the Term Loan A Facility shows the face amount of borrowing at debt issuance, while the revolving credit facilities show gross availability as of each date):

Instrument	Amount (\$ in millions)	Maturity Date	Interest Rate
Credit Agreement			
Senior secured revolving credit facility	\$300.0	9/20/2022	LIBOR ^(a) plus 1.500% ^(b)
Previous Credit Agreement			
Senior secured revolving credit facility	\$500.0	6/30/2020	LIBOR ^(a) plus 1.625% ^(b)
Senior secured term loan A facility	\$275.0	6/30/2020	LIBOR ^(a) plus 1.625% ^(b)

^(a) London Interbank Offered Rate ("LIBOR")

^(b) The initial interest rate spread for the amended Credit Agreement is stated as 1.625%. The interest rate spread is based upon the leverage ratio, as defined, as of the most recent determination date.

The Credit Agreement also provides for incremental revolving credit commitments in an amount not to exceed the greater of \$200 million and an amount such that, after giving effect to such incremental commitments and the incurrence of any other indebtedness substantially simultaneously with the making of such commitments, the senior secured net leverage ratio, as defined in the Credit Agreement, is no greater than 3.00 to 1.00. The terms and conditions of any incremental revolving credit facility commitments must be no more favorable than the existing credit facility.

Amounts drawn under our revolving credit facility fluctuate daily based upon our working capital and other ordinary course needs. Availability under our revolving credit facility depends upon, among other things, compliance with our Credit Agreement's financial covenants. Our Credit Agreement contains various negative and affirmative covenants and other requirements affecting us and our subsidiaries, including the ability to, subject to certain exceptions and limitations, incur debt, liens, mergers, investments, loans, advances, guarantee obligations, acquisitions, assets dispositions, sale-leaseback transactions, hedging agreements, dividends and other restricted payments, transactions with affiliates, restrictive agreements and amendments to charters, bylaws, and other material documents. The terms of our Credit Agreement require us and our subsidiaries to meet certain restrictive financial covenants and ratios computed quarterly, including a maximum total net leverage ratio (total consolidated indebtedness plus outstanding amounts under the accounts receivable securitization facility, less the aggregate amount of certain unrestricted cash and unrestricted permitted investments, as defined, over consolidated EBITDA, as defined), a maximum senior secured net leverage ratio (total consolidated senior secured indebtedness, less the aggregate amount of certain unrestricted cash and unrestricted permitted investments, as defined, over consolidated EBITDA, as defined) and a minimum interest expense coverage ratio (consolidated EBITDA, as defined, over the sum of consolidated cash interest expense, as defined, and preferred dividends, as defined). Our permitted total net leverage ratio under the Credit Agreement is 4.00 to 1.00 as of December 31, 2017. If we were to complete an acquisition which qualifies for a Covenant Holiday Period, as defined in our Credit Agreement, then our permitted total net leverage ratio cannot exceed 4.50 to 1.00 during that period. Our actual total net leverage ratio was 1.91 to 1.00 at December 31, 2017. Our permitted senior secured net leverage ratio under the Credit Agreement is 3.50 to 1.00 as of December 31, 2017. If we were to complete an acquisition which qualifies for a Covenant Holiday Period, as defined in our Credit Agreement, then our permitted senior secured net leverage ratio cannot exceed 4.00 to 1.00 during that period. Our actual senior secured net leverage ratio was not meaningful at December 31, 2017. Our permitted interest expense coverage ratio under the Credit Agreement is 3.00 to 1.00 and, our actual interest expense coverage ratio was 12.18 to 1.00 as of December 31, 2017. At December 31, 2017, we were in compliance with our financial and other covenants contained in the Credit Agreement.

The following is a reconciliation of net income, as reported, which is a GAAP measure of our operating results, to Consolidated Bank EBITDA, as defined in our Credit Agreement, for the year ended December 31, 2017. We present Consolidated Bank EBITDA to show our performance under our financial covenants. Dollars are in thousands in the below tables.

	Year ended December 31, 2017
Net income	\$ 30,960
Bank stipulated adjustments:	
Interest expense, net (as defined)	14,400
Income tax expense	35,250
Depreciation and amortization	46,870
Impairment charges and asset write-offs	3,540
Non-cash compensation expense ⁽¹⁾	6,780
Other non-cash expenses or losses	4,130
Non-recurring expenses or costs ⁽²⁾	8,560
Business and asset dispositions	2,090
Debt financing and related costs	6,640
Consolidated Bank EBITDA, as defined	<u>\$ 159,220</u>
	December 31, 2017
Total Indebtedness, as defined ⁽³⁾	\$ 303,840
Consolidated Bank EBITDA, as defined	159,220
Actual total net leverage ratio	<u>1.91 x</u>
Covenant requirement	<u>4.00 x</u>

	December 31, 2017
Total senior secured indebtedness ⁽⁴⁾	\$ (110)
Consolidated Bank EBITDA, as defined	159,220
Senior secured net leverage ratio	n/m x
Covenant requirement	3.50 x

	December 31, 2017
Interest expense, as defined	\$ 14,400
Bank stipulated adjustments:	
Non-cash amounts attributable to amortization of financing costs	(1,330)
Total Consolidated Cash Interest Expense, as defined	\$ 13,070

	December 31, 2017
Consolidated Bank EBITDA, as defined	\$ 159,220
Total Consolidated Cash Interest Expense, as defined	13,070
Actual interest expense coverage ratio	12.18 x
Covenant requirement	3.00 x

⁽¹⁾ Non-cash compensation expenses resulting from the grant of restricted shares and units of common stock and common stock options.

⁽²⁾ Non-recurring costs and expenses relating to severance, relocation, restructuring and curtailment expenses.

⁽³⁾ Includes \$4.0 million of acquisition related deferred purchase price as of December 31, 2017.

⁽⁴⁾ Senior secured indebtedness is negative at December 31, 2017 due to the deduction of certain unrestricted cash and unrestricted permitted investments as allowed under the Credit Agreement.

Another important source of liquidity is our \$75.0 million accounts receivable facility, under which we have the ability to sell eligible accounts receivable to a third-party multi-seller receivables funding company. Our available liquidity under our accounts receivable facility ranged from approximately \$49 million to \$65 million, depending on the level of receivables outstanding at a given point in time during the year. We had no amounts outstanding under the facility as of December 31, 2017; however, \$57.8 million was available but not utilized. At December 31, 2016, we had \$45.5 million outstanding and \$10.1 million available but not utilized. At December 31, 2017, we had \$10.8 million outstanding under our revolving credit facility and had \$274.3 million potentially available after giving effect to approximately \$14.9 million of letters of credit issued and outstanding. At December 31, 2016, we had \$75.9 million outstanding under our revolving credit facility and had \$408.2 million potentially available after giving effect to approximately \$15.9 million of letters of credit issued and outstanding. The letters of credit are used for a variety of purposes, including support of certain operating lease agreements, vendor payment terms and other subsidiary operating activities, and to meet various states' requirements to self-insure workers' compensation claims, including incurred but not reported claims. Including availability under our accounts receivable facility and after consideration of leverage restrictions contained in the Credit Agreement, as of December 31, 2017 and December 31, 2016, we had \$332.1 million and \$126.5 million, respectively, of borrowing capacity available for general corporate purposes.

We rely upon our cash flow from operations and available liquidity under our revolving credit and accounts receivable facilities to fund our debt service obligations and other contractual commitments, working capital and capital expenditure requirements, as well as for discretionary spending such as any repurchases of our common stock. At the end of each quarter, we use cash on hand from our domestic and certain foreign subsidiaries to pay down amounts outstanding under our revolving credit and accounts receivable facilities.

Our weighted average borrowings approximated \$381.8 million and \$454.1 million during 2017 and 2016, respectively. The overall decrease is primarily due to repayments using cash flows from operations.

Cash management related to our revolving credit and accounts receivable facilities is centralized. We monitor our cash position and available liquidity on a daily basis and forecast our cash needs on a weekly basis within the current quarter and on a monthly basis outside the current quarter over the remainder of the year. Our business and related cash forecasts are updated monthly. The majority of our cash on hand as of December 31, 2017 is located in jurisdictions outside the United States, and we have aggregate available funding under our revolving credit and accounts receivable facilities of \$332.1 million at December 31, 2017 after consideration of the aforementioned leverage restrictions. Based on forecasted cash sources and requirements inherent in our business plans, we believe that our liquidity and capital resources, including anticipated cash flows from operations, will be sufficient to meet our debt service, capital expenditure and other short-term and long-term obligation needs for the foreseeable future.

We are subject to variable interest rates on our revolving credit and accounts receivable facilities. At December 31, 2017, 1-Month LIBOR approximated 1.56%. Based on our variable rate-based borrowings outstanding at December 31, 2017, a 1% increase in the per annum interest rate would increase our interest expense by approximately \$0.1 million annually.

In addition to our long-term debt, we have other cash commitments related to leases. We account for these lease transactions primarily as operating leases, and incurred expense from continuing operations related thereto of approximately \$16.7 million in 2017. We expect to continue to utilize leasing as a financing strategy to meet capital expenditure needs and to reduce debt levels.

Market Risk

We conduct business in various locations throughout the world and are subject to market risk due to changes in the value of foreign currencies. The functional currencies of our foreign subsidiaries are primarily the local currency in the country of domicile. We manage these operating activities at the local level and revenues and costs are generally denominated in local currencies; however, results of operations and assets and liabilities reported in U.S. dollars will fluctuate with changes in exchange rates between such local currencies and the U.S. dollar.

We have historically used derivative financial instruments to manage currency risks, albeit in immaterial notional contracts, as we explored the predictability of our procurement activities denominated in currencies other than the functional currency of our subsidiaries and the impact of currency rate volatility on our earnings. In October 2017, we entered into cross-currency swap agreements to mitigate currency risks associated with the net investment in certain of our foreign subsidiaries. See Note 12, "*Derivative Instruments*," included in Item 8, "*Financial Statements and Supplementary Data*," within this Form 10-K for additional information.

We are also subject to interest risk as it relates to our long-term debt. We have historically used interest rate swap agreements to fix the variable portion of our debt to manage this risk. See Note 12, "*Derivative Instruments*," included in Item 8, "*Financial Statements and Supplementary Data*," within this Form 10-K for additional information.

Common Stock

TriMas is listed in the NASDAQ Global Select MarketSM. Our stock trades under the symbol "TRS."

Contractual Obligations and Off-Balance Sheet Arrangements

Under various agreements, we are obligated to make future cash payments in fixed amounts. These include payments under our long-term debt agreements, rent payments required under operating and capital lease agreements, certain benefit obligations and interest obligations on our Credit Agreement.

The following table summarizes our significant contractual cash obligations as of December 31, 2017 (dollars in thousands).

	Payments Due by Periods				
	Total	Less than One Year	1 - 3 Years	3 - 5 Years	More than 5 Years
Contractual cash obligations:					
Long-term debt and receivables facilities	\$ 310,810	\$ —	\$ —	\$ 10,810	\$ 300,000
Operating lease obligations	76,950	13,960	24,880	18,260	19,850
Benefit obligations	17,240	1,510	3,110	3,260	9,360
Interest obligations ^(a)	118,020	14,840	29,680	29,630	43,870
Other	5,060	1,110	3,950	—	—
Total contractual obligations	\$ 528,080	\$ 31,420	\$ 61,620	\$ 61,960	\$ 373,080

^(a) Our Senior Notes bear interest at 4.875%. Interest on our senior secured revolving credit facility is based on LIBOR plus 150.0 basis points at December 31, 2017. Interest on our receivables facility is based on LIBOR plus 100.0 basis points at December 31, 2017. These rates were used to estimate our future interest obligations with respect to the long-term debt. These rates exclude the impact of our cross-currency swap agreements. See Note 12, "Derivative Instruments," included in Item 8, "Financial Statements and Supplementary Data," within this Form 10-K for additional information.

As of December 31, 2017, we had a \$300.0 million revolving credit facility and a \$75.0 million accounts receivable facility. We had \$10.8 million outstanding under our revolving credit facility, and no outstanding balance under the accounts receivable facility as of December 31, 2017.

As of December 31, 2017, we are contingently liable for standby letters of credit totaling \$14.9 million issued on our behalf by financial institutions under the Credit Agreement. These letters of credit are used for a variety of purposes, including to support certain operating lease agreements, vendor payment terms and other subsidiary operating activities, and to meet various states' requirements to self-insure workers' compensation claims, including incurred but not reported claims.

The liability related to unrecognized tax benefits has been excluded from the contractual obligations table because a reasonable estimate of the timing and amount of cash flows from future tax settlements cannot be determined. For additional information, refer to Note 20, "Income Taxes," included in Item 8, "Financial Statements and Supplementary Data," within this Form 10-K.

Credit Rating

We and certain of our outstanding debt obligations are rated by Standard & Poor's and Moody's. On September 13, 2017, Moody's assigned a B1 rating to our Senior Notes and affirmed a rating of Ba3 to our Credit Agreement, as presented in Note 11, "Long-term Debt" included in Item 8, "Financial Statements and Supplementary Data" within this Form 10-K. Moody's also affirmed a Ba3 to our Corporate Family Rating and maintained its outlook as stable. On September 11, 2017, Standard & Poor's assigned a B+ rating to our senior unsecured notes, affirmed a BB- corporate credit rating to our credit facilities and maintained its outlook as stable. If our credit ratings were to decline, our ability to access certain financial markets may become limited, our cost of borrowings may increase, the perception of us in the view of our customers, suppliers and security holders may worsen and as a result, we may be adversely affected.

Outlook

2017 was a solid year for TriMas, and the first full year of operating within the redefined TriMas Business Model, which provides a standardized set of processes we use to drive results across our multi-industry company. Throughout the year, we took several positive steps toward our future. We improved operations in our Aerospace segment, increasing throughput and efficiencies, which helped to boost sales and margin levels. Our Packaging segment continued to perform at a high level, growing in a competitive environment and maintaining strong margins. Our Energy segment continued to leverage its realigned footprint and made progress despite the impact of Hurricane Harvey. We also continued to realign and improve the businesses within Engineered Components, positioning them for the future as industrial and energy markets stabilize and/or grow. In addition, we were able to successfully refinance our debt, enhancing our capital structure, gaining flexibility and extending maturity dates at historically attractive interest rates.

As we enter 2018, we expect to continue our positive momentum, furthering our internal initiatives to generate additional efficiencies and cost savings and leverage opportunities. We are focused on growth programs, particularly in our Packaging and Aerospace segments, and have many initiatives underway that we expect will benefit us in 2018. We will continue to evaluate the cost structure of our Energy and Engineered Components segments, ensuring they remain well positioned as the industrial and energy-facing end markets evolve. And, the recent enactment of the Tax Reform Act is expected to benefit TriMas overall, given a majority of our sales and production is in the United States. While each of these factors are positive for TriMas, we are not counting on significant market improvement. Rather, we are focused on managing our operations and internal projects that we control. We will continue to leverage the tenants of the TriMas Business Model in execution of our improvement actions, pruning our product portfolios to deemphasize or no longer sell certain lower-margin products, and seeking lower-cost sources for input costs, all while continuously assessing our manufacturing footprint and fixed cost structure.

Impact of New Accounting Standards

See Note 2, "New Accounting Pronouncements," included in Item 8, "Financial Statements and Supplementary Data," within this Form 10-K.

Critical Accounting Policies

The following discussion of accounting policies is intended to supplement the accounting policies presented in Note 3, "Summary of Significant Accounting Policies" included in Item 8, "Financial Statements and Supplementary Data," within this Form 10-K. Certain of our accounting policies require the application of significant judgment by management in selecting the appropriate assumptions for calculating financial estimates. By their nature, these judgments are subject to an inherent degree of uncertainty. These judgments are based on our historical experience, our evaluation of business and macroeconomic trends, and information from other outside sources, as appropriate.

Receivables. Receivables are presented net of allowances for doubtful accounts of approximately \$4.1 million and \$4.6 million at December 31, 2017 and 2016, respectively. We monitor our exposure for credit losses and maintain adequate allowances for doubtful accounts. We determine these allowances based on our historical write-off experience and/or specific customer circumstances and provide such allowances when amounts are reasonably estimable and it is probable a loss has been incurred. We do not have concentrations of accounts receivable with a single customer or group of customers and do not believe that significant credit risk exists due to our diverse customer base. See Item 1A, "Risk Factors," for additional information regarding risks associated with a concentrated customer base. Trade accounts receivable of substantially all domestic business operations may be sold, on an ongoing basis, to TSPC, a wholly-owned, special purpose entity, but remain included in our consolidated balance sheet.

Depreciation and Amortization. Depreciation is computed principally using the straight-line method over the estimated useful lives of the assets. Annual depreciation rates are as follows: building and land/building improvements three to 40 years, and machinery and equipment, three to 15 years. Capitalized debt issuance costs are amortized over the underlying terms of the related debt securities. Customer relationship intangibles are amortized over periods ranging from five to 25 years, while technology and other intangibles are amortized over periods ranging from one to 30 years.

Impairment of Long-Lived Assets and Definite-Lived Intangible Assets. We review, on at least a quarterly basis, the financial performance of each business unit for indicators of impairment. In reviewing for impairment indicators, we also consider events or changes in circumstances such as business prospects, customer retention, market trends, potential product obsolescence, competitive activities and other economic factors. An impairment loss is recognized when the carrying value of an asset group exceeds the future net undiscounted cash flows expected to be generated by that asset group. The impairment loss recognized is the amount by which the carrying value of the asset group exceeds its fair value.

Goodwill and Indefinite-Lived Intangibles. We assess goodwill and indefinite-lived intangible assets for impairment at the reporting unit level on an annual basis as of October 1, by reviewing relevant qualitative and quantitative factors. More frequent evaluations may be required if we experience changes in our business climate or as a result of other triggering events that take place. If carrying value exceeds fair value, a possible impairment exists and further evaluation is performed.

We determine our reporting units at the individual operating segment level, or one level below, when there is discrete financial information available that is regularly reviewed by segment management for evaluating operating results. For purposes of our 2017 goodwill impairment test, we had seven reporting units, five of which had goodwill, within our four reportable segments.

We first perform a qualitative assessment for our annual goodwill impairment test and for our indefinite-lived intangible asset impairment test, which involves significant use of management's judgment and assumptions to determine whether it is more likely than not that the fair value of a reporting unit or indefinite-lived intangible asset is less than its carrying amount. In conducting the qualitative assessment, we consider macroeconomic conditions, industry and market considerations, overall financial performance, entity and reporting unit specific events, capital markets pricing, recent fair value estimates and carrying amounts, as well as legal, regulatory, and contractual factors. These factors are all considered in reaching a conclusion about whether it is more likely than not that the fair values of the intangible assets are less than the carrying values. If we conclude that further testing is required, we would perform a quantitative valuation to estimate the fair value of our intangible assets.

Following the Step Zero assessment in 2017, we elected to perform a Step I quantitative assessment for our Aerospace reporting unit as a result of the partial goodwill impairment charge recorded during 2016. In conducting the Step I quantitative analysis, we determined the estimated fair value of the Aerospace reporting unit utilizing both income and market-based approaches. The income approach relies on the present value of estimated future cash flows of the business, discounted using a rate appropriately reflecting the risks inherent in the cash flows. The market approach relies on market data of other public companies that we deem comparable in operations to our reporting units. Upon completion of the goodwill impairment test, we determined that the fair value of the Aerospace reporting unit exceeded its carrying value by more than 15%, and thus there was no goodwill impairment. In addition, a 0.5% reduction in residual growth rate combined with a 0.5% increase in the weighted average cost of capital would not have changed the conclusion reached under the Step I impairment test. For all other reporting units with goodwill, based on the Step Zero assessment and consideration of the quantitative assessment performed in 2015, where all other reporting units' fair value exceeded its carrying value by more than 89%, we did not believe that it was more likely than not that the fair value of a reporting unit was less than its carrying amount; therefore, we determined that the Step I and Step II tests were not required.

