

CIRCOR INTERNATIONAL INC  
Form 10-K  
February 21, 2017

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

FORM 10-K  
x ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2016

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 001-14962

CIRCOR INTERNATIONAL, INC.  
(Exact name of registrant as specified in its charter)

Delaware	04-3477276
(State or Other Jurisdiction of Incorporation or Organization)	(I.R.S. Employer Identification No.)
c/o CIRCOR, Inc. 30 Corporate Drive, Suite 200, Burlington, MA	01803-4238
(Address of principal executive offices)	(Zip Code)

(781) 270-1200  
(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12 (b) of the Act:  
Common Stock, par value \$0.01 per share (registered on the New York Stock Exchange)  
Securities registered pursuant to Section 12 (g) of the Act: None

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

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

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Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to 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 (§ 229.405 of this chapter) 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, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer", and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

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

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

The aggregate market value of voting stock held by non-affiliates of the registrant as of June 30, 2016 was \$915,061,573. The registrant does not have any non-voting common equity.

As of February 10, 2017, there were 16,371,775 shares of the registrant's Common Stock outstanding.

#### DOCUMENTS INCORPORATED BY REFERENCE

Part III incorporates by reference certain portions of the information from the registrant's definitive Proxy Statement for the 2016 Annual Meeting of Stockholders to be held on May 10, 2017. The definitive Proxy Statement will be filed with the Securities and Exchange Commission within 120 days of the close of the registrant's year ended December 31, 2016.

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## Part I

### Item 1. Business

This Annual Report on Form 10-K contains certain statements that are “forward-looking statements” as that term is defined under the Private Securities Litigation Reform Act of 1995 (the “Act”). The words “may,” “hope,” “should,” “expect,” “plan,” “anticipate,” “intend,” “believe,” “estimate,” “predict,” “potential,” “continue,” and other expressions which are predictive or indicate future events and trends and which do not relate to historical matters, identify forward-looking statements. We believe that it is important to communicate our future expectations to our stockholders, and we, therefore, make forward-looking statements in reliance upon the safe harbor provisions of the Act. However, there may be events in the future that we are not able to accurately predict or control and our actual results may differ materially from the expectations we describe in our forward-looking statements. Forward-looking statements involve known and unknown risks, uncertainties and other factors, which may cause our actual results, performance or achievements to differ materially from anticipated future results, performance or achievements expressed or implied by such forward-looking statements. Factors that could cause or contribute to such differences include, changes in the price of and demand for Oil & Gas in both domestic and international markets, our ability to successfully integrate the businesses of Critical Flow Solutions (“CFS”), as contemplated, any adverse changes in governmental policies, variability of raw material and component pricing, changes in our suppliers’ performance, fluctuations in foreign currency exchange rates, our ability to hire and maintain key personnel, our ability to continue operating our manufacturing facilities at efficient levels including our ability to prevent cost overruns and continue to reduce costs, our ability to generate increased cash by reducing our working capital, our prevention of the accumulation of excess inventory, our ability to successfully implement our restructuring or simplification strategies, fluctuations in interest rates, our ability to continue to successfully defend product liability actions, as well as the uncertainty associated with the current worldwide economic conditions and the continuing impact on economic and financial conditions in the United States and around the world as a result of terrorist attacks, current Middle Eastern conflicts and related matters. For a discussion of these risks, uncertainties and other factors, see Item 1A “Risk Factors”. We undertake no obligation to publicly update or revise any forward-looking statement, whether as a result of new information, future events or otherwise.

#### Overview

CIRCOR International, Inc. was incorporated under the laws of Delaware on July 1, 1999. As used in this report, the terms “we,” “us,” “our,” the “Company” and “CIRCOR” mean CIRCOR International, Inc. and its subsidiaries (unless the context indicates another meaning). The term “common stock” means our common stock, par value \$0.01 per share.

We design, manufacture and market flow control solutions and other highly engineered products and sub-systems for markets including Oil & Gas, Aerospace, power and process, and industrial solutions. CIRCOR has a diversified product portfolio with recognized, market-leading brands that fulfill its customers’ unique application needs. The Company’s strategy is to grow organically and through complementary acquisitions; simplify CIRCOR’s operations; achieve world class operational excellence; and attract and retain top industry talent. We have a global presence and operate 19 major manufacturing facilities that are located in North America, Western Europe, Morocco, and India. During the fourth quarter of 2016, the Company realigned its organizational structure from Energy and Aerospace & Defense to the following reportable business segments: CIRCOR Energy (“Energy segment” or “Energy”) and CIRCOR Advanced Flow Solutions (“Advanced Flow Solutions segment” or “AFS”). We sell our products through approximately 800 distributors or representatives as well as directly to end-user customers.

#### Strategies

Our objective is to enhance shareholder value by focusing on growth, margin expansion, strong free cash flow, and disciplined capital deployment. We have a four-point strategy to achieve these objectives.

1) Growth Organically and Through Acquisitions. We leverage the power of our global design capabilities to develop innovative products that solve our customers' most challenging and critical problems. New products will be an increasingly important part of our growth strategy going forward. In addition, we are positioning ourselves to grow in parts of our end markets where our products are under-represented. This could include establishing a presence in higher growth geographies where we have a limited presence today. It also could include taking products established in one end-market (e.g., distributed valves) and selling those solutions into other relevant end markets (e.g., large international projects in Oil & Gas).

In addition to organic growth, we expect to acquire businesses over time. We are primarily focused on companies with differentiated technologies in complementary markets that we already understand and where we expect substantial growth. In addition to strategic fit, the main criterion for an acquisition is return on invested capital.

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2) Simplify CIRCOR. In 2013 we embarked on a long-term journey to simplify CIRCOR. We have a large number of facilities relative to our size and believe that simplifying this structure will not only expand our margins by reducing cost, but will help us improve our customer service, operations, and controls. We continue to drive product management by obtaining in depth understanding of our customer needs and competitor capabilities in our end markets. Based on that understanding, we executed an innovative product, price and channel strategy that will allow us to drive above market growth.

3) Achieve World Class Operational Excellence. Our Global Operations and Supply Chain organization is fully committed to achieving operational excellence in support of our customers' expectations of perfect quality, on-time delivery and market competitiveness. We follow the CIRCOR Operating System ("COS") which creates a disciplined culture of continuous improvement for driving operational excellence in the quality and delivery of our products and services. COS is comprised of ten business process attributes designed to engage and empower our employees to recognize and eliminate waste, work real-time problem solving as part of their everyday job experience, and enhance our performance both in operations and business office processes. Under COS our employees participate in a regimented training program and receive regular prescriptive assessments / action plans to drive process maturity. Quantitative performance metrics will define site certification levels to attain and sustain a level of quality, productivity and market competitiveness that delights our customers, shareholders, and employees.

4) Build the Best Team. Finally, we have a fundamental belief at CIRCOR that the best team wins. We are committed to attracting the most talented people in our industry and we are committed to investing, engaging, challenging and developing our employees. We believe the best people combined with robust process, appropriate metrics, and individual accountability will deliver extraordinary results.

#### Acquisitions

On October 12, 2016, the Company acquired all of the outstanding units of Critical Flow Solutions ("CFS"). On April 15, 2015, we acquired all of the outstanding equity interest of Germany-based Schroedahl GmbH ("Schroedahl"). See Note 3, "Business Acquisitions", of the consolidated financial statements for additional information.

#### Business Segments

During the fourth quarter of 2016, the Company realigned its Energy and Aerospace & Defense segments into Energy and Advanced Flow Solutions segments. Prior periods presented have been recasted to reflect the new realigned segment structure.

#### Energy

Energy is a global provider of highly engineered integrated flow control solutions, valves and services primarily in the Oil & Gas end market.

We are focused on satisfying our customers' mission-critical application needs by utilizing advanced technologies. Our flow control solutions can withstand extreme temperatures and pressures, including land-based, topside, and sub-sea applications. Energy is growing its product offering in the severe service sector, which includes applications such as process control, oil sands, pressure control and cryogenic applications.

We plan to grow Energy by expanding our capabilities in Oil & Gas - upstream, mid-stream and downstream, including through acquisitions.

Energy is headquartered in Houston, Texas and has manufacturing facilities in the North America, United Kingdom, Italy, and the Netherlands.

#### Markets and Applications

Energy serves an increasing range of energy-focused global markets. Key to our business strategy is targeting additional markets that can benefit from our innovative products and system solutions. Markets served today include Oil & Gas: upstream (on-shore and off-shore), mid-stream and downstream applications. The upstream and mid-stream markets are primarily served by our large international project and North American short-cycle businesses, and downstream markets are served primarily by our refinery valves and instrumentation and sampling businesses.

**Upstream Oil & Gas:** These markets commonly include all the equipment between the outlet on the wellhead to the mainline transmission pipeline and it also incorporates all the activities associated with the installation of this equipment.

**Mid-stream Oil & Gas:** This market begins at the mainline transmission pipeline and extends to the fence around the refinery or petrochemical plant. It includes certain ancillary equipment - as well as the gas processing plants that prepare and purify raw natural gas for entry into the major pipeline systems and Liquid Natural Gas (LNG) processes. This also includes value added engineering and pipeline services to the pipeline integrity market.

**Downstream Oil & Gas:** The downstream market includes the refining, distillation, stripping, degassing, dehydrating, desulpherizing, and purifying of the crude oil to its constituent components as well as the conversion of natural gas to methane.

**Non-Oil & Gas Market:** This market includes highly engineered, innovative, and value-added solutions in analytical and low-flow fluid control applications in a safety conscious, timely, and environmentally friendly manner.

## Brands

Energy provides its flow control solutions and services through the following significant brands:

Circle Seal Controls, CIRCOR Tech, Contromatics, DeltaValve, Dopak Sampling, GO Regulators, Hoke-Gyrolok, Hydroseal, KF Valves, Mallard Control, Pibiviesse, Pipeline Engineering, TapcoEnpro, and Texas Sampling.

## Products

Energy offers a range of flow control solutions (distributed and highly engineered) and services, including:

- Valves (from 1/8 inch to 64 inches in diameter)
- Engineered Trunion and Floating Ball Valves
- Gate, Globe and Check Valves
- Butterfly Valves
- Instrumentation Fittings and Sampling Systems, including Sight Glasses & Gauge Valves;
- Liquid Level Controllers, Liquid Level Switches, Plugs & Probes Pressure Controllers, Pressure Regulators;
- Pipeline pigs, quick opening closure, pig signalers; and
- Delayed coking unheading devices and fluid catalytic converter valves.

For our manufactured valve products, we are subject to applicable federal, state and local regulations. In addition, many of our customers require us to comply with certain industrial standards, including those issued by the American Petroleum Institute, International Organization for Standardization, Underwriters' Laboratory, American National Standards Institute, American Society of Mechanical Engineers, and the European Pressure Equipment Directive. We also need to meet standards that qualify us to be on authorized supplier lists with various global end users. In February 2017, our manufacturing facility in Milan, Italy received a notice from the American Petroleum Institute (API) that the facility no longer met its certification standards. We are evaluating the most expeditious process for recertification of our Milan facility. This notice does not impact any of our other facilities that hold the API certification. We do not currently expect this matter to have a material impact on our financial position or results of operations.

## Customers

Energy's products and services are sold to end-user customers, such as major oil companies, and Engineering, Procurement and Construction companies, through sales channels that include direct sales, sales representatives, distributors, and agents.



### Revenue and Backlog

Energy accounted for \$322.0 million, \$383.7 million and \$553.0 million, or 55%, 58% and 66%, of our net revenues for the years ended December 31, 2016, 2015 and 2014, respectively. Energy's backlog as of January 31, 2017 was \$140.0 million compared with \$134.7 million as of January 31, 2016. We expect to ship all but \$3.3 million of the January 31, 2017 backlog by December 31, 2017. Energy backlog represents backlog orders we believe to be firm.

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## Advanced Flow Solutions

Advanced Flow Solutions ("AFS") is a diversified flow control technology platform. Our primary product focus areas are valves, actuation, motors, switches, high pressure pneumatic systems, steam and process loop flow management solutions.

AFS products are used in aerospace, defense, power and process, and general industrial markets. These products are primarily focused on the following end markets: Aerospace and Defense, Power and Process, HVAC, Maritime and Industrial Gas.

We plan to grow Advanced Flow Solutions by increasing market share in existing and new markets through exceptional sales and customer service enabled by innovative, reliable and high quality solutions. Product portfolio expansion through acquisitions of differentiated technologies in current and adjacent applications is also a key part of our growth strategy

We have Advanced Flow Solutions facilities in North America, United Kingdom, France, Germany, Morocco, and India. Our Advanced Flow Solutions headquarters is in Corona, California.

## Markets and Applications

Advanced Flow Solutions serves the aerospace, power and process, and general industrial markets.

The commercial aerospace market we serve includes systems and components on airliners and business jets, such as hydraulic, pneumatic, fuel and ground support equipment including maintenance, repair and overhaul (MRO). In addition, we serve the defense market including military and naval applications where controls or motion switches are needed. We support fixed wing aircraft, rotorcraft, missile systems, ground vehicles, submarines, weapon systems and weapon launch systems, ordinance, fire control, fuel systems, pneumatic controls, and hydraulic and dockside support equipment including MRO.

The power and process market is comprised of electric utilities and industrial power producers. Utilities generate, transmit, and distribute electricity for sale in a local market, while industrial power plants generate electrical power for use within the industrial facility, such as a power plant within a steel mill or within a desalination plant. Utilities and industrial power plants can be categorized by fuel or by design such as Cogeneration, Combined Cycle, Coal Gasification, Super-Critical, Ultra-Critical, Nuclear, and Hydro-electric. Our products are predominantly deployed around the boiler, turbine and generator of a power plant.

The general industrial market includes a broad range of manufacturing operations with a need to control power and processes in their facilities.

## Brands

AFS manufactures and markets control valves, automatic recirculation valves, regulators, fluid controls, actuation systems, landing gear components, pneumatic controls, electro-mechanical controls, and other flow control products and systems. Advanced Flow Solutions provides actuation and fluid control systems and services through the following brands: CIRCOR Aerospace, CPC Cryolab, Aerodyne Controls, CIRCOR Bodet, CIRCOR Industria, CIRCOR Motors, Hale Hamilton, Laurence, Leslie Controls, Nicholson Steam Trap, Rockwood Swendeman, RTK, Schroedahl, and Spence Engineering.

## Products

Advanced Flow Solutions offers a range of solutions, including:

- Automatic Re-circulation Valves for pump protection
- Severe Service and General Service Control Valves
- Electromechanical, pneumatic and hydraulic, fluid control systems
- Actuation components and sub-systems.

In the manufacture of our products, we must comply with certain certification standards, such as AS9100C, ISO 9001:2008, National Aerospace & Defense Contractors Accreditation Program, Federal Aviation Administration Certification and European Aviation Safety Agency as well as other customer qualification standards.

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## Customers

Advanced Flow Solutions products and services are used by a range of customers, including those in the military and defense, commercial aerospace, business and general aviation, process industries, and power generation markets. Our customers include aircraft manufacturers (OEM's) and Tier 1 suppliers to these manufacturers, power companies and their contractors and other industrial customers.

## Revenue and Backlog

Advanced Flow Solutions accounted for \$268.2 million, \$272.6 million and \$288.5 million, or 45%, 42% and 34%, of our net revenues for the years ended December 31, 2016, 2015 and 2014, respectively. AFS backlog as of January 31, 2017 was \$122.9 million compared with \$134.2 million as of January 31, 2016. We expect to ship all but \$13 million of the January 31, 2017 backlog by December 31, 2017.

AFS backlog represents orders we believe to be firm including future customer demand requirements on long-term aerospace product platforms where we are the sole source provider. We determine the amount of orders to include in our backlog for such aircraft platforms based on 12 months demand published by our customers.

## CIRCOR Consolidated

### Competition

The domestic and international markets for our products are highly competitive. Some of our competitors have substantially greater financial, marketing, personnel and other resources than us. We consider product brand, quality, performance, on-time delivery, customer service, price, distribution capabilities and breadth of product offerings to be the primary competitive factors in these markets. We believe that new product development and product engineering also are important to our success and that our position in the industry is attributable, in significant part, to our ability to develop innovative products and to adapt existing products to specific customer applications.

The primary competitors of our Energy segment include: Balon Corporation, Crane Co., Flowserve Corporation, SPX Flow, Inc., IMI plc, Valvitalia S.p.A., and Pentair Ltd.

The primary competitors of our AFS segment include: Crane Co., Curtiss-Wright Corporation, Moog, Inc., Parker Hannifin Corp., and Woodward Inc.

### New Product Development

Our engineering differentiation comes from our ability to offer products, solutions and services that address high pressure, high temperature, and caustic flow. Our solutions offer high standards of reliability, safety and durability in applications requiring precision movement and zero leakage.

We continue to develop new and innovative products to enhance our market positions. Our product development capabilities include designing and manufacturing custom applications to meet high tolerance or close precision requirements. For example, our Energy segment operation can meet the tolerance requirements of sub-sea, cryogenic environments as well as critical service steam applications. Our Advanced Flow Solutions segment continues to expand its integrated systems design and testing capability to support bundled sub-systems for aeronautics applications. These testing and manufacturing capabilities enable us to develop customer-specified applications. In many cases, the unique characteristics of our customer-specified technologies have been subsequently used in broader product offerings.

Our India organization is a global engineering and technology center with a capable global engineering team which is well supported by an Engineering Center of Excellence in India. Our research, development and engineering expenditures for the years ended December 31, 2016, 2015 and 2014, were \$5.9 million, \$5.9 million and \$7.8 million, respectively.

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## Customers

For the years ended December 31, 2016, 2015, and 2014, we had no customers from which we derive revenues that exceed 10% of the Company's consolidated revenues. Our businesses sell into both long-term capital projects as well as short cycle rapid turn operations. As a result, we tend to experience fluctuations in revenues and operating results at various points across economic and business cycles. Our businesses, particularly those in the Energy segment, are cyclical in nature due to the fluctuation of the worldwide price, supply and demand for oil and gas. When the worldwide demand for oil and gas is depressed, the demand for our products used in those markets decreases as our customers with higher production costs will cut back investment and reduce purchases from us. The number of active rigs in North American short-cycle Oil & Gas market is a strong indicator of demand and, therefore, our distributed valves products. In addition, the level of capital expenditures by national oil companies or the oil majors in exploration and production activities drive demand for our long cycle, engineered valves products. Similarly, although not to the same extent as the Oil & Gas markets, the aerospace, military and maritime markets have historically experienced cyclical fluctuations in demand.

## Selling and Distribution

Across our businesses we utilize a variety of channels to market our products and solutions. Those channels include direct sales, distributors and commissioned representatives. Our distribution and representative networks typically offer technically trained sales forces with strong relationships in key markets.

We believe that our well-established sales and distribution channels constitute a competitive strength. We believe that we have good relationships with our representatives and distributors. We continue to implement marketing programs to enhance these relationships. Our ongoing distribution-enhancement programs include reducing lead times, introducing new products, and offering competitive pricing, application design, technical training, and service.

## Intellectual Property

We own patents that are scheduled to expire between 2017 and 2030 and trademarks that can be renewed as long as we continue to use them. We do not believe the vitality and competitiveness of any of our business segments as a whole depends on any one or more patents or trademarks. We own certain licenses such as software licenses, but we do not believe that our business as a whole depends on any one or more licenses.

## Raw Materials

The raw materials used most often in our production processes are castings, forgings and bar stock of various materials, including stainless steel, carbon steel, bronze, copper, brass, titanium and aluminum. These materials are subject to price fluctuations that may adversely affect our results of operations. We purchase these materials from numerous suppliers and at times experience constraints on the supply of certain raw material as well as the inability of certain suppliers to respond to our needs. Historically, increases in the prices of raw materials have been partially offset by higher sales prices, active materials management, project engineering programs and the diversity of materials used in our production processes.

## Employees and Labor Relations

As of January 31, 2017, our worldwide operations directly employed approximately 2,400 people. We have 22 employees in North America who are covered by a single collective bargaining agreement. We also have approximately 211 employees in France, 189 in Italy, 125 in Germany, 32 in the United Kingdom, 41 in the Netherlands, and 80 in Morocco covered by governmental regulations or workers' councils. We believe that our

employee relations are good at this time.

#### Available Information

We file reports on Form 10-Q with the Securities and Exchange Commission on a quarterly basis, additional reports on Form 8-K from time to time, and a Definitive Proxy Statement and an annual report on Form 10-K on an annual basis. These and other reports filed by us, or furnished by us, to the SEC in accordance with section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, are available free of charge from the SEC on its website at <http://www.sec.gov>. Additionally, our Form 10-Q, Form 8-K, Definitive Proxy Statement and Form 10-K reports are available without charge, as soon as reasonably practicable after they have been filed with the SEC, from our Investor Relations website at <http://investors.CIRCOR.com>. The information on our website is not part of, or incorporated by reference in, this Annual Report.

## Item 1A. Risk Factors

### Certain Risk Factors That May Affect Future Results

Set forth below are certain risk factors that we believe are material to our stockholders. If any of the following risks occur, our business, financial condition, results of operations and reputation could be harmed. You should also consider these risk factors when you read “forward-looking statements” elsewhere in this report. You can identify forward-looking statements by terms such as “may,” “hope,” “should,” “expect,” “plan,” “anticipate,” “intend,” “believe,” “estimate,” “predict,” “potential” or “continue,” the negative of those terms or other comparable terminology. Forward-looking statements are only predictions and can be adversely affected if any of the following risks occur:

Some of our end-markets are cyclical, which may cause us to experience fluctuations in revenues or operating results.

We have experienced, and expect to continue to experience, fluctuations in revenues and operating results due to economic and business cycles. We sell our products principally to aerospace, military, commercial aircraft, Oil & Gas exploration, transmission and refining, power generation, chemical processing and maritime markets. Although we serve a variety of markets to avoid a dependency on any one, a significant downturn in any one of these markets could cause a material reduction in our revenues that could be difficult to offset. In addition, decreased market demand typically results in excess manufacturing capacity among our competitors which, in turn, results in pricing pressure. As a consequence, a significant downturn in our markets can result in lower revenues and profit margins.

In particular, our Energy businesses are cyclical in nature as the worldwide demand for oil and gas fluctuates. Energy sector activity can fluctuate significantly in a short period of time, particularly in the United States, North Sea, the Middle East, Brazil and Australia, amongst other regions. When worldwide demand for oil and gas is depressed, the demand for our products used in maintenance and repair of existing oil and gas applications, as well as exploration or new oil and gas project applications, is reduced. A decline in oil price will have a similar impact on the demand for our products, particularly in markets, such as North America, where the cost of oil production is relatively higher. Demand for our products and services depends on a number of factors, including the number of oil & gas wells being drilled, the maintenance and condition of industry assets, the volume of exploration and production activities and the capital expenditures of asset owners and maintenance companies. The willingness of asset owners and operators to make capital expenditures to produce and explore for sources of energy will continue to be influenced by numerous factors over which we have no control, including:

- the current and anticipated future prices for energy sources, including oil and natural gas, solar, wind and nuclear;
- level of excess production capacity;
- cost of exploring for and producing energy sources;
- worldwide economic activity and associated demand for energy sources;
- availability and access to potential hydrocarbon resources;
- national government political priorities;
- development of alternate energy sources; and
- environmental regulations.

As a result, we historically have generated lower revenues and profits in periods of declining demand or prices for crude oil and natural gas. In the latter half of fiscal year 2014 continuing into 2016, our operating results were adversely affected due to dramatic decreases in the price of oil and our customers reduced their spending on our products as level of activity fell. Therefore, results of operations for any particular period are not necessarily indicative of the results of operations for any future period. Any future downward pricing pressure on crude oil could have a material adverse effect on our business, financial condition or results of operations.



We face significant competition and, if we are not able to respond, our revenues may decrease.

We face significant competition from a variety of competitors in each of our markets. Some of our competitors have substantially greater financial, marketing, personnel and other resources than we do. New competitors also could enter our markets. We consider product quality, performance, customer service, on-time delivery, price, distribution capabilities and breadth of product offerings to be the primary competitive factors in our markets. Our competitors may be able to offer more attractive pricing, duplicate our strategies, or develop enhancements to products that could offer performance features that are superior to our products. Competitive pressures, including those described above, and other factors could adversely affect our competitive position, resulting in a loss of market share or decreases in prices, either of which could have a material adverse effect on our business, financial condition or results of operations. In addition, some of our competitors are based in foreign countries and have cost structures and prices based on foreign currencies.

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The majority of our transactions are denominated in either U.S. dollar or Euro currency. Accordingly, currency fluctuations could cause our U.S. dollar and/or Euro priced products to be less competitive than our competitors' products that are priced in other currencies.

If we cannot continue operating our manufacturing facilities at current or higher levels, our results of operations could be adversely affected.

We operate a number of manufacturing facilities for the production of our products. The equipment and management systems necessary for such operations may break down, perform poorly or fail, resulting in fluctuations in manufacturing efficiencies. Such fluctuations may affect our ability to deliver products to our customers on a timely basis, which could have a material adverse effect on our business, financial condition or results of operations. We have continuously enhanced and improved Lean manufacturing techniques as part of the CIRCOR Operating System. We believe that this process produces meaningful reductions in manufacturing costs. However, continuous improvement of these techniques may cause short-term inefficiencies in production. If we ultimately are unable to continuously improve our processes, our results of operations may suffer.

Implementation of our acquisition, divestiture, restructuring, or simplification strategies may not be successful, which could affect our ability to increase our revenues or could reduce our profitability.

One of our strategies is to increase our revenues and expand our markets through acquisitions that will provide us with complementary Energy and Advanced Flow Solutions products and access to additional geographic markets. We expect to spend significant time and effort expanding our existing businesses and identifying, completing and integrating acquisitions. We expect to face competition for acquisition candidates that may limit the number of acquisition opportunities available to us and may result in higher acquisition prices. We cannot be certain that we will be able to identify, acquire or profitably manage additional companies or successfully integrate such additional companies without substantial costs, delays or other problems. Also, there can be no assurance that companies we acquire ultimately will achieve the revenues, profitability or cash flows, or generate the synergies upon which we justify our investment in them; as a result, any such under-performing acquisitions could result in impairment charges which would adversely affect our results of operations. In addition, acquisitions may involve a number of special risks, including: adverse effects on our reported operating results; use of cash; diversion of management's attention; loss of key personnel at acquired companies; or unanticipated management or operational problems or legal liabilities.

We also continually review our current business and products to attempt to maximize our performance. We may in the future deem it appropriate to pursue the divestiture of product lines or businesses as conditions dictate. Any divestiture may result in a dilutive impact to our future earnings if we are unable to offset the dilutive impacts from the loss of revenue associated with the divested assets or businesses, as well as significant write-offs, including those related to goodwill and other intangible assets, which could have a material adverse effect on our results of operations and financial condition. A successful divestiture depends on various factors, including our ability to effectively transfer liabilities, contracts, facilities and employees to any purchaser, identify and separate the intellectual property to be divested from the intellectual property that we wish to retain, reduce fixed costs previously associated with the divested assets or business, and collect the proceeds from any divestitures. In addition, if customers of the divested business do not receive the same level of service from the new owners, this may adversely affect our other businesses to the extent that these customers also purchase other products offered by us. All of these efforts require varying levels of management resources, which may divert our attention from other business operations.

A focus of our Company is to simplify the way we are organized and the number of facilities we manage. We believe that such focus will reduce overhead structure, enhance operational synergies, and result in improved operating margins and customer service. Nevertheless, we may not achieve expected cost savings from restructuring and simplification activities and actual charges, costs and adjustments due to such activities may vary materially from our

estimates. Our ability to realize anticipated cost savings, synergies, margin improvement, and revenue enhancements may be affected by a number of factors, including the following: our ability to effectively eliminate duplicative overhead, rationalize manufacturing capacity, synchronize information technology systems, consolidate warehousing and distribution facilities and shift production to more economical facilities; significant cash and non-cash integration and implementation costs or charges in order to achieve those cost savings, which could offset any such savings; and our ability to avoid labor disruption in connection with integration efforts or divestitures.

If we do not realize the expected benefits or synergies of any acquisition, divestiture, restructuring, or simplification activities, our business, financial condition, results of operations and cash flow could be negatively impacted.

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If we are unable to continue operating successfully overseas or to successfully expand into new international markets, our revenues may decrease.

We derive a significant portion of our revenue from sales outside the United States. In addition, one of our key growth strategies is to sell our products in international markets not significantly served by us in portions of Europe, Latin America and Asia. We market our products and services through direct sales, distributors, and technically trained commissioned representatives. We may not succeed in our efforts to further penetrate these markets. Moreover, conducting business outside the United States is subject to additional risks, including currency exchange rate fluctuations, changes in regional, political or economic conditions, trade protection measures such as tariffs or import or export restrictions, and unexpected changes in regulatory requirements and the occurrence of any of these factors could materially and adversely affect our operations.

If we cannot pass on higher raw material or manufacturing costs to our customers, we may become less profitable.

One of the ways we attempt to manage the risk of higher raw material and manufacturing costs is to increase selling prices to our customers. The markets we serve are extremely competitive and customers may not accept price increases or may look to alternative suppliers, which may negatively impact our profitability and revenues.

If our suppliers cannot provide us with adequate quantities of materials to meet our customers' demands on a timely basis or if the quality of the materials provided does not meet our standards, we may lose customers or experience lower profitability.

Some of our customer contracts require us to compensate those customers if we do not meet specified delivery obligations. We rely on numerous suppliers to provide us with our required materials and in many instances these materials must meet certain specifications. In addition, we continue to increase our dependence on lower cost foreign sources of raw materials, components, and, in some cases, completed products. Managing a geographically diverse supply base inherently poses significant logistical challenges. While we believe that we also have improved our ability to effectively manage a global supply base, a risk nevertheless exists that we could experience diminished supplier performance resulting in longer than expected lead times and/or product quality issues. The occurrence of such factors could have a negative impact on our ability to deliver products to customers within our committed time frames and could adversely impact our results of operations, financial conditions and cash flow.

Our international activities expose us to fluctuations in currency exchange rates that could adversely affect our results of operations and cash flows.

Our international manufacturing and sales activities expose us to changes in foreign currency exchange rates. Such fluctuations could result in our (i) paying higher prices for certain imported goods and services, (ii) realizing lower prices for any sales denominated in currencies other than U.S. dollars, (iii) realizing lower net income, on a U.S. dollar basis, from our international operations due to the effects of translation from weakened functional currencies, and (iv) realizing higher costs to settle transactions denominated in other currencies. Any of these risks could adversely affect our results of operations and cash flows. Our major foreign currency exposures involve the markets in Western Europe and Canada.

We may use forward contracts to help manage the currency risk related to certain business transactions denominated in foreign currencies. We primarily utilize forward exchange contracts with maturities of less than eighteen months. To the extent these transactions are completed, the contracts minimize our risk from exchange rate fluctuations because they offset gains and losses on the related foreign currency denominated transactions. However, there can be no assurances that we will be able to effectively utilize these forward exchange contracts in the future to offset

significant risk related to fluctuations in currency exchange rates. In addition, there can be no assurances that the counter party to the contract will perform their contractual obligations to us to realize the anticipated benefits of the contracts.

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If we experience delays in introducing new products or if our existing or new products do not achieve or maintain market acceptance, our revenues may decrease.

Our industries are characterized by: intense competition; changes in end-user requirements; technically complex products; and evolving product offerings and introductions.

We believe our future success depends, in part, on our ability to anticipate or adapt to these factors and to offer, on a timely basis, products that meet customer demands. Failure to develop new and innovative products or to custom design existing products could result in the loss of existing customers to competitors or the inability to attract new business, either of which may adversely affect our revenues. The development of new or enhanced products is a complex and uncertain process requiring the anticipation of technological and market trends. We may experience design, manufacturing, marketing or other difficulties, such as an inability to attract a sufficient number of qualified engineers, which could delay or prevent our development, introduction or marketing of new products or enhancements and result in unexpected expenses.

If we fail to manufacture and deliver high quality products in accordance with industry standards, we may lose customers.

Product quality and performance are a priority for our customers since many of our product applications involve caustic or volatile chemicals and, in many cases, involve processes that require precise control of fluids. Our products are used in the aerospace, military, commercial aircraft, analytical equipment, Oil & Gas exploration, transmission and refining, power generation, chemical processing and maritime industries. These industries require products that meet stringent performance and safety standards, such as the standards of the American Petroleum Institute, International Organization for Standardization, Underwriters' Laboratory, American National Standards Institute, American Society of Mechanical Engineers and the European Pressure Equipment Directive. If we fail to maintain and enforce quality control and testing procedures, our products will not meet these stringent performance and safety standards which are required by many of our customers. Non-compliance with the standards could result in a loss of current customers and damage our ability to attract new customers, which could have a material adverse effect on our business, financial condition or results of operations.

We depend on our key personnel and the loss of their services may adversely affect our business.

We believe that our success depends on our ability to hire new talent and the continued employment of our senior management team and other key personnel. If one or more members of our senior management team or other key personnel were unable or unwilling to continue in their present positions, our business could be seriously harmed. In addition, if any of our key personnel joins a competitor or forms a competing company, some of our customers might choose to use the services of that competitor or those of a new company instead of our own. Other companies seeking to develop capabilities and products similar to ours may hire away some of our key personnel. If we are unable to maintain our key personnel and attract new employees, the execution of our business strategy may be hindered and our growth limited.

We face risks from product liability lawsuits that may adversely affect our business.

We, like other manufacturers, face an inherent risk of exposure to product liability claims in the event that the use of our products results in personal injury, property damage or business interruption to our customers. We may be subjected to various product liability claims, including, among others, that our products include inadequate or improper instructions for use or installation, or inadequate warnings concerning the effects of the failure of our products. Although we maintain strict quality controls and procedures, including the testing of raw materials and safety testing of selected finished products, we cannot be certain that our products will be completely free from defect.

In addition, in certain cases, we rely on third-party manufacturers for our products or components of our products. Although we have liability insurance coverage, we cannot be certain that this insurance coverage will continue to be available to us at a reasonable cost or, if available, will be adequate to cover any such liabilities. For example, liability insurance typically does not afford coverage for a design or manufacturing defect unless such defect results in injury to person or property. We generally attempt to contractually limit liability to our customers to risks that are insurable but are not always successful in doing so. Similarly, we generally seek to obtain contractual indemnification from our third-party suppliers, and for us to be added as an additional insured party under such parties' insurance policies. Any such indemnification or insurance is limited by its terms and, as a practical matter, is limited to the credit worthiness of the indemnifying or insuring party. In the event that we do not have adequate insurance or contractual indemnification, product liabilities could have a material adverse effect on our business, financial condition or results of operations.

We rely on information technology in our operations, and any material failure, inadequacy, interruption or security failure of that technology could harm our business, financial condition, and results of operations.

We rely on information technology networks and systems, including the Internet, to process, transmit and store electronic information, and manage or support a variety of business processes, including operational and financial transactions and records, personal identifying information, payroll data and workforce scheduling information. We purchase some of our information technology from vendors, on whom our systems depend. We rely on commercially available systems, software, tools and monitoring to provide security for the processing, transmission and storage of company and customer information. Although we have taken steps to protect the security of our information systems and the data maintained in those systems, it is possible that our safety and security measures will not prevent the systems' improper functioning or the improper access or disclosure of personally identifiable information such as in the event of cyber-attacks. Security breaches, including physical or electronic break-ins, computer viruses, attacks by hackers and similar breaches can create system disruptions or shutdowns or the unauthorized disclosure of confidential information. If company, personal or otherwise protected information is improperly accessed, tampered with or distributed, we may incur significant costs to remediate possible injury to the affected parties and we may be subject to sanctions and civil or criminal penalties if we are found to be in violation of the privacy or security rules under federal, state, or international laws protecting confidential information. Any failure to maintain proper functionality and security of our information systems could interrupt our operations, damage our reputation, subject us to liability claims or regulatory penalties and could have a material adverse effect on our business, financial condition, and results of operations.

The trading price of our common stock continues to be volatile and investors in our common stock may experience substantial losses.

The trading price of our common stock may be, and, in the past, has been volatile. Our common stock could decline or fluctuate in response to a variety of factors, including, but not limited to: our failure to meet our performance estimates or performance estimates of securities analysts; changes in financial estimates of our revenues and operating results or buy/sell recommendations by securities analysts; the timing of announcements by us or our competitors concerning significant product line developments, contracts or acquisitions or publicity regarding actual or potential results or performance; fluctuation in our quarterly operating results caused by fluctuations in revenue and expenses; substantial sales of our common stock by our existing shareholders; general stock market conditions; and fluctuations in oil and gas prices or other economic or external factors. While we attempt in our public disclosures to provide forward-looking information in order to enable investors to anticipate our future performance, such information by its nature represents our good-faith forecasting efforts. In recent years, the unprecedented nature of oil prices, credit and financial crises and economic recessions, together with the uncertain depth and duration of these crises, has rendered such forecasting more difficult. As a result, our actual results have differed materially, and going forward could differ materially, from our forecasts, which could cause further volatility in the value of our common stock.

In recent years the stock market as a whole experienced dramatic price and volume fluctuations. In the past, securities class action litigation has often been instituted against companies following periods of volatility in the market price of their securities. This type of litigation could result in substantial costs and a diversion of management attention and resources.

The costs of complying with existing or future governmental regulations on importing and exporting practices and of curing any violations of these regulations, could increase our expenses, reduce our revenues or reduce our profitability.

We are subject to a variety of laws and international trade practices including regulations issued by the United States Bureau of Industry and Security, the Department of Homeland Security, the Department of State and the Department



of Treasury. We cannot predict the nature, scope or effect of future regulatory requirements to which our international trading practices might be subject or the manner in which existing laws might be administered or interpreted. Future regulations could limit the countries into which certain of our products may be sold or could restrict our access to, and increase the cost of obtaining products from, foreign sources. In addition, actual or alleged violations of such regulations could result in enforcement actions and/or financial penalties that could result in substantial costs.

Our debt agreement requires that we maintain certain ratios and limits our ability to issue equity, make acquisitions, incur debt, pay dividends, make investments, sell assets, merge or raise capital.

Our revolving credit facility agreement, dated July 31, 2014, governs our indebtedness. This agreement includes provisions which place limitations on certain activities including our ability to: issue shares of our common stock; incur additional indebtedness; create any liens or encumbrances on our assets or make any guarantees; make certain investments; pay cash dividends above certain limits; or dispose of or sell assets or enter into a merger or a similar transaction. These restrictions may limit our ability to operate our business and may prohibit or limit our ability to execute our business strategy, compete, enhance our operations, take advantage of potential business opportunities as they arise or meet our capital needs. Furthermore, future debt instruments or other contracts could contain more restrictive financial or other covenants. The breach of any of these covenants by us or the failure by us to meet any of these conditions or requirements could result in a default under any or all of our indebtedness. If we are unable to service our indebtedness, our business, financial condition and results of operations would be materially adversely affected.

Various restrictions and agreements could hinder a takeover of us which is not supported by our board of directors or which is leveraged.

Our amended and restated certificate of incorporation and amended and restated by-laws, as well as the Delaware General Corporation Law, contain provisions that could delay or prevent a change in control in a transaction that is not approved by our board of directors or that is on a leveraged basis or otherwise. These include provisions creating a staggered board, limiting the shareholders' powers to remove directors, and prohibiting shareholders from calling a special meeting or taking action by written consent in lieu of a shareholders' meeting. In addition, our board of directors has the authority, without further action by the shareholders, to set the terms of and to issue preferred stock. Issuing preferred stock could adversely affect the voting power of the owners of our common stock, including the loss of voting control to others.

Delaying or preventing a takeover could result in our shareholders ultimately receiving less for their shares by deterring potential bidders for our stock or assets.

A change in international governmental policies or restrictions could result in decreased availability and increased costs for certain components and finished products that we purchase from sources in foreign countries, which could adversely affect our profitability.

Like most manufacturers of flow control products, we attempt, where appropriate, to reduce costs by seeking lower cost sources of certain components and finished products. Many such sources are located in developing countries such as India and China, where a change in governmental approach toward U.S. trade could restrict the availability to us of such sources. In addition, periods of war or other international tension could interfere with international freight operations and hinder our ability to purchase such components and products. A decrease in the availability of these items could hinder our ability to timely meet our customers' orders. We attempt, when possible, to mitigate this risk by maintaining alternate sources for these components and products and by maintaining the capability to produce such items in our own manufacturing facilities. However, even when we are able to mitigate this risk, the cost of obtaining such items from alternate sources or producing them ourselves is often considerably greater, and a shift toward such higher cost production could therefore adversely affect our profitability.

We, along with our customers and vendors, face the uncertainty in the public and private credit markets and in general economic conditions in the United States and around the world.

In recent years there has been at times disruption and general slowdown of the public and private capital and credit markets in the United States and around the world. Such conditions can adversely affect our revenue, results of

operations and overall financial growth. Our business can be affected by a number of factors that are beyond our control such as general geopolitical, economic and business conditions and conditions in the financial services market, which each could materially impact our business, financial condition, results of operations and cash flow.

Additionally, many lenders and institutional investors, at times, have reduced funding to borrowers, including other financial institutions. A constriction on future lending by banks or investors could result in higher interest rates on future debt obligations or could restrict our ability to obtain sufficient financing to meet our long-term operational and capital needs or could limit our ability in the future to consummate strategic acquisitions. Any uncertainty in the credit markets could also negatively impact the ability of our customers and vendors to finance their operations which, in turn, could result in a decline in our sales and in our ability to obtain necessary raw materials and components, thus potentially having an adverse effect on our business, financial condition or results of operations.

A resurgence of terrorist activity and/or political instability around the world could cause economic conditions to deteriorate and adversely impact our businesses.

In the past, terrorist attacks have negatively impacted general economic, market and political conditions. In particular, the 2001 terrorist attacks, compounded with changes in the national economy, resulted in reduced revenues in the aerospace and general industrial markets in 2002 and 2003. Although economic conditions have improved considerably, additional terrorist acts, acts of war or political instability (wherever located around the world) could cause damage or disruption to our business, our facilities or our employees which could significantly impact our business, financial condition or results of operations. The potential for future terrorist attacks, the national and international responses to terrorist attacks, political instability, and other acts of war or hostility, including the recent and current conflicts in Iraq, Afghanistan and the Middle East, have created many economic and political uncertainties, which could adversely affect our business and results of operations in ways that cannot presently be predicted. In addition, with manufacturing facilities located worldwide, including facilities located in North America, Western Europe, Morocco, and India, we may be impacted by terrorist actions not only against the United States but in other parts of the world as well. In some cases, we are not insured for losses and interruptions caused by terrorist acts and acts of war.

The costs of complying with existing or future environmental regulations and curing any violations of these regulations could increase our expenses or reduce our profitability.

We are subject to a variety of environmental laws relating to the storage, discharge, handling, emission, generation, use and disposal of chemicals, solid and hazardous waste and other toxic and hazardous materials used to manufacture, or resulting from the process of manufacturing, our products. We cannot predict the nature, scope or effect of future regulatory requirements to which our operations might be subject or the manner in which existing or future laws will be administered or interpreted. Future regulations could be applied to materials, products or activities that have not been subject to regulation previously. The costs of complying with new or more stringent regulations, or with more vigorous enforcement of these or existing regulations could be significant.

Environmental laws require us to maintain and comply with a number of permits, authorizations and approvals and to maintain and update training programs and safety data regarding materials used in our processes. Violations of these requirements could result in financial penalties and other enforcement actions. We also could be required to halt one or more portions of our operations until a violation is cured. Although we attempt to operate in compliance with these environmental laws, we may not succeed in this effort at all times. The costs of curing violations or resolving enforcement actions that might be initiated by government authorities could be substantial.

Regulations related to “conflict minerals” may cause us to incur additional expenses and could limit the supply and increase the cost of certain metals used in manufacturing our products.

Under the conflict minerals rule, public companies must disclose whether specified minerals, known as conflict minerals, that are necessary to the functionality or production of products manufactured or contracted to be manufactured. The rule, which became effective for 2013, requires a disclosure report to be filed by May 31st of each year, requires companies to perform due diligence, disclose and report whether or not such minerals originate from the Democratic Republic of Congo or an adjoining country. The conflicts mineral rule could affect sourcing at competitive prices and availability in sufficient quantities of certain minerals used in the manufacture of our products, including tantalum, tin, gold and tungsten. The number of suppliers who provide conflict-free minerals may be limited. In addition, there may be material costs associated with complying with the disclosure requirements, such as costs related to determining the source of certain minerals used in our products, as well as costs of possible changes to products, processes, or sources of supply as a consequence of such verification activities. As our supply chain is complex, we may not be able to sufficiently verify the origins of the relevant minerals used in our products through

the due diligence procedures that we implement, which may harm our reputation. In addition, we may encounter challenges to satisfy those customers who require that all of the components of our products be certified as conflict-free, which could place us at a competitive disadvantage if we are unable to do so.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

We maintain 19 major manufacturing facilities worldwide, including operations located in North America, Western Europe, Morocco and India. We also maintain sales offices or warehouses from which we ship finished goods to customers, distributors and commissioned representative organizations. Our executive office is located in Burlington, Massachusetts and is leased.

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Our Energy segment has major manufacturing facilities located in North America, Italy, United Kingdom, and the Netherlands. Properties in Nerviano, Italy and Spartanburg, South Carolina are leased. Our Advanced Flow Solutions segment has major manufacturing facilities located in North America, United Kingdom, Germany, France, India and Morocco. Properties in Hauppauge, New York and Corona, California are leased.

Segment	Leased	Owned	Total
Energy	5	4	9
Advanced Flow Solutions	2	8	10
Total	7	12	19

In general, we believe that our properties, including machinery, tools and equipment, are in good condition, are well maintained, and are adequate and suitable for their intended uses. Our manufacturing facilities generally operate five days per week on one or two shifts. We believe our manufacturing capacity could be increased by working additional shifts and weekends and by successful implementation of our CIRCOR Operating System. We believe that our current facilities will meet our near-term production requirements without the need for additional facilities.

## Item 3. Legal Proceedings

For information regarding our legal proceedings refer to the first two paragraphs of Note 14 to the consolidated financial statements included in this Annual Report, for which disclosure is referenced herein.

## Item 4. Mine Safety Disclosures

Not applicable.

## Part II

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

Our common stock is traded on the New York Stock Exchange ("NYSE") under the symbol "CIR." Quarterly share prices and dividends declared and paid are incorporated herein by reference to Note 18 to the consolidated financial statements included in this Annual Report.

Our Board of Directors is responsible for determining our dividend policy. Although we currently intend to continue paying quarterly cash dividends, the timing and level of such dividends will necessarily depend on our Board of Directors' assessments of earnings, financial condition, capital requirements and other factors, including restrictions, if any, imposed by our lenders. In the fourth quarter of 2015 we completed our share repurchase program in which we purchased \$75 million of the Company's outstanding common stock during the year. See "Liquidity and Capital Resources" under the section entitled "Management's Discussion and Analysis of Financial Condition and Results of Operations" for further information.

As of February 10, 2017, there were 16,371,775 shares of our common stock outstanding and we had 60 holders of record of our common stock. We believe the number of beneficial owners of our common stock was substantially greater on that date.

Set forth below is a table and line graph comparing the percentage change in the cumulative total stockholder return on the Company's common stock, based on the market price of the Company's common stock with the total return of companies included within the Standard & Poor's 500 Composite Index, S&P 500 index, the Russell 2000 index and the peer group of companies engaged in the valve, pump, fluid control and related industries for the five-year period commencing December 31, 2011 and ending December 31, 2016. For comparison purposes, we have included the Russell 2000 Index for purposes of presenting a broad market index in the stock performance graph. The Company believes that the Russell 2000 Index, an index in which the Company is included, provides a better comparison for stock performance.

The calculation of total cumulative return assumes a \$100 investment in our common stock and in each of the three indexes and the reinvestment of all dividends. The historical information set forth below is not necessarily indicative of future performance.

	12/11	12/12	12/13	12/14	12/15	12/16
CIRCOR International, Inc.	100.00 %	112.62 %	230.43 %	172.29 %	120.85 %	186.55 %
S&P 500	100.00 %	116.00 %	153.58 %	174.60 %	177.01 %	198.18 %
Russell 2000	100.00 %	116.35 %	161.52 %	169.43 %	161.95 %	196.45 %
Peer Group (1)	100.00 %	133.03 %	204.45 %	178.37 %	141.64 %	174.40 %

(1) Peer Group companies include: Crane Co, Curtiss-Wright Corp, Flowserve Corp, IMI Plc, Pentair Plc, SPX Flow Inc. and Woodward Inc.





Item 6. Selected Financial Data

The following table presents certain selected financial data that has been derived from our audited consolidated financial statements and related notes and should be read along with the section entitled “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and our audited consolidated financial statements and notes included in this Annual Report.

The consolidated statements of income and consolidated statements of cash flows data for the years ended December 31, 2016, 2015 and 2014, and the consolidated balance sheet data as of December 31, 2016 and 2015 are derived from, and should be read in conjunction with, our audited consolidated financial statements and the related notes included in this Annual Report. The consolidated statements of income and consolidated statements of cash flows data for the years ended December 31, 2013 and 2012, and the consolidated balance sheet data as of December 31, 2014, 2013 and 2012, are derived from our audited consolidated financial statements not included in this Annual Report.

Selected Financial Data  
(in thousands, except per share data)

	Years Ended December 31,				
	2016	2015	2014	2013	2012
Statement of Income Data (1):					
Net revenues	\$590,259	\$656,267	\$841,446	\$857,808	\$845,552
Gross profit	183,115	199,332	257,020	267,601	241,543
Operating income	10,918	26,174	64,757	69,173	46,531
Income before income taxes	9,680	22,428	63,261	64,037	41,759
Net income	\$10,101	\$9,863	\$50,386	\$47,121	\$30,799
Balance Sheet Data:					
Total assets	\$820,756	\$669,915	\$724,722	\$726,650	\$709,981
Total debt	251,200	90,500	13,684	49,638	70,484
Shareholders' equity	404,410	400,777	494,093	476,887	418,247
Total capitalization	\$655,610	\$491,277	\$507,777	\$526,525	\$488,731
Other Financial Data:					
Cash flow provided by (used in):					
Operating activities	\$59,399	\$27,142	\$70,826	\$72,206	\$60,523
Investing activities	(210,481 )	(87,726 )	(1,842 )	(13,264 )	(17,629 )
Financing activities	158,764	2,251	(37,724 )	(19,235 )	(37,408 )
Interest expense, net	3,310	2,844	2,652	3,161	4,259
Capital expenditures	14,692	12,711	12,810	17,328	18,170
Diluted earnings per common share	\$0.61	\$0.58	\$2.84	\$2.67	\$1.76
Diluted weighted average common shares outstanding	16,536	16,913	17,768	17,629	17,452
Cash dividends declared per common share	\$0.15	\$0.15	\$0.15	\$0.15	\$0.15

See Special and Restructuring charges, net in Note 4 to the consolidated financial statements, for additional details on charges included in the twelve months ended December 31, 2016, December 31, 2015, and December 31, 2014 operating income above. The statement of income data for the year ended December 31, 2013 includes special and restructuring charges, net of \$8.6 million and intangible impairment charges of \$6.9 million. The statement of income data for the year ended December 31, 2012 includes special and restructuring charges, net of \$5.3 million and intangible impairment charges of \$10.3 million.

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

See Item 1, Business, for additional detail on forward looking statements.

### Company Overview

CIRCOR International, Inc. designs, manufactures and markets flow control solutions and other highly engineered products and sub-systems for markets including Oil & Gas, aerospace, power and process, and industrial solutions. CIRCOR has a diversified product portfolio with recognized, market-leading brands that fulfill its customers' unique application needs. See Part 1, Item 1, Business, for additional information regarding the description of our Business.

We expect continued project delays and capital expenditure reductions by many national oil companies and oil majors resulting in much lower demand for our large engineered valves business. However, we expect to see modest growth in other markets we serve: certain power generation markets, the global liquefied natural gas market, North American upstream and certain mid and down-stream energy markets. The growth in the power market is driven by the U.S. and a number of large projects in Southeast Asia and Europe.

We continue to implement actions to mitigate the impact on our earnings with the lower demand and increasingly competitive environment. In addition, we will continue to focus on acquisition growth opportunities and we are investing in products and technologies that help solve our customers' most difficult problems. We expect to further simplify CIRCOR by standardizing technology, reducing facilities, consolidating suppliers and achieving world class operational excellence, including product management. We believe our cash flow from operations and financing capacity is adequate to support these activities. Finally, continuing to attract and retain talented personnel, including the enhancement of our global sales, operations, and engineering organization, remains an important part of our strategy during 2017.

### Basis of Presentation

All significant intercompany balances and transactions have been eliminated in consolidation. We manage our businesses in two segments: Energy and Advanced Flow Solutions.

We operate and report financial information using a 52-week fiscal year ending December 31. The data periods contained within our Quarterly Reports on Form 10-Q reflect the results of operations for the 13-week, 26-week and 39-week periods which generally end on the Sunday nearest the calendar quarter-end date.

### Critical Accounting Policies

The Company's discussion and analysis of its financial condition and results of operations is based upon its financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States of America. The preparation of these financial statements requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue and expenses and related disclosure of contingent liabilities. On an on-going basis, management evaluates its significant estimates, including those related to contracts accounted for under the percentage of completion method, bad debts, inventories, business combinations, intangible assets and goodwill, delivery penalties, income taxes, and contingencies and litigation. Management believes the most complex and sensitive judgments, because of their significance to the consolidated financial statements, result primarily from the need to make estimates about the effects of matters that are inherently uncertain. Management bases its estimates on historical experience, current market and economic conditions and other assumptions that management believes are reasonable. The results of these estimates form the basis for judgments about the carrying value of assets and liabilities where the values are not readily apparent from other sources. Actual

results may differ from these estimates under different assumptions or conditions.

There have been no significant changes from the methodology applied by management for critical accounting estimates previously disclosed in our Annual Report on Form 10-K for the fiscal year ended December 31, 2015. The Company acquired Critical Flow Solutions ("CFS") in October 2016 and as a result adopted the percentage of completion accounting for certain long-term capital contracts.

For goodwill, we perform an impairment assessment at the reporting unit level on an annual basis as of the end of our October month end or more frequently if circumstances warrant. Our annual impairment assessment is a two-step process. In fiscal year 2016 when we performed our analysis, the fair value of each of our reporting units exceeded the respective carrying amount, and no goodwill impairments were recorded. The fair values utilized for our 2016 goodwill assessment exceeded the carrying amounts by approximately 465%, 188%, and 224% for our Energy, Aerospace, and Power, Process, & Industrial reporting units, respectively. The growth rate assumptions utilized were consistent with growth rates within the markets that we serve.

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If our results significantly vary from our estimates, related projections, or business assumptions in the future due to change in industry or market conditions, we may be required to record impairment charges. By way of example, a 55% reduction in our Aerospace reporting unit projected and terminal cash flows would not result in the fair value being lower than the carrying value.

## Results of Operations

### 2016 Compared With 2015

#### Consolidated Operations

(in thousands)	2016	2015	Total Change	Acquisitions	Operations	Foreign Exchange
Net Revenues						
Energy	\$322,046	\$383,655	\$(61,609)	\$ 18,974	\$(79,467)	\$(1,116)
Advanced Flow Solutions	268,213	272,612	(4,399)	6,106	(8,010)	(2,495)
Consolidated Net Revenues	\$590,259	\$656,267	\$(66,008)	\$ 25,080	\$(87,477)	\$(3,611)

Net revenues in 2016 were \$590.3 million, a decrease of \$66.0 million from 2015. The unfavorable effects of currency translation resulted in a decrease in revenues of \$3.6 million in 2016. Sales increased \$25.1 million due to 2015 acquisition of Schroedahl and 2016 acquisition of CFS. Aside from the effects of currency translation and acquisitions, revenues decreased \$87.5 million (-13%) primarily due to decreased demand in our North American short-cycle Energy business.

#### Segment Results

The Company's management evaluates segment operating performance using "segment operating income" which we define as operating income before restructuring charges (including inventory-related restructuring), special charges, impairment charges, amortization from acquisitions subsequent to 2011, amortization expense related to the step-up in fair value of the inventory acquired through business acquisitions, and 2015 Brazil restatement impact. The Company uses this measure because it helps management understand and evaluate the segments' operating results and facilitate a comparison of performance for determining compensation. Accordingly, the following segment data is reported on this basis.

(in thousands)	2016	2015	Change
Net Revenues			
Energy	\$322,046	\$383,655	\$(61,609)
Advanced Flow Solutions	268,213	272,612	(4,399 )
Consolidated Net Revenues	\$590,259	\$656,267	\$(66,008)
Operating Income			
Energy - Segment Operating Income	\$34,619	\$50,386	\$(15,767)
AFS - Segment Operating Income	33,463	33,811	(348 )
Corporate expenses	(25,672 )	(21,710 )	(3,962 )
Subtotal	42,410	62,487	(20,077 )
Restructuring charges, net	8,975	4,634	4,341
Special charges, net	8,196	9,720	(1,524 )
Special and restructuring charges, net (1)	17,171	14,354	2,817
Restructuring related inventory charges (1)	2,846	9,391	(6,545 )
Amortization of inventory step-up	1,366	—	—
Impairment charges	208	2,502	(2,294 )
Acquisition amortization	9,901	6,838	3,063
Brazil restatement impact	—	3,228	(3,228 )
Restructuring and other cost, net	14,321	21,959	(9,004 )
Consolidated Operating Income	\$10,918	\$26,174	\$(15,256)
Consolidated Operating Margin	1.8	% 4.0	%

(1) See Special and Restructuring charges, net in Note 4 to the consolidated financial statements, for additional details.