Additionally, because of the factors previously mentioned, during the fourth quarter of 2017 we performed a quantitative assessment for all of our indefinite-lived intangible assets included within the Aerospace reportable segment, using a relief-from-royalty method. We performed a Step Zero qualitative analysis for all of our other indefinite-lived intangibles assets. The relief-from-royalty method involves the estimation of appropriate market royalty rates for our indefinite-lived intangible assets and the application of these royalty rates to forecasted net sales attributable to the intangible assets. The resulting cash flows are then discounted to present value, using a rate appropriately reflecting the risks inherent in the cash flows, which is compared to the carrying value of the assets. Upon completion of the quantitative impairment test, we determined that each of our Aerospace-related trade names had a fair value that exceeded carrying values by more than 9%.

Future declines in sales and/or operating profit, declines in our stock price, or other changes in our business or the markets for our products could result in further impairments of our goodwill and indefinite-lived intangible assets.

Pension Benefits. The Company engages independent actuaries to compute the amounts of liabilities and expenses under defined benefit pension plans, subject to the assumptions that the Company determines are appropriate based on historical trends, current market rates and future projections as of the measurement date. Annually, the Company reviews the actual experience compared to the most significant assumptions used and makes adjustments to the assumptions, if warranted. Discount rates are based upon an expected benefit payments duration analysis and the equivalent average yield rate for high-quality fixed-income investments. Pension benefits are funded through deposits with trustees and the expected long-term rate of return on plan assets is based upon actual historical returns modified for known changes in the market and any expected change in investment policy. Certain accounting guidance, including the guidance applicable to pensions, does not require immediate recognition of the effects of a deviation between actual and assumed experience or the revision of an estimate. This approach allows the favorable and unfavorable effects that fall within an acceptable range to be netted.

Income Taxes. We compute income taxes using the asset and liability method, whereby deferred income taxes using current enacted tax rates are provided for the temporary differences between the financial reporting basis and the tax basis of assets and liabilities and for operating loss and tax credit carryforwards. We determine valuation allowances based on an assessment of positive and negative evidence on a jurisdiction-by-jurisdiction basis and record a valuation allowance to reduce deferred tax assets to the amount more likely than not to be realized. Recognized income tax positions are measured at the largest amount that is greater than 50% likely of being realized. Changes in recognition or measurement are reflected in the period in which the change in judgment occurs. We record interest and penalties related to unrecognized tax benefits in income tax expense.

On December 22, 2017, the Tax Reform Act was signed into law. Among the provisions, the Tax Reform Act reduces the Federal statutory corporate income tax rate from 35% to 21% effective January 1, 2018, implements a territorial tax system and imposes a one-time tax on the deemed repatriation of undistributed earnings of non-U.S. subsidiaries, introduces additional limitations on the deductibility of interest, allows for the immediate expensing of capital expenditures through 2023 and modifies or repeals many business deductions and credits.

While the Tax Reform Act provides for a territorial tax system, beginning in 2018, it includes two new U.S. tax base erosion provisions, the global intangible low-taxed income (“GILTI”) provisions and the base-erosion and anti-abuse tax (“BEAT”) provisions. The GILTI provisions impose a tax on foreign income in excess of a deemed return on tangible assets of foreign corporations. The FASB has provided preliminary guidance that companies may make an accounting policy election to either account for deferred taxes related to GILTI inclusions or treat any taxes on GILTI inclusions as period costs. We have elected to account for GILTI tax in the period in which it is incurred, and therefore have not provided any deferred tax impacts on GILTI in our consolidated financial statements for the year ended December 31, 2017.

The BEAT provisions in the Tax Reform Act eliminate the deduction of certain base-erosion payments made to related foreign corporations, and impose a minimum tax if greater than regular tax. We do not expect the BEAT provisions to have a significant impact to our consolidated financial statements, and have not included any tax impacts of BEAT in our consolidated financial statements for the year ended December 31, 2017.

Other Loss Reserves. We have other loss exposures related to environmental claims, asbestos claims and litigation. Establishing loss reserves for these matters requires the use of estimates and judgment in regard to risk exposure and ultimate liability. We are generally self-insured for losses and liabilities related principally to workers' compensation, health and welfare claims and comprehensive general, product and vehicle liability. Generally, we are responsible for up to \$0.8 million per occurrence under our retention program for workers' compensation, between \$0.3 million and \$1.5 million per occurrence under our retention programs for comprehensive general, product and vehicle liability, and have a \$0.3 million per occurrence stop-loss limit with respect to our self-insured group medical plan. We accrue loss reserves up to our retention amounts based upon our estimates of the ultimate liability for claims incurred, including an estimate of related litigation defense costs, and an estimate of claims incurred but not reported using actuarial assumptions about future events. We accrue for such items when such amounts are reasonably estimable and probable. We utilize known facts and historical trends, as well as actuarial valuations in determining estimated required reserves. Changes in assumptions for factors such as medical costs and actual experience could cause these estimates to change significantly.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

In the normal course of business, we are exposed to market risk associated with fluctuations in commodity prices, insurable risks due to property damage, employee and liability claims, and other uncertainties in the financial and credit markets, which may impact demand for our products.

We conduct business in various locations throughout the world and are subject to market risk due to changes in the value of foreign currencies. The functional currencies of our foreign subsidiaries are primarily the local currency in the country of domicile. We manage these operating activities at the local level and revenues and costs are generally denominated in local currencies; however, results of operations and assets and liabilities reported in U.S. dollars will fluctuate with changes in exchange rates between such local currencies and the U.S. dollar. We may use derivative financial instruments to manage currency risks associated with our procurement activities denominated in currencies other than the functional currency of our subsidiaries and the impact of currency rate volatility on our earnings.

We are also subject to interest risk as it relates to long-term debt, for which we have historically and may prospectively employ derivative instruments such as interest rate swaps to mitigate the risk of variable interest rates. See Item 7 "*Management's Discussion and Analysis of Financial Condition and Results of Operations*" for details about our primary market risks, and the objectives and strategies used to manage these risks. Also see Note 11, "*Long-term Debt*," and Note 12, "*Derivative Instruments*," included in Item 8, "*Financial Statements and Supplementary Data*," within this Form 10-K for additional information.

Item 8. Financial Statements and Supplementary Data

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the shareholders and the Board of Directors of TriMas Corporation

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of TriMas Corporation and subsidiaries (the "Company") as of December 31, 2017 and 2016, the related consolidated statements of operations, comprehensive income, cash flows, and shareholders' equity, for each of the three years in the period ended December 31, 2017, and the related notes and the schedule listed in the Index at Item 15 (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2017 and 2016, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2017, in conformity with accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2017, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 27, 2018, expressed an unqualified opinion on the Company's internal control over financial reporting.

Basis for Opinion

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

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

/s/ Deloitte & Touche LLP

Detroit, Michigan
February 27, 2018

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

TriMas Corporation
Consolidated Balance Sheet
(Dollars in thousands)

	December 31,	
	2017	2016
Assets		
Current assets:		
Cash and cash equivalents	\$ 27,580	\$ 20,710
Receivables, net	112,220	111,570
Inventories	155,350	160,460
Prepaid expenses and other current assets	16,120	16,060
Total current assets	311,270	308,800
Property and equipment, net	190,250	179,160
Goodwill	319,390	315,080
Other intangibles, net	194,220	213,920
Deferred income taxes	9,100	26,290
Other assets	8,970	8,400
Total assets	\$ 1,033,200	\$ 1,051,650
Liabilities and Shareholders' Equity		
Current liabilities:		
Current maturities, long-term debt	\$ —	\$ 13,810
Accounts payable	72,410	72,270
Accrued liabilities	49,470	47,190
Total current liabilities	121,880	133,270
Long-term debt, net	303,080	360,840
Deferred income taxes	5,650	5,910
Other long-term liabilities	58,570	51,910
Total liabilities	489,180	551,930
Preferred stock \$0.01 par: Authorized 100,000,000 shares; Issued and outstanding: None	—	—
Common stock, \$0.01 par: Authorized 400,000,000 shares; Issued and outstanding: 45,724,453 shares at December 31, 2017 and 45,520,598 shares at December 31, 2016	460	460
Paid-in capital	823,850	817,580
Accumulated deficit	(262,960)	(293,920)
Accumulated other comprehensive loss	(17,330)	(24,400)
Total shareholders' equity	544,020	499,720
Total liabilities and shareholders' equity	\$ 1,033,200	\$ 1,051,650

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

TriMas Corporation

Consolidated Statement of Operations

(Dollars in thousands, except per share amounts)

	Year ended December 31,		
	2017	2016	2015
Net sales	\$ 817,740	\$ 794,020	\$ 863,980
Cost of sales	(598,600)	(583,540)	(627,870)
Gross profit	219,140	210,480	236,110
Selling, general and administrative expenses	(129,570)	(153,710)	(162,350)
Net loss on dispositions of assets	(1,080)	(1,870)	(2,330)
Impairment of goodwill and indefinite-lived intangible assets	—	(98,900)	(75,680)
Operating profit (loss)	88,490	(44,000)	(4,250)
Other expense, net:			
Interest expense	(14,400)	(13,720)	(14,060)
Debt financing and related expenses	(6,640)	—	(1,970)
Other expense, net	(1,240)	(510)	(1,840)
Other expense, net	(22,280)	(14,230)	(17,870)
Income (loss) from continuing operations before income taxes	66,210	(58,230)	(22,120)
Income tax benefit (expense)	(35,250)	18,430	(6,540)
Income (loss) from continuing operations	30,960	(39,800)	(28,660)
Loss from discontinued operations, net of income taxes	—	—	(4,740)
Net income (loss)	30,960	(39,800)	(33,400)
Basic earnings (loss) per share:			
Continuing operations	\$ 0.68	\$ (0.88)	\$ (0.64)
Discontinued operations	—	—	(0.10)
Net income (loss) per share	\$ 0.68	\$ (0.88)	\$ (0.74)
Weighted average common shares - basic	45,682,627	45,407,316	45,123,626
Diluted earnings (loss) per share:			
Continuing operations	\$ 0.67	\$ (0.88)	\$ (0.64)
Discontinued operations	—	—	(0.10)
Net income (loss) per share	\$ 0.67	\$ (0.88)	\$ (0.74)
Weighted average common shares - diluted	45,990,252	45,407,316	45,123,626

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

TriMas Corporation

Consolidated Statement of Comprehensive Income

(Dollars in thousands)

	Year ended December 31,		
	2017	2016	2015
Net income (loss)	\$ 30,960	\$ (39,800)	\$ (33,400)
Other comprehensive income (loss):			
Defined pension and postretirement pension plans (Note 15)	1,670	250	1,810
Foreign currency translation	6,050	(12,620)	(12,370)
Derivative instruments (Note 12)	(650)	(730)	(2,650)
Total other comprehensive income (loss)	7,070	(13,100)	(13,210)
Total comprehensive income (loss)	\$ 38,030	\$ (52,900)	\$ (46,610)

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

TriMas Corporation
Consolidated Statement of Cash Flows
(Dollars in thousands)

	Year ended December 31,		
	2017	2016	2015
Cash Flows from Operating Activities:			
Net income (loss)	\$ 30,960	\$ (39,800)	\$ (33,400)
Loss from discontinued operations	—	—	(4,740)
Income (loss) from continuing operations	30,960	(39,800)	(28,660)
Adjustments to reconcile net income (loss) to net cash provided by operating activities:			
Impairment of goodwill and indefinite-lived intangible assets	—	98,900	75,680
Loss on dispositions of assets	1,080	1,870	2,330
Depreciation	26,950	24,390	22,570
Amortization of intangible assets	19,920	20,470	20,970
Amortization of debt issue costs	1,320	1,370	1,710
Deferred income taxes	15,260	(32,160)	(8,750)
Non-cash compensation expense	6,780	6,940	6,340
Tax effect from stock based compensation	—	(640)	(590)
Debt financing and related expenses	6,640	—	1,970
Decrease in receivables	1,220	7,990	5,300
Decrease in inventories	4,350	5,180	3,250
(Increase) decrease in prepaid expenses and other assets	(310)	2,550	4,730
Increase (decrease) in accounts payable and accrued liabilities	3,640	(18,120)	(29,530)
Other operating activities	2,250	1,530	(750)
Net cash provided by operating activities of continuing operations	120,060	80,470	76,570
Net cash used for operating activities of discontinued operations	—	—	(14,030)
Net cash provided by operating activities	120,060	80,470	62,540
Cash Flows from Investing Activities:			
Capital expenditures	(36,800)	(31,330)	(28,660)
Acquisition of businesses, net of cash acquired	—	—	(10,000)
Net proceeds from dispositions of property and equipment	4,450	220	1,700
Net cash used for investing activities of continuing operations	(32,350)	(31,110)	(36,960)
Net cash used for investing activities of discontinued operations	—	—	(2,510)
Net cash used for investing activities	(32,350)	(31,110)	(39,470)
Cash Flows from Financing Activities:			
Proceeds from issuance of senior notes	300,000	—	—
Proceeds from borrowings on term loan facilities	—	—	275,000
Repayments of borrowings on term loan facilities	(257,940)	(13,850)	(444,890)
Proceeds from borrowings on revolving credit and accounts receivable facilities	401,300	402,420	1,129,840
Repayments of borrowings on revolving credit and accounts receivable facilities	(517,310)	(433,350)	(1,169,370)
Payments for deferred purchase price	—	(2,530)	(6,440)
Debt financing fees	(6,070)	—	(1,850)
Shares surrendered upon options and restricted stock vesting to cover taxes	(510)	(1,590)	(2,770)
Cash transferred to the Cequent businesses	—	—	(17,050)
Other financing activities	(310)	800	1,090
Net cash used for financing activities of continuing operations	(80,840)	(48,100)	(236,440)
Net cash provided by financing activities of discontinued operations	—	—	208,400
Net cash used for financing activities	(80,840)	(48,100)	(28,040)
Cash and Cash Equivalents:			
Increase (decrease) for the year	6,870	1,260	(4,970)
At beginning of year	20,710	19,450	24,420
At end of year	\$ 27,580	\$ 20,710	\$ 19,450
Supplemental disclosure of cash flow information:			
Cash paid for interest	\$ 9,430	\$ 11,800	\$ 15,170
Cash paid for income taxes	\$ 16,230	\$ 17,210	\$ 30,580

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

TriMas Corporation
Consolidated Statement of Shareholders' Equity
Years Ended December 31, 2017, 2016 and 2015
(Dollars in thousands)

	Common Stock	Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Income (Loss)	Total
Balances at December 31, 2014	\$ 450	\$ 806,810	\$ (226,850)	\$ 10,220	\$ 590,630
Net loss	—	—	(33,400)	—	(33,400)
Other comprehensive loss	—	—	—	(13,210)	(13,210)
Shares surrendered upon option and restricted stock vesting to cover tax	—	(2,770)	—	—	(2,770)
Stock option exercises and restricted stock vestings	—	500	—	—	500
Tax effect from stock based compensation	—	590	—	—	590
Non-cash compensation expense	—	7,030	—	—	7,030
Distribution of the Cequent businesses	—	—	6,130	(8,310)	(2,180)
Balances at December 31, 2015	\$ 450	\$ 812,160	\$ (254,120)	\$ (11,300)	\$ 547,190
Net loss	—	—	(39,800)	—	(39,800)
Other comprehensive loss	—	—	—	(13,100)	(13,100)
Shares surrendered upon option and restricted stock vesting to cover tax	—	(1,590)	—	—	(1,590)
Stock option exercises and restricted stock vestings	10	150	—	—	160
Tax effect from stock based compensation	—	(80)	—	—	(80)
Non-cash compensation expense	—	6,940	—	—	6,940
Balances at December 31, 2016	\$ 460	\$ 817,580	\$ (293,920)	\$ (24,400)	\$ 499,720
Net income	—	—	30,960	—	30,960
Other comprehensive income	—	—	—	7,070	7,070
Shares surrendered upon option and restricted stock vesting to cover tax	—	(510)	—	—	(510)
Non-cash compensation expense	—	6,780	—	—	6,780
Balances at December 31, 2017	\$ 460	\$ 823,850	\$ (262,960)	\$ (17,330)	\$ 544,020

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

TRIMAS CORPORATION**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS****1. Basis of Presentation**

TriMas Corporation ("TriMas" or the "Company"), and its consolidated subsidiaries, is a diversified industrial manufacturer of products for customers in the consumer products, aerospace, industrial, petrochemical, refinery and oil and gas end markets. The Company is principally engaged in the following reportable segments with diverse products and market channels: Packaging, Aerospace, Energy and Engineered Components. See Note 19, "Segment Information," for further information on each of the Company's reportable segments.

On June 30, 2015, the Company completed the spin-off of its Cequent businesses, creating a new independent publicly traded company, Horizon Global Corporation ("Horizon"). The financial position, results of operations and cash flows of the Cequent businesses are reflected as discontinued operations for all periods presented through the date of the spin-off. See Note 5, "Discontinued Operations," for further details regarding the spin-off.

2. New Accounting Pronouncements*Recently Issued Accounting Pronouncements*

In March 2017, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2017-07, "Compensation - Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost" ("ASU 2017-07"). ASU 2017-07 requires that the service cost component of net period pension and postretirement benefit cost be presented in the same line item as other employee compensation costs, while the other components be presented separately as non-operating income (expense). ASU 2017-07 also allows only the service cost component to be eligible for capitalization when applicable. ASU 2017-07 is effective for fiscal years, and interim periods within those years, beginning after December 15, 2017. The Company is in the process of assessing the impact of adoption on its consolidated financial statements.

In January 2017, the FASB issued ASU 2017-04, "Intangibles - Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment" ("ASU 2017-04"), which simplifies the test for goodwill impairment by eliminating the requirement to perform a hypothetical purchase price allocation to measure the amount of goodwill impairment. ASU 2017-04 is effective for fiscal years, and interim periods within those years, beginning after December 15, 2019, with early adoption permitted. The Company is in the process of assessing the impact of adoption on its consolidated financial statements.

In January 2017, the FASB issued ASU 2017-01, "Business Combinations (Topic 805): Clarifying the Definition of a Business" ("ASU 2017-01"). ASU 2017-01 provides guidance to assist entities with evaluating whether transactions should be accounted for as acquisitions (or disposals) of assets or businesses. ASU 2017-01 is effective for fiscal years, and interim periods within those years, beginning after December 15, 2017. The Company is in the process of assessing the impact of adoption on its consolidated financial statements.

In October 2016, the FASB issued ASU 2016-16, "Income Taxes (Topic 740): Intra-Entity Transfers of Assets Other Than Inventory" ("ASU 2016-16"), which requires that income tax consequences of an intra-entity transfer of an asset other than inventory are recognized when the transfer occurs. ASU 2016-16 is effective for fiscal years, and interim periods within those years, beginning after December 15, 2017, and is to be applied using a modified retrospective approach. The Company is in the process of assessing the impact of adoption on its consolidated financial statements.

In August 2016, the FASB issued ASU 2016-15, "Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments" ("ASU 2016-15"), which clarifies how certain cash receipts and cash payments are presented and classified in the statement of cash flows. ASU 2016-15 is effective for fiscal years, and interim periods within those years, beginning after December 15, 2017, and is to be applied using a retrospective approach. The Company is in the process of assessing the impact of adoption on its consolidated financial statements.