#### Energy Segment

(in thousands)	2016	2015	Change
Net Revenues	\$322,046	\$383,655	\$(61,609)
Segment Operating Income	34,619	50,386	(15,767 )
Segment Operating Margin	10.7	% 13.1	%

Energy segment net revenues decreased \$61.6 million, or 16%, in 2016 compared to 2015. The decrease was primarily driven by lower shipment volumes in our North American short-cycle business (-15%). Net revenues in other oil and gas businesses declined (-5%), offset by the acquisition of CFS (+5%). Energy segment orders decreased \$68.9 million, or 20%, to \$270.5 million for 2016 compared to \$339.4 million in 2015, primarily due to lower bookings in the large international projects business (-15%) and in our North American short-cycle business (-5%). Lower orders in our long-cycle, large international projects business was impacted by reduced capital expenditures for exploration and production of oil and gas as well as project deferrals. Lower orders in our North American short-cycle business were impacted by the destocking of our distributors as well as lower production activity overall.

Segment operating income decreased \$15.8 million, or 31%, to \$34.6 million for 2016 compared to \$50.4 million in 2015. The decrease in segment operating income was primarily due to lower shipment volumes from our North American short-cycle business (-37%). In addition, we recorded \$3.2 million (-6%) of bad debt and inventory write-down charges during the fourth quarter related to past-due amounts and inventories associated with Petróleos de Venezuela ("PDVSA"). These declines were partially offset by segment operating income from CFS (+8%) and savings from our sourcing, restructuring and productivity initiatives (+4%).



## QUARTERLY ENERGY SEGMENT INFORMATION

(in thousands, except percentages)

(unaudited)

	2015				2016						
	1ST QTR	2ND QTR	3RD QTR	4TH QTR	TOTAL	1ST QTR	2ND QTR	3RD QTR	4TH QTR	TOTAL	
Orders	120,344	83,710	64,877	70,480	339,411	71,425	58,853	55,056	85,183	270,517	
Net Revenues	105,619	97,753	88,679	91,604	383,655	83,409	80,736	68,901	89,000	322,046	
Operating Income	15,011	12,926	12,153	10,296	50,386	9,296	9,293	6,755	9,276	34,619	
Operating Margin	14.2%	13.2%	13.7%	11.2%	13.1%	11.1%	11.5%	9.8%	10.4%	10.7%	
Backlog (1) (1) at end of period.	204,231	192,760	159,727	131,554	131,554	122,730	98,119	84,535	123,063	123,063	

## Advanced Flow Solutions Segment

(in thousands)	2016	2015	Change
Net Revenues	\$268,213	\$272,612	\$(4,399)
Segment Operating Income	33,463	33,811	(348 )
Segment Operating Margin	12.5 %	12.4 %	

Advanced Flow Solutions segment net revenues decreased by \$4.4 million, or 2%, in 2016 compared to 2015. The decrease was primarily driven by declines in our aerospace business (-2%) and our industrial solutions business (-1%). These declines were offset by the April 2015 acquisition of Schroedahl (+2%). Advanced Flow Solutions segment orders increased \$4.2 million, or 2%, to \$255.2 million for 2016 compared to \$251.0 million in 2015, primarily due to our aerospace business (+2%).

Segment operating income decreased \$0.3 million, or 1%, to \$33.5 million for 2016 compared to \$33.8 million for 2015. The decrease in operating income was primarily as a result of the revenue declines (-2%) described above. These declines were offset by the Schroedahl acquisition (+7%) and restructuring savings and operational efficiencies in our California (+18%) and French (+5%) businesses.

## QUARTERLY AFS SEGMENT INFORMATION

(in thousands, except percentages)

(unaudited)

	2015				2016						
	1ST QTR	2ND QTR	3RD QTR	4TH QTR	TOTAL	1ST QTR	2ND QTR	3RD QTR	4TH QTR	TOTAL	
Orders	61,968	57,998	63,638	67,375	250,979	65,357	76,464	56,262	57,134	255,217	
Net Revenues	60,241	69,153	70,579	72,639	272,612	67,389	65,656	65,932	69,236	268,213	
Operating Income	5,584	7,576	10,077	10,574	33,811	8,452	8,064	8,008	8,939	33,463	
Operating Margin	9.3%	11.0%	14.3%	14.6%	12.4%	12.5%	12.3%	12.1%	12.9%	12.5%	
Backlog (1) (1) At end of period.	147,587	151,474	144,926	137,494	137,494	137,332	145,930	135,721	119,332	119,332	



Corporate Expenses

Corporate expenses increased \$4.0 million to \$25.7 million for 2016. This increase was primarily driven by compensation costs (\$1.5 million) associated with filling open positions and higher performance on incentive plans, corporate development expenses (relating to potential mergers and acquisitions due diligence) of \$1.2 million, and professional fees (\$1.1 million).

#### Special and Restructuring charges, net and other charges

During 2016, the Company recorded a total of \$20.0 million of Special and restructuring charges. In our statement of operations, these charges are recorded in costs of revenue (\$2.8 million) and Special and restructuring charges, net (\$17.2 million). These costs are primarily related to our simplification and restructuring efforts and also include a \$4.5 million non-cash charge related to a pension settlement. The amount recorded in costs of revenues relates to inventory charges associated with the exit of non-strategic product lines. These restructuring charges and other special charges are described in further detail in Note 4, Special and Restructuring charges, net

In relation to our 2016 and 2015 acquisitions of CFS and Schroedahl, we incurred \$9.9 million of intangible asset amortization related to these acquisitions. This amortization is recorded within selling, general, and administrative expenses (\$9.3 million) or cost of revenues (\$0.6 million) depending upon the nature of the underlying intangible asset. In addition, we recorded \$1.4 million of amortization expense related to the step-up in fair value of the inventory acquired as part of our CFS acquisition. This expense is included in cost of revenues.

Also during 2016, we also recorded a \$0.2 million impairment charge for a China patent deemed to no longer have economic value. The impairment charge is included in the impairment charge line on our consolidated statement of income (loss).

In 2015, the Company recorded \$23.7 million of Special and restructuring charges, net. In our statement of operations, these charges are recorded in costs of revenue (\$9.4 million) and Special and restructuring charges, net (\$14.4 million). These costs are primarily related to our simplification and restructuring efforts. The amount recorded in costs of revenues relates to inventory charges associated with the exit of non-strategic product lines. In addition, we incurred \$3.2 million of Brazil restatement charges. These restructuring charges and other special charges are described in further detail in Note 4, Special and Restructuring charges, net.

In relation to our Schroedahl acquisition we recorded \$6.8 million of intangible asset amortization during 2015. This amortization is recorded within selling, general, and administrative expenses. Also during 2015, we recorded \$2.5 million of plant, property, and equipment and intangible impairments related to our Brazil business. These impairment charges are included in the impairment charge line on our consolidated statement of operations.

#### Interest Expense, Net

Interest expense increased \$0.5 million to \$3.3 million for 2016. This change in interest expense was primarily due to higher outstanding debt balances during the period as a result of the CFS acquisition.

#### Other (Income) Expense, Net

Other income, net, was \$2.1 million for 2016 compared to other expense, net of (\$0.9 million) in 2015. The difference of \$3.0 million was primarily due to the impact of foreign currency fluctuations.

#### Comprehensive (Loss) Income

Comprehensive loss was reduced from a comprehensive loss of \$22.2 million as of December 31, 2015 to a comprehensive loss of \$0.2 million as of December 31, 2016, primarily driven by an increase of \$16.9 million in favorable foreign currency balance sheet remeasurements. These favorable foreign currency balance sheet remeasurements were driven by the Brazilian Real (\$9.9 million) and Euro (\$6.3 million).

As of December 31, 2016, we have a cumulative currency translation adjustment of \$17.3 million regarding our Brazil entity. If we were to cease to have a controlling financial interest in the Brazil entity, we would incur a non-cash charge of \$17.3 million, which would be included as a special charge within the results of operations.

(Benefit from) Provision for Income Taxes

The effective tax rate was (-4%) for 2016 compared to 56% for 2015. The primary drivers for the lower tax rate in 2016 include the tax benefit associated with the repatriation of foreign earnings which we completed in 2016 (-27%), reduced foreign losses in 2016 with no tax benefit (-27%), mix of lower taxed foreign earnings to US earnings (-18%), and other items in 2016 including the prior year impact of a foreign audit settlement (-14%). This was partially offset by the establishment of a valuation allowance for certain state net operating loss carryforwards (+26%).

## Restructuring Actions

Our announced restructuring actions which result in savings are summarized as follows:

During 2016, we initiated certain restructuring activities, under which we continue to simplify our business ("2016 Actions"). Under these restructurings, we reduced expenses, primarily through reductions in force and closing a number of smaller facilities.

In July 2015, we announced the closure of one of the two Corona, California manufacturing facilities ("California Restructuring"). Under this restructuring, we are reducing certain general, manufacturing and facility related expenses.

On February 18, 2015, we announced a restructuring action ("2015 Announced Restructuring"), under which we continued to simplify our businesses. Under this action, we reduced certain general, administrative and manufacturing related expenses, primarily personnel related.

The table below (in millions) outlines the cumulative effects on past and future earnings resulting from our announced restructuring plans.

	Cumulative Planned Savings	Cumulative Projected Savings	Expected Periods of Savings Realization
2016 Actions	\$ 14.1	\$ 14.1	Q2 2016 - Q4 2017
California Restructuring	3.0	3.0	Q3 2016 - Q4 2017
2015 Announced Restructuring	18.0	20.8	Q1 2015 - Q4 2016
Total Savings	\$ 35.1	\$ 37.9	

As shown in the table above our projected cumulative restructuring savings have exceeded our original planned savings amounts. This is primarily attributed to reducing additional general, administrative and manufacturing related expenses. The expected periods of realization of the restructuring savings are consistent with our original plans. Our restructuring actions are funded by cash generated by operations.

We expect to incur restructuring related special charges between \$0.7 million and \$0.9 million to complete our 2016 Announced Restructuring. These restructuring actions are expected to be funded with cash generated from operations. Our 2015 Announced Restructuring and California Restructuring have been completed and, as such, no additional restructuring charges are expected to be incurred in connection with these actions.

## 2015 Compared With 2014

## Consolidated Operations

(in thousands)	2015	2014	Total Change	Divestitures	Acquisitions	Operations	Foreign Exchange
Net Revenues							
Energy	\$383,655	\$552,973	\$(169,318)	\$(39,719 )	\$ —	\$(97,595 )	\$(32,004)
Advanced Flow Solutions	272,612	288,473	(15,861 )	(11,500 )	21,002	(11,051 )	(14,312 )
Consolidated Net Revenues	\$656,267	\$841,446	\$(185,179)	\$(51,219 )	\$ 21,002	\$(108,646)	\$(46,316)

Net revenues in 2015 were \$656.3 million, a decrease of \$185.2 million from 2014. The business divestitures resulted in a decrease in revenues of \$51.2 million and unfavorable effects of currency translation resulted in a decrease in revenues of \$46.3 million in 2015. Sales increased \$21.0 million due to our April 2015 acquisition of Schroedahl. Aside from the effects of currency translation, divestitures and acquisitions, revenues decreased \$108.6 million (-13%) primarily due to decreased demand in our North American short-cycle Energy business.

## Segment Results

(in thousands)	2015	2014	Change
Net Revenues			
Energy	\$383,655	\$552,973	\$(169,318)
Advanced Flow Solutions	272,612	288,473	(15,861 )
Consolidated Net Revenues	\$656,267	\$841,446	\$(185,179)

## Operating Income

Energy - Segment Operating Income	\$50,386	\$79,742	\$(29,356 )
AFS - Segment Operating Income	33,811	29,883	3,928
Corporate expenses	(21,710 )	(23,415 )	1,705
Subtotal	62,487	86,210	(23,723 )
Special restructuring charges, net	4,634	5,246	(612 )
Special other charges, net	9,720	7,491	2,229
Special and restructuring charges, net (1)	14,354	12,737	1,617
Restructuring related inventory charges	9,391	7,989	1,402
Impairment charges	2,502	726	1,776
Acquisition amortization	6,838	—	6,838
Brazil restatement impact	3,228	—	3,228
Restructuring and other cost, net	21,959	8,715	13,244
Consolidated Operating Income	\$26,174	\$64,757	\$(38,583 )

Consolidated Operating Margin	4.0	% 7.7	%
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(1) See Special and Restructuring charges, net in Note 4 to the consolidated financial statements, for additional details.

## Energy Segment

(in thousands)	2015	2014	Change
Net Revenues	\$383,655	\$552,973	\$(169,318)
Segment Operating Income	50,386	79,742	(29,356)
Segment Operating Margin	13.1	% 14.4	%

Energy segment net revenues decreased \$169.3 million, or 31%, in 2015 compared to 2014. The decrease was primarily driven by lower shipment volumes in our North American short-cycle business (-15%), a business divestiture (-7%), the downstream instrumentation business (-4%) and unfavorable foreign currency (-6%). The unfavorable foreign currency is primarily due to the weakening of the Euro against the U.S. dollar. Energy segment orders decreased \$220.1 million, or 39%, to \$339.4 million for 2015 compared to \$559.5 million for 2014, primarily due to lower bookings in our North American short-cycle business (-25%), a business divestiture (-8%) and downstream instrumentation business (-5%). Lower orders in our North American short-cycle business were impacted by the destocking of our distributors as well as lower production activity overall.

Segment operating income for our Energy segment decreased \$29.4 million, or 37%, to \$50.4 million for 2015 compared to \$79.7 million for 2014. The decrease in segment operating income was primarily due to lower shipment volumes from our North American short-cycle business (-34%). Our other oil and gas businesses also contributed to the segment operating income decline (-6%) in the period. These declines were partially offset by segment operating income from savings from our sourcing, restructuring and productivity initiatives.

## Advanced Flow Solutions Segment

(in thousands)	2015	2014	Change
Net Revenues	\$272,612	\$288,473	\$(15,861)
Segment Operating Income	33,811	29,883	3,928
Segment Operating Margin	12.4	% 10.4	%

Advanced Flow Solutions segment net revenues decreased by \$15.9 million, or 5%, for 2015 compared to 2014. The decrease was primarily driven by declines in our actuation business related to structural landing gear product lines exit (-3%) and fluid control business in France (-2%). Advanced Flow Solutions segment orders decreased \$38.8 million, or 13%, to \$251.0 million for 2015 compared to \$289.8 million for 2014, primarily due to our industrial solutions business (-8%) and a business divestiture (-5%).

Segment operating income increased \$3.9 million, or 13%, to \$33.8 million for 2015 compared to \$29.9 million for 2014. The increase in operating income was primarily as a result of the Schroedahl acquisition (+27%) offset by our industrial solutions business (-12%) and aerospace business (-1%).

## Corporate Expenses

Corporate expenses decreased \$1.7 million, or 7%, to \$21.7 million for 2015 compared to 2014, primarily due to lower compensation costs and cost control.

## Special and Restructuring charges, net

In 2015, the Company recorded \$23.7 million of Special and restructuring charges, net. In our statement of operations, these charges are recorded in costs of revenue (\$9.4 million) and Special and restructuring charges, net (\$14.4 million). These costs are primarily related to our simplification and restructuring efforts. The amount recorded in costs of revenues relates to inventory charges associated with the exit of non-strategic product lines. In addition, we incurred \$3.2 million of Brazil restatement charges. These restructuring charges and other special charges are

described in further detail in Note 4, Special and Restructuring charges, net.

In relation to our Schroedahl acquisition we recorded \$6.8 million of intangible asset amortization during 2015. This amortization is recorded within selling, general, and administrative expenses. Also during 2015, we also recorded \$2.5 million of plant, property, and equipment and intangible impairments related to our Brazil business. These impairment charges are included in the impairment charge line on our consolidated statement of operations.

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In 2014, the Company recorded \$20.7 million of Special and restructuring charges, net. In our statement of operations, these charges are recorded in costs of revenue (\$8.0 million) and Special and restructuring costs, net (\$12.7 million). These costs, primarily related to our simplification efforts and acquisitions. The amount recorded in costs of revenues relates to inventory charges associated with the exit of non-strategic product lines. These restructuring charges and other special charges are described in further detail in Note 4, Special and Restructuring charges, net.

In 2014, we also recorded \$0.7 million impairment charges for certain Aerospace & Defense trade name intangible assets that had no future usage. These impairment charges are included in the impairment charge line on our consolidated statement of income (loss).

#### Interest Expense, Net

Interest expense increased \$0.2 million to \$2.8 million for 2015. This change in interest expense was primarily due to higher outstanding debt balances during the period related to our 2015 Schroedahl acquisition.

#### Other Expense (Income), Net

Other expense was \$0.9 million for 2015 compared to other income of \$1.2 million in 2014. The difference of \$2.1 million was primarily due to foreign currency fluctuations.

#### Comprehensive (Loss) Income

Comprehensive (loss) income changed by \$34.7 million from comprehensive income of \$12.5 million as of December 31, 2014 to comprehensive loss of \$22.2 million as of December 31, 2015, primarily driven by \$40.5 million decrease in net income and an increase of \$1.1 million in unfavorable foreign currency balance sheet remeasurements. These unfavorable foreign currency balance sheet remeasurements were driven by the weakening of the Brazilian Real (\$5.4 million), Canadian Dollar (\$1.4 million) and UK Pound (\$0.4 million) offset by strengthening of the Euro (\$6.2 million) against the U.S. Dollar.

#### Provision for Income Taxes

The effective tax rate was 56% for the year ended December 31, 2015 compared to 20% for the same period of 2014. The primary drivers of the higher 2015 tax rate was an increase in foreign losses from Brazil with no tax benefit (+38%), a 2014 valuation allowance benefit related to US foreign tax credits (+9%), and charges for a foreign tax audit that was settled in 2015 (+5%). This was partially offset by lower taxed foreign earnings in 2015 (-9%), as well as a 2015 valuation allowance benefit for certain state net operating losses (-7%).

#### Liquidity and Capital Resources

Our liquidity needs arise primarily from capital investment in machinery, equipment and the improvement of facilities, funding working capital requirements to support business growth initiatives, acquisitions, dividend payments, pension funding obligations and debt service costs. We have historically generated cash from operations and remain in a strong financial position, with resources available for reinvestment in existing businesses, strategic acquisitions and managing our capital structure on a short and long-term basis.

The following table summarizes our cash flow activities for the year-ended indicated (in thousands):

	2016	2015	2014
Cash flow provided by (used in):			



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Operating activities	\$59,399	\$27,142	\$70,826
Investing activities	(210,481)	(87,726 )	(1,842 )
Financing activities	158,764	2,251	(37,724 )
Effect of exchange rate changes on cash and cash equivalents	(3,944 )	(8,498 )	(12,163 )
Increase (decrease) in cash and cash equivalents	\$3,738	\$(66,831)	\$19,097

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Cash Flow Activities for the Year Ended December 31, 2016 Compared to the Year Ended December 31, 2015

During the year ended December 31, 2016, we generated \$59.4 million in cash flow from operating activities compared to \$27.1 million during the year ended December 31, 2015. The \$32.3 million increase in operating cash was primarily driven by higher cash provided by working capital. Within working capital in 2016, approximately \$1.9 million of cash came from increased collections and \$50.5 million from improved inventory positions offset in part by a decrease in accounts payable of \$13.6 million. The decrease in accounts payable was due to the timing of payments to our vendors for products and services and decrease in business volume, primarily in our large international projects business (\$12.8 million).

During the year ended December 31, 2016, we used \$210.5 million for investing activities as compared to \$87.7 million during the year ended December 31, 2015. The \$122.8 million year over year increase in cash used was primarily driven by \$197.5 million used for the CFS acquisition in 2016 compared to \$79.7 million used for the Schroedahl acquisition in 2015, as described in Note 3, Business Acquisitions.

During the year ended December 31, 2016, we generated \$158.8 million for financing activities as compared to cash generated of \$2.3 million during the year ended December 31, 2015. The \$156.5 million year over year increase in cash generated from financing activities was primarily related to our net borrowing activity as we increased debt by \$323.2 million, and made debt payments of \$162.5 million. On October 13, 2016, to fund the acquisition of CFS, we borrowed \$205.0 million under our existing credit facility. During the fourth quarter of 2016, we repatriated \$32.0 million of foreign earnings and utilized the cash to repay borrowings under our credit agreement.

As of December 31, 2016, total debt was \$251.2 million compared to \$90.5 million at December 31, 2015 due to the draw down on our credit facility. Total debt as a percentage of total shareholders' equity was 62% as of December 31, 2016 compared to 23% as of December 31, 2015.

As a result of a significant portion of our cash balances being denominated in Euros and Canadian Dollars, the strengthening of the U.S. Dollar resulted in a \$3.9 million decrease in reported cash balances.

We have a five year unsecured credit agreement ("2014 Credit Agreement"), under which we may borrow funds up to \$400 million (with an accordion feature that allows us to borrow up to an additional \$200 million if the existing or additional lenders agree).

We entered into the 2014 Credit Agreement to fund potential acquisitions, such as our Schroedahl and CFS acquisitions, to support our operational growth initiatives and working capital needs, and for general corporate purposes. As of December 31, 2016, we had borrowings of \$251.2 million outstanding under our credit facility and \$53.6 million outstanding under letters of credit.

The 2014 Credit Agreement contains covenants that require, among other items, maintenance of certain financial ratios and also limits our ability to: enter into secured and unsecured borrowing arrangements; issue dividends to shareholders; acquire and dispose of businesses; invest in capital equipment; transfer assets among domestic and international entities; participate in certain higher yielding long-term investment vehicles; and issue additional shares of our stock which limits our ability to borrow under the credit facility. The two primary financial covenants are leverage ratio and interest coverage ratio. We were in compliance with all financial covenants related to our existing debt obligations at December 31, 2016 and we believe it is likely that we will continue to meet such covenants in the next twelve months from date of financial statements.

The ratio of current assets to current liabilities was 3.1:1 at December 31, 2016 compared to 2.6:1 at December 31, 2015. As of December 31, 2016, cash and cash equivalents totaled \$58.3 million, substantially all of which was held

in foreign bank accounts. This compares to \$54.5 million of cash and cash equivalents as of December 31, 2015 substantially all of which was also held in foreign bank accounts. The cash and cash equivalents located at our foreign subsidiaries may not be repatriated to the United States or other jurisdictions without significant tax implications. We believe that our U.S. based subsidiaries, in the aggregate, will generate positive operating cash flows and in addition we may utilize our 2014 Credit Agreement for U.S. based cash needs.

In 2017, we expect to generate positive cash flow from operating activities sufficient to support our capital expenditures and pay dividends of approximately \$2.5 million based on our current dividend practice of paying \$0.15 per share annually. Based on our expected cash flows from operations and contractually available borrowings under our credit facility, we expect to have sufficient liquidity to fund working capital needs and future growth over at least the next twelve months from date of filing the 2016 financial statements. We continue to search for strategic acquisitions. A larger acquisition may require additional borrowings and/or the issuance of our common stock.

#### Cash Flow Activities for the Year Ended December 31, 2015 Compared to the Year Ended December 31, 2014

During the year ended December 31, 2015, we generated \$27.1 million in cash flow from operating activities compared to \$70.8 million during the year ended December 31, 2014. The \$43.7 million increase in cash usage was primarily driven by a \$40.5 million decrease in net income, higher cash usage for working capital (\$6.0 million), partially offset by an increase in non-cash charges, particularly amortization. Within working capital in 2015 we were provided \$20.4 million of cash for increased collections but this was offset by increased inventory purchases and a decrease in accounts payable. This was due to the Company's timing of payments to our vendors for products and services and a customer dispute resolution payment (\$5.5 million) as well as an Italian tax settlement (\$2.2 million).

During the year ended December 31, 2015, we used \$87.7 million for investing activities as compared to \$1.8 million during the year ended December 31, 2014. The \$85.9 million year over year increase in cash used was primarily driven by \$79.9 million used for the Schroedahl acquisition.

During the year ended December 31, 2015, we generated \$2.3 million for financing activities as compared to cash used of \$37.7 million during the year ended December 31, 2014. The \$40.0 million year over year increase in cash generated from financing activities was primarily related to our net borrowing activity as we increased debt by \$261.4 million, and made debt payments of \$182.0 million. The cash inflow from additional net borrowings was used to purchase \$75.0 million of our common stock.

As a result of a significant portion of our cash balances being denominated in Euros and Canadian Dollars, the strengthening of the U.S. Dollar resulted in an \$8.5 million decrease in reported cash balances.

The ratio of current assets to current liabilities was 2.6:1 at December 31, 2015 compared to 2.7:1 at December 31, 2014. As of December 31, 2015, cash and cash equivalents totaled \$54.5 million, substantially all of which was held in foreign bank accounts. This compares to \$121.4 million of cash and cash equivalents as of December 31, 2014 substantially all of which was held in foreign bank accounts. The cash and cash equivalents located at our foreign subsidiaries may not be repatriated to the United States or other jurisdictions without significant tax implications. We believe that our U.S. based subsidiaries, in the aggregate, will generate positive operating cash flows and in addition we may utilize our 2014 Credit Agreement for U.S. based cash needs.

The following table summarizes our significant contractual obligations and commercial commitments at December 31, 2016 that affect our liquidity:

	Payments due by Period				
	Total	Less Than 1 Year	1 – 3 Years	3 – 5 Years	More than 5 years
Contractual Cash Obligations:	(in thousands)				
Long-term debt, less current portion	\$251,200	\$ —	\$251,200	\$ —	\$ —
Interest payments on debt	15,658	6,061	9,597	—	—
Operating leases	31,894	7,453	10,704	5,405	8,332
Total contractual cash obligations	\$298,752	\$ 13,514	\$271,501	\$5,405	\$ 8,332
Commercial Commitments:					

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U.S. standby letters of credit	\$22,502	\$ 2,946	\$19,556	\$—	\$ —
International standby letters of credit	31,109	9,073	19,841	2,133	62
Commercial contract commitments	66,758	63,287	3,389	60	22
Total commercial commitments	\$120,369	\$ 75,306	\$42,786	\$2,193	\$ 84

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In accordance with the authoritative guidance for accounting for uncertainty in income taxes, as of December 31, 2016, we had unrecognized tax benefits of \$3.0 million, including \$0.2 million of accrued interest. The Company expects the unrecognized tax benefits to change over the next 12 months if certain tax matters ultimately settle with the applicable taxing jurisdiction during this timeframe, or if the applicable statute of limitations lapses. The impact of the amount of such changes to previously recorded uncertain tax positions could range from zero to \$1.0 million.

The interest on certain of our other debt balances, with scheduled repayment dates between 2017 and 2019 and interest rates ranging between 1.59% and 4%, have been included in the "Interest payments on debt" line within the Contractual Cash Obligations schedule.

Our commercial contract commitments primarily relate to open purchase orders of \$66.8 million, \$3.2 million of which extend to 2018 and beyond.

In fiscal years 2016 and 2015, we contributed \$1.0 million and \$1.6 million to our qualified defined benefit pension plan, respectively. In addition, we made \$0.4 million in payments to our nonqualified supplemental plan for both 2016 and 2015. In connection with a lump sum cash payout option to terminated and vested pension plan participants, during Q4 2016 we incurred a \$4.5 million non-cash settlement charge which has been recorded within the Special and restructuring charges, net line item. In addition, we made \$1.5 million and \$2.9 million in payments to our 401(k) savings plan for 2016 and 2015, respectively.

In 2017, we expect to make plan contributions totaling \$2.0 million, consisting of \$1.6 million in contributions to our qualified plan and payments of \$0.4 million for our nonqualified plan. The estimates for plan funding for future periods may change as a result of the uncertainties concerning the return on plan assets, the number of plan participants, and other changes in actuarial assumptions. We anticipate fulfilling these commitments through our generation of cash flow from operations.

#### Share Repurchase Plan

During 2015, we completed a stock repurchase program announced on December 18, 2014, which authorized the Company to repurchase up to \$75.0 million of the Company's outstanding common stock. Under the program, shares were purchased on the open market, in privately negotiated transactions and under plans complying with Rules 10b5-1 and 10b-18 under the Securities and Exchange Act of 1934, as amended. All shares of our common stock repurchased were automatically restored to the status of authorized and unissued. We initiated our repurchase program on March 16, 2015 and completed the program as of December 31, 2015.

The following table provides information about our repurchase of our common stock during the year ended December 31, 2015.