In February 2016, the FASB issued ASU 2016-02, "Leases (Topic 842)" ("ASU 2016-02"), which requires that lessees, at the lease commencement date, recognize a lease liability representing the lessee's obligation to make lease payments arising from a lease as well as a right-of-use asset, which represents the lessee's right to use, or control the use of a specified asset, for the lease term. The new guidance also aligns lessor accounting to the lessee accounting model and to Topic 606, "Revenue from Contracts with Customers." ASU 2016-02 is effective for fiscal years, and interim periods within those years, beginning after December 15, 2018, and is to be applied using a modified retrospective approach with early adoption permitted. The Company is in the process of assessing the impact of the adoption on its consolidated financial statements.

TRIMAS CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

In May 2014, the FASB issued ASU 2014-09, "Revenue from Contracts with Customers (Topic 606)" ("ASU 2014-09"). ASU 2014-09 requires that an entity recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the company expects to be entitled in exchange for those goods or services. Since the issuance of the original standard, the FASB has issued several subsequent updates. The Company has evaluated the standard and its customer contracts, and as a result, does not believe the adoption of this standard will have a material impact on the amount or timing of its revenues. The Company will adopt this standard on January 1, 2018 utilizing the modified retrospective approach.

Recently Adopted Accounting Pronouncements

In August 2017, the FASB issued ASU 2017-12, "Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities" ("ASU 2017-12"), which better aligns an entity's risk management activities and financial reporting for hedging relationships, simplifies hedge accounting requirements and creates more transparency around how economic results are presented in the financial statements. The Company early adopted ASU 2017-12 during the three months ended December 31, 2017. The adoption of ASU 2017-12 did not have a material impact on the Company's consolidated financial statements.

3. Summary of Significant Accounting Policies

Principles of Consolidation. The accompanying consolidated financial statements include the accounts and transactions of TriMas and its subsidiaries. Intercompany transactions have been eliminated.

Use of Estimates. The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management of the Company 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. Such estimates and assumptions also affect the reported amounts of revenues and expenses during the reporting periods. Significant items subject to such estimates and assumptions include the carrying amount of property and equipment, goodwill and other intangibles, valuation allowances for receivables, inventories and deferred income tax assets, valuation of derivatives, estimated future unrecoverable lease costs, reserves for asbestos and ordinary course litigation, assets and obligations related to employee benefits and estimated unrecognized tax benefits. Actual results may differ from such estimates and assumptions.

Cash and Cash Equivalents. The Company considers cash on hand and on deposit and investments in all highly liquid debt instruments with initial maturities of three months or less to be cash and cash equivalents.

Receivables. Receivables are presented net of allowances for doubtful accounts of approximately \$4.1 million and \$4.6 million at December 31, 2017 and 2016, respectively. The Company monitors its exposure for credit losses and maintains allowances for doubtful accounts based upon the Company's best estimate of probable losses inherent in the accounts receivable balances. The Company does not believe that significant credit risk exists due to its diverse customer base.

Sales of Receivables. The Company may, from time to time, sell certain of its receivables to third parties. Sales of receivables are recognized at the point in which the receivables sold are transferred beyond the reach of the Company and its creditors, the purchaser has the right to pledge or exchange the receivables and the Company has surrendered control over the transferred receivables.

Inventories. Inventories are stated at the lower of cost or net realizable value, with cost determined using the first-in, first-out method. Direct materials, direct labor and allocations of variable and fixed manufacturing-related overhead are included in inventory cost.

Property and Equipment. Property and equipment additions, including significant improvements, are recorded at cost. Upon retirement or disposal of property and equipment, the cost and accumulated depreciation are removed from the accounts, and any gain or loss is included in the accompanying statement of operations. Repair and maintenance costs are charged to expense as incurred.

Depreciation and Amortization. Depreciation is computed principally using the straight-line method over the estimated useful lives of the assets. Annual depreciation rates are as follows: building and land/building improvements three to 40 years, and machinery and equipment, three to 15 years. Capitalized debt issuance costs are amortized over the underlying terms of the related debt securities. Customer relationship intangibles are amortized over periods ranging from five to 25 years, while technology and other intangibles are amortized over periods ranging from one to 30 years.

TRIMAS CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Impairment of Long-Lived Assets and Definite-Lived Intangible Assets. The Company reviews, on at least a quarterly basis, the financial performance of its businesses for indicators of impairment. In reviewing for impairment indicators, the Company also considers events or changes in circumstances such as business prospects, customer retention, market trends, potential product obsolescence, competitive activities and other economic factors. An impairment loss is recognized when the carrying value of an asset group exceeds the future net undiscounted cash flows expected to be generated by that asset group. The impairment loss recognized is the amount by which the carrying value of the asset group exceeds its fair value.

Goodwill. The Company assesses goodwill for impairment on an annual basis (October 1 test date) by reviewing relevant qualitative and quantitative factors. More frequent evaluations may be required if the Company experiences changes in its business climate or as a result of other triggering events that take place. If carrying value exceeds fair value, a possible impairment exists and further evaluation is performed.

The Company determines its reporting units at the individual operating segment level, or one level below, when there is discrete financial information available that is regularly reviewed by segment management for evaluating operating results. For purposes of the Company's 2017 goodwill impairment test, the Company had seven reporting units, five of which had goodwill, within its four reportable segments. See Note 7, "Goodwill and Other Intangible Assets," for further details regarding the Company's goodwill impairment testing.

In conducting a qualitative assessment ("Step Zero"), the Company considers relevant events and circumstances that affect the fair value or carrying amount of a reporting unit. Such events and circumstances can include macroeconomic conditions, industry and market considerations, overall financial performance, entity and reporting unit specific events, and capital markets pricing. The Company considers the extent to which each of the adverse events and circumstances identified affect the comparison of a reporting unit's fair value with its carrying amount. The Company places more weight on the events and circumstances that most affect a reporting unit's fair value or the carrying amount of its net assets. The Company considers positive and mitigating events and circumstances that may affect its determination of whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount. The Company also considers recent valuations of its reporting units, including the difference between the most recent fair value estimate and the carrying amount. These factors are all considered by management in reaching its conclusion about whether to perform the first step of the quantitative goodwill impairment test. If management concludes that further testing is required, the Company performs a quantitative valuation to estimate the fair value of its reporting units.

If the Company concludes that conducting a quantitative assessment is required, it performs the first step of a two-step goodwill impairment test. For the first step ("Step I"), the Company estimates the fair value of the reporting unit being evaluated utilizing a combination of three valuation techniques: discounted cash flow (income approach), market comparable method (market approach) and market capitalization (direct market data method). The income approach is based on management's operating plan and internal five-year forecast and utilizes forward-looking assumptions and projections, but considers factors unique to each reporting unit and related long-range plans that may not be comparable to other companies and that are not yet public. The market approach considers potentially comparable companies and transactions within the industries where the Company's reporting units participate, and applies their trading multiples to the Company's reporting units. This approach utilizes data from actual marketplace transactions, but reliance on its results is limited by difficulty in identifying companies that are specifically comparable to the Company's reporting units, considering the diversity of the Company's businesses, the relative sizes and levels of complexity. The Company also uses the direct market data method by comparing its book value and the estimates of fair value of the reporting units to the Company's market capitalization as of the annual testing date. Management uses this comparison as additional evidence of the fair value of the Company, as its market capitalization may be suppressed by other factors such as the control premium associated with a controlling shareholder, the Company's degree of leverage and the float of the Company's common stock. Management evaluates and weights the results based on a combination of the income and market approaches, and, in situations where the income approach results differ significantly from the market and direct data approaches, management re-evaluates and adjusts, if necessary, its assumptions.

Based on the Step I test, if it is determined that the carrying value of the reporting unit is higher than its fair value, there is an indication that an impairment may exist and the second step ("Step II") must be performed to measure the amount of impairment loss, if any. In Step II, the Company determines the implied fair value of the reporting unit goodwill in the same manner as if the reporting unit was being acquired in a business combination and compares the implied fair value of the reporting unit goodwill to the carrying value of the goodwill. If the implied fair value of the goodwill is less than the carrying value, goodwill is impaired and is written down to the implied fair value amount.

TRIMAS CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Indefinite-Lived Intangibles. The Company assesses indefinite-lived intangible assets (primarily trademark/trade names) for impairment on an annual basis (October 1 test date) by reviewing relevant qualitative and quantitative factors. More frequent evaluations may be required if the Company experiences changes in its business climate or as a result of other triggering events that take place. If carrying value exceeds fair value, a possible impairment exists and further evaluation is performed.

In conducting a qualitative assessment, the Company considers relevant events and circumstances to determine whether it is more likely than not that the fair values of the indefinite-lived intangible assets are less than the carrying values. In addition to the events and circumstances that the Company considers above in its qualitative analysis for potential goodwill impairment, the Company also considers legal, regulatory and contractual factors that could affect the fair value or carrying amount of the Company's indefinite-lived intangible assets. The Company also considers recent valuations of its indefinite-lived intangible assets, including the difference between the most recent fair value estimates and the carrying amounts. These factors are all considered by management in reaching its conclusion about whether it is more likely than not that the fair values of the indefinite-lived intangible assets are less than the carrying values. If management concludes that further testing is required, the Company performs a quantitative valuation to estimate the fair value of its indefinite-lived intangible assets. In conducting the quantitative impairment analysis, the Company determines the fair value of its indefinite-lived intangible assets using the relief-from-royalty method. The relief-from-royalty method involves the estimation of appropriate market royalty rates for the indefinite-lived intangible assets and the application of these royalty rates to forecasted net sales attributable to the intangible assets. The resulting cash flows are then discounted to present value, using a rate appropriately reflecting the risks inherent in the cash flows, which is compared to the carrying value of the assets. If the carrying value exceeds fair value, an impairment is recorded. See Note 7, "Goodwill and Other Intangible Assets," for further details regarding the Company's indefinite-lived intangible asset impairment testing.

High Deductible Insurance. The Company generally has a high deductible insurance plan for losses and liabilities related to workers' compensation, health and welfare claims and comprehensive general, product and vehicle liability. The Company is generally responsible for up to \$0.8 million per occurrence under its retention program for workers' compensation, between \$0.3 million and \$1.5 million per occurrence under its retention programs for comprehensive general, product and vehicle liability, and has a \$0.3 million per occurrence stop-loss limit with respect to its group medical plan. Total insurance limits under these retention programs vary by year for comprehensive general, product and vehicle liability and extend to the applicable statutory limits for workers' compensation. Reserves for claims losses, including an estimate of related litigation defense costs, are recorded based upon the Company's estimates of the aggregate liability for claims incurred using actuarial assumptions about future events. Changes in assumptions for factors such as medical costs and actual experience could cause these estimates to change.

Pension Plans. The Company engages independent actuaries to compute the amounts of liabilities and expenses under defined benefit pension plans, subject to the assumptions that the Company determines are appropriate based on historical trends, current market rates and future projections. Assumptions used in the actuarial calculations could have a significant impact on plan obligations, and a lesser impact on current period expense. Annually, the Company reviews the actual experience compared to the more significant assumptions used and makes adjustments to the assumptions, if warranted. Discount rates are based on an expected benefit payments duration analysis and the equivalent average yield rate for high-quality fixed-income investments. Pension benefits are funded through deposits with trustees and the expected long-term rate of return on fund assets is based on actual historical returns and a review of other public company pension asset return data, modified for known changes in the market and any expected change in investment policy.

Revenue Recognition. Revenues are recognized when products are shipped or services are provided to customers, the customer takes ownership and assumes risk of loss, the sales price is fixed and determinable and collectability is reasonably assured. Net sales are comprised of gross revenues less estimates of expected returns, trade discounts and customer allowances, which include incentives such as volume discounts and other supply agreements in connection with various programs. Such deductions are recorded during the period the related revenue is recognized.

Cost of Sales. Cost of sales includes material, labor and overhead costs incurred in the manufacture of products sold in the period. Material costs include raw material, purchased components, outside processing and inbound freight costs. Overhead costs consist of variable and fixed manufacturing costs, wages and fringe benefits, and purchasing, receiving and inspection costs.

Selling, General and Administrative Expenses. Selling, general and administrative expenses include the following: costs related to the advertising, sale, marketing and distribution of the Company's products, shipping and handling costs, amortization of customer intangible assets, costs of finance, human resources, legal functions, executive management costs and other administrative expenses.

TRIMAS CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Income Taxes. The Company computes income taxes using the asset and liability method, whereby deferred income taxes using current enacted tax rates are provided for the temporary differences between the financial reporting basis and the tax basis of assets and liabilities and for operating loss and tax credit carryforwards. The Company determines valuation allowances based on an assessment of positive and negative evidence on a jurisdiction-by-jurisdiction basis and records a valuation allowance to reduce deferred tax assets to the amount more likely than not to be realized. The Company recognizes the effect of income tax positions only if those positions are more likely than not of being sustained. Recognized income tax positions are measured at the largest amount that is greater than 50% likely of being realized. Changes in recognition or measurement are reflected in the period in which the change in judgment occurs. The Company records interest and penalties related to unrecognized tax benefits in income tax expense.

On December 22, 2017, the Tax Cuts and Jobs Act ("Tax Reform Act") was signed into law. Among the provisions, the Tax Reform Act reduces the Federal statutory corporate income tax rate from 35% to 21% effective January 1, 2018, implements a territorial tax system and imposes a one-time tax on the deemed repatriation of undistributed earnings of non-U.S. subsidiaries, introduces additional limitations on the deductibility of interest, allows for the immediate expensing of capital expenditures through 2023 and modifies or repeals many business deductions and credits.

While the Tax Reform Act provides for a territorial tax system, beginning in 2018, it includes two new U.S. tax base erosion provisions, the global intangible low-taxed income ("GILTI") provisions and the base-erosion and anti-abuse tax ("BEAT") provisions. The GILTI provisions impose a tax on foreign income in excess of a deemed return on tangible assets of foreign corporations. The FASB has provided preliminary guidance that companies may make an accounting policy election to either account for deferred taxes related to GILTI inclusions or treat any taxes on GILTI inclusions as period costs. The Company has elected to account for GILTI tax in the period in which it is incurred, and therefore has not provided any deferred tax impacts on GILTI in its consolidated financial statements for the year ended December 31, 2017.

The BEAT provisions in the Tax Reform Act eliminate the deduction of certain base-erosion payments made to related foreign corporations, and impose a minimum tax if greater than regular tax. The Company does not expect the BEAT provisions to have a significant impact to its consolidated financial statements, and has not included any tax impacts of BEAT in its consolidated financial statements for the year ended December 31, 2017.

See Note 20, "Income Taxes," for further information regarding the impact of the Tax Reform Act to the Company.

Foreign Currency Translation. The financial statements of subsidiaries located outside of the United States are measured using the currency of the primary economic environment in which they operate as the functional currency. When translating into U.S. dollars, income and expense items are translated at average monthly exchange rates and assets and liabilities are translated at exchange rates in effect at the balance sheet date. Adjustments resulting from translating the functional currency into U.S. dollars are deferred as a component of accumulated other comprehensive income (loss) in the consolidated statement of shareholders' equity. Net foreign currency transaction gains (losses) were an approximate loss of \$0.8 million for the year ended December 31, 2017, a gain of \$0.8 million for the year ended December 31, 2016 and a loss of \$0.2 million for the year ended December 31, 2015, and are included in other expense, net in the accompanying consolidated statement of operations.

Derivative Financial Instruments. The Company records all derivative financial instruments at fair value on the balance sheet as either assets or liabilities, and changes in their fair values are immediately recognized in earnings if the derivatives do not qualify as effective hedges. If a derivative is designated as a fair value hedge, then changes in the fair value of the derivative are offset against the changes in the fair value of the underlying hedged item. If a derivative is designated as a cash flow hedge, then the effective portion of the changes in the fair value of the derivative is recognized as a component of other comprehensive income until the underlying hedged item is recognized in earnings or the forecasted transaction is no longer probable of occurring. If a derivative is designated as a net investment hedge, then the effective portion of the changes in the fair value of the derivative is recognized in other comprehensive income and will be subsequently reclassified to earnings when the hedged net investment is either sold or substantially liquidated. The Company formally documents hedging relationships for all derivative transactions and the underlying hedged items, as well as its risk management objectives and strategies for undertaking the hedge transactions. See Note 12, "Derivative Instruments," for further information on the Company's financial instruments.

TRIMAS CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Fair Value of Financial Instruments. In accounting for and disclosing the fair value of these instruments, the Company uses the following hierarchy:

- Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities that the Company has the ability to access at the measurement date;
- Level 2 inputs are inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly; and
- Level 3 inputs are unobservable inputs for the asset or liability.

Valuation of the Company's interest rate swaps and cross-currency swaps are based on the income approach, which uses observable inputs such as interest rate yield curves and forward currency exchange rates, as applicable.

The carrying value of financial instruments reported in the balance sheet for current assets and current liabilities approximates fair value due to the short maturity of these instruments.

Business Combinations. The Company records assets acquired and liabilities assumed from acquisitions at fair value. The fair value of working capital accounts generally approximates book value. The valuation of inventory, property, plant and equipment, and intangible assets require significant assumptions. Inventory is recorded at fair value based on the estimated selling price less costs to sell, including completion, disposal and holding period costs with a reasonable profit margin. Property and equipment is recorded at fair value using a combination of both the cost and market approaches for both the real and personal property acquired. Under the cost approach, consideration is given to the amount required to construct or purchase a new asset of equal value at current prices, with adjustments in value for physical deterioration, as well as functional and economic obsolescence. Under the market approach, recent transactions for similar types of assets are used as the basis for estimating fair value. For trademark/trade names and technology and other intangible assets, the estimated fair value is based on projected discounted future net cash flows using the relief-from-royalty method. For customer relationship intangible assets, the estimated fair value is based on projected discounted future cash flows using the excess earnings method. The relief-from-royalty and excess earnings method are both income approaches that utilize key assumptions such as forecasts of revenue and expenses over an extended period of time, royalty rate percentages, tax rates, and estimated costs of debt and equity capital to discount the projected cash flows.

Stock-based Compensation. The Company recognizes compensation expense related to equity awards based on their fair values as of the grant date. In addition, the Company periodically updates its estimate of attainment for each restricted share with a performance factor based on current and forecasted results, reflecting the change from prior estimate, if any, in current period compensation expense. The disclosed number of shares granted considers only the targeted number of shares until such time that the performance condition has been satisfied. If the performance conditions are not achieved, no award is earned.

Other Comprehensive Income (Loss). The Company refers to other comprehensive income (loss) as revenues, expenses, gains and losses that under accounting principles generally accepted in the United States of America are included in comprehensive income (loss) but are excluded from net earnings as these amounts are recorded directly as an adjustment to stockholders' equity. Other comprehensive income (loss) is comprised of foreign currency translation adjustments, amortization of prior service costs and unrecognized gains and losses in actuarial assumptions for pension and postretirement plans and changes in unrealized gains and losses on derivatives.

Reclassifications. Certain prior year amounts have been reclassified to conform with the current year presentation.

4. Acquisitions

During 2015, the Company completed two acquisitions for an aggregate amount of approximately \$10.0 million, net of cash acquired. The largest acquisition was the November 2015 acquisition of certain business assets of Parker-Hannifin Corporation, located in Tolleson, AZ, within the Company's Aerospace reportable segment.

TRIMAS CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

5. Discontinued Operations*Spin-off of the Cequent businesses*

On June 30, 2015, the Company completed the spin-off of its Cequent businesses (comprised of the former Cequent Americas and Cequent Asia Pacific Europe Africa ("Cequent APEA") reportable segments), creating a new independent publicly traded company, Horizon, through the distribution of 100% of the Company's interest in Horizon to holders of the Company's common stock. On June 30, 2015, each of the Company's shareholders of record as of the close of business on the record date of June 25, 2015, received two shares of Horizon common stock for every five shares of TriMas common stock held. In addition, on June 30, 2015, immediately prior to the effective time of the spin-off, Horizon entered into a new debt financing arrangement and used the proceeds to make a cash distribution of \$214.5 million to the Company.

The Company incurred approximately \$30 million of one-time, pre-tax costs associated with the spin-off, of which approximately \$29 million was incurred during 2015. These costs primarily related to financing, legal, tax and accounting services rendered by third parties. Of the \$30 million in costs, approximately \$18 million was included in loss from discontinued operations, \$9 million was capitalized as deferred financing fees associated with Horizon's debt issuance coincident with the spin-off and was included in the balance sheet of the discontinued operations and approximately \$3 million relates to fees associated with the Company's refinancing of long-term debt, of which approximately \$2 million was included in income from continuing operations as debt financing and related expenses and approximately \$1 million was capitalized as deferred financing fees in the consolidated balance sheet.

Following the spin-off, there were no assets or liabilities remaining from the Cequent operations. The Cequent businesses are presented as discontinued operations in the Company's consolidated statements of operations and cash flows for all periods presented.

Results of discontinued operations, including the discontinued Cequent businesses, are summarized as follows (dollars in thousands):

	Year ended December 31,	
	2015	
Net sales	\$	300,900
Cost of sales		(227,860)
Gross profit		73,040
Selling, general and administrative expenses		(72,360)
Operating profit		680
Interest expense		(2,540)
Other expense, net		(1,970)
Other expense, net		(4,510)
Loss from discontinued operations, before income taxes		(3,830)
Income tax expense		(910)
Loss from discontinued operations, net of tax	\$	(4,740)

6. Facility Closures and Consolidations

During 2017, 2016 and 2015, the Company closed and consolidated several facilities. The following includes details of the most significant actions.

TRIMAS CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

2017 Facility Closures and Consolidations

During 2017, the Company announced plans within the Energy reportable segment to cease production at its Reynosa, Mexico facility, and consolidate production into its Houston, Texas facility. In 2017, upon the cease use date of the facility, the Company recorded a pre-tax charge of approximately \$2.3 million within cost of sales for estimated future unrecoverable lease obligations, net of estimated sublease recoveries, for the lease that expires in 2025. In addition, the Company incurred approximately \$1.2 million of pre-tax non-cash charges within cost of sales related to accelerated depreciation expense as a result of shortening the expected lives on certain machinery, equipment and leasehold improvement assets that the Company no longer used following the facility closure.

Additionally, the Company exited its Wolverhampton, United Kingdom facility within the Energy reportable segment. In connection with this action, the Company recorded pre-tax charges of approximately \$3.5 million within net loss on disposition of assets, of which approximately \$3.2 million were non-cash charges related to the disposal of certain assets.

2016 Facility Closures and Consolidations

During 2016, the Company closed and consolidated certain facilities and initiated actions toward consolidating additional facilities within each of its reportable segments. The most significant activity related to the move of production activities in Mexico within the Packaging reportable segment from Mexico City to San Miguel de Allende, for which the Company recorded pre-tax charges of approximately \$2.5 million, of which approximately \$0.7 million related to severance benefits for employees involuntarily terminated, approximately \$0.8 million related to accelerated depreciation of machinery and equipment and the write-down of certain inventory to its estimated salvage value, with the remainder of the charges related to costs to move and start-up operations in the new facility. During 2017, the Company sold the Mexico City facility for cash proceeds of approximately \$2.8 million and recognized a gain on sale of approximately \$2.5 million which is included in net loss on dispositions of assets in the accompanying consolidated statement of operations.

2015 Facility Closures and Consolidations

During 2015, the Company closed and consolidated certain manufacturing facilities, branches, warehouses and sales offices, the largest of which were the closure of the Hangzhou, China, Rio de Janeiro, Brazil and Houston, Texas (former South Texas Bolt and Fitting) manufacturing facilities within the Energy reportable segment. As a part of the closure and consolidation actions, the Company recorded non-cash charges of approximately \$1.4 million in 2015, primarily related to write-down of property to its estimated salvage value. As a part of these facility closures and other cost savings actions within the Energy reportable segment, the Company recorded charges of approximately \$3.0 million in 2015 related to severance benefits for its approximately 240 employees that were involuntarily terminated. During 2016, upon the cease-use date of certain of the closed and consolidated facilities, the Company recorded a pre-tax charge within the Energy reportable segment of approximately \$0.4 million for estimated future unrecoverable lease obligations, net of estimated sublease recoveries, for a lease that expires in 2018.

7. Goodwill and Other Intangible Assets*Goodwill*

The Company performed a Step Zero qualitative assessment as part of its 2017 and 2016 annual impairment tests for all reporting units, which included a review of the Company's market capitalization. For all reporting units with goodwill other than the Aerospace reporting unit, based on the Step Zero assessment, the Company determined that there were no indications that the fair value of a reporting unit was less than its carrying amount. Therefore, the Company determined that the Step I and Step II tests were not required for these reporting units.

For purposes of the 2017 annual impairment test for the Company's Aerospace reporting unit, management elected to perform a Step I quantitative assessment in consideration of the partial goodwill impairment charge recorded during 2016. In preparing the Step I analysis, the Company utilized both income and market-based approaches, placing a 50% weighting on each. Significant management assumptions used under the income approach were a weighted average cost of capital ("WACC") of 9.5% and an estimated residual growth rate of 3%. In determining the WACC, management considered the level of risk inherent in the cash flow projections based on reducing previously utilized sales growth and margin expansion assumptions, as well as historical attainment of its projections and current market conditions. The use of these unobservable inputs resulted in the fair value estimate being classified as a Level 3 measurement within the fair value hierarchy. Upon completion of the Step I test, the Company determined that the fair value of the Aerospace reporting unit exceeded its carrying value by more than 15%.

TRIMAS CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

For purposes of the 2016 annual impairment test for the Company's Aerospace reporting unit, management had been monitoring current and expected operating results since the first quarter of 2016, when sales and margins were significantly lower than expected, to assess whether the reductions were other than temporary. Management established and executed against recovery plans, improving sales and margin levels during the second and third quarters of 2016. However, when considering these recent financial results, plus recognizing that fourth quarter 2016 results would be lower than previously expected, and updating the Company's assessment of future expectations for growth and profit levels, the Company determined that there were indicators that the fair value of the Aerospace reporting unit was less than its carrying value. Therefore, the Company performed a Step I quantitative assessment for its Aerospace reporting unit utilizing both income and market-based approaches, placing a 50% weighting on each. Significant management assumptions used under the income approach were a WACC of 10.3% and an estimated residual growth rate of 3%. In determining the WACC, management considered the level of risk inherent in the cash flow projections and current market conditions. The use of these unobservable inputs resulted in the fair value estimate being classified as a Level 3 measurement within the fair value hierarchy.

Upon completion of the 2016 Step I test, the Company determined that the carrying value of the Aerospace reporting unit exceeded its fair value. The Company then performed a Step II test to determine whether goodwill had been impaired and, if applicable, to calculate the amount of the impairment charge. Based on the results of the Step II goodwill impairment test, the Company recorded a goodwill impairment charge of approximately \$60.2 million in its Aerospace reporting unit.

During 2015, due to a significant decline in profitability levels in the Company's Energy and engine products reporting units and a decline in the Company's stock price and resulting market capitalization, the Company determined there were indicators that the carrying value of certain of its reporting units exceeded their respective fair value. As such, the Company performed a Step I quantitative goodwill impairment test utilizing both income and market-based approaches, placing a 75% and 25% weighting on each, respectively. Significant management assumptions used under the income approach were WACC's ranging from 11% to 14.5% and an estimated residual growth rate of 3%. In determining the WACC for the reporting units under the income approach, management considered the level of risk inherent in the cash flow projections based on historical attainment of its projections and current market conditions. The use of these unobservable inputs resulted in the fair value estimate being classified as a Level 3 measurement within the fair value hierarchy.

Upon completion of the 2015 Step I test, the Company determined that the carrying value of the Energy and engine products reporting units exceeded their fair value. The Company then performed a Step II test to determine whether goodwill had been impaired and, if applicable, to calculate the amount of the impairment charge. Based on the results of the Step II goodwill impairment test, the Company recorded goodwill impairment charges of approximately \$70.9 million in its Energy reporting unit and approximately \$3.2 million in its engine products reporting unit.

Changes in the carrying amount of goodwill for the years ended December 31, 2017 and 2016 are as follows (dollars in thousands):

	Packaging	Aerospace	Energy	Engineered Components	Total
Balance, December 31, 2015	\$ 165,730	\$ 206,630	\$ —	\$ 6,560	\$ 378,920
Impairment charge	—	(60,200)	—	—	(60,200)
Foreign currency translation and other	(3,640)	—	—	—	(3,640)
Balance, December 31, 2016	\$ 162,090	\$ 146,430	\$ —	\$ 6,560	\$ 315,080
Foreign currency translation and other	4,310	—	—	—	4,310
Balance, December 31, 2017	\$ 166,400	\$ 146,430	\$ —	\$ 6,560	\$ 319,390

TRIMAS CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Other Intangible Assets

The Company conducted its annual indefinite-lived intangible asset impairment test as of October 1, 2017. For purposes of the Company's 2017 indefinite-lived intangible asset impairment test, the Company performed a qualitative assessment to determine whether it was more likely than not that the fair values of the indefinite-lived intangible assets were less than the carrying values. Based on the assessment, the Company determined that there were no indications that the fair values of any of its indefinite-lived intangible assets were less than the carrying values. However, in consideration of the impairment charge recorded during 2016, the Company performed a quantitative assessment for its indefinite-lived intangible assets recorded on its balance sheet as of October 1, 2017 within the Aerospace reportable segment to supplement its qualitative assessment. Using the relief-from-royalty method with a discount rate of 9.5% and an estimated residual growth rate of 3%, the Company determined each of its Aerospace-related trade names had a fair value that exceeded carrying values by more than 9%. The use of unobservable inputs resulted in the fair value estimates being classified as a Level 3 measurement within the fair value hierarchy.

In 2016, the Company performed a qualitative assessment as part of its annual impairment test to determine whether it was more likely than not that the fair values of the indefinite-lived intangible assets were less than the carrying values. Based on the assessment, the Company determined that there were no indications that the fair values of any of its indefinite-lived intangible assets, except for the Aerospace indefinite-lived intangible assets, were less than the carrying values. As such, the Company performed a quantitative assessment for all of its indefinite-lived intangible assets included within the Aerospace reportable segment, using a relief-from-royalty method. Significant management assumptions used under the relief-from-royalty method were a discount rate of 10.3% and an estimated residual growth rate of 3%. The use of these unobservable inputs resulted in the fair value estimates being classified as a Level 3 measurement within the fair value hierarchy. Upon completion of the quantitative impairment test, the Company determined that certain of the Company's Aerospace-related trade names had carrying values that exceeded their fair values, and therefore recorded impairment charges of approximately \$38.7 million.

In 2015, as part of the broadly focused restructuring initiative within the Company's Energy reportable segment, it was determined that the Company would discontinue use and write-off all of the approximately \$1.6 million of carrying value of certain of its Energy-related trade names.

Additionally, as part of the 2015 annual impairment test, the Company performed a quantitative assessment for all of its indefinite-lived intangible assets except for the Allfast trade name, using a relief-from-royalty method. The Company performed a Step Zero qualitative analysis for the Allfast trade name as it was acquired less than one year prior and long-term sales projections were consistent with those expected in the purchase price valuation. Significant management assumptions used under the relief-from-royalty method were discount rates ranging from 14% to 17.5% and an estimated residual growth rate of 3%. The use of these unobservable inputs resulted in the fair value estimates being classified as a Level 3 measurement within the fair value hierarchy. Upon completion of the quantitative impairment test, the Company determined that the fair value of the Company's indefinite-lived intangible assets exceeded the carrying value, and thus there was no impairment.

TRIMAS CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The Company amortizes its other intangible assets over periods ranging from one to 30 years. The gross carrying amounts and accumulated amortization of the Company's other intangibles as of December 31, 2017 and 2016 are summarized below (dollars in thousands):

Intangible Category by Useful Life	As of December 31, 2017		As of December 31, 2016	
	Gross Carrying Amount	Accumulated Amortization	Gross Carrying Amount	Accumulated Amortization
Finite-lived intangible assets:				
Customer relationships, 5 - 12 years	\$ 73,910	\$ (41,000)	\$ 73,570	\$ (33,200)
Customer relationships, 15 - 25 years	132,230	(51,880)	132,230	(44,970)
Total customer relationships	206,140	(92,880)	205,800	(78,170)
Technology and other, 1 - 15 years	57,340	(29,120)	57,470	(26,040)
Technology and other, 17 - 30 years	43,300	(33,490)	43,300	(31,370)
Total technology and other	100,640	(62,610)	100,770	(57,410)
Indefinite-lived intangible assets:				
Trademark/Trade names	42,930	—	42,930	—
Total other intangible assets	\$ 349,710	\$ (155,490)	\$ 349,500	\$ (135,580)

Amortization expense related to intangible assets as included in the accompanying consolidated statement of operations is summarized as follows (dollars in thousands):

	Year ended December 31,		
	2017	2016	2015
Technology and other, included in cost of sales	\$ 5,340	\$ 5,680	\$ 6,010
Customer relationships, included in selling, general and administrative expenses	14,580	14,790	14,960
Total amortization expense	\$ 19,920	\$ 20,470	\$ 20,970

Estimated amortization expense for the next five fiscal years beginning after December 31, 2017 is as follows (dollars in thousands):

Year ended December 31,	Estimated Amortization Expense
2018	\$19,450
2019	\$19,080
2020	\$18,140
2021	\$15,360
2022	\$11,810

8. Inventories

Inventories consist of the following components (dollars in thousands):

	December 31, 2017	December 31, 2016
Finished goods	\$ 86,310	\$ 95,290
Work in process	24,580	22,930
Raw materials	44,460	42,240
Total inventories	\$ 155,350	\$ 160,460

TRIMAS CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

9. Property and Equipment, Net

Property and equipment consists of the following components (dollars in thousands):

	December 31, 2017	December 31, 2016
Land and land improvements	\$ 15,500	\$ 14,910
Building and building improvements	73,550	71,100
Machinery and equipment	303,880	281,180
	<u>392,930</u>	<u>367,190</u>
Less: Accumulated depreciation	202,680	188,030
Property and equipment, net	<u>\$ 190,250</u>	<u>\$ 179,160</u>

Depreciation expense as included in the accompanying consolidated statement of operations is as follows (dollars in thousands):

	Year ended December 31,		
	2017	2016	2015
Depreciation expense, included in cost of sales	\$ 24,950	\$ 21,620	\$ 19,730
Depreciation expense, included in selling, general and administrative expense	2,000	2,770	2,840
Total depreciation expense	<u>\$ 26,950</u>	<u>\$ 24,390</u>	<u>\$ 22,570</u>

10. Accrued Liabilities

Accrued liabilities consist of the following components (dollars in thousands):

	December 31, 2017	December 31, 2016
High deductible insurance	\$ 6,250	\$ 6,250
Accrued payroll	19,060	16,060
Other	24,160	24,880
Total accrued liabilities	<u>\$ 49,470</u>	<u>\$ 47,190</u>

11. Long-term Debt

The Company's long-term debt consists of the following (dollars in thousands):

	December 31, 2017	December 31, 2016
4.875% Senior Notes due October 2025	\$ 300,000	\$ —
Credit Agreement	10,810	333,720
Receivables facility and other	—	45,650
Debt issuance costs	(7,730)	(4,720)
	<u>303,080</u>	<u>374,650</u>
Less: Current maturities, long-term debt	—	13,810
Long-term debt, net	<u>\$ 303,080</u>	<u>\$ 360,840</u>

TRIMAS CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Senior Notes

In September 2017, the Company issued \$300.0 million aggregate principal amount of 4.875% senior notes due October 15, 2025 ("Senior Notes") at par value in a private placement under Rule 144A of the Securities Act of 1933, as amended. The Company used the proceeds from the offering to fully repay the \$250.9 million principal, plus \$0.4 million related interest, outstanding on its former senior secured term loan A facility due 2020 ("Term Loan A Facility"), repay approximately \$41.7 million of outstanding obligations under the Company's accounts receivable facility, pay fees and expenses of \$5.0 million related to the Senior Notes offering, pay fees and expenses of \$1.1 million related to amending its existing credit agreement, with the remaining amount retained as cash on its consolidated balance sheet. Of the \$5.0 million of fees and expenses related to the Senior Notes, approximately \$4.9 million was capitalized as debt issuance costs and approximately \$0.1 million was recorded as debt financing and related expenses in the accompanying consolidated statement of operations.

The Senior Notes accrue interest at a rate of 4.875% per annum, payable semi-annually in arrears on April 15 and October 15, commencing on April 15, 2018. The payment of principal and interest is jointly and severally guaranteed, on a senior unsecured basis, by certain subsidiaries of the Company (each a "Guarantor" and collectively the "Guarantors"). The Senior Notes are *pari passu* in right of payment with all existing and future senior indebtedness and subordinated to all existing and future secured indebtedness to the extent of the value of the assets securing such indebtedness.

Prior to October 15, 2020, the Company may redeem up to 35% of the principal amount of the Senior Notes at a redemption price of 104.875% of the principal amount, plus accrued and unpaid interest, if any, to the redemption date, with the net cash proceeds of one or more equity offerings provided that each such redemption occurs within 90 days of the date of closing of each such equity offering. In addition, the Company may redeem all or part of the Senior Notes at a redemption price equal to 100% of the principal amount thereof, plus accrued and unpaid interest, if any, to the redemption date, plus a "make whole" premium. On or after October 15, 2020, the Company may redeem all or part of the Senior Notes at the redemption prices (expressed as percentages of principal amount) set forth below, plus accrued and unpaid interest, if any, to the redemption date, if redeemed during the twelve-month period beginning on October 15 of the years indicated below:

Year	Percentage
2020	102.438%
2021	101.219%
2022 and thereafter	100.000%

Credit Agreement

In September 2017, the Company amended its existing credit agreement ("Credit Agreement") in connection with the Senior Notes offering and extended the maturity date, increased the permitted borrowings denominated in specific foreign currencies from \$75.0 million to \$125.0 million, removed the Term Loan A Facility and resized the revolving credit facility. The Company incurred fees and expenses of approximately \$1.1 million related to the amendment, all of which was capitalized as debt issuance costs. The Company also recorded approximately \$2.0 million non-cash expense related to the write-off of previously capitalized deferred financing fees within debt financing and related expenses in the accompanying consolidated statement of operations.

TRIMAS CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Below is a summary of key terms under the Credit Agreement as of December 31, 2017, compared to the key terms prior to the amendment (the Term Loan A Facility shows the face amount of borrowing at debt issuance, while the revolving credit facilities show gross availability as of each date):

Instrument	Amount (\$ in millions)	Maturity Date	Interest Rate
Credit Agreement (as amended)			
Senior secured revolving credit facility	\$300.0	9/20/2022	LIBOR ^(a) plus 1.500% ^(b)
Credit Agreement (prior to amendment)			
Senior secured revolving credit facility	\$500.0	6/30/2020	LIBOR ^(a) plus 1.625% ^(b)
Senior secured term loan A facility	\$275.0	6/30/2020	LIBOR ^(a) plus 1.625% ^(b)

^(a) London Interbank Offered Rate ("LIBOR")

^(b) The initial interest rate spread for the amended Credit Agreement is stated as 1.625%. The interest rate spread is based upon the leverage ratio, as defined, as of the most recent determination date.