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Value of Shares Purchased as Part of a Publicly Announced Program
January 1st - December 31st	1,381,784	\$54.26	\$74,972,000

#### Off-Balance Sheet Arrangements

Through December 31, 2016, we have not entered into any off-balance sheet arrangements or material transactions with unconsolidated entities or other persons that have, or are reasonably likely to have, a current or future effect on our financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures, or capital resources that is material to investors.



## Item 7A. Quantitative and Qualitative Disclosures About Market Risk

### Market Risk

The Oil & Gas markets historically have been subject to cyclicalities depending upon supply and demand for crude oil, its derivatives and natural gas. When oil or gas prices decrease, expenditures on maintenance and repair decline rapidly and outlays for exploration and in-field drilling projects decrease and, accordingly, demand for valve products is reduced. However, when oil and gas prices rise, maintenance and repair activity and spending for projects normally increase and we benefit from increased demand for valve products. However, oil or gas price increases may be considered temporary in nature or not driven by customer demand and, therefore, may result in longer lead times for increases in sales orders. As a result, the timing and magnitude of changes in market demand for oil and gas valve products are difficult to predict. A decline in oil price will have a similar impact on the demand for our products, particularly in markets, such as North America, where the cost of oil production is relatively higher. Similarly, although not to the same extent as the Oil & Gas markets, the general industrial, chemical processing, aerospace, military and maritime markets have historically experienced cyclical fluctuations in demand. Lower oil prices result in reduced spending on our products as production or prices are cut. As a result, we historically have generated lower revenues and profits in periods of declining demand or prices for crude oil and natural gas. In the latter half of fiscal year 2014 continuing into 2016, our operating results were adversely affected due to dramatic decreases in the price of oil and our customers reduced their spending on our products as level of activity fell. Therefore, results of operations for any particular period are not necessarily indicative of the results of operations for any future period. Any future downward pricing pressure on crude oil could have a material adverse effect on our business, financial condition or results of operations. These fluctuations have had a material adverse effect on our business, financial condition and results of operations and may continue going forward.

### Foreign Currency Exchange Risk

The Company is exposed to certain risks relating to its ongoing business operations including foreign currency exchange rate risk and interest rate risk. For additional information regarding our foreign currency exchange risk refer to Note 16 to the consolidated financial statements included in this Annual Report.

We performed a sensitivity analysis as of December 31, 2016 based on scenarios in which market spot rates are hypothetically changed in order to produce a potential net exposure loss. The hypothetical change was based on a 10 percent strengthening or weakening in the U.S. dollar, whereby all other variables are held constant. The analysis includes all of our foreign currency contracts outstanding as of December 31 for each year, as well as the offsetting underlying exposures. The sensitivity analysis indicates that a hypothetical 10 percent adverse movement in foreign currency exchange rates would result in a foreign exchange gain of \$2.7 million at December 31, 2016.

### Interest Rate Risk

Loans under our credit facility bear interest at variable rates which reset every 30 to 180 days depending on the rate and period selected by the Company. These loans are subject to interest rate risk as interest rates will be adjusted at each rollover date to the extent such amounts are not repaid. As of December 31, 2016, the annual rates on the revolving loans were 2.0%. If there was a hypothetical 100 basis point change in interest rates, the annual net impact to earnings and cash flows would be \$2.5 million. This hypothetical change in cash flows and earnings has been calculated based on the borrowings outstanding at December 31, 2016 and a 100 basis point per annum change in interest rate applied over a one-year period.

## Item 8. Financial Statements and Supplementary Data



Our consolidated financial statements and the related notes thereto included in this Annual Report on Form 10-K are hereby incorporated by reference herein.

Item 9. Changes In and Disagreements With Accountants on Accounting and Financial Disclosure

None.

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## Item 9A. Controls and Procedures

### Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer ("CEO") and Chief Financial Officer ("CFO") (our principal executive officer and principal financial officer, respectively), has evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) of the Securities Exchange Act of 1934) as of the end of the period covered by this Annual Report on Form 10-K. Based on that evaluation, our CEO and CFO concluded that, as of December 31, 2016, the Company's disclosure controls and procedures were effective to provide reasonable assurance that information we disclose in reports that we file or submit under the Securities and Exchange Act of 1934 is accumulated and communicated to management, including our principal executive and financial officers, to allow timely decisions regarding disclosure and that such information is recorded, processed, summarized and reported, within the time periods specified in the Securities and Exchange Commission's rules and forms.

### Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in the Exchange Act Rules 13a-15(f) and 15d-15(f). Under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework titled "Internal Control - Integrated Framework" issued by the Committee of Sponsoring Organizations of the Treadway Commission in 2013. Based on our evaluation under this framework, our management concluded that our internal control over financial reporting was effective as of December 31, 2016.

Management excluded CFS from our assessment of internal control over financial reporting as of December 31, 2016 because it was acquired by the Company in a purchase business combination in October 2016. The total assets and total revenues of CFS, a wholly-owned subsidiary, represent approximately \$77 million and \$19 million, respectively, of the related consolidated financial statement amounts as of and for the year ended December 31, 2016.

Our internal control over financial reporting as of December 31, 2016 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report which is included herein.

### Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting that occurred during the quarter ended December 31, 2016 that could materially affect, or are reasonably likely to materially affect, our internal control over financial reporting.

## Item 9B. Other Information

None.

## Part III

## Item 10. Directors, Executive Officers and Corporate Governance

The information required under this item is incorporated by reference to the Company's definitive proxy statement pursuant to Regulation 14A, which proxy statement will be filed with the Securities and Exchange Commission no

later than 120 days after the close of the Company's fiscal year ended December 31, 2016.

#### Code of Ethics

The Company has implemented and regularly monitors compliance with a comprehensive Code of Conduct & Business Ethics (the "Code of Conduct"), which applies uniformly to all directors, executive officers, and employees. Among other things, the Code of Conduct addresses conflicts of interest, confidentiality, fair dealing, protection and proper use of Company assets, compliance with applicable law (including insider trading and anti-bribery laws), and reporting of illegal or unethical behavior. The Code of Conduct is available on the Company's website at [www.CIRCOR.com](http://www.CIRCOR.com) under the "Investors" sub link and hardcopy will be provided by the Company to any stockholder who requests it by writing to the Company's Secretary at the Company's headquarters.

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## Item 11. Executive Compensation

The information required under this item is incorporated by reference to the Company's definitive proxy statement pursuant to Regulation 14A, which proxy statement will be filed with the Securities and Exchange Commission no later than 120 days after the close of the Company's fiscal year ended December 31, 2016.

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

Except for the information required by Section 201(d) of Regulation S-K which is set forth below, the information required under this item is incorporated by reference to the Company's definitive proxy statement pursuant to Regulation 14A, which proxy statement will be filed with the Securities and Exchange Commission no later than 120 days after the close of the Company's fiscal year ended December 31, 2016.

## EQUITY COMPENSATION PLAN INFORMATION

Plan category	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))
	(a)	(b)	(c)
Equity Compensation plans approved by security holders	643,004	(1)\$ 30.34	(4)1,039,568
Inducement Awards for President and CEO	200,000	(2)8.18	(4)—
Inducement Award for Executive VP and CFO	100,000	(3)10.77	(4)—
Total	943,004	\$ 21.66	1,039,568

Reflects 436,319 stock options and 30,615 restricted stock units granted under the Company's Amended and (1) Restated 1999 Stock Option and Incentive Plan and 176,070 restricted stock units granted under the Company's 2014 Stock Option and Incentive Plan.

Reflects stock options issued as inducement equity awards to our President and CEO on April 9, 2013 and (2) December 2, 2013. These awards were granted pursuant to the inducement award exemption under Section 303A.08 of the NYSE Listed Company Manual. Details of these grants, including vesting terms, are set forth in Note 11, "Share-Based Compensation", to the consolidated financial statements.

Reflects 100,000 stock options issued to our Executive VP and CFO on December 2, 2013. These awards were (3) granted pursuant to the inducement award exemption under Section 303A.08 of the NYSE Listed Company Manual. Details of these grants are set forth in Note 11, "Share-Based Compensation", to the consolidated financial statements.

(4) The weighted-average exercise price does not take into account the shares issuable upon vesting of outstanding restricted stock units, which have no exercise price.

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

The information required under this item is incorporated by reference to the Company's definitive proxy statement pursuant to Regulation 14A, which proxy statement will be filed with the Securities and Exchange Commission no later than 120 days after the close of the Company's fiscal year ended December 31, 2016.

Item 14. Principal Accounting Fees and Services

The information required under this item is incorporated by reference to the Company's definitive proxy statement pursuant to Regulation 14A, which proxy statement will be filed with the Securities and Exchange Commission no later than 120 days after the close of the Company's fiscal year ended December 31, 2016.

Part IV

Item 15. Exhibits, Financial Statement Schedules

(a)(1) Financial Statements

The financial statements filed as part of the report are listed in Part II, Item 8 of this report on the Index to Consolidated Financial Statements.

(a)(2) Financial Statement Schedules

	Page
<u>Schedule II Valuation and Qualifying Accounts</u>	<u>82</u>

Other than our Allowance for Doubtful Accounts Rollforward included in Schedule II Valuation and Qualifying Accounts, all other schedules are omitted because they are not applicable or not required, or because the required information is included either in the consolidated financial statements or in the notes thereto.

(a)(3) Exhibits

References to exhibits in the table below being incorporated by reference are made in each case with respect to filings of the Company, SEC File No. 001-14962.

Exhibit

No.	Description and Location
2.1*	Share Purchase Agreement, dated April 15, 2015, between CIRCOR International, Inc. and affiliates and Schroedahl-ARAPP Spezialarmaturen GmbH & Co. KG and affiliates, incorporated herein by reference to Exhibit 2.1 to the Company's Form 8-K filed with the SEC on April 15, 2015
2.2*	Agreement and Plan of Merger dated October 12, 2016 by and among the Company, Downstream Holding, LLC, Downstream Acquisition LLC, and Sun Downstream, LP., incorporated herein by reference to Exhibit 2.1 to the Company's Form 8-K filed with the SEC on October 14, 2016
3	Articles of Incorporation and By-Laws:
3.1	Amended and Restated Certificate of Incorporation of the Company, incorporated herein by reference to Exhibit 3.1 to the Company's Form 10-Q, filed with the SEC on October 29, 2009
3.2	Amended and Restated By-Laws, as amended, of the Company, incorporated herein by reference to Exhibit 3.1 to the Company's Form 10-Q, filed with the SEC on October 31, 2013
10	Material Contracts:
10.1	Credit Agreement among CIRCOR International, Inc., as borrower, certain subsidiaries of CIRCOR International, Inc. as guarantors, the lenders from time to time parties thereto, Suntrust Bank as administrative agent, swing line lender and letter of credit issuer, Suntrust Robinson Humphrey, Inc. as joint-lead arranger and joint-bookrunner, Keybank Capital Markets Inc., as joint-lead arranger and joint-bookrunner, Keybank National Association as syndication agent, and Santander Bank, N.A., Branch Banking and Trust Company and HSBC Bank USA, N.A., as co-documentation agents, dated July 31, 2014, incorporated herein by reference to Exhibit 10.1 to the Company's Form 10-Q, filed with the SEC on August 1, 2014 (the "Credit Agreement")
10.2	First Amendment to CIRCOR International, Inc. Amended and Restated 1999 Stock Option and Incentive Plan, dated as of December 1, 2005, is incorporated herein by reference to Exhibit 10.1 to CIRCOR International, Inc.'s Form 8-K, File No. 001-14962, filed with the Securities and Exchange Commission on December 7, 2005
10.3§	CIRCOR International, Inc. Amended and Restated 1999 Stock Option and Incentive Plan (as amended, the "1999 Stock Option and Incentive Plan"), incorporated herein by reference to Exhibit 4.4 to the Company's Form S-8, File No. 333-125237, filed with the SEC on May 25, 2005
10.4§	First Amendment to the 1999 Stock Option and Incentive Plan, dated as of December 1, 2005, incorporated herein by reference to Exhibit 10.1 to the Company's Form 8-K, filed with the SEC on December 7, 2005
10.5§	Second Amendment to the 1999 Stock Option and Incentive Plan, dated as of February 12, 2014
10.6§	Form of Non-Qualified Stock Option Agreement for Employees (Three Year Cliff Vesting) under the 1999 Stock Option and Incentive Plan, incorporated herein by reference to Exhibit 10.1 to the Company's Form 10-Q, filed with the SEC on May 10, 2010
10.7§**	CIRCOR International, Inc. Amended and Restated Management Stock Purchase Plan dated as of January 1, 2017
10.8§	Form of Indemnification Agreement entered into by the Company and its directors and certain of its officers is incorporated herein by reference to Exhibit 10.12 to the Company's Form 10-K, filed with the SEC on March 12, 2003
10.9§	Executive Change of Control Agreement between CIRCOR, Inc. and Arjun Sharma, dated September 1, 2009, incorporated herein by reference to Exhibit 10.2 to the Company's Form 10-Q, filed with the SEC on October 29, 2009
10.10§	

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Amendment to Executive Change of Control Agreement between CIRCOR, Inc. and Arjun Sharma, dated November 4, 2010, incorporated by reference to Exhibit 10.8 to the Company's Form 8-K, filed with the SEC on November 5, 2010

10.11§ Restricted Stock Unit Agreement, dated as of April 9, 2013, between the Company and Scott A Buckhout incorporated herein by reference to Exhibit 10.1 to the Company's Form 8-K, filed with the SEC on April 15, 2013

10.12§ Performance-Based Restricted Stock Unit Agreement, dated as of April 9, 2013, between the Company and Scott A Buckhout, incorporated herein by reference to Exhibit 10.2 to the Company's Form 8-K, filed with the SEC on April 15, 2013

10.13§ Stock Option Inducement Award Agreement, dated as of April 9, 2013, between the Company and Scott A Buckhout, incorporated herein by reference to Exhibit 10.3 to the Company's Form 8-K, filed with the SEC on April 15, 2013

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- 10.14§ Severance Agreement, dated as of April 9, 2013, between the Company and Scott A Buckhout, incorporated herein by reference to Exhibit 10.4 to the Company's Form 8-K, filed with the SEC on April 15, 2013
- 10.15§ Amended Performance-Based Restricted Stock Unit Agreement, dated as of April 9, 2013, between the Company and Scott A. Buckhout, incorporated by reference to Exhibit 10.1 to the Company's Form 10-Q, filed with the SEC on April 28, 2015
- 10.16§ Executive Change of Control Agreement, dated as of April 9, 2013, between the Company and Scott A Buckhout, incorporated herein by reference to Exhibit 10.5 to the Company's Form 8-K, filed with the SEC on April 15, 2013
- 10.17§ Performance-Based Stock Option Award Agreement, dated as of March 5, 2014, between the Company and Scott A. Buckhout, incorporated herein by reference to Exhibit 10.1 to the Company's Form 8-K, filed with the SEC on March 11, 2014
- 10.18§ CIRCOR International, Inc. 2014 Stock Option and Incentive Plan is incorporated herein by reference to Exhibit A to the Company's Definitive Proxy Statement, filed with the SEC on March 21, 2014 (the "2014 Stock Option and Incentive Plan")
- 10.19§ First Amendment to 2014 Stock Option and Incentive Plan, dated December 31, 2014, incorporated herein by reference to Exhibit 10.36 to the Company's Form 10-K for the year ended December 31, 2014 filed with the SEC on February 18, 2015
- 10.20§ Executive Change of Control Agreement, dated as of March 5, 2015, between the Company and Erik Wiik, incorporated by reference to Exhibit 10.2 to the Company's Form 10-Q, filed with the SEC on April 28, 2015
- 10.21§ Executive Change of Control Agreement, dated as of June 10, 2015, between the Company and Andrew Farnsworth, incorporated herein by reference to the Company's Form 10-Q filed with the SEC on July 29, 2015
- 10.22§ Executive Change of Control Agreement, dated as of January 8, 2016, between the Company and David Mullen, incorporated herein by reference to the Company's Form 10-K filed with the SEC on February 23, 2016
- 10.23§ Severance Agreement, dated as of March 19, 2014, between the Company and Vincent Sandoval, incorporated herein by reference to Exhibit 10.2 to the Company's Form 10-Q, filed with the SEC on April 22, 2014
- 10.24§ Executive Change of Control Agreement, dated as of March 19, 2014, between the Company and Vincent Sandoval, incorporated herein by reference to Exhibit 10.2 to the Company's Form 10-Q, filed with the SEC on April 22, 2014
- 10.25§ Inducement Restricted Stock Unit Agreement, dated as of December 2, 2013, between the Company and Rajeev Bhalla, incorporated herein by reference to Exhibit 10.35 to the Company's Form 10-K, filed with the SEC on February 27, 2014
- 10.26§ Stock Option Inducement Award Agreement, dated as of December 2, 2013, between the Company and Rajeev Bhalla, incorporated herein by reference to Exhibit 10.36 to the Company's Form 10-K, filed with the SEC on February 27, 2014
- 10.27§ Severance Agreement, dated as of December 2, 2013, between the Company and Rajeev Bhalla, incorporated herein by reference to Exhibit 10.37 to the Company's Form 10-K, filed with the SEC on February 27, 2014
- 10.28§ Executive Change of Control Agreement, dated as of December 2, 2013, between the Company and Rajeev Bhalla, incorporated herein by reference to Exhibit 10.38 to the Company's Form 10-K, filed with the SEC on February 27, 2014
- 10.29§\*\* Form of Performance-Based Restricted Stock Unit Agreement For Employees and Directors under the Amended and Restated 1999 Stock Option And Incentive Plan
- 10.30§\*\* Form of Management Stock Purchase Plan Restricted Stock Unit Agreement For Employees and Directors under the CIRCOR International, Inc. Amended and Restated 1999 Stock Option And Incentive Plan



- 10.31§\*\* Form of Restricted Stock Unit Agreement For Directors under the Company 2014 Stock Option And Incentive Plan
- 10.32§\*\* Form of Performance-Based Restricted Stock Unit Agreement For Employees and Directors under the 2014 Stock Option And Incentive Plan
- 10.33§\*\* Form of Management Stock Purchase Plan Restricted Stock Unit Agreement For Employees and Directors under the CIRCOR International, Inc. 2014 Stock Option And Incentive Plan
- 10.34§\*\* Form of Non-Qualified Stock Option Agreement for Employees under the Company 2014 Stock Option And Incentive Plan
- 10.35§\*\* Form of Restricted Stock Unit Agreement For Employees under the Company 2014 Stock Option And Incentive Plan
- 10.36§\*\* Executive Change of Control Agreement, dated as of November 7, 2016, between CIRCOR International, Inc. and Jennifer H. Allen
- 10.37§\*\* Executive Change of Control Agreement, dated as of October 26, 2016, between CIRCOR International, Inc. and Sumit Mehrotra

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- 10.38§\*\* Severance Agreement, dated as of December 9, 2016, between CIRCOR International, Inc. and Jennifer H. Allen
- 10.39§\*\* Severance Agreement, dated as of December 9, 2016, between CIRCOR International, Inc. and Sumit Mehrotra
- 10.40§ Stock Option Inducement Award Agreement, dated as of April 9, 2013, between the Company and Scott A. Buckhout, incorporated herein by reference to Exhibit 10.3 to the Company's Form 8-K, filed with the SEC on April 15, 2013
- 21\*\* Schedule of Subsidiaries of CIRCOR International, Inc.
- 23.1\*\* Consent of PricewaterhouseCoopers LLP, Independent Registered Public Accounting Firm
- 23.2\*\* Consent of Grant Thornton LLP, Independent Registered Public Accounting Firm
- 31.1\*\* Certification of Chief Executive Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
- 31.2\*\* Certification of Chief Financial Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
- 32.1\*\*\* Certification of Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
- 101 The following financial statements from CIRCOR International, Inc.'s Annual Report on Form 10-K for the year ended December 31, 2016, as filed with the SEC on February 21, 2017, formatted in XBRL (eXtensible Business Reporting Language), as follows:
- (i) Consolidated Balance Sheets as of December 31, 2016 and 2015
  - (ii) Consolidated Statements of Income for the years ended December 31, 2016, 2015 and 2014
  - (iii) Consolidated Statements of Comprehensive (Loss) Income for the years ended December 31, 2016, 2015 and 2014
  - (iv) Consolidated Statements of Cash Flows for the years ended December 31, 2016, 2015 and 2014
  - (v) Consolidated Statements of Shareholders' Equity for the years ended December 31, 2016, 2015 and 2014
  - (vi) Notes to the Consolidated Financial Statements

\* The Company hereby agrees to provide the Commission, upon request, copies of any omitted exhibits or schedules to this exhibit required by Item 601(b)(2) of Regulation S-K.

\*\* Filed with this report.

\*\*\*Furnished with this report.

§ Indicates management contract or compensatory plan or arrangement.

Item 16. Form 10-K Summary  
Not applicable.

## 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.

CIRCOR INTERNATIONAL, INC.

By: /s/ Scott A. Buckhout  
 Scott A. Buckhout  
 President and Chief Executive Officer

Date: February 21, 2017

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

Signature	Title	Date
/s/ Scott A. Buckhout Scott A. Buckhout	President and Chief Executive Officer (Principal Executive Officer)	February 21, 2017
/s/ Rajeev Bhalla Rajeev Bhalla	Executive Vice President, Chief Financial Officer (Principal Financial Officer)	February 21, 2017
/s/ David F. Mullen David F. Mullen	Vice President and Corporate Controller (Principal Accounting Officer)	February 21, 2017
/s/ David F. Dietz David F. Dietz	Chairman of the Board of Directors	February 21, 2017
/s/ Helmuth Ludwig Helmuth Ludwig	Director	February 21, 2017
/s/ Douglas M. Hayes Douglas M. Hayes	Director	February 21, 2017
/s/ John A. O'Donnell John A. O'Donnell	Director	February 21, 2017
/s/ Peter M. Wilver Peter M. Wilver	Director	February 21, 2017

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders of CIRCOR International, Inc.

In our opinion, the accompanying consolidated balance sheets as of December 31, 2016 and 2015 and the related consolidated statements of income, comprehensive (loss) income, shareholders' equity and cash flows for the years then ended present fairly, in all material respects, the financial position of CIRCOR International, Inc. and its subsidiaries at December 31, 2016 and 2015, and the results of their operations and their cash flows for the years then ended in conformity with accounting principles generally accepted in the United States of America. In addition, in our opinion, the financial statement schedule as of and for the years ended December 31, 2016 and 2015 listed in the index appearing under Item 15(a)(2) presents fairly, in all material respects, the information set forth therein when read in conjunction with the related consolidated financial statements. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2016, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's management is responsible for these financial statements and financial statement schedule, for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on these financial statements, on the financial statement schedule and on the Company's internal control over financial reporting based on our integrated audits. We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

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

As described in Management's Report on Internal Control over Financial Reporting, management has excluded Critical Flow Solutions from its assessment of internal control over financial reporting as of December 31, 2016 because Critical Flow Solutions was acquired by the Company in a purchase business combination during 2016. We have also excluded Critical Flow Solutions from our audit of internal control over financial reporting. Critical Flow Solutions is a wholly-owned subsidiary whose total assets and total revenues represent approximately \$77 million and \$19 million, respectively, of the related consolidated financial statement amounts as of and for the year ended December 31, 2016.

/s/ PricewaterhouseCoopers LLP  
Boston, Massachusetts  
February 21, 2017

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders of CIRCOR International, Inc.:

We have audited the balance sheet of CIRCOR International, Inc. (the "Company") as of December 31, 2014 (not presented herein), and the related consolidated statements of income, comprehensive (loss) income, changes in shareholders' equity and cash flows for the year ended December 31, 2014. Our audit of the basic consolidated financial statements included the financial statement schedule listed in the index appearing under Item 15 (a)(2). These financial statements and financial statement schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the results of operations and cash flows of CIRCOR International Inc. and subsidiaries for the year ended December 31, 2014, in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the related financial statement schedule, when considered in relation to the basic consolidated financial statements taken as a whole, presents fairly, in all material respects, the information set forth therein.

/s/ GRANT THORNTON LLP

Boston, Massachusetts

February 18, 2015

(except for the effects of the change in reportable segments, as discussed in Note 17, as to which the date is February 21, 2017)

## CIRCOR INTERNATIONAL, INC.

## Consolidated Balance Sheets

(in thousands, except share and per share data)

	December 31,	
	2016	2015
<b>ASSETS</b>		
<b>CURRENT ASSETS:</b>		
Cash and cash equivalents	\$ 58,279	\$ 54,541
Trade accounts receivable, less allowance for doubtful accounts of \$5,056 and \$8,290, respectively	133,046	125,628
Inventories	149,584	177,840
Prepaid expenses and other current assets	29,557	16,441
Total Current Assets	370,466	374,450
<b>PROPERTY, PLANT AND EQUIPMENT, NET</b>	<b>99,713</b>	<b>87,029</b>
<b>OTHER ASSETS:</b>		
Goodwill	206,659	115,452
Intangibles, net	135,778	48,981
Deferred income taxes	4,824	36,799
Other assets	3,316	7,204
<b>TOTAL ASSETS</b>	<b>\$ 820,756</b>	<b>\$ 669,915</b>
<b>LIABILITIES AND SHAREHOLDERS' EQUITY</b>		
<b>CURRENT LIABILITIES:</b>		
Accounts payable	\$ 46,767	\$ 64,284
Accrued expenses and other current liabilities	50,707	59,463
Accrued compensation and benefits	20,249	18,424
Total Current Liabilities	117,723	142,171
<b>LONG-TERM DEBT</b>	<b>251,200</b>	<b>90,500</b>
<b>DEFERRED INCOME TAXES</b>	<b>13,657</b>	<b>10,424</b>
<b>OTHER NON-CURRENT LIABILITIES</b>	<b>33,766</b>	<b>26,043</b>
<b>COMMITMENTS AND CONTINGENCIES (NOTE 14)</b>		
<b>SHAREHOLDERS' EQUITY:</b>		
Preferred stock, \$0.01 par value; 1,000,000 shares authorized; no shares issued and outstanding	—	—
Common stock, \$0.01 par value; 29,000,000 shares authorized; 16,445,363 and 16,364,299 shares issued and outstanding at December 31, 2016 and 2015, respectively	178	177
Additional paid-in capital	289,423	283,621
Retained earnings	265,543	257,939
Common treasury stock, at cost (1,372,488 and 1,381,784) shares at December 31, 2016 and 2015)	(74,472 )	(74,972 )
Accumulated other comprehensive loss, net of tax	(76,262 )	(65,988 )
Total Shareholders' Equity	404,410	400,777
<b>TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY</b>	<b>\$ 820,756</b>	<b>\$ 669,915</b>

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

CIRCOR INTERNATIONAL, INC.  
 Consolidated Statements of Income  
 (in thousands, except per share data)

	Year Ended December 31,		
	2016	2015	2014
Net revenues	\$590,259	\$656,267	\$841,446
Cost of revenues	407,144	456,935	584,426
<b>GROSS PROFIT</b>	<b>183,115</b>	<b>199,332</b>	<b>257,020</b>
Selling, general and administrative expenses	154,818	156,302	178,800
Impairment charges	208	2,502	726
Special and restructuring charges, net	17,171	14,354	12,737
<b>OPERATING INCOME</b>	<b>10,918</b>	<b>26,174</b>	<b>64,757</b>
Other expense (income):			
Interest expense, net	3,310	2,844	2,652
Other (income) expense, net	(2,072)	) 902	(1,156)
<b>TOTAL OTHER EXPENSE, NET</b>	<b>1,238</b>	<b>3,746</b>	<b>1,496</b>
<b>INCOME BEFORE INCOME TAXES</b>	<b>9,680</b>	<b>22,428</b>	<b>63,261</b>
(Benefit from) Provision for income taxes	(421)	) 12,565	12,875
<b>NET INCOME</b>	<b>\$10,101</b>	<b>\$9,863</b>	<b>\$50,386</b>
Earnings per common share:			
Basic	\$0.62	\$0.59	\$2.85
Diluted	\$0.61	\$0.58	\$2.84
Weighted average common shares outstanding:			
Basic	16,418	16,850	17,660
Diluted	16,536	16,913	17,768
Dividends paid per common share	\$0.15	\$0.15	\$0.15

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



## CIRCOR INTERNATIONAL, INC.

Consolidated Statements of Comprehensive (Loss) Income  
(in thousands)

	Year Ended December 31,		
	2016	2015	2014
Net income	\$10,101	\$9,863	\$50,386
Other comprehensive (loss) income, net of tax:			
Foreign currency translation adjustments	(14,866 )	(31,775 )	(30,658 )
Other changes in pension plan assets - recognized actuarial gains (losses) (1)	1,441	262	(6,863 )
Net periodic pension costs amortization (2)	3,152	(529 )	(322 )
Other comprehensive (loss), net of tax	(10,273 )	(32,042 )	(37,843 )
COMPREHENSIVE (LOSS) INCOME	\$(172 )	\$(22,179)	\$12,543

(1) Net of an income tax effect of \$0.8 million, \$0.0 million, and \$(4.2) million for the years ended December 31, 2016, 2015 and 2014, respectively.