The Credit Agreement also provides incremental revolving credit facility commitments in an amount not to exceed the greater of \$200.0 million and an amount such that, after giving effect to such incremental commitments and the incurrence of any other indebtedness substantially simultaneously with the making of such commitments, the senior secured net leverage ratio, as defined, is no greater than 3.00 to 1.00. The terms and conditions of any incremental revolving credit facility commitments must be no more favorable than the existing credit facility.

The Company's revolving credit facility allows for the issuance of letters of credit, not to exceed \$40.0 million in aggregate. At December 31, 2017, the Company had approximately \$10.8 million outstanding under its revolving credit facility and had \$274.3 million potentially available after giving effect to approximately \$14.9 million of letters of credit issued and outstanding. At December 31, 2016, the Company had \$75.9 million outstanding under its revolving credit facility and had \$408.2 million potentially available after giving effect to approximately \$15.9 million of letters of credit issued and outstanding. However, including availability under its accounts receivable facility and after consideration of leverage restrictions contained in the Credit Agreement, at December 31, 2017 and 2016, the Company had \$332.1 million and \$126.5 million, respectively, of borrowing capacity available for general corporate purposes.

The debt under the Credit Agreement is an obligation of the Company and certain of its domestic subsidiaries and is secured by substantially all of the assets of such parties. Borrowings under the \$125.0 million (equivalent) foreign currency sub limit of the \$300.0 million senior secured revolving credit facility are secured by a cross-guarantee amongst, and a pledge of the assets of, the foreign subsidiary borrowers that are a party to the agreement. The Credit Agreement also contains various negative and affirmative covenants and other requirements affecting the Company and its subsidiaries, including the ability to, subject to certain exceptions and limitations, incur debt, liens, mergers, investments, loans, advances, guarantee obligations, acquisitions, assets dispositions, sale-leaseback transactions, hedging agreements, dividends and other restricted payments, transactions with affiliates, restrictive agreements and amendments to charters, bylaws, and other material documents. The terms of the Credit Agreement also require the Company and its restricted subsidiaries to meet certain restrictive financial covenants and ratios computed quarterly, including a maximum total net leverage ratio (total consolidated indebtedness plus outstanding amounts under the accounts receivable securitization facility, less the aggregate amount of certain unrestricted cash and unrestricted permitted investments, as defined, over consolidated EBITDA, as defined), a maximum senior secured net leverage ratio (total consolidated senior secured indebtedness, less the aggregate amount of certain unrestricted cash and unrestricted permitted investments, as defined, over consolidated EBITDA, as defined) and a minimum interest expense coverage ratio (consolidated EBITDA, as defined, over the sum of consolidated cash interest expense, as defined, and preferred dividends, as defined). At December 31, 2017, the Company was in compliance with its financial covenants contained in the Credit Agreement.

TRIMAS CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

In June 2015, the Company amended its Credit Agreement, pursuant to which the Company was able to extend maturities and resize its credit facilities following the spin-off of the Cequent businesses. In connection with entering into the amended Credit Agreement, the Company incurred approximately \$1.8 million in fees during 2015 to amend the Credit Agreement, of which approximately \$1.4 million were capitalized as deferred financing fees and \$0.4 million were recorded as debt financing and related expenses in 2015. The Company also recorded non-cash debt financing and related expenses of \$1.5 million in 2015 related to the write-off of deferred financing fees associated with the previous credit facilities.

Receivables Facility

The Company is a party to an accounts receivable facility through TSPC, Inc. ("TSPC"), a wholly-owned subsidiary, to sell trade accounts receivable of substantially all of the Company's domestic business operations. Under this facility, TSPC, from time to time, may sell an undivided fractional ownership interest in the pool of receivables up to approximately \$75.0 million to a third party multi-seller receivables funding company. The net amount financed under the facility is less than the face amount of accounts receivable by an amount that approximates the purchaser's financing costs. The cost of funds under this facility consisted of a 1-month LIBOR-based rate plus a usage fee of 1.00% and a fee on the unused portion of the facility of 0.35% as of December 31, 2017 and 2016.

At December 31, 2017, the Company had no amounts outstanding under the facility and \$57.8 million available but not utilized. At December 31, 2016, the Company had \$45.5 million outstanding and \$10.1 million available but not utilized. Aggregate costs incurred under the facility were \$1.0 million, \$0.9 million and \$1.0 million for the years ended December 31, 2017, 2016 and 2015, respectively, and are included in interest expense in the accompanying consolidated statement of operations. The facility expires on June 30, 2020.

The cost of funds fees incurred are determined by calculating the estimated present value of the receivables sold compared to their carrying amount. The estimated present value factor is based on historical collection experience and a discount rate based on a 1-month LIBOR-based rate plus the usage fee discussed above and is computed in accordance with the terms of the securitization agreement. As of December 31, 2017, the effective cost of funds under the facility was based on an average liquidation period of the portfolio of approximately 1.7 months and an average discount rate of 2.0%.

Long-term Debt Maturities

Future maturities of the face value of long-term debt at December 31, 2017 are as follows (dollars in thousands):

Year Ending December 31:	Future Maturities
2018	\$ —
2019	—
2020	—
2021	—
2022	10,810
Thereafter	300,000
Total	\$ 310,810

Fair Value of Debt

The valuations of the Senior Notes, revolving credit facility and term loan A were determined based on Level 2 inputs under the fair value hierarchy, as defined. The carrying amounts and fair values were as follows (dollars in thousands):

	December 31, 2017		December 31, 2016	
	Carrying Amount	Fair Value	Carrying Amount	Fair Value
Senior Notes	\$ 300,000	\$ 300,750	\$ —	\$ —
Revolving credit facility	10,810	10,490	75,910	75,380
Term loan A facility	—	—	257,810	256,780

TRIMAS CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Debt Issuance Costs

The Company's unamortized debt issuance costs approximated \$7.7 million and \$4.7 million at December 31, 2017 and 2016, respectively, and are included as a direct reduction from the related debt liability in the accompanying consolidated balance sheet. These amounts consisted primarily of legal, accounting and other transaction advisory fees as well as facility fees paid to the lenders. Amortization expense for these items was approximately \$1.3 million, \$1.4 million and \$1.7 million in 2017, 2016 and 2015, respectively, and is included in interest expense in the accompanying consolidated statement of operations.

12. Derivative Instruments

In October 2017, the Company entered into cross-currency swap agreements to hedge its net investment in Euro-denominated assets against future volatility in the exchange rate between the U.S. dollar and the Euro. By doing so, the Company synthetically converted a portion of its U.S. dollar-based long-term debt into Euro-denominated long-term debt. The agreements have a five year tenor at notional amounts declining from \$150.0 million to \$75.0 million over the contract period. Under the terms of the swap agreements, the Company is to receive net interest payments at a fixed rate of approximately 2.10% of the notional amount. At inception, the cross-currency swaps were designated as net investment hedges.

The Company has historically utilized interest rate swap agreements to fix the LIBOR-based variable portion of the interest rate on its long-term debt. Prior to its debt refinancing in September 2017, the Company had interest rate swap agreements in place that hedged a declining notional value of debt ranging from approximately \$238.4 million to approximately \$192.7 million, amortizing consistent with future scheduled debt principal payments. The interest rate swap agreements required the Company to receive a variable interest rate and pay a fixed interest rate in a range of 0.74% to 2.68% with various expiration terms extending to June 30, 2020. At inception, the interest rate swaps were designated as cash flow hedges.

In September 2017, immediately following the debt refinancing, the Company determined the likelihood of the hedged transactions occurring was not probable and de-designated the interest rate swaps as cash flow hedges and terminated the interest rate swaps for a cash payment of approximately \$4.7 million. There were no interest rate swaps outstanding as of December 31, 2017. The cash flows associated with the cash flow hedges are reported in net cash provided by operating activities in the accompanying consolidated statement of cash flows. Up to the date of the termination, the Company utilized hedge accounting, which allows for the effective portion of the interest rate swaps to be recorded in accumulated other comprehensive income or loss ("AOCI") in the accompanying consolidated balance sheet. At the date the Company de-designated the swaps as effective hedges, there was approximately \$2.9 million (net of tax of \$1.8 million) of unrealized losses remaining in AOCI, which were reclassified into debt financing and related expenses in the accompanying consolidated statement of operations during the third quarter of 2017.

As of December 31, 2017 and 2016, the fair value carrying amount of the Company's derivatives designated as hedging instruments are recorded as follows (dollars in thousands):

Derivatives designated as hedging instruments	Balance Sheet Caption	Asset / (Liability) Derivatives	
		December 31, 2017	December 31, 2016
Net Investment Hedges			
Cross-currency swaps	Other long-term liabilities	\$ (4,110)	\$ —
Cash Flow Hedges			
Interest rate swaps	Prepaid expenses and other current assets	—	160
Interest rate swaps	Accrued liabilities	—	(870)
Interest rate swaps	Other long-term liabilities	—	(3,360)
Total derivatives designated as hedging instruments		\$ (4,110)	\$ (4,070)

TRIMAS CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The following table summarizes the loss recognized in accumulated other comprehensive income ("AOCI") on derivative contracts designated as hedging instruments as of December 31, 2017 and 2016, and the amounts reclassified from AOCI into earnings for the years ended December 31, 2017, 2016 and 2015 (dollars in thousands):

	Amount of Loss Recognized in AOCI on Derivative (Effective Portion, net of tax)		Location of Loss Reclassified from AOCI into Earnings (Effective Portion)	Amount of Loss Reclassified from AOCI into Earnings		
	As of December 31,			Year ended December 31,		
	2017	2016		2017	2016	2015
Net Investment Hedges						
Cross-currency swaps	\$ (3,170)	\$ —	Other expense, net	\$ —	\$ —	\$ —
Cash Flow Hedges						
Interest rate swaps	\$ —	\$ (2,520)	Interest expense	\$ (320)	\$ (670)	\$ (420)
			Debt financing and related expenses	\$ (4,680)	\$ —	\$ —
			Loss from discontinued operations	\$ —	\$ —	\$ (440)

Over the next 12 months, the Company does not expect to reclassify any pre-tax deferred losses from AOCI into earnings.

The fair value of the Company's derivatives are estimated using an income approach based on valuation techniques to convert future amounts to a single, discounted amount. Estimates of the fair value of the Company's interest rate swaps and cross-currency swaps use observable inputs such as interest rate yield curves and forward currency exchange rates. Fair value measurements and the fair value hierarchy level for the Company's assets and liabilities measured at fair value on a recurring basis as of December 31, 2017 and 2016 are shown below (dollars in thousands).

	Description	Frequency	Asset / (Liability)	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
December 31, 2017	Cross-currency swaps	Recurring	\$ (4,110)	\$ —	\$ (4,110)	\$ —
December 31, 2016	Interest rate swaps	Recurring	\$ (4,070)	\$ —	\$ (4,070)	\$ —

13. Leases

The Company leases certain equipment and facilities under non-cancelable operating leases. Rental expense for the Company totaled approximately \$16.7 million in 2017, \$17.4 million in 2016 and \$17.2 million in 2015.

Minimum payments for operating leases having initial or remaining non-cancelable lease terms in excess of one year at December 31, 2017 are summarized below (dollars in thousands):

Year ended December 31,	Minimum Payments
2018	\$ 13,960
2019	12,870
2020	12,010
2021	10,830
2022	7,430
Thereafter	19,850
Total	\$ 76,950

TRIMAS CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

14. Commitments and Contingencies

Environmental

The Company is subject to increasingly stringent environmental laws and regulations, including those relating to air emissions, wastewater discharges and chemical and hazardous waste management and disposal. Some of these environmental laws hold owners or operators of land or businesses liable for their own and for previous owners' or operators' releases of hazardous or toxic substances or wastes. Other environmental laws and regulations require the obtainment and compliance with environmental permits. To date, costs of complying with environmental, health and safety requirements have not been material. However, the nature of the Company's operations and the long history of industrial activities at certain of the Company's current or former facilities, as well as those acquired, could potentially result in material environmental liabilities.

While the Company must comply with existing and pending climate change legislation, regulation and international treaties or accords, current laws and regulations have not had a material impact on the Company's business, capital expenditures or financial position. Future events, including those relating to climate change or greenhouse gas regulation, could require the Company to incur expenses related to the modification or curtailment of operations, installation of pollution control equipment or investigation and cleanup of contaminated sites.

Asbestos

As of December 31, 2017, the Company was a party to 605 pending cases involving an aggregate of 5,256 claimants primarily alleging personal injury from exposure to asbestos containing materials formerly used in gaskets (both encapsulated and otherwise) manufactured or distributed by certain of its subsidiaries for use primarily in the petrochemical refining and exploration industries. The following chart summarizes the number of claimants, number of claims filed, number of claims dismissed, number of claims settled, the average settlement amount per claim and the total defense costs, excluding amounts reimbursed under the Company's primary insurance, at the applicable date and for the applicable periods:

	Claims pending at beginning of period	Claims filed during period	Claims dismissed during period	Claims settled during period	Average settlement amount per claim during period	Total defense costs during period
Fiscal year ended December 31, 2017	5,339	173	231	25	\$ 8,930	\$ 2,280,000
Fiscal year ended December 31, 2016	6,242	140	1,009	34	\$ 15,624	\$ 2,920,000
Fiscal year ended December 31, 2015	7,992	266	1,990	26	\$ 16,963	\$ 3,160,000

In addition, the Company acquired various companies to distribute its products that had distributed gaskets of other manufacturers prior to acquisition. The Company believes that many of the pending cases relate to locations at which none of its gaskets were distributed or used.

The Company may be subjected to significant additional asbestos-related claims in the future, the cost of settling cases in which product identification can be made may increase, and the Company may be subjected to further claims in respect of the former activities of its acquired gasket distributors. The Company is unable to make a meaningful statement concerning the monetary claims made in the asbestos cases given that, among other things, claims may be initially made in some jurisdictions without specifying the amount sought or by simply stating the requisite or maximum permissible monetary relief, and may be amended to alter the amount sought. The large majority of claims do not specify the amount sought. Of the 5,256 claims pending at December 31, 2017, 49 set forth specific amounts of damages (other than those stating the statutory minimum or maximum). At December 31, 2017, of the 49 claims that set forth specific amounts, there were no claims seeking specific amounts for punitive damages. Below is a breakdown of the amount sought for those claims seeking specific amounts:

Range of damages sought (in millions)	Compensatory		
	\$0.0 to \$0.6	\$0.6 to \$5.0	\$5.0+
Number of claims	—	14	35

In addition, relatively few of the claims have reached the discovery stage and even fewer claims have gone past the discovery stage.

TRIMAS CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Total settlement costs (exclusive of defense costs) for all such cases, some of which were filed over 20 years ago, have been approximately \$8.5 million. All relief sought in the asbestos cases is monetary in nature. To date, approximately 40% of the Company's costs related to settlement and defense of asbestos litigation have been covered by its primary insurance. Effective February 14, 2006, the Company entered into a coverage-in-place agreement with its first level excess carriers regarding the coverage to be provided to the Company for asbestos-related claims when the primary insurance is exhausted. The coverage-in-place agreement makes asbestos defense costs and indemnity insurance coverage available to the Company that might otherwise be disputed by the carriers and provides a methodology for the administration of such expenses. Nonetheless, the Company believes it is likely that there will be a period within the next 12 months, prior to the commencement of coverage under this agreement and following exhaustion of the Company's primary insurance coverage, during which the Company likely will be solely responsible for defense costs and indemnity payments, the duration of which would be subject to the scope of damage awards and settlements paid.

Based on the settlements made to date and the number of claims dismissed or withdrawn for lack of product identification, the Company believes that the relief sought (when specified) does not bear a reasonable relationship to its potential liability. Based upon the Company's experience to date, including the trend in annual defense and settlement costs incurred to date, and other available information (including the availability of excess insurance), the Company does not believe that these cases will have a material adverse effect on its financial position and results of operations or cash flows.

Metaldyne Corporation

Prior to June 6, 2002, the Company was wholly-owned by Metaldyne Corporation ("Metaldyne"). In connection with the reorganization between TriMas and Metaldyne in June 2002, TriMas assumed certain liabilities and obligations of Metaldyne, mainly comprised of contractual obligations to former TriMas employees, tax related matters, benefit plan liabilities and reimbursements to Metaldyne of normal course payments to be made on TriMas' behalf.

On January 11, 2007, Metaldyne merged into a subsidiary of Asahi Tec Corporation ("Asahi") whereby Metaldyne became a wholly-owned subsidiary of Asahi. As a result of the merger, it was asserted that Metaldyne may be obligated to accelerate funding and payment of actuarially determined amounts owing to seven former Metaldyne executives under a supplemental executive retirement plan ("SERP"). On May 28, 2009, Metaldyne and its U.S. subsidiaries ("Debtors") filed voluntary petitions in the United States Bankruptcy Court under Chapter 11 of the U.S. Bankruptcy Code.

At December 31, 2017, TriMas has accrued an estimated liability to Metaldyne on its reported balance sheet of approximately \$8.0 million. However, if Metaldyne is required to accelerate funding of these liabilities, TriMas may be obligated to reimburse Metaldyne up to approximately \$10.4 million, which could result in future charges to the Company's consolidated statement of operations of up to \$2.4 million. The Metaldyne bankruptcy distribution trust is expected to terminate in 2018, at which time a final assessment of the liabilities will be determined. See Note 22, "Subsequent Event" for further information.

Claims and Litigation

The Company is subject to other claims and litigation in the ordinary course of business which the Company does not believe are material. In addition, a claim asserted against the Company by a competitor in 2014 alleged false advertising where, although no formal demand was made, the Company believed the competitor may have been seeking in excess of \$10 million. In 2015, the Company resolved the matter for approximately \$2.8 million, inclusive of attorney fees and expenses, and also recorded an insurance reimbursement of \$1.5 million related to this matter.

The Company does not believe claims and litigation will have a material adverse effect on its financial position and results of operations or cash flows.

15. Employee Benefit Plans*Pension and Profit-Sharing Benefits*

The Company provides a defined contribution profit sharing plan for the benefit of substantially all the Company's domestic salaried and non-union hourly employees. The plan contains both contributory and noncontributory profit sharing arrangements, as defined. Aggregate charges included in the accompanying consolidated statement of operations under this plan for both continuing and discontinued operations were approximately \$3.8 million, \$3.7 million and \$5.2 million in 2017, 2016 and 2015, respectively. Certain of the Company's foreign and union hourly employees participate in defined benefit pension plans.

TRIMAS CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Plan Assets, Expenses and Obligations

Plan assets, expenses and obligations for pension benefit plans disclosed herein include both continuing and discontinued operations.

Net periodic pension benefit expense recorded in the Company's consolidated statement of operations for defined benefit pension plans include the following components (dollars in thousands):

	Pension Benefit		
	2017	2016	2015
Service cost	\$ 1,150	\$ 950	\$ 890
Interest cost	1,290	1,510	1,580
Expected return on plan assets	(1,480)	(1,610)	(1,840)
Settlements and curtailments	—	1,330	2,750
Amortization of net loss	1,010	930	1,340
Net periodic benefit expense	<u>\$ 1,970</u>	<u>\$ 3,110</u>	<u>\$ 4,720</u>

During 2016, the Company recognized one-time settlement and curtailment charges of approximately \$1.3 million primarily due to lump sum payments in the United States and the United Kingdom.

During 2015, the Company recognized a one-time settlement charge associated with annuitizing the defined benefit obligations for certain current and former Cequent employees. The settlement charge of approximately \$2.8 million is included in the loss from discontinued operations in the accompanying consolidated statement of operations.

The estimated net actuarial loss and prior service cost for defined benefit pension plans that is expected to be amortized from accumulated other comprehensive loss into net periodic benefit expense in 2018 is approximately \$1.0 million.

Actuarial valuations of the Company's defined benefit pension plans were prepared as of December 31, 2017, 2016 and 2015. Weighted average assumptions used in accounting for the U.S. defined benefit pension plans are as follows:

	Pension Benefit		
	2017	2016	2015
Discount rate for obligations	3.76%	4.35%	4.62%
Discount rate for benefit costs	4.35%	4.62%	4.17%
Rate of increase in compensation levels	N/A	N/A	N/A
Expected long-term rate of return on plan assets	7.13%	7.13%	7.50%

The Company utilizes a high-quality (Aa or greater) corporate bond yield curve as the basis for its domestic discount rate for its pension benefit plans. Management believes this yield curve removes the impact of including additional required corporate bond yields (potentially considered in the above-median curve) resulting from the uncertain economic climate that does not necessarily reflect the general trend in high-quality interest rates.

Weighted average assumptions used in accounting for the non-U.S. defined benefit pension plans are as follows:

	Pension Benefit		
	2017	2016	2015
Discount rate for obligations	2.60%	2.80%	3.80%
Discount rate for benefit costs	2.80%	3.80%	3.70%
Rate of increase in compensation levels	3.30%	3.90%	3.90%
Expected long-term rate of return on plan assets	4.60%	4.90%	4.90%

TRIMAS CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The following provides a reconciliation of the changes in the Company's defined benefit pension plans' projected benefit obligations and fair value of assets for each of the years ended December 31, 2017 and 2016 and the funded status as of December 31, 2017 and 2016 (dollars in thousands):

	Pension Benefit	
	2017	2016
Changes in Projected Benefit Obligations		
Benefit obligations at January 1	\$ (37,640)	\$ (38,240)
Service cost	(1,150)	(950)
Interest cost	(1,290)	(1,510)
Participant contributions	(60)	(60)
Actuarial gain (loss)	990	(4,080)
Benefit payments	1,320	1,250
Settlements and curtailments	710	2,360
Change in foreign currency	(1,910)	3,590
Projected benefit obligations at December 31	\$ (39,030)	\$ (37,640)
Changes in Plan Assets		
Fair value of plan assets at January 1	\$ 26,260	\$ 28,270
Actual return on plan assets	2,510	2,910
Employer contributions	3,170	1,890
Participant contributions	60	60
Benefit payments	(1,320)	(1,250)
Settlements	(710)	(2,530)
Change in foreign currency	1,790	(3,090)
Fair value of plan assets at December 31	\$ 31,760	\$ 26,260
Funded status at December 31	\$ (7,270)	\$ (11,380)
	Pension Benefit	
	2017	2016
Amounts Recognized in Balance Sheet		
Prepaid benefit cost	\$ 1,190	\$ 740
Current liabilities	(340)	(830)
Noncurrent liabilities	(8,120)	(11,290)
Net liability recognized at December 31	\$ (7,270)	\$ (11,380)
	Pension Benefit	
	2017	2016
Amounts Recognized in Accumulated Other Comprehensive Loss		
Unrecognized prior-service cost	\$ 50	\$ 60
Unrecognized net loss	15,600	17,910
Total accumulated other comprehensive loss recognized at December 31	\$ 15,650	\$ 17,970

TRIMAS CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

	Accumulated Benefit Obligations		Projected Benefit Obligations	
	2017	2016	2017	2016
Benefit Obligations at December 31,				
Total benefit obligations	\$ (36,720)	\$ (34,790)	\$ (39,030)	\$ (37,640)
Plans with benefit obligations exceeding plan assets				
Benefit obligations	\$ (18,420)	\$ (17,400)	\$ (18,440)	\$ (37,200)
Plan assets	9,980	7,880	9,980	25,080

The assumptions regarding discount rates and expected return on plan assets can have a significant impact on amounts reported for benefit plans. A 25 basis point change in benefit obligation discount rates or 50 basis point change in expected return on plan assets would have the following effect (dollars in thousands):

	Pension Benefit	
	December 31, 2017 Benefit Obligation	2017 Expense
Discount rate		
25 basis point increase	\$ (1,440)	\$ (100)
25 basis point decrease	\$ 1,560	\$ 110
Expected return on assets		
50 basis point increase	N/A	\$ (160)
50 basis point decrease	N/A	\$ 160

The Company expects to make contributions of approximately \$2.3 million to fund its pension plans during 2018.

Plan Assets

The Company's overall investment goal is to provide for capital growth with a moderate level of volatility by investing assets in targeted allocation ranges. Specific long term investment goals include total investment return, diversity to reduce volatility and risk, and to achieve an asset allocation profile that reflects the general nature and sensitivity of the plans' liabilities. Investment goals are established after a comprehensive review of current and projected financial statement requirements, plan assets and liability structure, market returns and risks as well as special requirements of the plans. The Company reviews investment goals and actual results annually to determine whether stated objectives are still relevant and the continued feasibility of achieving the objectives.

The actual weighted average asset allocation of the Company's domestic and foreign pension plans' assets at December 31, 2017 and 2016 and target allocations by class, were as follows:

	Domestic Pension			Foreign Pension		
	Target	Actual		Target	Actual	
		2017	2016		2017	2016
Equity securities	60%	63%	59%	33%	30%	27%
Fixed income	36%	36%	38%	45%	46%	48%
Diversified growth ^(a)	—%	—%	—%	22%	24%	24%
Cash and other	4%	1%	3%	—	—%	1%
Total	100%	100%	100%	100%	100%	100%

^(a) Diversified growth funds invest in a broad range of asset classes including equities, investment grade and high yield bonds, commodities, property, private equity, infrastructure and currencies.

TRIMAS CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Actual allocations to each asset vary from target allocations due to periodic investment strategy changes, market value fluctuations and the timing of benefit payments and contributions. The expected long-term rate of return for both the domestic and foreign plans' total assets is based on the expected return of each of the above categories, weighted based on the target allocation for each class. Actual allocation is reviewed regularly and investments are rebalanced to their targeted allocation range when deemed appropriate.

In managing the plan assets, the Company reviews and manages risk associated with the funded status risk, interest rate risk, market risk, liquidity risk and operational risk. Investment policies reflect the unique circumstances of the respective plans and include requirements designed to mitigate these risks by including quality and diversification standards.

The following table summarizes the level under the fair value hierarchy (see Note 3, "Summary of Significant Accounting Policies") that the Company's pension plan assets are measured, on a recurring basis as of December 31, 2017 (dollars in thousands):

	Total	Level 1	Level 2	Level 3
Plan assets subject to leveling				
Investment funds				
Fixed income	\$ 3,620	\$ 3,620	\$ —	\$ —
Cash and cash equivalents	60	60	—	—
Plan assets measured at net asset value^(a)				
Investment funds				
Equity securities	12,790			
Fixed income	10,150			
Diversified growth	4,960			
Cash and cash equivalents	180			
Total	\$ 31,760	\$ 3,680	\$ —	\$ —

^(a) Certain investments that are measured at fair value using the net asset value per share as a practical expedient have not been classified in the fair value hierarchy. The fair value amounts presented in this table are intended to permit reconciliation of the fair value hierarchy to the amount presented in the fair value of plan assets.

The following benefit payments, which reflect expected future service, as appropriate, are expected to be paid (dollars in thousands):

	Pension Benefit
December 31, 2018	\$ 1,460
December 31, 2019	1,450
December 31, 2020	1,570
December 31, 2021	1,540
December 31, 2022	1,640
Years 2023-2027	9,180

TRIMAS CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

16. Equity Awards

The Company maintains the following long-term equity incentive plans (collectively, the "Plans"):

Plan Names	Shares Approved for Issuance
TriMas Corporation 2017 Equity and Incentive Compensation Plan	2,000,000
TriMas Corporation Director Retainer Share Election Program	100,000

The Company previously maintained the 2006 Long Term Equity Incentive Plan, which expired in 2016, and the 2011 Omnibus Incentive Compensation Plan, which was replaced by the TriMas Corporation 2017 Equity and Incentive Compensation Plan in 2017, such that, while existing grants remain outstanding until exercised, vested or canceled, no new shares may be issued under these plans.

Spin-off of the Cequent businesses

On June 30, 2015, due to the spin-off of the Cequent businesses, stock options and restricted shares previously granted to Cequent participants were cancelled and transferred to Horizon. On July 1, 2015, the Company adjusted the number of shares outstanding, and the exercise price of stock options, as required by the anti-dilution provisions of the Plans, to maintain the intrinsic value of the outstanding equity awards immediately post spin-off.

Stock Options

The Company granted 150,000 stock option awards in 2016. The Company estimated the grant-date fair value of the awards using the Black-Scholes option pricing model using the following weighted average assumptions: risk-free rate of 1.1%, expected volatility of 32.3%, and an expected term of six years. The Company did not grant any stock options during 2017 and 2015.

Information related to stock options at December 31, 2017 is as follows:

	Number of Stock Options	Weighted Average Option Price	Average Remaining Contractual Life (Years)	Aggregate Intrinsic Value
Outstanding at January 1, 2017	206,854	\$ 13.19		
Granted	—	—		
Exercised	—	—		
Cancelled	—	—		
Expired	—	—		
Outstanding at December 31, 2017	206,854	\$ 13.19	6.5	\$ 2,803,950

As of December 31, 2017, 106,854 stock options outstanding were exercisable under the Plans. There was approximately \$0.3 million of unrecognized compensation cost related to stock options that is expected to be recorded over a weighted average period of 1.6 years. Stock options of 50,000 vested during 2017, while no options vested during 2016 and 2015.

The Company recognized approximately \$0.5 million and \$0.3 million of stock-based compensation expense related to stock options during 2017 and 2016, respectively and no significant stock-based compensation expense during 2015. The stock-based compensation expense is included in selling, general and administrative expenses in the accompanying consolidated statement of income.

Restricted Shares

The Company awarded 2,800 and 1,760 restricted stock grants to certain employees during 2016 and 2015, respectively. These shares are subject only to a service condition and vest on the first anniversary date of the award so long as the employee remains with the Company.

TRIMAS CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

During 2017, 2016 and 2015, the Company issued 189,062, 235,251 and 209,825 shares, respectively, of its common stock to certain employees which are subject only to a service condition and vest ratably over three years so long as the employee remains with the Company.

The Company awarded 42,740 and 42,937 restricted shares of common stock to certain employees during 2016 and 2015, respectively. These shares are subject only to a service condition and vest on the first anniversary date of the award. The awards were made to participants in the Company's Short-Term Incentive Compensation Plan ("STI"), where all STI participants whose target STI annual award exceeds \$20 thousand receive 80% of the value earned in cash and 20% in the form of a restricted stock award upon finalization of the award amount in the first quarter each year following the previous plan year.

During 2017, 2016 and 2015, the Company granted 30,429, 41,174 and 32,040 shares, respectively, of its common stock to its non-employee independent directors, which vest one year from date of grant so long as the director and/or Company does not terminate their service prior to the vesting date.

During 2017, the Company awarded 111,761 performance-based shares of common stock to certain Company key employees which vest three years from the grant date so long as the employee remains with the Company. These awards are earned 50% based upon the Company's achievement of earnings per share compound annual growth rate ("EPS CAGR") metrics over a period beginning January 1, 2017 and ending December 31, 2019. The remaining 50% of the awards are earned based on the Company's total shareholder return ("TSR") relative to the TSR of the common stock of a pre-defined industry peer-group, measured over the performance period. TSR is calculated as the Company's average closing stock price for the 20-trading days at the end of the performance period plus Company dividends, divided by the Company's average closing stock price for the 20-trading days prior to the start of the performance period. The Company estimated the grant-date fair value and term of the awards subject to a market condition using a Monte Carlo simulation model, using the following weighted average assumptions: risk-free interest rate of 1.52% and annualized volatility of 35.6%. Depending on the performance achieved for these two metrics, the amount of shares earned, if any, can vary from 40% of the target award to a maximum of 200% of the target award for the EPS CAGR metric and 0% of the target award to a maximum of 200% of the target award for the TSR metric.

During 2016, the Company awarded 198,956 performance-based shares of common stock to certain Company key employees which vest three years from the grant date so long as the employee remains with the Company. The performance criteria for these awards is based on the Company's TSR relative to the TSR of the common stock of a pre-defined industry peer-group, measured over a period beginning January 1, 2016 and ending December 31, 2018. Depending on the performance achieved, the amount of shares earned can vary from 0% of the target award to a maximum of 200% of the target award. The Company estimated the grant-date fair value and term of the awards subject to a market condition using a Monte Carlo simulation model, using the following weighted average assumptions: risk-free interest rate of 0.96% and annualized volatility of 35.8%.

During 2015, the Company awarded 192,348 performance-based shares of common stock to certain Company key employees which vest on March 1, 2018, so long as the employee remains with the Company. The performance criteria for these awards is based on the Company's TSR relative to the TSR of the common stock of a pre-defined industry peer-group, measured over a period beginning September 10, 2015 and ending December 31, 2017. Depending on the performance achieved, the amount of shares earned can vary from 0% of the target award to a maximum of 200% of the target award. The Company estimated the grant-date fair value and term of the awards subject to a market condition using a Monte Carlo simulation model, using the following weighted average assumptions: risk-free interest rate of 0.85% and annualized volatility of 35.8%.

During 2015, the Company awarded performance-based shares of common stock to certain Company key employees which were earned based upon the Company's total TSR relative to the TSR of the common stock of a pre-defined industry peer-group and measured over a period beginning September 10, 2015 and ending on December 31, 2016. The Company attained 121.1% of the target on a weighted average basis, resulting in an increase of 12,718 shares during 2017.

The Company allows for its non-employee independent directors to make an annual election to defer all or a portion of their director fees and to receive the deferred amount in cash or equity. Certain of the Company's directors have elected to defer all or a portion of their director fees and to receive the amount in Company common stock at a future date. The Company issued 12,912, 16,588 and 11,026 shares in 2017, 2016 and 2015, respectively, related to director fee deferrals.

TRIMAS CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Information related to restricted shares at December 31, 2017 is as follows:

	Number of Unvested Restricted Shares	Weighted Average Grant Date Fair Value	Average Remaining Contractual Life (Years)	Aggregate Intrinsic Value
Outstanding at January 1, 2017	645,660	\$ 20.45		
Granted	356,882	24.97		
Vested	(241,013)	20.43		
Cancelled	(34,593)	22.06		
Outstanding at December 31, 2017	726,936	\$ 22.60	0.9	\$ 19,445,538

As of December 31, 2017, there was approximately \$5.7 million of unrecognized compensation cost related to unvested restricted shares that is expected to be recorded over a weighted average period of 2.0 years.

The Company recognized stock-based compensation expense related to restricted shares of approximately \$6.2 million, \$6.7 million and \$6.3 million in 2017, 2016, and 2015, respectively. The stock-based compensation expense is included in selling, general and administrative expenses in the accompanying statement of operations.

17. Earnings per Share

Net income is divided by the weighted average number of common shares outstanding during the year to calculate basic earnings per share. Diluted earnings per share is calculated to give effect to stock options and restricted share awards. For the years ended December 31, 2016 and 2015, no restricted shares or stock options were included in the computation of net income (loss) per share because to do so would be anti-dilutive. Restricted shares of 726,936, 645,660, and 765,314 and options to purchase 206,854, 206,854, and 206,123 shares of common stock were outstanding at December 31, 2017, 2016, and 2015, respectively. The following table summarizes the dilutive effect of restricted shares and options to purchase common stock:

	Year ended December 31,		
	2017	2016	2015
Weighted average common shares—basic	45,682,627	45,407,316	45,123,626
Dilutive effect of restricted share awards	241,974	—	—
Dilutive effect of stock options	65,651	—	—
Weighted average common shares—diluted	45,990,252	45,407,316	45,123,626

18. Other Comprehensive Income

Changes in AOCI by component for the year ended December 31, 2017 are summarized as follows, net of tax (dollars in thousands):

	Defined Benefit Plans	Derivative Instruments	Foreign Currency Translation	Total
Balance, December 31, 2016	\$ (12,120)	\$ (2,520)	\$ (9,760)	\$ (24,400)
Net unrealized gains (losses) arising during the period ^(a)	1,000	(3,750)	6,050	3,300
Less: Net realized losses reclassified to net income ^(b)	(670)	(3,100)	—	(3,770)
Net current-period other comprehensive income (loss)	1,670	(650)	6,050	7,070
Balance, December 31, 2017	\$ (10,450)	\$ (3,170)	\$ (3,710)	\$ (17,330)

^(a) Defined benefit plans, net of income tax of \$0.3 million. See Note 15, "Employee Benefit Plans," for additional details. Derivative instruments, net of income tax of \$1.3 million. See Note 12, "Derivative Instruments," for further details.

^(b) Defined benefit plans, net of income tax of \$0.3 million. See Note 15, "Employee Benefit Plans," for additional details. Derivative instruments, net of income tax of \$1.9 million. See Note 12, "Derivative Instruments," for further details.

TRIMAS CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Changes in AOCI by component for the year ended December 31, 2016 are summarized as follows, net of tax (dollars in thousands):

	Defined Benefit Plans	Derivative Instruments	Foreign Currency Translation	Total
Balance, December 31, 2015	\$ (12,370)	\$ (1,790)	\$ 2,860	\$ (11,300)
Net unrealized losses arising during the period ^(a)	(1,270)	(1,150)	(12,620)	(15,040)
Less: Net realized losses reclassified to net income ^(b)	(1,520)	(420)	—	(1,940)
Net current-period other comprehensive income (loss)	250	(730)	(12,620)	(13,100)
Balance, December 31, 2016	<u>\$ (12,120)</u>	<u>\$ (2,520)</u>	<u>\$ (9,760)</u>	<u>\$ (24,400)</u>

^(a) Defined benefit plans, net of income tax of \$0.3 million. See Note 15, "Employee Benefit Plans," for additional details. Derivative instruments, net of income tax expense of \$0.7 million. See Note 12, "Derivative Instruments," for further details.

^(b) Defined benefit plans, net of income tax of \$0.7 million. See Note 15, "Employee Benefit Plans," for additional details. Derivative instruments, net of income tax expense of \$0.3 million. See Note 12, "Derivative Instruments," for further details.

19. Segment Information

TriMas reports four segments: Packaging, Aerospace, Energy and Engineered Components. Each of these segments has discrete financial information that is regularly evaluated by TriMas' president and chief executive officer (chief operating decision maker) in determining resource, personnel and capital allocation, as well as assessing strategy and performance. The Company utilizes its proprietary TriMas Business Model as a standardized set of processes to manage and drive results and strategy across its multi-industry businesses.

Within the Company's reportable segments, there are no individual products or product families for which reported net sales accounted for more than 10% of the Company's consolidated net sales. See below for more information regarding the types of products and services provided within each reportable segment:

Packaging - Highly engineered steel and polymeric closure and dispensing systems for a range of end markets, including health, beauty and home care; industrial; and food and beverage.

Aerospace - Blind bolts, highly engineered specialty fasteners, temporary fasteners and other precision machined parts used in the commercial, business and military aerospace industries.

Energy - Metallic and non-metallic industrial sealant products and fasteners for the petroleum refining and petrochemical markets.

Engineered Components - High-pressure and low-pressure steel cylinders for the transportation, storage and dispensing of compressed gases, and natural gas engines, compressors, gas production equipment and chemical pumps engineered at well sites for the oil and gas industry.