(2) Net of an income tax effect of \$1.8 million, \$(0.2) million, and \$(0.2) million for the years ended December 31, 2016, 2015 and 2014, respectively.

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

CIRCOR INTERNATIONAL, INC.  
Consolidated Statements of Cash Flows  
(in thousands)

	Year Ended December 31,		
	2016	2015	2014
<b>OPERATING ACTIVITIES</b>			
Net income	\$10,101	\$9,863	\$50,386
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation	13,304	14,254	16,446
Amortization	12,316	9,681	3,116
Provision for bad debt expense	2,330	2,561	7,817
Loss on write down of inventory	9,297	15,404	12,993
Impairment charges	208	2,502	726
Compensation expense of share-based plans	5,545	6,579	7,188
Tax effect of share-based plan compensation	145	(134)	(756)
Pension settlement charge	4,457	—	—
Deferred income tax (benefit) expense	(10,737)	781	(2,740)
Loss (gain) on disposal of property, plant and equipment	3,708	305	(79)
(Gain) loss on sale of businesses	—	(1,044)	3,413
Changes in operating assets and liabilities, net of effects of acquisitions and divestitures:			
Trade accounts receivable	18,536	20,393	(38,439)
Inventories	36,092	(14,446)	(16,945)
Prepaid expenses and other assets	2,454	(4,786)	884
Accounts payable, accrued expenses and other liabilities	(48,357)	(34,771)	26,816
Net cash provided by operating activities	59,399	27,142	70,826
<b>INVESTING ACTIVITIES</b>			
Purchases of property, plant and equipment	(14,692)	(12,711)	(12,810)
Proceeds from the sale of property, plant and equipment	1,700	2,209	791
Proceeds from divestitures	—	2,759	10,177
Business acquisitions, net of cash acquired	(197,489)	(79,983)	—
Net cash used in investing activities	(210,481)	(87,726)	(1,842)
<b>FINANCING ACTIVITIES</b>			
Proceeds from long-term debt	323,200	261,394	150,062
Payments of long-term debt	(162,540)	(182,004)	(185,361)
Debt issuance costs	—	—	(920)
Dividends paid	(2,497)	(2,559)	(2,681)
Proceeds from the exercise of stock options	246	258	420
Tax effect of share-based plan compensation	(145)	134	756
Sales (purchases) of treasury stock	500	(74,972)	—
Net cash provided by (used in) financing activities	158,764	2,251	(37,724)
Effect of exchange rate changes on cash and cash equivalents	(3,944)	(8,498)	(12,163)
<b>INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS</b>	<b>3,738</b>	<b>(66,831)</b>	<b>19,097</b>
Cash and cash equivalents at beginning of year	54,541	121,372	102,275
<b>CASH AND CASH EQUIVALENTS AT END OF YEAR</b>	<b>\$58,279</b>	<b>\$54,541</b>	<b>\$121,372</b>
Cash paid during the year for:			
Income taxes	\$10,650	\$15,049	\$16,672
Interest	\$2,908	\$1,992	\$2,476

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

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CIRCOR INTERNATIONAL, INC.  
 Consolidated Statements of Shareholders' Equity  
 (in thousands)

	Common Stock		Additional Paid-in Capital	Retained Earnings	Accumulated Other Comprehensive (Loss) Income	Treasury Stock	Total Shareholders' Equity
	Shares	Amount					
BALANCE AT DECEMBER 31, 2013	17,611	\$ 176	\$269,884	\$202,930	\$ 3,897	\$—	\$ 476,887
Net income				50,386			50,386
Other comprehensive loss, net of tax					(37,843 )		(37,843 )
Common stock dividends declared				(2,681 )			(2,681 )
Stock options exercised	13	—	419				419
Tax effect of share-based plan compensation			756				756
Conversion of restricted stock units	58	1	(1,020 )				(1,019 )
Share-based plan compensation			7,188				7,188
BALANCE AT DECEMBER 31, 2014	17,682	\$ 177	\$277,227	\$250,635	\$ (33,946 )	\$—	\$ 494,093
Net income				9,863			9,863
Other comprehensive loss, net of tax					(32,042 )		(32,042 )
Common stock dividends declared				(2,559 )			(2,559 )
Stock options exercised	8		258				258
Tax effect of share-based plan compensation			134				134
Conversion of restricted stock units	56	—	(577 )				(577 )
Share-based plan compensation			6,579				6,579
Repurchase of common stock	(1,382 )					(74,972 )	(74,972 )
BALANCE AT DECEMBER 31, 2015	16,364	\$ 177	\$283,621	\$257,939	\$ (65,988 )	\$(74,972)	\$ 400,777
Net income				10,101			10,101
Other comprehensive loss, net of tax					(10,273 )		(10,273 )
Common stock dividends declared				(2,497 )			(2,497 )
Stock options exercised	6		245				245
Tax effect of share-based plan compensation			(145 )				(145 )
Conversion of restricted stock units	66	1	156				157
Share-based plan compensation			5,545				5,545
Sales of common stock	9					500	500
BALANCE AT DECEMBER 31, 2016	16,445	\$ 178	\$289,422	\$265,543	\$ (76,261 )	\$(74,472)	\$ 404,410

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



CIRCOR INTERNATIONAL, INC.  
Notes to Consolidated Financial Statements

(1) Description of Business

CIRCOR International, Inc. ("CIRCOR" or the "Company" or "we") designs, manufactures and distributes a broad array of valves and related flow control products and certain services to a variety of end-markets for use in a wide range of applications to optimize the efficiency and/or ensure the safety of flow control systems. We have a global presence and operate major manufacturing facilities in North America, Western Europe, Morocco, and India.

We have organized our business segment reporting structure into two segments: CIRCOR Energy ("Energy segment" or "Energy") and CIRCOR Advanced Flow Solutions ("Advanced Flow Solutions" or "AFS"). Refer to Note 17 for further information about our segments.

(2) Summary of Significant Accounting Policies

Principles of Consolidation and Basis of Presentation

The consolidated financial statements include the accounts of CIRCOR and its subsidiaries. The results of companies acquired during the year are included in the consolidated financial statements from the date of acquisition. All significant intercompany balances and transactions have been eliminated in consolidation. Certain reclassifications have been made to prior period amounts to conform to the current period financial statement presentation. These reclassifications have no effect on the previously reported net income

Use of Estimates

The preparation of these financial statements in conformity with generally accepted accounting principles ("GAAP") requires management to make estimates and assumptions that affect the amounts reported in the consolidated financial statements and accompanying disclosures. Some of the more significant estimates relate to acquisition accounting, estimated total costs for ongoing long-term contracts accounted for under the percentage of completion method, inventory valuation, share-based compensation, amortization and impairment of long-lived assets, pension obligations, income taxes, penalty accruals for late shipments, asset valuations, and product warranties. While management believes that the estimates and assumptions used in the preparation of the financial statements are appropriate, actual results could differ materially from those estimates.

Revenue Recognition and Accounts Receivable Allowances

Revenue is recognized when products are delivered, title and risk of loss have passed to the customer, persuasive evidence of an arrangement exists, no significant post delivery obligations remain, the price to the buyers is fixed or determinable and collection of the resulting receivable is reasonably assured. Revenues and costs on certain long-term capital contracts for refinery valves are recognized on the percentage-of-completion method measured on the basis of costs incurred to estimated total costs for each contract. This method is used because management considers it to be the best available measure of progress towards completion on these contracts. Revenues and costs on contracts are subject to revision throughout the duration of the contracts, and any required adjustments are made in the period in which a revision becomes known. Estimated losses on contracts in progress are recognized in the period in which a loss becomes known. Unbilled receivables for net revenues recognized in excess of the amounts billed for active projects are recognized within other current assets on the balance sheet.

The Company provides for the estimated costs to fulfill customer warranty obligations upon the recognition of the related revenue. Shipping and handling costs invoiced to customers are recorded as components of revenues and the associated costs are recorded as cost of revenues. We recognize revenue net of sales returns, rebates, penalties, and discounts. Accounts receivable allowances include sales returns and bad debt allowances. The Company monitors and tracks the amount of product returns and reduces revenue at the time of shipment for the estimated amount of such future returns, based on historical experience. The Company makes estimates evaluating its allowance for doubtful accounts. The Company continuously monitors collections and payments from its customers and maintains a provision for estimated credit losses based upon its historical experience and any specific customer collection issues that it has identified. Account balances are charged off against the allowance when the company believes it is probable the receivable will not be recovered.

## Cost of Revenue

Cost of revenue primarily reflects the costs of manufacturing and preparing products for sale and, to a much lesser extent, the costs of performing services. Cost of revenue is primarily comprised of the cost of materials, outside processing, inbound freight, production, direct labor and overhead including indirect labor, which are expenses that directly result from the level of production activity at the manufacturing plant. Additional expenses that directly result from the level of production activity at the manufacturing plant include: purchasing and receiving costs, inspection costs, warehousing costs, internal transfer costs, utility expenses, property taxes, amortization of inventory step-up from revaluation at the date of acquisition, depreciation of production building and equipment assets, warranty costs, salaries and benefits paid to plant manufacturing management and maintenance supplies.

## Inventories

Inventories are stated at the lower of cost or market. Cost is generally determined on the first-in, first-out (“FIFO”) basis. Where appropriate, standard cost systems are utilized for purposes of determining cost; the standards are adjusted as necessary to ensure they approximate actual cost. We typically analyze our inventory aging and projected future usage on a quarterly basis to assess the adequacy of our inventory allowance, which primarily consist of obsolescence and net realizable value estimates. These estimates are measured on an item-by-item basis determined based on the difference between the cost of the inventory and estimated market value. The provision for inventory allowance is a component of our cost of revenues. Assumptions about future demand are among the primary factors utilized to estimate market value. At the point of the loss recognition, a new, lower-cost basis for that inventory is established, and subsequent changes in facts and circumstances do not result in the restoration or increase in that newly established cost basis.

Our inventory balance was \$150 million as of December 31, 2016, compared to \$178 million as of December 31, 2015. Our inventory allowances, which include amounts primarily for obsolescence and net realizable value estimates was \$24 million as of December 31, 2016, compared to \$28 million as of December 31, 2015.

If there were to be a sudden and significant decrease in demand for our products, significant price reductions, or if there were a higher incidence of inventory obsolescence for any reason, including a change in technology or customer requirements, we could be required to increase our inventory allowances and our gross profit could be adversely affected.

## Penalty Accruals

Certain customer agreements, primarily in our long-cycle project related businesses and large aerospace programs, contain late shipment penalty clauses whereby we are contractually obligated to pay consideration to our customers if we do not meet specified shipment dates. The accrual for estimated penalties is shown as a reduction of revenue and is based on several factors including historical customer settlement experience and management’s assessment of specific shipment delay information. Accruals related to these potential late shipment penalties as of December 31, 2016 and 2015 were \$5 million and \$6 million, respectively. As we conclude performance under these agreements, the actual amount of consideration paid to our customers may vary from the amounts we currently have accrued.

## Business Acquisitions

In connection with our acquisitions, we assess and formulate a plan related to the future integration of the acquired entity. This process begins during the due diligence phase and is concluded within twelve months of the acquisition. We account for business combinations under the purchase method, and accordingly, the assets and liabilities of the acquired businesses are recorded at their estimated fair value on the acquisition date with the excess of the purchase



price over their estimated fair value recorded as goodwill. We determine acquisition related asset and liability fair values through established valuation techniques for industrial manufacturing companies and utilize third party valuation firms to assist in the valuation of certain tangible and intangible assets.

The consideration for our acquisitions may include future payments that are contingent upon the occurrence of a particular event. For acquisitions that qualify as business combinations, we record an obligation for such contingent payments at fair value on the acquisition date. We estimate the fair value of contingent consideration obligations through valuation models that incorporate probability adjusted assumptions related to the achievement of the milestones and thus likelihood of making related payments or by using a Monte Carlo simulation model. We revalue these contingent consideration obligations each reporting period. Changes in the fair value of our contingent consideration obligations are recognized within general and administrative expense in our consolidated statements of income.

Accounting Standards Codification ("ASC") Topic 805, Business Combinations, provides guidance regarding business combinations and requires acquisition-date fair value measurement of identifiable assets acquired, liabilities assumed, and non-controlling interests in the acquiree. For additional information, refer to Note 3, Business Acquisitions.

#### Legal Contingencies

We are currently involved in various legal claims and legal proceedings, some of which may involve substantial dollar amounts. Periodically, we review the status of each significant matter and assess our potential financial exposure. If the potential loss from any claim or legal proceeding is considered probable and the amount can be estimated, we accrue a liability for the estimated loss. Significant judgment is required in both the determination of probability and the determination as to whether an exposure can be reasonably estimated. Because of uncertainties related to these matters, accruals are based on the best information available at the time. As additional information becomes available, we reassess the potential liability related to our pending claims and litigation and may revise our estimates. Such revisions in the estimates of the potential liabilities could have a material adverse effect on our business, results of operations and financial position.

For more information related to our outstanding legal proceedings, see "Contingencies, Commitments and Guarantees" in Note 14 of the consolidated financial statements.

#### Goodwill

Goodwill is measured as the excess of the cost of acquisition over the sum of the amounts assigned to identifiable tangible and intangible assets acquired less liabilities assumed. Goodwill and intangible assets are recorded at cost; intangible assets with definite lives are amortized over their useful lives. For goodwill, we perform an impairment assessment at the reporting unit level on an annual basis as of the end of our October month end or more frequently if circumstances warrant. Our annual impairment assessment is a two-step process. The first step requires a comparison of the fair value of each of our reporting units to the respective carrying value. If the carrying value of a reporting unit is higher than its fair value, there is an indication that impairment may exist and the second step of the evaluation must be performed. In the second step, the potential impairment is calculated by comparing the implied fair value of the reporting unit's goodwill with the carrying value of the goodwill. If the carrying value of the reporting unit's goodwill is greater than the implied fair value of its goodwill, an impairment loss will be recognized for the excess.

Determining the fair value of a reporting unit is subjective and requires the use of significant estimates and assumptions. With the assistance of an independent third-party appraisal firm, we estimate the fair value of our reporting units using an income approach based on the present value of future cash flows. We believe this approach yields the most appropriate evidence of fair value. We also utilize the comparable company multiples method and market transaction fair value method to validate the fair value amount we obtain using the income approach. The key assumptions utilized in our discounted cash flow model include our estimates of future cash flows from operating activities offset by estimated capital expenditures of the reporting unit, the estimated terminal value for each reporting unit, a discount rate based on a weighted average cost of capital, overall economic conditions, and of our current market capitalization. Any unfavorable material changes to these key assumptions could potentially impact our fair value determinations. As such, we may experience fluctuations in revenues and operating results resulting in the non-achievement of our estimated growth rates, operating performance and working capital estimates utilized in our discounted cash flow models.

On October 28, 2016, we announced a realignment of our businesses from Energy and Aerospace & Defense into: Energy and Advanced Flow Solutions. The Energy segment includes all of the historical businesses focused on the Oil & Gas markets and the Critical Flow Solutions ("CFS") business (acquired in Q4 2016) and excludes certain businesses that operate in the industrial, power and process markets (also referred to as the Control Valves

businesses). The Advanced Flow Solutions segment includes all of the Aerospace & Defense businesses and the Control Valve businesses. Management began reporting the new segments during the fourth quarter of 2016. Our announced realignment was a triggering event under ASC 350-20 to test goodwill for impairment given the intended change in composition of our historical Energy and Aerospace & Defense reporting units. As such, during the fourth quarter of 2016, we performed a step one analysis on our historical reporting units. The fair value of each reporting unit exceeded the respective carrying amount, and no goodwill impairments were necessary.

As part of the realignment of our organizational structure, we re-evaluated our reporting units for purposes of goodwill impairment testing in accordance with ASC 350-20, which defines a reporting unit as an operating segment or one level below an operating segment (also known as a component). A component of an operating segment is a reporting unit if the component constitutes a business for which discrete financial information is available for which segment management regularly reviews the operating results of that component. For the year ended December 31, 2016, we determined our Energy operating segment to be a reporting unit. We also identified the following two components of the Advanced Flow Solutions operating segment to be reporting units: (i) Aerospace; and (ii) Power, Process and Industrial Solutions.

As such, during the fourth quarter of 2016, we performed a step one analysis on our legacy and new reporting units. The fair value of each reporting unit exceeded the respective carrying amount, and no goodwill impairments were necessary. The goodwill balances for Energy, Aerospace and Power, Process and Industrial Solutions as of December 31, 2016 were \$144.4 million, \$21.5 million and \$40.8 million, respectively.

For more information related to our Goodwill, see "Goodwill and Other Intangible Assets" in Note 7 of the consolidated financial statements.

#### Indefinite-Lived Intangible Assets

For intangible assets with indefinite lives, we perform an impairment assessment at the asset level on an annual basis as of the end of our October month end or more frequently if circumstances warrant. Indefinite-lived intangible assets, such as trade names, are generally recorded and valued in connection with a business acquisition. These assets are reviewed at least annually for impairment, or more frequently if facts and circumstances warrant. We also utilized a fair value calculation to evaluate these intangibles. Determining the fair value is subjective and requires the use of significant estimates and assumptions. With the assistance of an independent third-party appraisal firm, we estimate the fair value using an income approach based on the present value of future cash flows. We note the fair value of each individual indefinite-lived asset exceeded the respective carrying amount, and no intangible impairments were recorded.

For more information related to our Intangible Assets, see "Goodwill and Other Intangible Assets" in Note 7 of the consolidated financial statements.

#### Other Long-Lived Assets

In accordance with ASC 360, Plant, Property, and Equipment, we perform impairment analyses of our long-lived assets, such as property, plant and equipment, whenever events and circumstances indicate that they may be impaired. When the undiscounted future cash flows are expected to be less than the carrying value of identified asset groupings being reviewed for impairment, the asset groupings are written down to fair value.

See Note 6 to the consolidated financial statements for further information on impairment of other long-lived assets.

#### Pension Benefits

Pension obligations and other post-retirement benefits are actuarially determined and are affected by several assumptions including the discount rate and projected annual rates of return on plan assets. Changes in discount rate and differences from actual results will affect the amounts of pension and other post-retirement expense recognized in future periods. These assumptions may also have an effect on the amount and timing of future cash contributions.

As required in the recognition and disclosure provisions of ASC Topic 715, Compensation - Retirement Benefits, the Company recognizes the over-funded or under-funded status of defined benefit post-retirement plans in its balance sheet, measured as the difference between the fair value of plan assets and the benefit obligation (the projected benefit obligation for pension plans and the accumulated postretirement benefit obligation for other post-retirement plans). The change in the funded status is the net of the recognized net periodic benefit cost, cash contributions to the trust/benefits paid directly by CIRCOR and recognized changes in other comprehensive income. Other comprehensive income changes are due to new actuarial gains and losses and new plan amendments and the amortizations of amounts in the net periodic benefit cost.

Unrecognized actuarial gains and losses in excess of the 10% corridor (defined as the threshold above which gains or losses need to be amortized) are being recognized over approximately a twenty-six year period for the qualified plan, and a twenty years period for the nonqualified plan, which represents the weighted average expected remaining life of the employee group. Unrecognized actuarial gains and losses arise from several factors including experience and assumption changes in the obligations and from the difference between expected returns and actual returns on plan assets.

In the third quarter of 2016, management offered a lump sum cash payout option to terminated and vested pension plan participants. In connection with this action, the window for participants who opt to avail themselves of this program closed in September 2016. See Note 13 of the consolidated financial statements for further information on our employee benefit plans.

## Income Taxes

Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and operating loss and tax credit carry-forwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. A valuation allowance is recognized if we anticipate that it is more likely than not that we may not realize some or all of a deferred tax asset.

In accordance with the provisions of ASC Topic 740, Income Taxes, the Company initially recognizes the financial statement effect of a tax position when, based solely on its technical merits, it is more likely than not (a likelihood of greater than fifty percent) that the position will be sustained upon examination by the relevant taxing authority. Those tax positions failing to qualify for initial recognition are recognized in the first interim period in which they meet the more likely than not standard, are resolved through negotiation or litigation with the taxing authority, or upon expiration of the statute of limitations. De-recognition of a tax position that was previously recognized occurs when an entity subsequently determines that a tax position no longer meets the more likely than not threshold of being sustained.

If future results of operations exceed our current expectations, our existing tax valuation allowances may be adjusted, resulting in future tax benefits. Alternatively, if future results of operations are less than expected, future assessments may result in a determination that some or all of the deferred tax assets are not realizable. Consequently, we may need to establish additional tax valuation allowances for a portion or all of the gross deferred tax assets, which may have a material adverse effect on our results of operations.

Under ASC Topic 740, only the portion of the liability that is expected to be paid within one year is classified as a current liability. As a result, liabilities expected to be resolved without the payment of cash (e.g., due to the expiration of the statute of limitations) or are not expected to be paid within one year are classified as non-current. It is the Company's policy to record estimated interest and penalties as income tax expense and tax credits as a reduction in income tax expense.

For more information related to our Income Taxes, see "Income Taxes" in Note 8 of the consolidated financial statements.

## Share-Based Compensation

Share-based compensation costs are based on the grant date fair value estimated in accordance with the provisions of ASC 718, Accounting for Share Based Payments, and these costs are recognized over the requisite vesting period. The Black-Scholes option pricing model is used to estimate the fair value of each stock option grant at the date of grant excluding the 2013 and 2014 CEO and CFO stock option awards which are valued using the Monte Carlo option pricing model as these are market condition awards. Black-Scholes utilizes assumptions related to volatility, the risk-free interest rate, the dividend yield and employee exercise behavior. Expected volatilities utilized in the model are based on the historic volatility of the Company's stock price. The risk-free interest rate is derived from the U.S. Treasury Yield curve in effect at the time of the grant. The model incorporates exercise and post-vesting forfeiture assumptions based on an analysis of historical data.

Market condition stock option awards include both a service period and a market performance vesting condition. The stock options vest if certain stock price targets are met based on the stock price closing at or above the target for 60

consecutive trading days. Vested options may be exercised 25% at the time of vesting, 50% one year from the date of vesting and 100% two years from the date of vesting. These market condition stock option awards are being expensed utilizing a graded method and are subject to forfeiture in the event of employment termination (whether voluntary or involuntary) prior to vesting. To the extent that the market conditions above (stock price targets) are not met, those options will not vest and will forfeit 5 years from grant date. The Company used a Monte Carlo simulation option pricing model to value these option awards.

See Note 11 to the consolidated financial statements for further information on share-based compensation.

#### Environmental Compliance and Remediation

Environmental expenditures that relate to current operations are expensed or capitalized as appropriate. Expenditures that relate to existing conditions caused by past operations, which do not contribute to current or future revenue generation, are expensed. Expenditures that meet the criteria of "Regulated Operations" are capitalized. Liabilities are recorded when environmental assessments and/or remedial efforts are probable and the costs can be reasonably estimated. In accordance with ASC 450, Contingencies, estimated costs are based upon current laws and regulations, existing technology and the most probable method of remediation.

## Foreign Currency

Our international subsidiaries operate and report their financial results using local functional currencies. Accordingly, all assets, liabilities, revenues and costs of these subsidiaries are translated into United States dollars using exchange rates in effect at the end of the relevant periods. The resulting translation adjustments are presented as a separate component of other comprehensive income. We do not provide for U.S. income taxes on foreign currency translation adjustments since we do not provide for such taxes on undistributed earnings of foreign subsidiaries.

Our net foreign exchange losses / (gains) recorded for the years ended December 31, 2016, 2015 and 2014 were \$2.1 million, \$0.8 million, and \$(1.1) million, respectively. See Note 16, "Fair Value", of the consolidated financial statements for additional information on foreign currency exchange risk.

## Earnings Per Common Share

Basic earnings per common share are calculated by dividing net income by the number of weighted average common shares outstanding. Diluted earnings per common share is calculated by dividing net income by the weighted average common shares outstanding and assumes the conversion of all dilutive securities when the effects of such conversion would not be anti-dilutive.

Earnings per common share and the weighted average number of shares used to compute net earnings per common share, basic and assuming full dilution, are reconciled below (in thousands, except per share data):

	Year Ended December 31,								
	2016			2015			2014		
	Net Income	Shares	Per Share Amount	Net Income	Shares	Per Share Amount	Net Income	Shares	Per Share Amount
Basic EPS	\$10,101	16,418	\$ 0.62	\$9,863	16,850	\$ 0.59	\$50,386	17,660	\$ 2.85
Dilutive securities, principally common stock options		118	(0.01 )		63	(0.01 )		108	(0.01 )
Diluted EPS	\$10,101	16,536	\$ 0.61	\$9,863	16,913	\$ 0.58	\$50,386	17,768	\$ 2.84

Certain stock options to purchase common shares and restricted stock units ("RSUs") were anti-dilutive. There were 36,281 anti-dilutive options and RSUs for the year ended December 31, 2016 with exercise prices ranging from \$70.42 to \$79.33. There were 297,915 anti-dilutive options and RSUs for the year ended December 31, 2015 with exercise prices ranging from \$41.17 to \$79.33. There were 129,329 anti-dilutive options and RSUs for the year ended December 31, 2014 with exercise prices ranging from \$64.94 to \$79.33.

As of December 31, 2016, there were 3,040 outstanding restricted stock units that contain rights to nonforfeitable dividend equivalents and are considered participating securities that are included in our computation of basic and fully diluted earnings per share.

## Cash and Cash Equivalents

Our cash equivalents are invested in time deposits of financial institutions. We have established guidelines relative to credit ratings, diversification and maturities that are intended to maintain safety and liquidity. Cash equivalents include highly liquid investments with maturity periods of three months or less when purchased.

## Other Assets



Other assets in the accompanying consolidated balance sheets include deferred debt issuance costs, tax receivable and other assets.

#### Fair Value

ASC Topic 820, Fair Value Measurement, defines fair value and includes a framework for measuring fair value and disclosing fair value measurements in financial statements. Fair value is a market-based measurement rather than an entity-specific measurement. The fair value hierarchy makes a distinction between assumptions developed based on market data obtained from independent sources (observable inputs) and the reporting entity's own assumptions (unobservable inputs). This fair value hierarchy gives the highest priority to quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest

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priority to unobservable inputs (Level 3). We utilize fair value measurements for forward currency contracts, guarantee and indemnification obligations, pension plan assets, and certain intangible assets.

See Note 16, "Fair Value", of the consolidated financial statements for additional information on fair value.

#### Derivative Financial Instruments

The Company is exposed to certain risks relating to its ongoing business operations including foreign currency exchange rate risk and interest rate risk. The Company currently uses derivative instruments to manage foreign currency risk on certain business transactions denominated in foreign currencies. To the extent the underlying transactions hedged are completed, these forward contracts do not subject us to significant risk from exchange rate movements because they offset gains and losses on the related foreign currency denominated transactions. These forward contracts do not qualify as hedging instruments and, therefore, do not qualify for fair value or cash flow hedge treatment. GAAP requires all derivatives, whether designated in a hedging relationship or not, to be recorded on the balance sheet at fair value. Any unrealized gains and losses on our contracts are recognized as a component of other expense in our consolidated statements of income.

See Note 16, "Fair Value", of the consolidated financial statements for additional information on derivative financial instruments.

#### Property, Plant and Equipment

Property, plant and equipment are recorded at cost. Depreciation is generally provided on a straight-line basis over the estimated useful lives of the assets, which typically range from 3 to 40 years for buildings and improvements, 3 to 10 years for manufacturing machinery and equipment, computer equipment and software, and furniture and fixtures. Motor vehicles are depreciated over a range of 2 to 6 years. Leasehold improvements are amortized on a straight-line basis over the shorter of the lease term or estimated useful life of the asset. Repairs and maintenance costs are expensed as incurred.

The Company reports depreciation of property, plant and equipment in cost of revenue and selling, general and administrative expenses based on the nature of the underlying assets. Depreciation primarily related to equipment used in the production of inventory is recorded in cost of revenue. Depreciation related to selling and administrative functions is reported in selling, general and administrative expenses.

See Note 6, "Property, Plant and Equipment", of the consolidated financial statements for additional information.

#### Research and Development

Research and development expenditures, including certain engineering costs, are expensed when incurred and are included in selling, general and administrative expenses. Our research and development expenditures for the years ended December 31, 2016, 2015 and 2014 were \$5.9 million, \$5.9 million and \$7.8 million, respectively.

#### New Accounting Standards

In November 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standard Update ("ASU") 2016-18, Statement of Cash Flows (Topic 230): Restricted Cash, which amends the presentation for statement of cash flows. The new guidance requires amounts generally included within the cash flow as restricted cash and restricted cash equivalents to be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. The ASU is effective for

reporting periods beginning after December 15, 2017, and interim periods within those fiscal years. Early adoption is permitted, including adoption in an interim period. The new guidance is required to be applied using a retrospective transition method to each period presented. We are currently evaluating the requirements of ASU 2016-18 and have not yet determined its impact on our consolidated financial statements.

In October 2016, the FASB issued ASU 2016-16, Income Taxes: Intra-Entity Transfers of Assets Other than Inventory, which amends the accounting for income taxes. The new guidance requires the recognition of the income tax consequences of an intra-entity asset transfer, other than transfers of inventory, when the transfer occurs. For intra-entity transfers of inventory, the income tax effects will continue to be deferred until the inventory has been sold to a third party. The ASU is effective for reporting periods beginning after December 15, 2017, with early adoption permitted. The new guidance is required to be applied on a modified retrospective basis through a cumulative-effect adjustment directly to retained earnings as of the beginning of the period of adoption. We are currently evaluating the requirements of ASU 2016-16 and have not yet determined its impact on our consolidated financial statements.

In August 2016, FASB issued ASU 2016-15, Classification of Certain Cash Receipts and Cash Payments. ASU 2016-15 reduces the existing diversity in practice in how certain cash receipts and cash payments are presented and classified in the statement of cash flows under Topic 230, Statement of Cash Flows, and other Topics. This ASU addresses eight specific cash flow issues with the objective of enhancing consistency in presentation and classification. The amendments in this ASU are effective for fiscal years beginning after December 15, 2017, and interim periods within those fiscal years. Early adoption is permitted, including adoption in an interim period. We are currently evaluating the requirements of ASU 2016-15 and have not yet determined its impact on our consolidated financial statements.

In March 2016, the FASB issued ASU 2016-02, Leases. ASU 2016-02 outlines a model for lessees by recognizing all lease-related assets and liabilities on the balance sheet. The amendments in this ASU are effective for fiscal years beginning after December 15, 2018 and interim periods within those fiscal years. Early application is permitted for all entities. ASU 2016-02 requires a modified retrospective approach for all leases existing at, or entered into after, the date of initial application, with an option to elect to use certain transition relief. We are currently evaluating the requirements of ASU 2016-02 and have not yet determined its impact on our consolidated financial statements.

In March 2016, the FASB issued ASU 2016-09, Improvements to Employee Share-Based Payment Accounting. The areas for simplification in this update involve several aspects of the accounting for share-based payment transactions, including the income tax consequences, classification of awards as either equity or liabilities, and classification on the statement of cash flows. The amendments in this ASU are effective for fiscal years beginning after December 15, 2016, and interim periods within those fiscal years. The adoption of ASU 2016-09 is not expected to have a material impact on our consolidated financial statements.

In July 2015, the FASB issued ASU 2015-11, Inventory. ASU 2015-11 more closely aligns the measurement of inventory in GAAP with the measurement of inventory in International Financial Reporting Standards ("IFRS"). The amendments in this Update require that an entity should measure inventory within the scope of this update at the lower of cost and net realizable value. Net realizable value is the estimated selling prices in the ordinary course of business, less reasonably predictable costs of completion, disposal, and transportation. ASU 2015-11 is effective for for fiscal years beginning after December 15, 2016, including interim periods within those fiscal years. The amendments in this update should be applied prospectively with earlier application permitted as of the beginning of an interim or annual reporting period. We intend to adopt the standard prospectively after the effective date of January 1, 2017. The adoption of ASU 2015-11 is not expected to have a material impact on our consolidated financial statements.

In November 2015, the FASB issued ASU 2015-17, Balance Sheet Classification of Deferred Taxes, which amends existing guidance on income taxes to require the classification of all deferred tax assets and liabilities as non-current on the balance sheet. As permitted, the Company elected to early adopt this guidance effective December 31, 2015, and has applied the guidance prospectively.

In August 2014, the FASB issued ASU No. 2014-15, Presentation of Financial Statements - Going Concern: Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern, which requires management to evaluate whether there is substantial doubt about the entity's ability to continue as a going concern and, if so, provide certain footnote disclosures. This ASU is effective for annual periods ending after December 15, 2016, including interim reporting periods thereafter. The adoption of ASU 2014-15 did not have a material impact on our consolidated financial statements.

In May 2014, the FASB issued ASU 2014-09, Revenue from Contracts with Customers. ASU 2014-09 outlines a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers and will replace most existing revenue recognition guidance in GAAP when it becomes effective. ASU 2014-09 is effective for fiscal years and interim periods within those years beginning after December 15, 2017. Early adoption is

permitted but not earlier than the original effective date of December 15, 2016. An entity should apply ASU 2014-09 either retrospectively to each prior reporting period presented or retrospectively with the cumulative effect of initially applying the ASU recognized as an adjustment to the opening balance of retained earnings at the date of initial application. In March, April and May 2016, the FASB issued additional updates to the new revenue standard relating to reporting revenue on a gross versus net basis, identifying performance obligations and licensing arrangements, and narrow-scope improvements and practical expedients, respectively. We will not early adopt this new standard and are currently evaluating the requirements. Our final determination will depend on a number of factors, such as the significance of the impact of the new standard on our financial results, system readiness, and our ability to accumulate and analyze the information necessary to assess the impact on prior period financial statement.

### (3) Business Acquisitions

#### CFS Acquisition

On October 12, 2016, the Company, entered into an Agreement and Plan of Merger (the "Merger Agreement") by and among the Company, Downstream Holding, LLC, a Delaware limited liability company ("Downstream"), Downstream Acquisition LLC, a Delaware limited liability company and subsidiary of the Company, and Sun Downstream, LP, a Delaware limited partnership to acquire all of the outstanding units of Downstream. Subsidiaries of Downstream, which do business as Critical Flow Solutions ("CFS"), manufacture critical severe service equipment for refining operations. This acquisition diversifies CIRCOR's revenue base by providing further penetration into the downstream refining market as well as increased aftermarket revenues. CFS brings a portfolio of high technology valves and automation equipment for severe-service applications. Under its DeltaValve brand, CFS offers solutions for the delayed coking process in refineries, and under its TapcoEnpro brand, the company provides solutions for the fluid catalytic cracking process in refineries. CFS has a total of approximately 200 employees at its Salt Lake City, Utah headquarters, Houston, Texas facilities and Barnsley, England service center.

The consideration payable by the Company pursuant to the terms of the Merger Agreement is \$195.0 million, subject to (i) up to an additional \$15.0 million payable pursuant to an earn-out relating to achievement of specified business performance targets by the acquired business in the twelve month period ended September 30, 2017, (ii) increase or decrease based on deviation, subject to certain limitations, from a working capital target, (iii) decrease for indebtedness and certain transaction expenses of CFS, (iv) increase for the amount of CFS cash as of the closing, and (v) a potential increase for certain transaction related tax benefits, net of certain adjustments, if and when realized by the Company. The total consideration paid at closing on October 13, 2016 was approximately \$198.0 million in cash, net of cash acquired and including amounts paid at closing for estimated adjustments for CFS working capital, the repayment of CFS outstanding indebtedness and payment of certain transaction expenses. The Company funded the purchase price and payments at closing from borrowings under the Company's existing credit agreement.

The estimated fair value of the earn-out as of the acquisition date was \$12.2 million, based on a Monte Carlo simulation model. The estimated undiscounted range of outcomes for the contingent consideration will be in the range of zero to \$15.0 million at the acquisition date. If the minimum target is met \$7.5 million will be earned. We will re-evaluate the fair value of the earn-out on a quarterly basis and recognize any change in estimate in general and administrative expense. As of December 31, 2016 there has been no change in our fair value estimate of the earn-out as of the acquisition date.

The operating results of CFS have been included in our consolidated financial statements from the date of acquisition reported within the Energy segment. Acquisition-related costs of \$1.0 million, which primarily consisted of legal and financial advisory services, were expensed at corporate during the fourth quarter of 2016.

The purchase price allocation is based upon a preliminary valuation of assets and liabilities that was prepared with assistance from a third party valuation specialist. The estimates and assumptions are subject to change as we obtain additional information during the measurement period (up to one year from the acquisition date). The purchase accounting is expected to be finalized in the third quarter of 2017. The assets and liabilities pending finalization include the valuation of acquired intangible assets, certain operating liabilities, and the evaluation of deferred income taxes. Differences between the preliminary and final valuation could have a material impact on our future results of operations and financial position.

The following table summarizes the preliminary fair value of the assets acquired and the liabilities assumed, at the date of acquisition:

(in thousands)

Cash and cash equivalents	\$6,603
Accounts receivable	28,128
Unbilled receivable	10,786
Inventory	18,701
Prepaid and other current assets	4,380
Property, plant and equipment	20,869
Identifiable intangible assets	101,600
Accounts payable	(11,655 )
Accrued and other expenses	(8,482 )
Deferred revenue	(3,997 )
Deferred income taxes	(42,660 )
Total identifiable net assets	\$ 124,273
Goodwill	93,228
Total purchase price	\$217,501

The fair value of accounts receivable acquired approximates the contractual value of \$28.1 million. The excess of purchase price paid over the fair value of CFS' net assets was recorded to goodwill, which is primarily attributable to projected future profitable growth, market penetration, as well as an expanded customer base for the Energy segment. Goodwill is not deductible for income tax purposes.

The CFS acquisition resulted in the identification of the following identifiable intangible assets:

	Intangible assets acquired (in thousands)	Weighted average amortization period (in years)
Customer relationship	\$ 49,600	14
Existing technology	25,800	10
Trade name	24,100	Indefinite
Aftermarket backlog	2,100	1
Total intangible assets	\$ 101,600	

The fair value of the intangible assets was based on variations of the income approach, which estimates fair value based on the present value of cash flows that the assets are expected to generate. These approaches included the relief-from-royalty method, incremental cash flow method, multi-period excess earnings method and direct cash flow method, depending on the intangible asset being valued. Customer relationships, aftermarket backlog, and existing technology are amortized on a cash flow basis which reflects the economic benefit consumed. The tradename was assigned an indefinite life based on the Company's intention to keep the DeltaValve and TapcoEnpro names for an indefinite period of time. Refer to Note 7 for future expected amortization to be recorded.

The results of operations of CFS have been included in our consolidated financial statements beginning on the acquisition date. The results for the year ended December 31, 2016 include \$18.9 million of net revenue, and \$0.5 million of operating income, respectively.

The following unaudited pro forma information presents the combined results of operations as if the acquisition had been completed on January 1, 2015, the beginning of the comparable prior annual reporting period. The unaudited pro

forma results include: (i) amortization associated with preliminary estimates for the acquired intangible assets; (ii) interest expense on borrowings in connection with the acquisition; and (iii) the associated tax impact on these unaudited pro forma adjustments.



The unaudited pro forma results do not reflect any cost saving synergies from operating efficiencies or the effect of the incremental costs incurred in integrating the two companies. Accordingly, these unaudited pro forma results are presented for informational purposes only and are not necessarily indicative of what the actual results of operations of the combined company would have been if the acquisition had occurred at the beginning of the period presented, nor are they indicative of future results of operations (in thousands):

(Unaudited)	Year ended	
	December 31,	
	2016	2015
Net Revenues	\$710,825	\$776,833
Net Income	\$13,578	\$8,954

#### Schroedahl Acquisition

On April 15, 2015, we acquired all of the outstanding equity interest of Germany-based Schroedahl, a privately-owned manufacturer of safety and control valves primarily serving the power generation market. Founded in 1962 with customers in Asia, Europe and the Americas, Schroedahl designs and manufactures custom-engineered high-pressure auto-recirculation and control valves primarily for pump protection applications. We acquired Schroedahl for an aggregate purchase price of \$79.9 million in cash, net of acquired cash. We acquired Schroedahl to further increase our penetration into the power generation market. The operating results of Schroedahl have been included in our consolidated financial statements from the date of acquisition reported within the Energy segment. Acquisition-related costs of \$0.9 million, which primarily consisted of legal and financial advisory services, were expensed as incurred in general and administrative expenses during the twelve months ended December 31, 2015. We financed the acquisition of Schroedahl through cash on hand and net borrowings of approximately \$23.8 million under our existing credit facility.

The purchase price allocation is based upon a valuation of assets and liabilities that was prepared with assistance from a third party valuation specialist. The purchase accounting was finalized during the first quarter of 2016. The assets and liabilities include the valuation of acquired intangible assets, certain operating liabilities, and the evaluation of deferred income taxes.

The following table summarizes the fair value of the assets acquired and the liabilities assumed, at the date of acquisition:

(in thousands)

Cash and cash equivalents	\$36,316
Other current assets	11,470
Property, plant and equipment	1,999
Identifiable intangible assets	32,829
Current liabilities	(5,452 )
Deferred income taxes	(7,285 )
Other non-current liabilities	(642 )
Total identifiable net assets	69,235
Goodwill	46,818
Total purchase price	\$116,053

The fair value of accounts receivable acquired approximates the contractual value of \$4.3 million. The goodwill recognized is attributable primarily to projected future profitable growth, market penetration, as well as an expanded customer base for the Energy segment. The goodwill arising from the acquisition that is deductible for income tax purposes is \$13.2 million.

The Schroedahl acquisition resulted in the identification of the following identifiable intangible assets:

	Intangible assets acquired	Weighted average amortization period (in years)
	(in thousands)	
Customer relationships	\$ 22,185	7
Order backlog	3,993	1
Acquired technology	2,260	10
Tradename	4,391	Indefinite
Total intangible assets	\$ 32,829	

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The fair value of the intangible assets was based on variations of the income approach, which estimates fair value based on the present value of cash flows that the assets are expected to generate which included the relief-from-royalty method, incremental cash flow method, multi-period excess earnings method and direct cash flow method, depending on the intangible asset being valued. Customer relationships, order backlog, and acquired technology are amortized on a cash flow basis. The trade name was assigned an indefinite life based on the Company's intention to keep the Schroedahl name for an indefinite period of time. Refer to Note 7 for future expected amortization to be recorded. The results of operations of Schroedahl have been included in our consolidated financial statements beginning on the acquisition date. The results for the year ended December 31, 2016 and December 31, 2015 include \$25.7 million and \$21.0 million of net revenue, and \$1.7 million and \$1.2 million of operating income, respectively.

Pro forma results of operations for the acquisition have not been presented because the effects of the acquisition are not material to the Company's consolidated financial results.

#### (4) Special and Restructuring charges, net

##### Special and Restructuring Charges, net

Special and restructuring charges, net consist of restructuring costs (including costs to exit a product line or program) as well as certain special charges such as significant litigation settlements and other transactions (charges or recoveries) that are described below. All items described below are recorded in Special and restructuring charges, net on our consolidated statements of income. Certain other special and restructuring charges such as inventory related items may be recorded in cost of revenues given the nature of the item.

The table below (in thousands) summarizes the amounts recorded within the special and restructuring charges, net line item on the consolidated statements of income for the periods ending December 31, 2016, 2015, and 2014:

	Special & Restructuring Charges, net For the year ended December 31,		
	2016	2015	2014
Special charges, net	\$8,196	\$9,720	\$7,491
Restructuring charges, net	8,975	4,634	5,246
Total special and restructuring charges, net	\$17,171	\$14,354	\$12,737

##### Special Charges, net

The table below (in thousands) outlines the special charges, net recorded for the year ending December 31, 2016:

	Special Charges, net For the year ended December 31, 2016			
	Advanced Energy Flow Solutions		Corporate	Total
Acquisition related charges (recoveries)	\$—	\$ (161 )	\$ 978	\$817
Brazil closure	2,920	—	2	2,922
Pension settlement	—	—	4,457	4,457
Total special charges, net	\$2,920	\$ (161 )	\$ 5,437	\$8,196

Acquisition related charges (recoveries) are described below:

On October 12, 2016, we acquired Critical Flow Solutions. In connection with our acquisition, we recorded \$1.0 million of acquisition related professional fees for the year ended December 31, 2016.

On April 15, 2015, we acquired Germany-based Schroedahl. In connection with our acquisition of Schroedahl, we recorded a \$0.2 million acquisition related professional fees recoveries for the year ended December 31, 2016.

**Brazil Closure:** On November 3, 2015 the Board of Directors approved the closure and exit of our Brazil manufacturing operations due to the economic realities in Brazil and the ongoing challenges with our only significant end customer, Petrobras. CIRCOR Brazil reported substantial operating losses every year since it was acquired in 2011 while the underlying market conditions and outlook deteriorated. In connection with the closure, we recorded \$2.9 million of charges within the Energy segment during the twelve months ended December 31, 2016, which primarily related to employee termination costs and losses incurred subsequent to our Q1 2016 closure of manufacturing operations. As of December 31, 2016, our remaining Brazil assets were \$2.0 million of which \$0.9 million relates to cash, \$0.9 million relates to assets held for sale, and \$0.2 million relates to net third party accounts receivables. The Brazil assets held for sale as of December 31, 2016 are reported within the other current assets caption on our condensed consolidated balance sheet.

**Pension Settlement:** During the third quarter of 2016, management offered a lump sum cash payout option to terminated and vested pension plan participants. In connection with this action, the window for participants who opt to avail themselves of this program closed in the fourth quarter of 2016. During the fourth quarter of 2016, we incurred a non-cash settlement charge of \$4.5 million recorded within the special and restructuring charges, net line item. Refer to Note 13, "Retirement Plans" for additional disclosure.

The table below (in thousands) outlines the special charges, net recorded for the year ending December 31, 2015:

	Special Charges, net For the year ended December 31, 2015			
	Energy	Advanced Flow Solutions	Corporate	Total
Divestiture recoveries	\$(2 )	\$(1,042 )	\$ —	\$(1,044)
Acquisition related charges	—	919	—	919
Brazil closure	8,650	—	775	9,425
Executive retirement charges	—	—	420	420
Total special charges, net	\$8,648	\$(123 )	\$ 1,195	\$9,720

**Divestiture recoveries:** On January 6, 2015, we announced the divestiture of two of our non-core businesses as part of our simplification strategy. The Energy divestiture was substantially completed in the fourth quarter of 2014 with the related charge recorded in 2014. During the first quarter of 2015, the Advanced Flow Solutions divestiture was substantially completed and we recorded a gain of \$1.0 million.

**Acquisition related charges:** In connection with our acquisition of Schroedahl, we recorded \$0.9 million of acquisition related professional fees for the year ended December 31, 2015.

**Brazil closure:** In connection with the closure, we recorded \$8.7 million in charges within our Energy segment during the year ended December 31, 2015. These charges relate to: the realizability of the value added tax recoverable for \$4.4 million as our exit will stop future sales which are needed to recover these taxes paid, supplier cancellation penalties of \$1.6 million as we have fixed purchase commitments which will be canceled, customer cancellation penalties of \$1.1 million, litigation claims of \$0.5 million that we deem probable for risk of loss, professional fees of \$0.3 million, and other charges of \$0.8 million. In addition, during the fourth quarter of 2015, we recorded \$0.8 million of professional fees associated with the Brazil matter at Corporate. As of December 31, 2015, our remaining Brazil assets were \$7.1 million of which \$4.2 million relates to inventory, \$1.0 million to accounts receivable, and \$1.0 million to cash.

**Executive Retirement Charges:** During the first quarter of 2015, we recorded charges of \$0.4 million associated with the retirement of our Energy President. These charges primarily related to equity award modifications.



The table below (in thousands) outlines the special charges, net recorded for the year ending December 31, 2014:

Special Charges, net				
For the year ended December 31, 2014				
	Energy	Advanced Flow Solutions	Corporate	Total
Watts settlement	\$—	\$—	\$ 300	\$300
Divestitures	2,983	430	—	3,413
Energy settlement	(210 )	—	—	(210 )
Customer settlement	6,232	—	—	6,232
TMW settlement	—	(2,243 )	—	(2,243 )
Total special charges, net	\$9,005	\$(1,813 )	\$ 300	\$7,492

**Watts Legal Settlement:** On March 28, 2014, we settled a dispute for \$1.5 million with Watts Water Technologies, Inc. Accordingly, we recorded a \$0.3 million charge in the quarter, net of amounts previously accrued.

**Divestitures:** On January 6, 2015, we announced the divestiture of two of our non-core businesses as part of our simplification strategy. During the fourth quarter of 2014, we recorded \$3.4 million of charges associated with losses related to these divestitures.

**Energy Legal Settlement:** During the fourth quarter of 2014, we recorded a gain of \$0.2 million in connection with revaluing certain liabilities recorded in connection with a 2013 Energy segment purchase price arbitration settlement.

**Customer Settlement:** In February 2015, we agreed to resolve a longstanding customer dispute regarding our design and fabrication of cable protection systems for an off-shore windfarm, a product line in which we no longer are involved. The resolution of this dispute was recorded as a charge during the fourth quarter of 2014 in the amount of \$6.2 million.

**TMW settlement:** On January 24, 2014, we reached a settlement on the T.M.W. Corporation ("TMW") arbitration where it was agreed that TMW would waive all rights to amounts due from us under a contingent consideration promissory note established at the time of acquisition, resulting in a gain of approximately \$2.2 million during the first quarter of 2014.

#### Restructuring Charges, net

The tables below (in thousands) outline the charges (or any recoveries) associated with restructuring actions recorded for the year ending December 31, 2016, 2015, and 2014. A description of the restructuring actions is provided in the section titled "Restructuring Programs Summary" below.

Restructuring Charges / (Recoveries)				
As of and for the year ended				
December 31, 2016				
	Energy	Advanced Flow Solutions	Corporate	Total
Facility related expenses (recoveries)	\$792	\$ 3,701	\$	—\$4,493
Employee related expenses	2,393	2,089	—	4,482
Total restructuring charges, net	\$3,185	\$ 5,790	\$	—\$8,975

Accrued restructuring charges as of December 31, 2015 \$663

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Total year to date charges, net (shown above)	8,975
Charges paid / settled, net	(8,020 )
Accrued restructuring charges as of December 31, 2016	\$1,618

We expect to make payment or settle the majority of the restructuring charges accrued as of December 31, 2016 during the first quarter of 2017.

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Restructuring Charges / (Recoveries)  
As of and for the year ended December  
31, 2015

	Energy	Advanced Flow Solutions	Corporate	Total
Facility related expenses (recoveries)	\$(376 )	\$ 257	\$	—\$(119 )
Employee related expenses	3,279	1,474	—	4,753
Total restructuring charges, net	\$2,903	\$ 1,731	\$	—\$4,634
Accrued restructuring charges as of December 31, 2014				\$1,645
Total year to date charges, net (shown above)				4,634
Charges paid / settled, net				(5,616 )
Accrued restructuring charges as of December 31, 2015				\$663

Restructuring Charges / (Recoveries)  
As of and for the year ended  
December 31, 2014

	Energy	Advanced Flow Solutions	Corporate	Total
Facility related expenses	\$447	\$ 252	\$ —	\$699
Employee related expenses	1,516	2,714	317	4,547
Total restructuring charges, net	\$1,963	\$ 2,966	\$ 317	\$5,246
Accrued restructuring charges as of December 31, 2013				\$3,063
Total year to date charges, net (shown above)				5,246
Charges paid / settled, net				(6,664 )
Accrued restructuring charges as of December 31, 2014				\$1,645

#### Restructuring Programs Summary

As specific restructuring programs are announced, the amounts associated with that particular action may be recorded in periods other than when announced to comply with the applicable accounting rules. For example, the 2015 Announced Restructuring Program's total cost may be recorded in 2015 and 2016. The amounts shown below reflect the total cost for that restructuring program.

During 2016, we initiated certain restructuring activities, under which we continued to simplify our business ("2016 Actions").

Under these restructurings, we reduced expenses, primarily through reductions in force and closing a number of smaller facilities.

2016 Actions  
Restructuring Charges /  
(Recoveries), net as of  
December 31, 2016

	Energy	Advanced Flow Solutions	Total
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Facility related expenses - incurred to date	\$708	\$ 94	\$802
Employee related expenses - incurred to date	2,476	1,181	3,657
Total restructuring related special charges - incurred to date	\$3,184	\$ 1,275	\$4,459

In July 2015, we announced the closure of one of the two Corona, California manufacturing facilities ("California Restructuring"). Under this restructuring, we are reducing certain general, manufacturing and facility related expenses.

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	California Restructuring Charges, net as of December 31, 2016 Advanced Flow Solutions
Facility related expenses - incurred to date	\$ 3,700
Employee related expenses - incurred to date	800
Total restructuring related special charges - incurred to date	\$ 4,500

On February 18, 2015, we announced a restructuring action ("2015 Announced Restructuring"), under which we continued to simplify our businesses. Under this action, we reduced certain general, administrative and manufacturing related expenses primarily personnel related. The following table (in thousands) summarizes the total program costs for the 2015 Announced Restructuring as of December 31, 2016. Charges with this action were finalized in the fourth quarter of 2015. We do not anticipate any additional restructuring related charges associated with the 2015 Announced Restructuring action.

	2015 Announced Restructuring Charges / (Recoveries), net as of December 31, 2016 Advanced Energy Flow Corporate Total Solutions			
Facility related expenses - incurred to date	\$(382 )	\$ 257	\$	—\$(125 )
Employee related expenses - incurred to date	3,425	740	—	4,165
Total restructuring related charges - incurred to date	\$3,043	\$ 997	\$	—\$4,040

On April 22, 2014, we announced additional restructuring actions ("2014 Announced Restructuring"), under which we continued to simplify our businesses. Under this action, we reduced certain general and administrative expenses, including the reduction of certain management layers, and closing a number of smaller facilities. The following table (in thousands) summarizes the total program costs for the 2014 Announced Restructuring as of December 31, 2016. Charges with this action were finalized in the second quarter of 2015. We do not anticipate any additional restructuring related charges associated with the 2014 Announced Restructuring action.

	2014 Announced Restructuring Charges / (Recoveries), net as of December 31, 2016 Advanced Energy Flow Corporate Total Solutions			
Facility related expenses - incurred to date	\$(64 )	\$ 95	\$ —	\$31
Employee related expenses - incurred to date	1,463	2,956	317	4,736
Total restructuring related charges - incurred to date	\$1,399	\$ 3,051	\$ 317	\$4,767

On August 1, 2013 and October 31, 2013, we announced restructuring actions associated with our Energy and Advanced Flow Solutions segments under which we simplified the manner in which we managed our businesses ("2013 Announced Restructuring"). Under these actions, we consolidated facilities, shifted expenses to lower cost regions, restructured certain non-strategic product lines, and also consolidated our group structure from three groups

to two, reducing management layers and administrative expenses. The following table (in thousands) summarizes the total program cost for the 2013 Announced Restructuring as of December 31, 2016. Charges with this action were finalized in the second quarter of 2014. We do not anticipate any additional restructuring charges to be incurred associated with the 2013 Announced Restructuring action.

	2013 Announced Restructuring Charges / (Recoveries), net as of December 31, 2016			
	Advanced		Corporate Total	
	Energy Flow	Solutions		
Facility related expenses - incurred to date	\$2,117	\$ 473	\$	—\$2,590
Employee related expenses - incurred to date	2,945	1,519	—	4,464
Total restructuring related charges - incurred to date	\$5,062	\$ 1,992	\$	—\$7,054

### Additional Restructuring Charges

In conjunction with the restructuring actions noted above, we incur certain costs, primarily related to inventory, that are recorded in cost of revenues instead of special and restructuring charges. Such restructuring-related amounts totaled \$2.8 million, \$9.4 million, and \$8.0 million for the years ending December 31, 2016, 2015 and 2014, respectively, and are described further below.

During the first and fourth quarters of 2016, in connection with the restructuring of certain structural landing gear product lines, we recorded inventory related charges of less than \$0.1 million, and \$0.8 million respectively, within the Advanced Flow Solutions segment. As of December 31, 2016, our remaining structural landing gear product line inventory balance is \$0.2 million, which we believe is recoverable based upon our net realizable value analysis.

During the first and second quarters of 2016, we recorded restructuring related inventory \$1.9 million and \$0.1 million respectively, associated with the closure of manufacturing operations and the exit of the gate, globe and check valves product line in Brazil. As of December 31, 2016, no inventory amounts remain on our balance sheet for the gate, globe, and check valves product line.

During the third and fourth quarters of 2015, we recorded restructuring related inventory charges of \$6.4 million and \$0.5 million, respectively, associated with the closure of manufacturing operations and the exit of the gate, globe and check valves product line in Brazil.

During the second quarter of 2015, we recorded restructuring related inventory charges of \$0.2 million associated with the exit of our Energy segment cable protection product line.

During the second and fourth quarters of 2015, in connection with the restructuring of certain structural landing gear product lines, we recorded inventory related charges of \$1.9 million, and \$0.4 million, respectively, within the Advanced Flow Solutions segment.

During the second and third quarters of 2014, in connection with the restructuring of certain structural landing gear product lines, we recorded inventory related charges of \$5.1 million and \$2.9 million, respectively, within the Advanced Flow Solutions segment.