TRIMAS CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Segment activity is as follows (dollars in thousands):

	Year ended December 31,		
	2017	2016	2015
Net Sales			
Packaging	\$ 344,570	\$ 341,340	\$ 334,270
Aerospace	184,310	174,920	176,480
Energy	161,580	158,990	193,390
Engineered Components	127,280	118,770	159,840
Total	\$ 817,740	\$ 794,020	\$ 863,980
Operating Profit (Loss)			
Packaging	\$ 80,380	\$ 77,840	\$ 78,470
Aerospace	26,190	(90,810)	28,320
Energy	(5,410)	(13,840)	(97,160)
Engineered Components	15,740	15,300	18,240
Corporate	(28,410)	(32,490)	(32,120)
Total	\$ 88,490	\$ (44,000)	\$ (4,250)
Capital Expenditures			
Packaging	\$ 17,140	\$ 19,880	\$ 13,670
Aerospace	3,370	3,950	5,010
Energy	3,090	2,800	7,610
Engineered Components	3,740	4,670	2,320
Corporate	9,460	30	50
Total	\$ 36,800	\$ 31,330	\$ 28,660
Depreciation and Amortization			
Packaging	\$ 21,630	\$ 22,120	\$ 20,920
Aerospace	14,530	14,090	13,290
Energy	6,550	4,280	4,790
Engineered Components	3,980	4,090	4,200
Corporate	180	280	340
Total	\$ 46,870	\$ 44,860	\$ 43,540
Total Assets			
Packaging	\$ 431,680	\$ 423,460	\$ 418,810
Aerospace	401,060	409,040	517,820
Energy	96,320	100,590	128,170
Engineered Components	76,520	78,570	88,320
Corporate	27,620	39,990	17,180
Total	\$ 1,033,200	\$ 1,051,650	\$ 1,170,300

TRIMAS CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The following table presents the Company's net sales for each of the years ended December 31 and long-lived assets at each year ended December 31, attributed to each subsidiary's continent of domicile (dollars in thousands).

	As of December 31,					
	2017		2016		2015	
	Net Sales	Long-lived Assets	Net Sales	Long-lived Assets	Net Sales	Long-lived Assets
Non-U.S.						
Europe	\$ 62,360	\$ 54,790	\$ 65,490	\$ 45,050	\$ 70,760	\$ 50,930
Asia Pacific	36,630	51,120	32,230	51,060	30,280	49,830
Other Americas	15,260	7,930	13,620	7,800	17,000	5,840
Total non-U.S.	114,250	113,840	111,340	103,910	118,040	106,600
Total U.S.	703,490	590,020	682,680	604,250	745,940	727,320
Total	\$ 817,740	\$ 703,860	\$ 794,020	\$ 708,160	\$ 863,980	\$ 833,920

The Company's export sales from the U.S. approximated \$79.8 million, \$76.2 million and \$82.7 million in 2017, 2016 and 2015, respectively.

20. Income Taxes

The Company's income (loss) before income taxes and income tax expense (benefit) from continuing operations, each by tax jurisdiction, consists of the following (dollars in thousands):

	Year ended December 31,		
	2017	2016	2015
Income (loss) before income taxes:			
Domestic	\$ 50,760	\$ (69,850)	\$ (3,150)
Foreign	15,450	11,620	(18,970)
Total income (loss) before income taxes	\$ 66,210	\$ (58,230)	\$ (22,120)
Current income tax expense:			
Federal	\$ 12,800	\$ 7,560	\$ 12,150
State and local	1,770	1,920	1,080
Foreign	5,420	4,250	2,060
Total current income tax expense	19,990	13,730	15,290
Deferred income tax expense (benefit):			
Federal	15,180	(28,180)	(1,980)
State and local	1,280	(2,550)	(1,530)
Foreign	(1,200)	(1,430)	(5,240)
Total deferred income tax expense	15,260	(32,160)	(8,750)
Income tax expense (benefit)	\$ 35,250	\$ (18,430)	\$ 6,540

TRIMAS CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The components of deferred taxes are as follows (dollars in thousands):

	December 31, 2017	December 31, 2016
Deferred tax assets:		
Accounts receivable	\$ 1,000	\$ 780
Inventories	5,230	6,410
Goodwill and other intangible assets	—	3,120
Accrued liabilities and other long-term liabilities	20,350	26,110
Tax loss and credit carryforwards	7,290	6,680
Gross deferred tax asset	33,870	43,100
Valuation allowances	(6,400)	(5,670)
Net deferred tax asset	27,470	37,430
Deferred tax liabilities:		
Property and equipment	(16,380)	(14,580)
Goodwill and other intangible assets	(5,350)	—
Investment in foreign affiliates, including withholding tax	(740)	(1,140)
Other, principally deferred income	(1,550)	(1,330)
Gross deferred tax liability	(24,020)	(17,050)
Net deferred tax asset	\$ 3,450	\$ 20,380

The following is a reconciliation of income tax expense (benefit) computed at the U.S. federal statutory rate to income tax expense (benefit) allocated to income (loss) from continuing operations before income taxes (dollars in thousands):

	Year ended December 31,		
	2017	2016	2015
U.S. federal statutory rate	35%	35%	35%
Tax at U.S. federal statutory rate	\$ 23,170	\$ (20,380)	\$ (7,740)
State and local taxes, net of federal tax benefit	2,250	(550)	(520)
Differences in statutory foreign tax rates	(2,580)	(1,930)	110
Change in recognized tax benefits	(480)	(1,410)	(460)
Goodwill and other intangible assets impairment	—	5,050	11,430
Nontaxable income	(1,050)	(310)	(980)
Research and manufacturing incentives	(1,510)	(830)	(1,680)
Tax on undistributed foreign earnings	(430)	340	610
Net change in valuation allowance	520	2,140	3,770
Tax Reform Act	12,660	—	—
Other, net	2,700	(550)	2,000
Income tax expense (benefit)	\$ 35,250	\$ (18,430)	\$ 6,540

The Company has recorded deferred tax assets on \$43.4 million of various state operating loss carryforwards and \$19.5 million of various foreign operating loss carryforwards. The majority of the state tax loss carryforwards expire between 2024 and 2028 and the majority of the foreign losses have indefinite carryforward periods.

The Company has not made a provision for U.S. or additional foreign withholding taxes related to investments in foreign subsidiaries that are indefinitely reinvested since any excess of the amount for financial reporting over the tax basis in these investments is not significant as of December 31, 2017.

TRIMAS CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Tax Reform

On December 22, 2017 the Tax Reform Act was signed into law, and, among the provisions, reduces the Federal statutory corporate income tax rate from 35% to 21% effective January 1, 2018, and implements a territorial tax system, imposing a one-time tax on the deemed repatriation of undistributed earnings of non-U.S. subsidiaries.

In connection with the reduction in the Federal income tax rate, the Company revalued its ending net deferred tax assets as of December 31, 2017 and recognized \$3.7 million provisional tax expense.

In connection with the territorial tax change, the Company recognized a \$9.0 million provisional tax expense related to the deemed repatriation of approximately \$110.0 million of undistributed non-U.S. subsidiary earnings. This one-time mandatory tax is payable over eight years beginning in 2019.

On December 22, 2017, the SEC issued Staff Accounting Bulletin No. 118 ("SAB 118") to address the application of U.S. GAAP in situations when a registrant does not have the necessary information available, prepared, or analyzed (including computations) in reasonable detail to complete the accounting for certain income tax effects of the Tax Reform Act. The Company has recognized the provisional tax impacts related to deemed repatriated earnings and the revaluation of deferred tax assets and liabilities and included these amounts in its consolidated financial statements for the year ended December 31, 2017. The ultimate impact may differ from these provisional amounts, possibly materially, due to, among other things, additional analysis, changes in interpretations and assumptions the Company has made, and additional regulatory guidance that may be issued. The financial reporting impact is expected to be complete when the Company files its 2017 U.S. corporate income tax return in late 2018.

Unrecognized tax benefits

The Company has approximately \$3.4 million and \$3.6 million of unrecognized tax benefits ("UTBs") as of December 31, 2017 and 2016, respectively. If the UTBs were recognized, the impact to the Company's effective tax rate would be to reduce reported income tax expense for the years ended December 31, 2017 and 2016 by approximately \$2.8 million and \$3.0 million, respectively.

A reconciliation of the change in the UTBs and related accrued interest and penalties for the years ended December 31, 2017 and 2016 is as follows (dollars in thousands):

	Unrecognized Tax Benefits
Balance at December 31, 2015	\$ 4,610
Tax positions related to current year:	
Additions	120
Tax positions related to prior years:	
Additions	80
Reductions	(10)
Settlements	—
Lapses in the statutes of limitations	(1,230)
Balance at December 31, 2016	\$ 3,570
Tax positions related to current year:	
Additions	250
Tax positions related to prior years:	
Additions	860
Reductions	(100)
Settlements	—
Lapses in the statutes of limitations	(1,210)
Balance at December 31, 2017	\$ 3,370

In addition to the UTBs summarized above, the Company has recorded approximately \$1.7 million and \$2.0 million in potential interest and penalties associated with uncertain tax positions as of December 31, 2017 and 2016, respectively.

TRIMAS CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The Company is subject to U.S. federal, state and local, and certain non-U.S. income tax examinations for tax years 2010 through 2016. In addition, there are currently several state examinations and one foreign income tax examination in process. The Company does not believe that the results of these examinations will have a significant impact on the Company's tax position or its effective tax rate.

Management monitors changes in tax statutes and regulations and the issuance of judicial decisions to determine the potential impact to UTBs and is not aware of, nor does it anticipate, any material subsequent events that could have a significant impact on the Company's financial position during the next twelve months.

21. Summary Quarterly Financial Data

The Company's unaudited quarterly financial data is as follows (dollars in thousands, except for per share data):

	As of December 31, 2017			
	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Net sales	\$ 199,830	\$ 213,370	\$ 209,330	\$ 195,210
Gross profit	51,760	59,410	58,830	49,140
Net income (loss)	6,990	14,850	13,130	(4,010)
Earnings (loss) per share—basic:				
Net income (loss) per share	\$ 0.15	\$ 0.32	\$ 0.29	\$ (0.09)
Weighted average shares—basic	45,570,495	45,717,697	45,721,155	45,721,160
Earnings (loss) per share—diluted:				
Net income (loss) per share	\$ 0.15	\$ 0.32	\$ 0.29	\$ (0.09)
Weighted average shares—diluted	45,908,958	45,922,416	46,029,361	45,721,160

	As of December 31, 2016			
	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Net sales	\$ 202,880	\$ 203,320	\$ 202,290	\$ 185,530
Gross profit	55,920	57,080	58,050	39,430
Net income (loss) ^(a)	8,300	10,480	8,780	(67,360)
Earnings (loss) per share—basic:				
Net income (loss) per share	\$ 0.18	\$ 0.23	\$ 0.19	\$ (1.48)
Weighted average shares—basic	45,278,990	45,429,851	45,435,936	45,484,485
Earnings (loss) per share—diluted:				
Net income (loss) per share	\$ 0.18	\$ 0.23	\$ 0.19	\$ (1.48)
Weighted average shares—diluted	45,654,816	45,726,348	45,760,455	45,484,485

^(a) Net loss for the fourth quarter of 2016 includes pre-tax goodwill and indefinite-lived intangible asset impairment charges of \$98.9 million. See Note 7, "Goodwill and Other Intangible Assets", for further details.

TRIMAS CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

22. Subsequent Event

On January 11, 2018, the U.S. Bankruptcy Court entered a final decree to close all remaining cases and finalize the Metaldyne bankruptcy distribution trust. Any proof of claim filed against any of the Debtors subsequent to the entry of the final decree shall be deemed disallowed and expunged by the U.S. Bankruptcy Court. In consideration of this final decree, the Company expects to make a final assessment of its estimated liability in the first quarter of 2018. See Note 14, "*Commitments and Contingencies*" for further information.

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

Not applicable.

Item 9A. Controls and Procedures

Evaluation of disclosure controls and procedures

As of December 31, 2017, an evaluation was carried out by management, with the participation of our Chief Executive Officer and Chief Financial Officer, of the effectiveness of our disclosure controls and procedures (as such term is defined in Rule 13a-15(e) and Rule 15d-15(e) of the Securities Exchange Act of 1934 (the "Exchange Act")), pursuant to Rule 13a-15 of the Exchange Act. Our disclosure controls and procedures are designed only to provide reasonable assurance that they will meet their objectives. Based upon that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that as of December 31, 2017, the Company's disclosure controls and procedures were effective to provide reasonable assurance that they would meet their objectives.

Management's Annual Report on Internal Control Over Financial Reporting

Management is responsible for the preparation and fair presentation of the consolidated financial statements included in this annual report. The consolidated financial statements have been prepared in conformity with United States generally accepted accounting principles and reflect management's judgments and estimates concerning events and transactions that are accounted for or disclosed.

Management is also responsible for establishing and maintaining effective internal control over financial reporting. The Company's internal control over financial reporting includes those policies and procedures that pertain to the Company's ability to record, process, summarize, and report reliable financial data. Management recognizes that there are inherent limitations in the effectiveness of any internal control and effective internal control over financial reporting can provide only reasonable assurance with respect to financial statement preparation. Additionally, because of changes in conditions, the effectiveness of internal control over financial reporting may vary over time.

In order to ensure that the Company's internal control over financial reporting is effective, management regularly assesses such controls and did so most recently for its financial reporting as of December 31, 2017. Management's assessment was based on criteria for effective internal control over financial reporting described in Internal Control—Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this assessment, management asserts that the Company has maintained effective internal control over financial reporting as of December 31, 2017.

Deloitte & Touche LLP, an independent registered public accounting firm, who audited the Company's consolidated financial statements, has also audited the effectiveness of the Company's internal control over financial reporting as of December 31, 2017, as stated in their report below.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the shareholders and the Board of Directors of TriMas Corporation

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of TriMas Corporation and subsidiaries (the "Company") as of December 31, 2017, 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 Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2017, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements and financial statement schedule as of and for the year ended December 31, 2017, of the Company and our report dated February 27, 2018, expressed an unqualified opinion on those financial statements and financial statement schedule.

Basis for Opinion

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

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

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

Detroit, Michigan
February 27, 2018

Changes in disclosure controls and procedures

There have been no changes in the Company's internal control over financial reporting during the quarter ended December 31, 2017 that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

Item 9B. Other Information

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

Information regarding our executive officers is included in Part I of this Form 10-K under the heading “*Executive Officers of the Company.*”

The Company's Code of Ethics and Business Conduct is applicable to its directors, officers and employees. The Code of Ethics and Business Conduct is available on the "Investors" portion of the Company's website under the "Corporate Governance" link. The Company's website address is www.trimascorp.com.

The information required by this item is incorporated by reference from our definitive proxy statement for the 2018 Annual Meeting of Shareholders.

Item 11. Executive Compensation

The information required by this item is incorporated by reference from our definitive proxy statement for the 2018 Annual Meeting of Shareholders.

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

The information required by this item is incorporated by reference from our definitive proxy statement for the 2018 Annual Meeting of Shareholders.

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

The information required by this item is incorporated by reference from our definitive proxy statement for the 2018 Annual Meeting of Shareholders.

Item 14. Principal Accountant Fees and Services

The information required by this item is incorporated by reference from our definitive proxy statement for the 2018 Annual Meeting of Shareholders.

PART IV

Item 15. Exhibits and Financial Statement Schedules

(a) Listing of Documents

(1) Financial Statements

The Company's Financial Statements included in Item 8 hereof, as required at December 31, 2017 and December 31, 2016, and for the periods ended December 31, 2017, December 31, 2016 and December 31, 2015, consist of the following:

Balance Sheet
Statement of Operations
Statement of Comprehensive Income
Statement of Cash Flows
Statement of Shareholders' Equity
Notes to Financial Statements

(2) Financial Statement Schedules

Financial Statement Schedule of the Company appended hereto, as required for the periods ended December 31, 2017, December 31, 2016 and December 31, 2015, consists of the following:

Valuation and Qualifying Accounts

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

(3) Exhibits

See the Exhibits Index at the end of this Form 10-K, which is incorporated by reference.

Item 16. Form 10-K Summary

None.

SIGNATURES

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

TRIMAS CORPORATION
(Registrant)

DATE: February 27, 2018

BY: /s/ THOMAS A. AMATO
Name: Thomas A. Amato
Title: *President and Chief Executive Officer*

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.

<u>Name</u>	<u>Title</u>	<u>Date</u>
<u>/s/ THOMAS A. AMATO</u> Thomas A. Amato	President and Chief Executive Officer (Principal Executive Officer) and Director	February 27, 2018
<u>/s/ ROBERT J. ZALUPSKI</u> Robert J. Zalupski	Chief Financial Officer (Principal Financial Officer)	February 27, 2018
<u>/s/ PAUL A. SWART</u> Paul A. Swart	Vice President Business Planning, Controller and Chief Accounting Officer (Principal Accounting Officer)	February 27, 2018
<u>/s/ SAMUEL VALENTI III</u> Samuel Valenti III	Chairman of the Board of Directors	February 27, 2018
<u>/s/ RICHARD M. GABRYS</u> Richard M. Gabrys	Director	February 27, 2018
<u>/s/ NANCY S. GOUGARTY</u> Nancy S. Gougarty	Director	February 27, 2018
<u>/s/ EUGENE A. MILLER</u> Eugene A. Miller	Director	February 27, 2018
<u>/s/ HERBERT K. PARKER</u> Herbert K. Parker	Director	February 27, 2018
<u>/s/ NICK L. STANAGE</u> Nick L. Stanage	Director	February 27, 2018
<u>/s/ DANIEL P. TREDWELL</u> Daniel P. Tredwell	Director	February 27, 2018

SCHEDULE II
PURSUANT TO ITEM 15(a)(2)
OF FORM 10-K VALUATION AND QUALIFYING ACCOUNTS FOR THE YEARS ENDED
December 31, 2017, 2016 AND 2015

DESCRIPTION	BALANCE AT BEGINNING OF PERIOD	ADDITIONS		DEDUCTIONS ^(B)	BALANCE AT END OF PERIOD
		CHARGED TO COSTS AND EXPENSES	CHARGED (CREDITED) TO OTHER ACCOUNTS ^(A)		
Allowance for doubtful accounts deducted from accounts receivable in the balance sheet					
Year ended December 31, 2017	\$ 4,580,000	\$ 2,730,000	\$ (140,000)	\$ 3,040,000	\$ 4,130,000
Year ended December 31, 2016	\$ 3,710,000	\$ 2,770,000	\$ (90,000)	\$ 1,810,000	\$ 4,580,000
Year ended December 31, 2015	\$ 2,220,000	\$ 2,380,000	\$ (40,000)	\$ 850,000	\$ 3,710,000

^(A) Allowance of companies acquired, and other adjustments, net.

^(B) Deductions, representing uncollectible accounts written-off, less recoveries of amounts reserved in prior years.

Item 15. Exhibits.