### (5) Inventories

Inventories consist of the following (in thousands):

	December 31,	
	2016	2015
Raw materials	\$54,359	\$51,439
Work in process	68,718	83,324
Finished goods	26,507	43,077
Inventories	\$149,584	\$177,840

We regularly review inventory quantities on hand and record a provision to write-down excess and obsolete inventory to its estimated net realizable value, if less than cost, based primarily on our estimated forecast of product demand. Once our inventory value is written-down a new cost basis has been established. For 2016, 2015 and 2014 our charges for slow moving, excess and obsolete inventory totaled \$9.3 million, \$15.4 million and \$13.0 million respectively.

Our provision for inventory obsolescence allowances was \$4.1 million, \$5.2 million, and \$5.0 million for the years ended of 2016, 2015 and 2014, respectively. As of December 31, 2016 we have \$0.2 million of remaining structural landing gear inventory which we believe is recoverable based upon our net realizable value analysis that considers inventory demand, expected selling price, costs to transact, and costs to complete the inventory. We believe our inventory allowances remain adequate with the net realizable value of our inventory being higher than our current inventory cost after allowances.

## (6) Property, Plant and Equipment

Property, plant and equipment consist of the following (in thousands):

	December 31,	
	2016	2015
Land	\$13,082	\$12,441
Buildings and improvements	70,979	66,076
Manufacturing machinery and equipment	134,149	135,885
Computer equipment and software	23,982	23,495
Furniture and fixtures	9,930	10,604
Other	1,027	633
Construction in progress	5,699	4,235
Property, plant and equipment, at cost	258,848	253,369
Less: Accumulated depreciation	(159,135)	(166,340)
Property, plant and equipment, at cost, net	\$99,713	\$87,029

Depreciation expense for the years ended December 31, 2016, 2015, and 2014 was \$13.3 million, \$14.3 million, and \$16.4 million, respectively.

The Company recorded additions to property, plant and equipment of \$1.3 million and \$1.8 million in the year ended December 31, 2016 and December 31, 2015, respectively, for which cash payments had not yet been made.

## (7) Goodwill and Other Intangible Assets

The following table shows goodwill by segment as of December 31, 2016 and 2015 (in thousands):

	Energy	Advanced Flow Solutions	Consolidated Total
Goodwill as of December 31, 2015	\$43,687	\$71,765	\$ 115,452
Business acquisition (Note 3)	93,228	197	93,425
Transfers (1)	8,285	(8,285 )	—
Currency translation adjustments	(795 )	(1,423 )	(2,218 )
Goodwill as of December 31, 2016	\$144,405	\$62,254	\$ 206,659

(1) In connection with our Q4 organizational realignment certain goodwill amounts transferred from Energy to Advanced Flow Solutions.

	Energy	Advanced Flow Solutions	Consolidated Total
Goodwill as of December 31, 2014	\$48,070	\$24,359	\$ 72,429
Business acquisition (Note 3)	—	49,387	49,387
Currency translation adjustments	(4,383 )	(1,981 )	(6,364 )
Goodwill as of December 31, 2015	\$43,687	\$71,765	\$ 115,452

As of both December 31, 2016 and 2015 the goodwill balance has been reduced by \$0.4 million and \$0.3 million of accumulated impairments for Energy and Advanced Flow Solutions, respectively.

The tables below present gross intangible assets and the related accumulated amortization (in thousands):

	December 31, 2016			
	Gross Carrying Amount	Impairment Charges	Accumulated Amortization	Net Carrying Value
Patents	\$5,399	\$ (208 )	\$ (5,176 )	\$15
Non-amortized intangibles (primarily trademarks and tradenames)	38,235	—	—	38,235
Customer relationships	99,769	—	(30,100 )	69,669
Order backlog	6,955	—	(6,336 )	619
Acquired technology	28,044	—	(1,512 )	26,532
Other	5,095	—	(4,386 )	709
Total	\$183,497	\$ (208 )	\$ (47,510 )	\$135,779
	December 31, 2015			
	Gross Carrying Amount	Impairment Charges	Accumulated Amortization	Net Carrying Value
Patents	\$6,039	\$ —	\$ (5,765 )	\$ 274
Non-amortized intangibles (primarily trademarks and tradenames)	15,802	(460 )	—	15,342
Customer relationships	53,238	—	(24,029 )	29,209
Order backlog	5,120	—	(3,893 )	1,227
Acquired technology	2,317	—	(427 )	1,890
Other	5,611	—	(4,572 )	1,039
Total	\$88,127	\$ (460 )	\$ (38,686 )	\$ 48,981





The table below presents estimated future amortization expense for intangible assets recorded as of December 31, 2016 (in thousands):

	2017	2018	2019	2020	2021	After 2022
Estimated amortization expense	\$12,280	\$10,734	\$10,658	\$9,356	\$7,963	\$46,553

The annual impairment testing of our non-amortized intangible assets has been completed and consisted of a comparison of the fair value of the intangible assets with carrying amounts. No impairments of our non-amortized intangible assets were recorded for the year ended December 31, 2016.

During the three months ended October 2, 2016, we recorded a \$0.2 million impairment charge for a China patent deemed to no longer have economic value. The impairment charge is included in the impairment charge line on our consolidated statement of income. During the third quarter of 2015, we discontinued use of our Brazil indefinite-lived trademark as it was determined to have no future economic life. As such, we recorded a \$0.5 million impairment charge during the quarter ended October 4, 2015.

#### (8) Income Taxes

The significant components of our deferred income tax liabilities and assets are as follows (in thousands):

	December 31,	
	2016	2015
Deferred income tax liabilities:		
Excess tax over book depreciation	\$11,210	\$5,070
Other	4,650	1,314
Intangible assets	42,837	10,119
Total deferred income tax liabilities	58,697	16,503
Deferred income tax assets:		
Accrued expenses	8,146	9,037
Equity compensation	6,461	5,710
Inventories	9,323	8,686
Net operating loss and state credit carry-forward	3,974	4,653
Foreign tax credit carryforward	18,177	7,760
Pension benefit obligation	5,262	6,466
Other	1,549	1,458
Total deferred income tax assets	52,892	43,770
Valuation allowance	(3,028 )	(892 )
Deferred income tax asset, net of valuation allowance	49,864	42,878
Deferred income tax (liability)/asset, net	\$(8,833 )	\$26,375

The deferred income taxes by classification and geography are as follows:

	December 31,	
	2016	2015
Long-term deferred income tax asset, net	\$4,824	\$36,799
Long-term deferred income tax liability, net	(13,657 )	(10,424 )
Deferred income tax (liability)/asset, net	\$(8,833 )	\$26,375
Deferred income taxes by geography are as follows:		
Domestic net long-term (liability)/asset	\$(4,315 )	\$32,099
Foreign net long-term liability	(4,518 )	(5,724 )
Net non-current deferred income tax asset	\$(8,833 )	\$26,375



The (benefit from) provision for income taxes is based on the following pre-tax income (in thousands):

	Year Ended December 31,		
	2016	2015	2014
Domestic	\$(16,766)	\$12,965	\$26,229
Foreign	26,446	9,463	37,032
Income before income taxes	\$9,680	\$22,428	\$63,261

The provision for income taxes consists of the following (in thousands):

	Year Ended December 31,		
	2016	2015	2014
Current provision:			
Federal - US	\$(232 )	\$705	\$3,916
Foreign	10,823	11,023	10,455
State -US	(275 )	56	1,244
Total current	\$10,316	\$11,784	\$15,615
Deferred provision (benefit):			
Federal - US	\$(8,992 )	\$2,618	\$(967 )
Foreign	(3,328 )	(887 )	(1,594 )
State -US	1,583	(950 )	(179 )
Total (benefit) deferred	\$(10,737)	\$781	\$(2,740 )
Total (benefit) provision for income taxes	\$(421 )	\$12,565	\$12,875

Actual income taxes reported from operations are different from those that would have been computed by applying the federal statutory tax rate to income before income taxes. The expense for income taxes differs from the U.S. statutory rate due to the following:

	Year Ended December 31,		
	2016	2015	2014
Expected federal income tax rate	35.0 %	35.0 %	35.0 %
State income taxes, net of federal tax benefit	(4.8 )	(0.7 )	1.0
Change in state tax rate	—	3.5	—
Change in valuation allowance on state net operating losses	18.9	(7.3 )	—
Foreign tax rate differential	(38.4)	(18.9)	(8.7 )
Unbenefited foreign losses	14.7	41.4	3.0
Foreign tax credits	(26.6)	—	(9.1 )
Manufacturing deduction	—	(1.6 )	(1.7 )
Research and development credit	(6.6 )	(1.1 )	(0.5 )
Foreign audit settlement	—	6.0	—
Other, net	3.4	(0.3 )	1.4
Effective tax rate	(4.4 )%	56.0 %	20.4 %

Included in the 2016 foreign tax rate differential (38.4)% above are the following items: valuation allowance for foreign deferred tax assets (-3.4%), foreign tax rate changes (5.0%), and foreign permanent difference (-5.7%). Included in Other, net is nondeductible transaction costs.

As of December 31, 2016 and 2015, the Company maintained a total valuation allowance of \$3.0 million and \$0.9 million, respectively, which relates to foreign and state deferred tax assets as of December 31, 2016 and to state deferred tax assets as of December 31, 2015. The valuation allowance is based on estimates of taxable income in each of the jurisdictions in which we operate and the period over which our deferred tax assets will be recoverable.



The following table provides a summary of the changes in the deferred tax valuation allowance for the years ended December 31, 2016, 2015, and 2014 (in thousands):

	December 31,		
	2016	2015	2014
Deferred tax valuation allowance at January 1	\$892	\$9,448	\$13,928
Additions	2,257	15	1,460
Deductions	(121 )	(7,798 )	(5,705 )
Translation adjustments	—	(773 )	(235 )
Deferred tax valuation allowance at December 31	\$3,028	\$892	\$9,448

The Company repatriated \$32 million of foreign earnings to the US during the fourth quarter of 2016, resulting in a tax benefit of \$2.6 million in the year ended December 31, 2016. The tax benefit is a result of foreign tax credits associated with the repatriation, in excess of the US corporate tax rate.

As of December 31, 2016 the Company had foreign tax credits of \$17.7 million, foreign net operating losses of \$1.5 million, state net operating losses of \$57.2 million and state tax credits of \$2.0 million. As of December 31, 2015, the Company had foreign tax credits of \$7.8 million, foreign net operating losses of \$4.4 million, state net operating losses of \$51.9 million and state tax credits of \$2.0 million. The foreign tax credits, if not utilized, will expire in 2026. The state net operating losses and state tax credits, if not utilized, will expire at various dates through 2036.

As we closed the Brazil site in 2016, we do not believe that any of the deferred tax assets related to Brazil have any value. Accordingly, this portion of the valuation allowance was written off during 2015, along with the related deferred tax assets.

During 2014, the Company believes a valuation allowance of \$5.7 million is no longer needed on US foreign tax credits due to changes in our risk of loss / title transfer contract provisions which were finalized in 2014 for certain international sites. Under these new provisions, title and risk of loss transfers to the customer at the international point of manufacture or receipt rather than when the product is shipped. These revised contract provisions resulted in increased foreign source income allowing for the full utilization of the foreign tax credits. Based upon this change, the Company believes it will fully utilize all available foreign tax credits well in advance of their expiration, and, accordingly, reversed the related valuation allowance.

On December 18, 2015, the President of the United States signed legislation that permanently extended the research and development ("R&D") tax credit. Accordingly, the Company recorded the entire benefit of \$0.3 million for the R&D tax credit attributable to 2015 in the fourth quarter.

The Company files income tax returns in the U.S. federal, state and local jurisdictions and in foreign jurisdictions. The Company is no longer subject to examination by the Internal Revenue Service ("IRS") for years prior to 2013 and is no longer subject to examination by the tax authorities in foreign and state jurisdictions prior to 2006, with the exception of net operating loss carryforwards. The Company is currently under examination for income tax filings in various foreign jurisdictions. During 2015, the Company settled a tax audit in Italy for \$2.2 million, of which \$0.9 million had been accrued in 2014.

During 2015, the Company restructured its multi-state activities, which resulted in a reduction of its state tax rate. In connection with this reduction, the Company recorded a one time tax expense of \$0.8 million to reflect the effect of this tax rate reduction on its deferred tax assets. In addition, the Company recognized a tax benefit of \$1.6 million on certain state net operating loss carryforwards, as it is more likely than not to utilize these losses within the carryforward period.

During 2016, the Company recorded a valuation allowance and additional tax expense of \$1.8 million on certain state net operating loss carryforwards, due to the uncertainty of the Company's ability to utilize these losses within the foreseeable future. The amount of net operating losses considered realizable, however, could be adjusted if objective evidence in the form of cumulative losses is no longer present and additional weight may be given to subjective evidence such as the Company's projections for growth.

As of December 31, 2016, the liability for uncertain income tax positions was approximately \$3.0 million. Approximately \$2.9 million as of December 31, 2016 represents the amount that if recognized would affect the Company's effective income tax rate in future periods. The Company expects the unrecognized tax benefits to change over the next 12 months if certain tax matters ultimately settle with the applicable taxing jurisdiction during this timeframe, or if the applicable statute of limitations lapses. The impact of the amount of such changes to previously recorded uncertain tax positions could range from zero to \$1.0 million.

The table below does not include interest and penalties of \$0.2 million and \$0.1 million as of December 31, 2016 and 2015, respectively. The following is a reconciliation of the Company's liability for uncertain income tax positions for the years ended December 31, 2016 and 2015 (in thousands).

	December 31,		
	2016	2015	2014
Balance beginning January 1	\$2,937	\$1,978	\$1,612
Additions for tax positions of prior years	(102 )	521	149
Additions based on tax positions related to current year	483	69	820
Acquired uncertain tax position	—	1,326	—
Settlements	—	(544 )	—
Lapse of statute of limitations	(328 )	(612 )	(562 )
Currency movement	10	199	(41 )
Balance ending December 31	\$3,000	\$2,937	\$1,978

Undistributed earnings of our foreign subsidiaries amounted to \$222.6 million at December 31, 2016 and \$202.8 million at December 31, 2015. The undistributed earnings of our foreign subsidiaries are considered to be indefinitely reinvested and accordingly, no provision for U.S. federal and state income taxes has been recorded. Determination of the amount of unrecognized deferred tax liability on these undistributed earnings is not practicable because of the complexity of laws and regulations, the varying tax treatment of alternative repatriation scenarios, and the variation due to multiple potential assumptions relating to the timing of any future repatriation.

#### (9) Accrued Expenses and Other Current Liabilities

Accrued expenses and other current liabilities consist of the following (in thousands):

	December 31,	
	2016	2015
Customer deposits and obligations	\$5,673	\$16,397
Commissions and sales incentives payable	6,376	10,447
Penalty accruals	4,834	6,002
Warranty reserve	4,559	4,551
Professional fees	2,202	2,540
Taxes other than income tax	1,512	1,956
Special charges and restructuring	5,097	4,664
Deferred revenue	7,073	118
Income tax payable	2,560	6,585
Other	10,821	6,203
Total accrued expenses and other current liabilities	\$50,707	\$59,463

#### (10) Financing Arrangements

Long-term debt consists of the following (in thousands):

	December 31,	
	2016	2015
Line of Credit at interest rates ranging from 1.59% to 4.0%	\$251,200	\$90,500

On July 31, 2014, we entered into a five year unsecured credit agreement ("2014 Credit Agreement"), that provides for a \$400 million revolving line of credit. The 2014 Credit Agreement includes a \$200 million accordion feature for a maximum facility size of \$600 million. The 2014 Credit Agreement also allows for additional indebtedness not to exceed \$110 million. We anticipate using the 2014 Credit Agreement to fund potential acquisitions, to support our



organic growth initiatives and working capital needs, and for general corporate purposes. We capitalized \$0.9 million in debt issuance costs that will be amortized over the five year life of the agreement.

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On October 13, 2016, to fund the acquisition of CFS described in Note 3, "Business Acquisitions", the Company borrowed \$205.0 million under the Company's existing Credit Agreement. As of December 31, 2016, we had borrowings of \$251.2 million outstanding under this 2014 Credit Facility and \$53.6 million outstanding under letters of credit. At December 31, 2016, minimum principal payment of \$251.2 million is required in 2019.

#### (11) Share-Based Compensation

We have two share-based compensation plans as of December 31, 2016: (1) the 2014 Stock Option and Incentive Plan (the "2014 Plan") and (2) the Amended and Restated 1999 Stock Option and Incentive Plan (the "1999 Plan"). The 2014 Plan was adopted by our Board of Directors on February 12, 2014 and approved by our shareholders at the Company's annual meeting held on April 30, 2014. As of April 30, 2014, no new awards will be granted under the 1999 Plan. As a result, any shares subject to outstanding awards under the 1999 Plan that expire, are canceled or otherwise terminate, or are withheld to satisfy tax withholding obligations, will not be available for award grant purposes under the 2014 Plan. Both plans permit the grant of the following types of awards to our officers, other employees and non-employee directors: incentive stock options; nonqualified stock options; deferred stock awards; restricted stock awards; unrestricted stock awards; performance share awards; cash-based awards; stock appreciation rights ("SARs") and dividend equivalent rights. The 2014 Plan provides for the issuance of up to 1,700,000 shares of common stock (subject to adjustment for stock splits and similar events). Under the 2014 Plan, shares issued for awards other than stock options or SARs count against the aggregate share limit as 1.9 shares for every share actually issued. New options granted under the 2014 Plan could have varying vesting provisions and exercise periods. All options and Restricted Stock Units ("RSUs") granted under the 1999 Plan are either 100% vested or have been terminated. Restricted stock units granted under the 2014 Plan generally vest within three years. Vested restricted stock units will be settled in shares of our common stock.

As of December 31, 2016, there were 736,319 stock options (including the CEO and CFO stock option awards noted below) and 206,685 restricted stock units outstanding. In addition, there were 1,039,568 shares available for grant under the 2014 Plan as of December 31, 2016. As of December 31, 2016, there were 3,040 outstanding restricted stock units that contain rights to nonforfeitable dividend equivalents and are considered participating securities that are included in our computation of basic and fully diluted earnings per share. There is no difference in the earnings per share amounts between the two class method and the treasury stock method, which is why we continue to use the treasury stock method.

During the twelve months ended December 31, 2016, we granted 210,633 stock option awards compared with 118,992 in 2015 and 164,503 in 2014. On April 9, 2013, we granted stock options to purchase 200,000 shares of common stock to our newly appointed President and Chief Executive Officer at an exercise price of \$41.17 per share ("2013 CEO Option Award"). On December 2, 2013, we granted stock options to purchase 100,000 shares of common stock to our newly appointed Executive Vice President and Chief Financial Officer at an exercise price of \$79.33 per share ("2013 CFO Option Award"). On March 5, 2014, we granted stock options to purchase 100,000 shares of common stock to our President and Chief Executive Officer at an exercise price of \$70.42 per share ("2014 CEO Option Award"). The 2013 CEO Option Award, the 2013 CFO Option Award, and the 2014 CEO Award were considered inducement awards and were granted outside of the Company's 1999 Plan. All three of these option awards include a service period and a market performance vesting condition. The stock options will vest if the following stock price targets are met based on the stock price closing at or above these targets for 60 consecutive trading days:

#### 2013 CEO Option Award:

Stock Price Target	Cumulative Vested Portion of Stock Options (in Shares)
\$50.00	50,000
\$60.00	100,000
\$70.00	150,000

\$80.00                      200,000

2013 CFO and  
2014 CEO Option

Awards:

Stock Price Target	Cumulative Vested Portion of Stock Options (in Shares)
\$87.50	25,000
\$100.00	50,000
\$112.50	75,000
\$125.00	100,000

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As the CEO Option Awards and the CFO Option Award vest, they may be exercised 25% at the time of vesting, 50% one year from the date of vesting and 100% two years from the date of vesting. On August 8, 2013, the \$50.00 Stock Price Target for the 2013 CEO Option Award was achieved. On January 6, 2014 and January 28, 2014, the \$60.00 and \$70.00 Price targets for the 2013 CEO Option Award were achieved, respectively. Therefore, 150,000 options have vested and are exercisable under the 2013 CEO Option Award. As of December 31, 2016, none of the options awarded in connection with the 2013 CFO Option Award or the 2014 CEO Option Award have vested. These stock option awards are being expensed utilizing a graded method and are subject to forfeiture in the event of employment termination (whether voluntary or involuntary) prior to vesting. All three of these option awards have a 10 year term but to the extent that the market conditions above (Stock Price Targets) are not met within 5 years, these options will not vest and will forfeit 5 years from grant date. The Company used a Monte Carlo simulation option pricing model to value these option awards.

The average fair value of stock options granted during the year ended December 31, 2016, 2015, and 2014 of \$11.91, \$17.88, and \$26.32 was estimated using the following weighted-average assumptions:

	Year Ended December 31,		
	2016	2015	2014
Risk-free interest rate	1.2 %	1.4 %	1.8 %
Expected life (years)	4.5	4.5	3.7
Expected stock volatility	36.2 %	40.4 %	41.4 %
Expected dividend yield	0.4 %	0.3 %	0.2 %

We account for Restricted Stock Unit Awards (“RSU Awards”) by expensing the weighted average fair value to selling, general and administrative expenses ratably over vesting periods generally ranging up to three years. During the years ended December 31, 2016 and December 31, 2015 we granted 98,942 and 62,322 RSU Awards with approximate fair values of \$41.09 and \$51.53 per RSU Award, respectively. During 2016 and 2015, the Company granted performance-based RSUs as part of the overall mix of RSU Awards. These performance-based RSUs include metrics for achieving Return on Invested Capital and Adjusted Operating Margin with target payouts ranging from 0% to 200%. Of the 98,942 RSUs granted during 2016, 51,026 are performance-based RSU awards. This compares to 26,094 performance-based RSU awards granted in 2015.

The CIRCOR Management Stock Purchase Plan, which is a component of both the 2014 Plan and the 1999 Plan, provides that eligible employees may elect to receive restricted stock units in lieu of all or a portion of their pre-tax annual incentive bonus and, in some cases, make after-tax contributions in exchange for restricted stock units (“RSU MSPs”). In addition, non-employee directors may elect to receive restricted stock units in lieu of all or a portion of their annual directors’ retainer fees. Each RSU MSP represents a right to receive one share of our common stock after a three-year vesting period. RSU MSPs are granted at a discount of 33% from the fair market value of the shares of common stock on the date of grant. This discount is amortized as compensation expense, to selling, general and administrative expenses, over a four-year period. RSU MSPs totaling 20,130 and 38,965 with per unit discount amounts representing fair values of \$12.83 and \$17.11 were granted under the CIRCOR Management Stock Purchase Plan during the years ended December 31, 2016 and December 31, 2015, respectively.

Compensation expense related to our share-based plans for the year ended December 31, 2016, 2015, and 2014 was \$5.5 million, \$6.5 million, and \$7.1 million respectively. Share-based compensation expense is recorded as selling, general, and administrative expense. As of December 31, 2016, there was \$6.8 million of total unrecognized compensation costs related to our outstanding share-based compensation arrangements. That cost is expected to be recognized over a weighted average period of 1.8 years. This compares to \$7.0 million for 2015 and \$10.3 million for 2014, respectively. The decrease in total unrecognized compensation costs from 2015 and 2014 primarily relates to equity awards granted to our CEO and CFO during 2013 totaling \$5 million.



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A summary of the status of all stock options granted to employees and non-employee directors as of December 31, 2016, 2015, and 2014 and changes during the years are presented in the table below:

	December 31, 2016		2015		2014	
	Options	Weighted Average Exercise Price	Options	Weighted Average Exercise Price	Options	Weighted Average Exercise Price
Options outstanding at beginning of period	570,737	\$ 56.86	486,004	\$ 57.85	355,081	\$ 50.71
Granted	210,633	38.89	118,992	51.84	164,503	70.87
Exercised	(5,982 )	41.05	(7,717 )	33.44	(12,937 )	32.41
Forfeited	(33,014 )	45.25	(26,542 )	59.25	(20,643 )	54.72
Expired	(6,055 )	65.34	—	—	—	—
Options outstanding at end of period	736,319	\$ 52.30	570,737	\$ 56.86	486,004	\$ 57.85
Options exercisable at end of period	226,386	\$ 45.20	140,248	\$ 43.08	78,226	\$ 38.75

The weighted average contractual term for stock options outstanding and exercisable as of December 31, 2016 was 6.1 years and 5.5 years, respectively. The aggregate intrinsic value of stock options exercised during the years ended December 31, 2016, 2015 and 2014 was \$0.1 million, \$0.1 million and \$0.6 million, respectively. The aggregate fair value of stock-options vested during the years ended December 31, 2016, 2015 and 2014 was \$1.7 million, \$1.2 million and \$0.9 million, respectively. The aggregate intrinsic value of stock options outstanding and exercisable as of December 31, 2016 was \$11.5 million and \$4.6 million, respectively. As of December 31, 2016, there was \$2.8 million of total unrecognized compensation costs related to stock options that is expected to be recognized over a weighted average period of 1.7 years.

The following table summarizes information about stock options outstanding at December 31, 2016:

Range of Exercise Prices	Options Outstanding			Options Exercisable	
	Options	Weighted Average Remaining Contractual Life (Years)	Weighted Average Exercise Price	Options	Weighted Average Exercise Price
\$30.91 - \$38.95	204,579	5.9	\$ 38.43	14,061	\$ 32.13
38.96 - 46.51	208,276	6.1	41.08	158,276	41.06
46.52 - 70.99	187,183	6.2	61.77	29,631	51.84
71.00 - 79.33	136,281	6.1	77.26	24,418	71.56
\$30.91 - \$79.33	736,319	6.1	\$ 52.30	226,386	\$ 45.20

A summary of the status of all RSU Awards granted to employees and non-employee directors as of December 31, 2016, 2015, and 2014 and changes during the year are presented in the table below:

	December 31, 2016		2015		2014	
	RSUs	Weighted Average Price	RSUs	Weighted Average Price	RSUs	Weighted Average Price
RSU Awards outstanding at beginning of period	109,281	\$ 52.90	115,949	\$ 52.97	176,084	\$ 44.39
Granted	98,942	41.09	62,322	51.53	38,899	72.11
Settled	(54,034 )	48.50	(56,865 )	48.34	(58,117 )	45.51
Canceled	(22,527 )	46.86	(19,088 )	55.08	(40,917 )	44.86
Added by Performance Factor	7,099	41.55	6,963	32.76	—	—
RSU Awards outstanding at end of period	138,761	\$ 46.60	109,281	\$ 52.90	115,949	\$ 52.97

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RSU Awards exercisable at end of period	3,040	\$ 60.92	1,200	\$ 59.29	250	\$ 42.12
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The aggregate intrinsic value of RSU Awards settled during the 12 months ended December 31, 2016, 2015 and 2014 was \$2.5 million, \$3.0 million, and \$4.2 million, respectively. The aggregate fair value of RSU Awards vested during the 12 months ended December 31, 2016, 2015 and 2014 was \$2.7 million, \$2.4 million and \$2.7 million, respectively.

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The aggregate intrinsic value of RSU Awards outstanding and exercisable as of December 31, 2016 was \$9.0 million and \$0.2 million, respectively. As of December 31, 2016, there was \$3.6 million of total unrecognized compensation costs related to RSU awards that is expected to be recognized over a weighted average period of 1.6 years.

The following table summarizes information about RSU Awards outstanding at December 31, 2016:

Range of Grant Prices	RSU Awards Outstanding		Weighted Average Exercise Price
	RSUs	Weighted Average Remaining Contractual Life (Years)	
\$38.89 - \$50.99	79,092	1.9	\$ 39.17
51.00 - 60.99	46,472	1.6	52.42
61.00 - 74.65	13,197	0.4	70.59
\$38.89 - \$74.65	138,761	1.6	\$ 46.59

A summary of the status of all RSU MSPs granted to employees and non-employee directors as of December 31, 2016, 2015, and 2014 and changes during the year are presented in the table below:

	December 31, 2016		2015		2014	
	RSUs	Weighted Average Exercise Price	RSUs	Weighted Average Exercise Price	RSUs	Weighted Average Exercise Price
RSU MSPs outstanding at beginning of period	78,732	\$ 37.46	69,293	\$ 35.81	62,896	\$ 25.67
Granted	20,130	26.06	38,965	34.73	32,752	47.95
Settled	(27,375)	29.94	(22,403)	27.87	(23,258)	25.94
Canceled	(3,563 )	35.35	(7,123 )	36.65	(3,097 )	32.35
RSU MSPs outstanding at end of period	67,924	\$ 36.50	78,732	\$ 37.46	69,293	\$ 35.81

There are no RSU MSPs exercisable at December 31, 2016, 2015, and 2014. The aggregate intrinsic value of RSU MSPs settled during the year ended December 31, 2016, 2015, and 2014 was \$0.4 million, \$0.5 million and \$1.1 million, respectively. The aggregate fair value of RSU MSPs vested during the year ended December 31, 2016, 2015, and 2014 was \$0.4 million, \$0.3 million and \$0.3 million, respectively. The aggregate intrinsic value of RSU MSPs outstanding as of December 31, 2016 was \$1.9 million. As of December 31, 2016 there was \$0.4 million of total unrecognized compensation costs related to RSU MSPs that is expected to be recognized over a weighted average period of 1.1 years.