Exhibits Index:

- 2.1(w) [Separation and Distribution Agreement, dated as of June 30, 2015, by and between Horizon Global Corporation and TriMas Corporation.**](#)
- 3.1(e) [Fourth Amended and Restated Certificate of Incorporation of TriMas Corporation.](#)
- 3.2(k) [Third Amended and Restated By-laws of TriMas Corporation.](#)
- 4.1(ai) [Indenture, dated as of September 20, 2017, among TriMas Corporation, the Guarantors named therein and Wells Fargo Bank, National Association, as Trustee \(including the Form of Note\).](#)
- 10.1(a) [Stock Purchase Agreement dated as of May 17, 2002, among Heartland Industrial Partners, L.P., TriMas Corporation and Metaldyne Company LLC.](#)
- 10.2(d) [Amendment No. 1 to Stock Purchase Agreement dated as of August 31, 2006, among Heartland Industrial Partners, L.P., TriMas Corporation and Metaldyne Corporation.](#)
- 10.3(f) [Amendment No. 2 to Stock Purchase Agreement dated as of November 27, 2006, among Heartland Industrial Partners, L.P., TriMas Corporation and Metaldyne Corporation.](#)
- 10.4(b) [Asset Purchase Agreement dated as of May 9, 2003, among TriMas Corporation, Metaldyne Corporation and Metaldyne Company LLC.](#)
- 10.5(r) [Credit Agreement, dated October 16, 2013, by and among TriMas Corporation, TriMas Company LLC and JPMorgan Chase bank, N.A., as Administrative Agent and Collateral Agent, and the various lenders from time to time thereto.](#)
- 10.6(v) [Incremental Facility Agreement and Amendment dated as of October 17, 2014, among TriMas Company LLC, the other Loan Parties party thereto, JPMorgan Chase Bank, N.A., as administrative agent, the Incremental Tranche A Term Lenders and the other Lenders party thereto.](#)
- 10.7(w) [Replacement Facility Amendment, dated as of June 30, 2015, among TriMas Company LLC, the other Loan Parties party thereto, JPMorgan Chase Bank, N.A., as administrative agent, and the Lenders party thereto.](#)
- 10.8(ag) [Foreign Subsidiary Borrowing Agreement and Amendment dated as of January 10, 2017, among TriMas Company LLC, TriMas Corporation, TriMas Corporation Limited, JPMorgan Chase Bank, N.A., as administrative agent for the Lenders \(as defined therein\) and as Fronting Lender, JPMorgan Chase Bank, N.A., Bank of America, N.A. and Wells Fargo Bank, National Association, J.P. Morgan Europe Limited, in its capacity as Foreign Currency Agent, and the Revolving Lenders party hereto.](#)
- 10.9(ag) [Amendment, dated as of March 8, 2017 to the Credit Agreement, dated as of October 16, 2013 \(as amended, amended and restated, supplemented or otherwise modified from time to time\), among TriMas Corporation, TriMas Company LLC, the subsidiary borrowers from time to time parties thereto, the Lenders party thereto, JPMorgan Chase Bank, N.A., as administrative agent, and the other agents party thereto.](#)
- 10.10(ai) [Replacement Facility Amendment, dated as September 20, 2017, among TriMas Company LLC, the other Loan Parties party thereto, JPMorgan Chase Bank, N.A., as administrative agent, and the Lenders party thereto.](#)
- 10.11(i) [Amended and Restated Receivables Purchase Agreement dated as of December 29, 2009, among TriMas Corporation, the Sellers named therein and TSPC, Inc. as Purchaser.](#)
- 10.12(m) [Amendment No. 1 dated as of September 15, 2011 to the Amended and Restated Receivables Purchase Agreement.](#)
- 10.13(n) [Amendment No. 2 dated as of December 21, 2011 to the Amended and Restated Receivables Purchase Agreement.](#)
- 10.14(n) [Amendment No. 3 dated as of June 29, 2012 to the Amended and Restated Receivables Purchase Agreement.](#)
- 10.15(t) [Amendment No. 4 dated as of April 17, 2014 to the Amended and Restated Receivables Purchase Agreement.](#)
- 10.16(x) [Amendment No. 5, effective as of February 28, 2015, to the Amended and Restated Receivables Purchase Agreement.](#)
- 10.17(z) [Amendment No. 6, effective as of June 29, 2015, to the Amended and Restated Receivables Purchase Agreement.](#)

10.18(m)	Amended and Restated Receivables Transfer Agreement dated as of September 15, 2011, among TSPC, Inc., as Transferor, TriMas Corporation, as Collection Agent, TriMas Company LLC, as Guarantor, the persons party thereto from time to time as Purchasers and Wells Fargo Bank, National Association, as LC Issuer and Administrative Agent.
10.19(n)	Amendment No. 1 dated as of June 29, 2012 to the Amended and Restated Receivables Transfer Agreement.
10.20(o)	Amendment No. 2 dated as of December 17, 2012 to the Amended and Restated Receivables Transfer Agreement.
10.21(t)	Amendment No. 3 dated as of April 17, 2014 to the Amended and Restated Receivables Transfer Agreement.
10.22(ab)	Amendment No. 4 dated as of November 26, 2014 to the Amended and Restated Receivables Transfer Agreement.
10.23(x)	Amendment No. 5, effective as of February 28, 2015, to the Amended and Restated Receivables Transfer Agreement.
10.24(z)	Amendment No. 6, effective as of June 29, 2015, to the Amended and Restated Receivables Transfer Agreement.
10.25(af)	Amendment No. 7, effective as of December 16, 2015, to the Amended and Restated Receivables Transfer Agreement.
10.26(ah)	Amendment No. 8, effective as of April 21, 2017, to the Amended and Restated Receivables Transfer Agreement.
10.27(t)	Second Amended and Restated Fee Letter dated as of April 17, 2014, among Wells Fargo Bank, National Association, as Administrative Agent, TSPC, Inc., as Transferor, TriMas Corporation, as Collection Agent, TriMas Company LLC, as Guarantor, and the persons from time to time party thereto as Purchasers.
10.28(ab)	Third Amended and Restated Fee Letter dated as of November 26, 2014, among Wells Fargo Bank, National Association, as Administrative Agent, TSPC, Inc., as Transferor, TriMas Corporation, as Collection Agent, TriMas Company LLC, as Guarantor, and the persons from time to time party thereto as Purchasers.
10.29(af)	Fourth Amended and Restated Fee Letter dated as of June 29, 2015, among Wells Fargo Bank, National Association, as Administrative Agent, TSPC, Inc., as Transferor, TriMas Corporation, as Collection Agent, TriMas Company LLC, as Guarantor, and the persons from time to time party thereto as Purchasers.
10.30(af)	Fifth Amended and Restated Fee Letter dated as of December 16, 2015, among Wells Fargo Bank, National Association, as Administrative Agent, TSPC, Inc., as Transferor, TriMas Corporation, as Collection Agent, TriMas Company LLC, as Guarantor, and the persons from time to time party thereto as Purchasers.
10.31(c)	2004 Form of Indemnification Agreement.*
10.32(ah)	Sixth Amended and Restated Fee Letter, dated as of April 21, 2017, among Wells Fargo Bank, National Association, as Administrative Agent, TSPC, Inc., as Transferor, TriMas Corporation, as Collection Agent, TriMas Company LLC, as Guarantor, and the persons from time to time party thereto as Purchasers.
10.33(j)	TriMas Corporation 2006 Long Term Equity Incentive Plan Composite Plan Document.*
10.34(g)	TriMas Corporation Long Term Equity Incentive Plan Non-Qualified Stock Option Agreement.*
10.35(h)	Flexible Cash Allowance Policy.*
10.36(l)	2011 TriMas Corporation Omnibus Incentive Compensation Plan.*
10.37(p)	Amendment No. 1 to the TriMas Corporation 2011 Omnibus Incentive Compensation Plan.*
10.38(ah)	TriMas Corporation 2017 Equity and Incentive Compensation Plan.
10.39(u)	Form of Restricted Stock Agreement - 2014 LTI - under the 2011 Omnibus Incentive Compensation Plan.*
10.40(u)	Form of Performance Stock Unit Agreement - 2014 LTI - under the 2011 Omnibus Incentive Compensation Plan.*
10.41(x)	Form of Restricted Stock Unit Agreement - 2015 (Three-Year Vest) - under the 2011 Omnibus Incentive Compensation Plan.*
10.42(aa)	Form of Performance Stock Unit Award - 2014 LTI (Second Half) - under the 2011 Omnibus Incentive Compensation Plan.*
10.43(aa)	Form of Performance Stock Unit Award - 2015 LTI - under the 2011 Omnibus Incentive Compensation Plan.*

10.44(q)	Executive Severance / Change of Control Policy.*
10.45(ac)	Form of Performance Stock Unit Agreement- 2016 LTI - under the 2006 Long Term Equity Incentive Plan.*
10.46(ac)	Form of Performance Stock Units Agreement - 2016 LTI - under the 2011 Omnibus Incentive Compensation Plan.*
10.47(ac)	Form of Restricted Stock Units Agreement (Three-Year Vest) - 2016 LTI - under the 2006 Long Term Equity Incentive Plan.*
10.48(ac)	Form of Restricted Stock Units Agreement (Three-Year Vest) - 2016 LTI - under the 2011 Omnibus Incentive Compensation Plan.*
10.49(ac)	Form of Restricted Stock Units Agreement (Board Of Directors),(One-Year Vest) - 2016 LTI - under the 2011 Omnibus Incentive Compensation Plan.*
10.50(ac)	Form of Restricted Stock Units Agreement (Key Personnel).(Three-Year Vest) - 2016 LTI - under the 2006 Long Term Equity Incentive Plan.*
10.51(ac)	Form of Restricted Stock Unit Agreement (Key Personnel).(Three-Year Vest) - 2016 LTI - under the 2011 Omnibus Incentive Compensation Plan.*
10.52(ac)	Form of Restricted Stock Unit Agreement (One-Year Vest) - 2016 LTI - under the 2011 Omnibus Incentive Compensation Plan.*
10.53(ac)	Form of Restricted Stock Unit Agreement (One-Year Vest) - 2016 LTI - under the 2006 Long Term Equity Incentive Plan.*
10.54(ae)	Form of Non-Qualified Stock Option Agreement under the 2011 Omnibus Incentive Compensation Plan.*
10.55(ag)	Form of Performance Stock Units Agreement - 2017 LTI - under the 2011 Omnibus Incentive Compensation Plan.
10.56(ag)	Form of Restricted Stock Units Agreement (Three-Year Vest) - 2017 LTI - under the 2011 Omnibus Incentive Compensation Plan.
10.57(ag)	Form of Restricted Stock Units Agreement (Board Of Directors),(One-Year Vest) - 2017 LTI - under the 2011 Omnibus Incentive Compensation Plan.
10.58(s)	2013 Form of Indemnification Agreement.*
10.59(y)	Settlement Agreement, dated as of February 24, 2015, by and among TriMas Corporation and Engaged Capital Master Feeder I, LP, Engaged Capital Master Feeder II, LP, Engaged Capital I, LP, Engaged Capital I Offshore, Ltd., Engaged Capital II, LP, Engaged Capital, LLC, Engaged Capital Holdings, LLC, Glenn Welling and Herbert Parker.
10.60(ad)	Amended and Restated Agreement dated April 13, 2016, by and among TriMas Corporation and Engaged Capital Master Feeder I, LP, Engaged Capital Master Feeder II, LP, Engaged Capital I, LP, Engaged Capital I Offshore, Ltd., Engaged Capital II, LP, Engaged Capital, LLC, Engaged Capital Holdings, LLC, and Glenn Welling.
10.61(w)	Tax Sharing Agreement, dated as of June 30, 2015, by and between Horizon Global Corporation and TriMas Corporation.
10.62(w)	Employee Matters Agreement, dated as of June 30, 2015, by and between Horizon Global Corporation and TriMas Corporation.
10.63(w)	Transition Services Agreement, dated as of June 30, 2015, by and between Horizon Global Corporation and TriMas Corporation.
10.64(w)	Noncompetition and Nonsolicitation Agreement, dated as of June 30, 2015, by and between Horizon Global Corporation and TriMas Corporation.
10.65(ae)	Separation and Release Agreement between TriMas Corporation and David M. Wathen dated August 8, 2016.
10.66(ae)	Offer Letter between TriMas Corporation and Thomas A. Amato dated July 23, 2016.
10.67(aj)	Separation and Release Agreement between TriMas Corporation and Colin Hindman dated November 9, 2016.
21.1	TriMas Corporation Subsidiary List.
23.1	Consent of Independent Registered Public Accounting Firm.
31.1	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.

32.1	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	XBRL Instance Document.
101.SCH	XBRL Taxonomy Extension Schema Document.
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document.
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document.
101.LAB	XBRL Taxonomy Extension Label Linkbase Document.
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document.

*Management contracts and compensatory plans or arrangements required to be filed as an exhibit pursuant to Item 15(b) of Form 10-K.

** Certain exhibits and schedules have been omitted and the Company agrees to furnish supplementally to the Securities and Exchange Commission a copy of any omitted exhibits and schedules upon request.

- (a) Incorporated by reference to the Exhibits filed with our Registration Statement on Form S-4 filed on October 4, 2002 (File No. 333-100351).
- (b) Incorporated by reference to the Exhibits filed with our Registration Statement on Form S-4 filed June 9, 2003 (File No. 333-105950).
- (c) Incorporated by reference to the Exhibits filed with Amendment No. 3 to our Registration Statement on Form S-1/A filed on June 29, 2004 (File No. 333-113917).
- (d) Incorporated by reference to the Exhibits filed with Amendment No. 1 to our Registration Statement on Form S-1 filed on September 19, 2006 (File No. 333-136263).
- (e) Incorporated by reference to the Exhibits filed with our Quarterly Report on Form 10-Q filed on August 3, 2007 (File No. 001-10716).
- (f) Incorporated by reference to the Exhibits filed with our Quarterly Report on Form 10-Q filed on August 7, 2008 (File No. 001-10716).
- (g) Incorporated by reference to the Exhibits filed with our Report on Form 8-K filed on March 6, 2009 (File No. 001-10716).
- (h) Incorporated by reference to the Exhibits filed with our Report on Form 8-K filed on December 10, 2009 (File No. 001-10716).
- (i) Incorporated by reference to the Exhibits filed with our Report on Form 8-K filed on January 15, 2010 (File No. 001-10716).
- (j) Incorporated by reference to the Exhibits filed with our Report on Form 8-K filed on March 26, 2010 (File No. 001-10716).
- (k) Incorporated by reference to the Exhibits filed with our Report on Form 8-K filed on December 18, 2015 (File No. 001-10716).
- (l) Incorporated by reference to the Exhibits filed with our Report on Form 8-K filed on April 4, 2011 (File No. 001-10716).
- (m) Incorporated by reference to the Exhibits filed with our Report on Form 8-K filed on September 21, 2011 (File No. 001-10716).
- (n) Incorporated by reference to the Exhibits filed with our Quarterly Report on Form 10-Q filed on July 30, 2012 (File No. 001-10716).
- (o) Incorporated by reference to the Exhibits filed with our Report on Form 8-K filed on December 20, 2012 (File No. 001-10716).
- (p) Incorporated by reference to Appendix A filed with our Definitive Proxy Statement on Schedule 14A filed on April 5, 2013 (File No. 001-10716).
- (q) Incorporated by reference to the Exhibits filed with our Report on Form 8-K filed on August 23, 2013 (File No. 001-10716).
- (r) Incorporated by reference to the Exhibits filed with our Report on Form 8-K filed on October 21, 2013 (File No. 001-10716).
- (s) Incorporated by reference to the Exhibits filed with our Report on Form 8-K filed on November 13, 2013 (File No. 001-10716).

- (t) Incorporated by reference to the Exhibits filed with our Current Report on Form 8-K filed on April 22, 2014 (File No. 001-10716).
- (u) Incorporated by reference to the Exhibits filed with our Quarterly Report on Form 10-Q filed on April 29, 2014 (File No. 001-10716).
- (v) Incorporated by reference to the Exhibits filed with our Current Report on Form 8-K filed on October 20, 2014 (File No. 001-10716).
- (w) Incorporated by reference to the Exhibits filed with our Current Report on Form 8-K filed on July 6, 2015 (File No. 001-10716).
- (x) Incorporated by reference to the Exhibits filed with our Quarterly Report on Form 10-Q filed on April 28, 2015 (File No. 001-10716).
- (y) Incorporated by reference to the Exhibits filed with our Current Report on Form 8-K filed on February 25, 2015 (File No. 001-10716).
- (z) Incorporated by reference to the Exhibits filed with our Quarterly Report on Form 10-Q filed on August 4, 2015 (File No. 001-10716).
- (aa) Incorporated by reference to the Exhibits filed with our Quarterly Report on Form 10-Q filed on October 29, 2015 (File No. 001-10716).
- (ab) Incorporated by reference to the Exhibits filed with our Annual Report on Form 10-K filed on February 26, 2015 (File No. 001-10716).
- (ac) Incorporated by reference to the Exhibits filed with our Quarterly Report on Form 10-Q filed on April 28, 2016 (File No. 001-10716).
- (ad) Incorporated by reference to the Exhibits filed with our Current Report on Form 8-K filed on April 15, 2016 (File No. 001-10716).
- (ae) Incorporated by reference to the Exhibits filed with our Quarterly Report on Form 10-Q filed on October 27, 2016 (File No. 001-10716).
- (af) Incorporated by reference to the Exhibits filed with our Annual Report on Form 10-K filed on February 26, 2016 (File No. 001-10716).
- (ag) Incorporated by reference to the Exhibits filed with our Quarterly Report on Form 10-Q filed on April 24, 2017 (File No. 001-10716).
- (ah) Incorporated by reference to the Exhibits filed with our Quarterly Report on Form 10-Q filed on July 27, 2017 (File No. 001-10716).
- (ai) Incorporated by reference to the Exhibits filed with our Current Report on Form 8-K filed on September 20, 2017 (File No. 001-10716).
- (aj) Incorporated by reference to the Exhibits filed with our Annual Report on Form 10-K filed on February 28, 2017 (File No. 001-10716).

TriMas Corporation Significant⁽¹⁾ Subsidiary List

Allfast Fastening Systems, LLC (California limited liability company)

Arrow Engine Company (Delaware corporation)

Lamons Gasket Company (Delaware corporation)

Monogram Aerospace Fasteners, Inc. (Delaware corporation)

Norris Cylinder Company (Delaware corporation)

Rieke Corporation (Indiana corporation)

Certain companies may also use trade names or other assumed names in the conduct of their business.

⁽¹⁾ As defined in Rule 1-02(w) of Regulation S-X, and other more significant operating companies as determined by management

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statements No. 333-145815, 333-169321, 333-179761, 333-190665, 333-190666 and 333-218867 of our reports dated February 27, 2018, relating to the consolidated financial statements and financial statement schedule of TriMas Corporation and subsidiaries, and the effectiveness of TriMas Corporation's internal control over financial reporting, appearing in the Annual Report on Form 10-K of TriMas Corporation for the year ended December 31, 2017.

/s/ Deloitte & Touche LLP

Detroit, Michigan
February 27, 2018

Certification
Pursuant to Section 302 of The Sarbanes-Oxley Act of 2002
(Chapter 63, Title 18 U.S.C. Section 1350(A) and (B))

I, Thomas A. Amato, certify that:

1. I have reviewed this annual report on Form 10-K of TriMas Corporation;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I am responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(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: February 27, 2018

/s/ THOMAS A. AMATO

Thomas A. Amato
Chief Executive Officer

Certification
Pursuant to Section 302 of The Sarbanes-Oxley Act of 2002
(Chapter 63, Title 18 U.S.C. Section 1350(A) and (B))

I, Robert J. Zalupski, certify that:

1. I have reviewed this annual report on Form 10-K of TriMas Corporation;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I am responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(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: February 27, 2018

/s/ ROBERT J. ZALUPSKI

Robert J. Zalupski
Chief Financial Officer

**Certification Pursuant to
18 U.S.C. Section 1350,
As Adopted Pursuant to
Section 906 of the Sarbanes-Oxley Act of 2002**

In connection with the Annual Report of TriMas Corporation (the "Company") on Form 10-K for the period ended December 31, 2017 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Thomas A. Amato, Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that to the best of my knowledge:

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

Date: February 27, 2018

/s/ THOMAS A. AMATO

Thomas A. Amato
Chief Executive Officer

**Certification Pursuant to
18 U.S.C. Section 1350,
As Adopted Pursuant to
Section 906 of the Sarbanes-Oxley Act of 2002**

In connection with the Annual Report of TriMas Corporation (the "Company") on Form 10-K for the period ended December 31, 2017 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Robert J. Zalupski, Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that to the best of my knowledge:

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

Date: February 27, 2018

/s/ ROBERT J. ZALUPSKI

Robert J. Zalupski
Chief Financial Officer