The following table summarizes information about RSU MSPs outstanding at December 31, 2016:

Range of Grant Prices	RSU MSPs Outstanding		Weighted Average Exercise Price
	RSUs	Weighted Average Remaining Contractual Life (Years)	
\$26.06 - 33.99	16,727	2.1	\$ 26.06
34.00 - 45.99	31,154	1.1	34.73
46.00 - 47.95	20,043	0.2	47.95
\$26.06 - \$47.95	67,924	1.1	\$ 36.50



We also grant Cash Settled Stock Unit Awards to our international employee participants. These Cash Settled Stock Unit Awards typically cliff-vest in three years and are settled in cash based on our closing stock price at the time of vesting. As of December 31, 2016, there were 33,320 Cash Settled Stock Unit Awards outstanding compared with 28,660 Cash Settled Stock Unit Awards as of December 31, 2015. During 2016, the aggregate cash used to settle Cash Settled Stock Unit Awards was \$0.5 million. As of December 31, 2016, the Company had \$1.0 million in accrued expenses classified as current liabilities for Cash Settled Stock Unit Awards compared with \$0.7 million as of December 31, 2015. Cash Settled Stock Unit Award related compensation costs for the twelve month periods ended December 31, 2016, 2015, and 2014 totaled \$0.9 million, \$0.2 million, and \$0.3 million, respectively and was recorded as selling, general and administrative expense.

## (12) Concentrations of Risk

Financial instruments that potentially subject us to concentrations of credit risk consist primarily of cash, cash equivalents, short-term investments and trade receivables. A significant portion of our revenue and receivables are from customers who are either in or service the energy, aerospace, defense and industrial markets. We perform ongoing credit evaluations of our customers and maintain allowances for potential credit losses. For the years ended December 31, 2016, 2015 and 2014, we had no customers from which we derive revenues that exceed the threshold of 10% of the Company's consolidated revenues.

## (13) Retirement Plans

## Employee Benefit Plan

We offer a savings plan to eligible U.S. employees. The plan is intended to qualify under Section 401(k) of the Internal Revenue Code. Substantially all of our U.S. employees are eligible to participate in the 401(k) savings plan. Participating employees may defer a portion of their pre-tax compensation, as defined, but not more than statutory limits. Under this plan, we match a specified percentage of employee contributions, and are able to make a discretionary core contribution, subject to certain limitations. During 2016, we contributed 50% of the amount contributed by the employee, up to a maximum of 5% of the employee's earnings. Our matching contributions vest at a rate of 20% per year of service, with full vesting after 5 years of service.

The components of net periodic (benefit) expense for the employee benefit plan is as follows (in thousands):

	Year Ended		
	December 31,		
	2016	2015	2014
Cost of 401(k) plan Company contributions	\$1,509	\$2,886	\$3,269

## Pension Plans

We maintain two benefit pension plans, a qualified noncontributory defined benefit plan ("the Plan") and a nonqualified, noncontributory defined benefit supplemental plan that provides benefits to certain retired highly compensated officers. To date, the supplemental plan remains an unfunded plan. These plans include significant pension benefit obligations which are calculated based on actuarial valuations. Key assumptions are made in determining these obligations and related expenses, including expected rates of return on plan assets and discount rates. Benefits are based primarily on years of service and employees' compensation.

As of July 1, 2006, in connection with a revision to our retirement plan, we froze the pension benefits of our qualified noncontributory plan participants. Under the revised plan, such participants do not accrue any additional benefits under the defined benefit plan after July 1, 2006.

During fiscal year 2016, we made \$1.0 million in cash contributions to our qualified defined benefit pension plan, in addition to \$0.4 million in payments for our nonqualified plan. In fiscal year 2017, we expect to make cash contributions up to \$1.6 million to our qualified plan and payments of \$0.4 million for our nonqualified plan. Contributions to the qualified plan may differ based on a re-assessment of this plan's funded status during 2017 based on separate IRS cash funding calculations. Capital market and interest rate fluctuations may also impact future funding requirements.

The components of net periodic (benefit) expense for the pension benefit plans are as follows (in thousands):

Year Ended December 31,

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	2016	2015	2014
Pension components of net benefit expense:			
Interest cost on benefits obligation	\$2,185	\$2,193	\$2,181
Expected return on assets	(2,562 )	(2,655 )	(2,788 )
Net pension costs (income)	(377 )	(462 )	(607 )
Net loss amortization	893	843	506
Total amortization	893	843	506
Non-cash settlement charge	4,457	—	—
Net periodic cost (benefit) of defined benefit pension plans	\$4,973	\$381	\$(101 )

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The weighted average assumptions used in determining the net periodic benefit cost and benefit obligations for the pension plans are shown below:

	Year Ended December 31,		
	2016	2015	2014
Net periodic benefit cost:			
Discount rate – qualified plan	4.14 %	3.82 %	4.70 %
Discount rate – nonqualified plan	3.87 %	3.59 %	4.30 %
Expected return on plan assets	6.75 %	7.25 %	7.25 %
Rate of compensation increase	N/A	N/A	N/A
Benefit obligations:			
Discount rate – qualified plan	3.88 %	4.14 %	3.82 %
Discount rate – nonqualified plan	3.70 %	3.87 %	3.59 %
Rate of compensation increase – nonqualified plan	N/A	N/A	N/A
Rate of compensation increase – qualified plan	N/A	N/A	N/A

The amounts reported for net periodic pension cost and the respective benefit obligation amounts are dependent upon the actuarial assumptions used. The Company reviews historical trends, future expectations, current market conditions, and external data to determine the assumptions. The actuarial assumptions used to determine the net periodic pension cost are based upon the prior year's assumptions used to determine the benefit obligation.

We derive our discount rate utilizing a commonly known pension discount curve, discounting future projected benefit obligation cash flows to arrive at a single equivalent rate. For fiscal year end 2016 benefit obligations, we utilized a weighted average basis given the level of yield on high-quality corporate bond interest rates at fiscal year-end 2016. The effect of the discount rate change decreased our projected benefit obligation at December 31, 2016 by approximately \$1.2 million and we believe will decrease our 2017 pension expense by less than \$0.1 million.

In selecting the expected long-term rate of return on assets for the qualified plan, we considered the average rate of earnings expected on the funds invested or to be invested to provide for the benefits of these plans. We, with input from the plans' professional investment managers and actuaries, also considered the average rate of earnings expected on the funds invested or to be invested to provide plan benefits. This process included determining expected returns for the various asset classes that comprise the plans' target asset allocation. This basis for selecting the long-term asset return assumptions is consistent with the prior year. Using generally accepted diversification techniques, the plans' assets, in aggregate and at the individual portfolio level, are invested so that the total portfolio risk exposure and risk-adjusted returns best meet the plans' long-term liabilities to employees. Plan asset allocations are reviewed periodically and rebalanced to achieve target allocation among the asset categories when necessary. This included considering the pension asset allocation and the expected returns likely to be earned over the life of the plans.

During the third quarter of 2016, management offered a lump sum cash payout option to terminated and vested participants in the Plan. In connection with this action, the window for participants who opt to avail themselves of this program closed during the fourth quarter 2016. During Q4 2016 we incurred a \$4.5 million non-cash settlement charge which has been recorded within the Special and restructuring charges, net line item. Also during the fourth quarter, the Plan made \$8.8 million of payments to participants who elected to receive distributions.

The funded status of the defined benefit plans and amounts recognized in the consolidated balance sheets, measured as of December 31, 2016 and December 31, 2015 are as follows (in thousands):

	December 31,	
	2016	2015
Change in projected benefit obligation:		
Balance at beginning of year	\$56,939	\$58,819
Interest cost	2,185	2,193
Actuarial loss (gain)	(2,932 )	(2,077 )
Benefits paid	(2,092 )	(1,996 )
Settlement payments	(8,800 )	—
Balance at end of year	\$45,300	\$56,939
Change in fair value of plan assets:		
Balance at beginning of year	\$39,369	\$39,826
Actual return on assets	1,904	(457 )
Benefits paid	(2,092 )	(1,996 )
Settlement payments	(8,800 )	—
Employer contributions	1,395	1,996
Fair value of plan assets at end of year	\$31,776	\$39,369
Funded status:		
Excess of projected benefit obligation over the fair value of plan assets	\$(13,524)	\$(17,570)
Pension plan accumulated benefit obligation (“ABO”)	\$39,886	\$51,395
Supplemental pension plan ABO	5,414	5,544
Aggregate ABO	\$45,300	\$56,939

The following information is presented as of December 31, 2016 and 2015 (in thousands):

	2016	2015
Funded status, end of year:		
Fair value of plan assets	\$31,776	\$39,369
Benefit obligations	(45,300 )	(56,939 )
Net pension liability	\$(13,524)	\$(17,570)
Pension liability recognized in the balance sheet consists of:		
Current liability	\$(393 )	\$—
Non-current liability	(13,131 )	(17,570 )
Total	\$(13,524)	\$(17,570)
Amounts recognized in accumulated other comprehensive income consist of:		
Net losses	\$21,640	\$29,263
Estimated future pension expense to be recognized in other comprehensive income (loss):	2017	
Amortization of net losses	\$594	

As of December 31, 2016, the benefit payments expected to be paid in each of the next five years and the aggregate for the five fiscal years thereafter are as follows (in thousands):

	2017	2018	2019	2020	2021	2022-2025
Expected benefit payments	\$2,335	\$2,397	\$2,467	\$2,560	\$2,661	\$ 13,897

The fair value of our pension plan assets as of December 31, 2016 and 2015 are \$31.8 million and \$39.4 million, respectively. Refer to Note 16, "Fair Value" for further disclosure regarding our fair value hierarchy assessment.



Our investment objectives for the portfolio of the plans' assets are to approximate the return of a composite benchmark comprised of 25% of the Barclays Capital Aggregate Bond Index, 8% of the Morgan Stanley Capital International EAFE Index, 47% of the Russell 1000 Index, 10% of the Russell 2000 Index, 8% of the Russell 600 Index, and 2% in cash. We also seek to maintain a level of volatility (measured as standard deviation of returns) which approximates that of the composite benchmark returns. Realigning among asset classes will occur periodically as global markets change. Portfolio diversification provides protection against a single security or class of securities having a disproportionate impact on aggregate performance. The long-term target allocations for plan assets are 73% in equities, 25% in fixed income, and 2% in cash, although the actual plan asset allocations may be within a range around these targets.

#### (14) Contingencies, Commitments and Guarantees

##### Legal Proceedings

Asbestos-related product liability claims continue to be filed against two of our subsidiaries: Spence Engineering Company, Inc. ("Spence"), the stock of which we acquired in 1984; and CIRCOR Instrumentation Technologies, Inc. (f/k/a Hoke Incorporated) ("Hoke"), the stock of which we acquired in 1998. Due to the nature of the products supplied by these entities, the markets they serve and our historical experience in resolving these claims, we do not believe that these asbestos-related claims will have a material adverse effect on the financial condition, results of operations or liquidity of Spence or Hoke, or the financial condition, consolidated results of operations or liquidity of the Company.

We are subject to various legal proceedings and claims pertaining to matters such as product liability or contract disputes, including issues that may arise under certain customer contracts with aerospace and defense customers. We are also subject to other proceedings and governmental inquiries, inspections, audits or investigations pertaining to issues such as tax matters, patents and trademarks, pricing, business practices, governmental regulations, employment and other matters. Although the results of litigation and claims cannot be predicted with certainty, we believe that the ultimate disposition of these matters, to the extent not previously provided for, will not have a material adverse effect, individually or in the aggregate, on our business, financial condition, results of operations or liquidity.

##### Standby Letters of Credit

We execute standby letters of credit, which include bid bonds and performance bonds, in the normal course of business to ensure our performance or payments to third parties. The aggregate notional value of these instruments was \$53.6 million at December 31, 2016. Our historical experience with these types of instruments has been good and no claims have been paid in the current or past four fiscal years. We believe that the likelihood of demand for payments relating to the outstanding instruments is remote. These instruments generally have expiration dates ranging from less than 1 month to 5 years from December 31, 2016.

The following table contains information related to standby letters of credit instruments outstanding as of December 31, 2016 (in thousands):

Term Remaining	Maximum Potential Future Payments
0-12 months	\$ 12,019
Greater than 12 months	41,593
Total	\$ 53,612

##### Operating Lease Commitments

Rental expense under operating lease commitments amounted to: \$5.6 million, \$5.9 million and \$7.3 million for the years ended December 31, 2016, 2015 and 2014, respectively. Minimum rental commitments due under

non-cancelable operating leases, primarily for office and warehouse facilities were as follows at December 31, 2016 (in thousands):

	2017	2018	2019	2020	2021	Thereafter
Minimum lease commitments	\$7,453	\$5,699	\$5,004	\$3,335	\$2,071	\$ 8,332

#### Commercial Contract Commitment

As of December 31, 2016, we had approximately \$66.0 million of commercial contract commitments related to open purchase orders.

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## Insurance

We maintain insurance coverage of a type and with such limits as we believe are customary and reasonable for the risks we face and in the industries in which we operate. While many of our policies do contain a deductible, the amount of such deductible is typically not material, and is generally less than \$0.4 million per occurrence. Our accruals for insured liabilities are not discounted and take into account these deductibles and are based on claims filed and reported as well as estimates of claims incurred but not yet reported.

### (15) Guarantees and Indemnification obligations

As permitted under Delaware law, we have agreements whereby we indemnify certain of our officers and directors for certain events or occurrences while the officer or director is, or was, serving at our request in such capacity. The term of the indemnification period is for the officer's or director's lifetime. The maximum potential amount of future payments we could be required to make under these indemnification agreements is unlimited. However, we have directors and officers' liability insurance policies that limit our exposure for events covered under the policies and should enable us to recover a portion of any future amounts paid. As a result of the coverage under these insurance policies, we believe the estimated fair value of these indemnification agreements is minimal and, therefore, have no liabilities recorded from those agreements as of December 31, 2016.

We record provisions for the estimated cost of product warranties, primarily from historical information, at the time product revenue is recognized. While we engage in extensive product quality programs and processes, our warranty obligation is affected by product failure rates, utilization levels, material usage, service delivery costs incurred in correcting a product failure, and supplier warranties on parts delivered to us. Should actual product failure rates, utilization levels, material usage, service delivery costs or supplier warranties on parts differ from our estimates, revisions to the estimated warranty liability would be required. Our warranty liabilities are included in accrued expenses and other current liabilities on our consolidated balance sheets.

The following table sets forth information related to our product warranty reserves for the years ended December 31, 2016 and 2015 (in thousands):

	December 31,	
	2016	2015
Balance beginning January 1	\$4,551	\$4,213
Provisions	2,255	3,539
Claims settled	(3,304 )	(3,714 )
Acquired reserves/other	1,125	718
Currency translation adjustment	(68 )	(205 )
Balance ending December 31	\$4,559	\$4,551

Warranty obligations of \$4.6 million for the year ended December 31, 2016 were consistent with the prior year. Increases in warranty obligations of \$1.1 million from our 2016 CFS acquisition were partially offset by claims settled within our Engineered Valves and Industrial Solutions businesses.

### (16) Fair Value

#### Financial Instruments

The carrying amounts of cash and cash equivalents, trade receivables and trade payables approximate fair value because of the short maturity of these financial instruments. Cash equivalents are carried at cost which approximates fair value at the balance sheet date and is a Level 1 financial instrument. As of December 31, 2016 and 2015, the

outstanding balance of the Company's debt approximated fair value based on current rates available to the Company for debt of the same maturity and is a Level 2 financial instrument.

Contingent consideration obligations are measured at fair value and are based on significant inputs not observable in the market, which represents a Level 3 measurement within the fair value hierarchy. The valuation of contingent consideration uses assumptions and estimates to forecast a range of outcomes and probabilities for the contingent consideration. Contingent consideration obligations are valued using a Monte Carlo simulation model. We assess these assumptions and estimates on a quarterly basis as additional data impacting the assumptions is obtained. Any changes in the fair value of contingent

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consideration related to updated assumptions and estimates will be recognized within general and administrative expenses in the consolidated statements of operations during the period in which the change occurs.

Our contingent consideration liability as of December 31, 2016 is related to the acquisition of CFS on October 12, 2016 which included a contingent payment relating to achievement of specified business performance targets by the acquired business in the twelve month period ended September 30, 2017. The fair value of the contingent consideration is \$12.2 million. See Note 3 for additional details related to the transaction.

The fair values of the Company's pension plan assets at December 31, 2016 and 2015, utilizing the fair value hierarchy are as follows (in thousands):

	December 31, 2016	December 31, 2015
	Level 1	Level 1
Cash Equivalents:		
Money Market Funds	\$ —	\$ 197
Mutual Funds:		
Bond Funds	1,721	10,928
Large Cap Funds	15,117	14,369
International Funds	5,967	5,994
Small Cap Funds	2,960	2,489
Blended Funds	2,185	1,998
Mid Cap Funds	3,826	3,394
Total Fair Value	\$ 31,776	\$ 39,369

The Company's pension plan assets are measured at fair value. For pension assets, fair value is principally determined using a market approach based on quoted prices or other relevant information from observable market transactions involving identical or comparable assets.

All assets as of December 31, 2016 and 2015 are classified as Level 1 and are comprised of mutual funds held and are traded on the open market where quoted prices are determinable and available daily. The investments are valued using a market approach based on prices obtained from the primary or secondary exchanges on which they are traded.

#### Foreign Currency Contracts

The Company is exposed to certain risks relating to its ongoing business operations including foreign currency exchange rate risk and interest rate risk. The Company currently uses derivative instruments to manage foreign currency risk on certain business transactions denominated in foreign currencies. To the extent the underlying transactions hedged are completed, these forward contracts do not subject us to significant risk from exchange rate movements because they offset gains and losses on the related foreign currency denominated transactions. These forward contracts do not qualify as hedging instruments and, therefore, do not qualify for fair value or cash flow hedge treatment. Any gains and losses on our contracts are recognized as a component of other expense in our consolidated statements of income.

As of December 31, 2016, we had four forward contracts with amounts as follows (in thousands):

Currency	Number	Contract Amount
Euro/BRL	3	— Euros
U.S. Dollar/Euro	1	74 U.S. Dollars

This compares to thirteen forward contracts as of December 31, 2015. The fair value liability of the derivative forward contracts as of December 31, 2016 was \$0.1 million and was included in accrued expenses and other current liabilities on our balance sheet. This compares to a fair value liability of \$0.2 million as of December 31, 2015. Our foreign currency forward contracts fall within Level 2 of the fair value hierarchy, in accordance with ASC Topic 820. The foreign exchange (gains)/losses for the year ended December 31, 2016, 2015 and 2014 are \$(0.6) million, \$0.5 million, and \$0.7 million, respectively and are included in other (income) expense in our consolidated statements of income.

(17) Business Segment and Geographical Information

The Company's financial performance is managed and reported in two segments. A description of each segment follows. Prior periods presented have been recasted to reflect the new segment structure.

Our reportable segments have been identified in accordance with ASC 280-10-50 through our evaluation of how the Company engages in business activities to earn revenues and incur expenses, which operating results are regularly reviewed by our chief operating decision maker ("CODM") to assess performance and make decisions about resources to be allocated, and the availability of discrete financial information. CIRCOR's reportable segments are generally organized based upon the end markets we sell our product and services into. No individual operating segments have been aggregated for purposes of determining our reportable segments.

Advanced Flow Solutions is a diversified flow control technology platform. Our primary product focus areas are valves, actuation, motors, switches, high pressure pneumatic systems, steam and process loop flow management solutions. AFS products are used in aerospace, defense, power and process, and general industrial markets. These products are primarily focused on the following end markets: Aerospace and Defense, Power and Process, HVAC, Maritime and Industrial Gas. We plan to grow Advanced Flow Solutions by increasing market share in existing and new markets through exceptional sales and customer service enabled by innovative, reliable and high quality solutions. Product portfolio expansion through acquisitions of differentiated technologies in current and adjacent applications is also a key part of our growth strategy

Energy is a global provider of highly engineered integrated flow control solutions, valves and services primarily in the Oil & Gas end market. We are focused on satisfying our customers' mission-critical application needs by utilizing advanced technologies. Our flow control solutions can withstand extreme temperatures and pressures, including land-based, topside, and sub-sea applications. Energy is growing its product offering in the severe service sector, which includes applications such as process control, oil sands, pressure control and cryogenic applications. We plan to grow Energy by expanding our capabilities in Oil & Gas - upstream, mid-stream and downstream, including through acquisitions.

Each reporting segment is individually managed, as each requires different technology and marketing strategies, and has separate financial results that are reviewed by our CODM. Our CODM evaluates segment performance and determines how to allocate resources utilizing, among other data, segment operating income. Segment operating income excludes special and restructuring charges, net. In addition, certain administrative expenses incurred at the corporate level for the benefit of the reporting segments are allocated to the segments based upon specific identification of costs, employment related information or net revenues. Each segment contains related products and services particular to that segment.

Corporate is reported on a net "after allocations" basis. Inter-segment intercompany transactions affecting net operating profit have been eliminated within the respective reportable segments.

The amounts reported in the Corporate expenses line item in the following table consists primarily of the following: compensation and fringe benefit costs for executive management and other corporate staff; Board of Director compensation; corporate development costs (relating to mergers and acquisitions); human resource development and benefit plan administration expenses; legal, accounting and other professional and consulting costs; facilities, equipment and maintenance costs; and travel and various other administrative costs. The above costs are incurred in the course of furthering the business prospects of the Company and relate to activities such as: implementing strategic business growth opportunities; corporate governance; risk management; tax; treasury; investor relations and shareholder services; regulatory compliance; strategic tax planning; and stock transfer agent costs.

The Company's management evaluates segment operating performance using "segment operating income" which we define as operating income before special restructuring charges, special other charges, restructuring related inventory charges, impairment charges, amortization from acquisitions subsequent to 2011, amortization expense related to the step-up in fair value of the inventory acquired through business acquisitions, and 2015 Brazil restatement impact. The Company also refers to this measure as segment operating income or adjusted operating income. The Company uses this measure because it helps management understand and evaluate the segments' core operating results and facilitate comparison of performance for determining incentive compensation achievement.

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The following table presents certain reportable segment information (in thousands):

	2016	2015	2014
Net revenues			
Energy	\$322,046	\$383,655	\$552,973
Advanced Flow Solutions	268,213	272,612	288,473
Inter-segment revenues	994	1,124	1,783
Corporate	(994 )	(1,124 )	(1,783 )
Consolidated revenues	\$590,259	\$656,267	\$841,446
Segment Income			
Energy - Segment Operating Income	\$34,619	\$50,386	\$79,742
Advanced Flow Solutions - Segment Operating Income	33,463	33,811	29,883
Corporate expenses	(25,672 )	(21,710 )	(23,415 )
Subtotal	42,410	62,487	86,210
Special restructuring charges, net	8,975	4,634	5,246
Special other charges, net	8,196	9,720	7,491
Special and restructuring charges, net	17,171	14,354	12,737
Restructuring related inventory charges	2,846	9,391	7,989
Amortization of inventory step-up	1,366	—	—
Impairment charges	208	2,502	726
Acquisition amortization	9,901	6,838	—
Brazil restatement impact	—	3,228	—
Restructuring and other cost, net	14,321	21,959	8,715
Consolidated Operating Income	10,918	26,174	64,757
Interest Expense, net (a)	3,310	2,844	2,652
Other (Expense) Income, net (a)	(2,072 )	902	(1,156 )
Income from continuing operations before income taxes	\$9,680	\$22,428	\$63,261
Identifiable assets			
Energy	\$658,749	\$463,359	\$545,216
Advanced Flow Solutions	407,035	486,369	291,821
Corporate	(245,028 )	(279,813 )	(112,315 )
Consolidated Identifiable assets	\$820,756	\$669,915	\$724,722
Capital expenditures			
Energy	\$3,902	\$6,176	\$6,157
Advanced Flow Solutions	8,535	6,324	5,412
Corporate	1,775	814	1,241
Consolidated Capital expenditures	\$14,212	\$13,314	\$12,810
Depreciation and amortization			
Energy	\$8,755	\$7,102	\$8,503
Advanced Flow Solutions	15,555	15,624	9,949
Corporate	1,309	1,209	1,110
Consolidated Depreciation and amortization	\$25,619	\$23,935	\$19,562

(a) The company does not allocate interest or other income (expense), net to its segments.





The total assets for each reportable segment have been reported as the Identifiable Assets for that segment, including inter-segment intercompany receivables, payables and investments in other CIRCOR companies. Identifiable assets reported in Corporate include both corporate assets, such as cash, deferred taxes, prepaid and other assets, fixed assets, as well as the elimination of all inter-segment intercompany assets. The elimination of intercompany assets results in negative amounts reported in Corporate for Identifiable Assets. Corporate Identifiable Assets after elimination of intercompany assets were \$50.5 million, \$46.7 million, and \$48.8 million as of December 31, 2016, 2015 and 2014, respectively.

The following tables present net revenue and long-lived assets by geographic area. The net revenue amounts are based on shipments to each of the respective areas.

Net revenues by geographic area (in thousands)	Year Ended December 31,		
	2016	2015	2014
United States	\$232,650	\$284,227	\$406,153
Saudi Arabia	68,693	33,155	7,980
France	42,908	34,839	40,755
Canada	32,750	46,575	41,054
United Kingdom	27,579	36,005	58,479
Germany	26,451	26,889	30,672
Norway	21,668	43,502	50,634
China	11,157	13,255	15,397
Rest of Europe	32,460	24,508	40,290
Rest of Asia-Pacific	39,808	36,247	73,163
Other	54,135	77,065	76,869
Total net revenues	\$590,259	\$656,267	\$841,446

Long-lived assets by geographic area (in thousands)	December 31,	
	2016	2015
United States	\$55,577	\$38,199
United Kingdom	10,584	11,234
Germany	10,242	10,410
Italy	5,258	6,290
France	5,209	5,823
India	3,949	4,235
Other	8,894	10,475
Total long-lived assets	\$99,713	\$86,666

## (18) Quarterly Financial Information (Unaudited, in thousands, except per share information)

## Summary Quarterly Data — Unaudited

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Year Ended December 31, 2016				
Net revenues	\$150,798	\$146,392	\$134,833	\$158,236
Gross profit	45,233	46,431	42,354	49,097
Net income (loss)	3,872	3,813	4,418	(2,002 )
Earnings (loss) per common share:				
Basic	\$0.24	\$0.23	\$0.27	\$(0.12 )
Diluted	0.23	0.23	0.27	(0.12 )
Dividends per common share	0.0375	0.0375	0.0375	0.0375
Stock Price range:				
High	\$47.55	\$61.38	\$62.76	\$68.90
Low	32.94	45.87	53.61	48.14
Year Ended December 31, 2015				
Net revenues	\$165,860	\$166,906	\$159,258	\$164,243
Gross profit	52,649	50,794	45,393	50,496
Net income (loss)	8,912	1,872	(8,078 )	7,156
Earnings per common share:				
Basic	\$0.50	\$0.11	\$(0.49 )	\$0.44
Diluted	0.50	0.11	(0.49 )	0.43
Dividends per common share	0.0375	0.0375	0.0375	0.0375
Stock Price range:				
High	\$60.13	\$58.70	\$50.93	\$46.80
Low	49.21	52.87	39.99	39.63

## Schedule II — Valuation and Qualifying Accounts

## CIRCOR INTERNATIONAL, INC.

## Allowance for Doubtful Accounts

Description	Balance at Beginning of Period (in thousands)	Additions (Reductions)		Deductions (1)	Balance at End of Period
		Charged to Costs and Expenses	Charged to Other Accounts		
Year ended December 31, 2016					
Deducted from asset account:					
Allowance for doubtful accounts	\$ 8,290	\$ 613	\$ 425	\$ (4,272 )	\$ 5,056
Year ended December 31, 2015					
Deducted from asset account:					
Allowance for doubtful accounts (2)	\$ 9,536	\$ 2,561	\$ (1,748 )	\$ (2,059 )	\$ 8,290
Year ended December 31, 2014					
Deducted from asset account:					
Allowance for doubtful accounts	\$ 2,449	\$ 7,817	\$ (162 )	\$ (568 )	\$ 9,536

(1) Uncollectible accounts written off, net of recoveries.

(2) Balance at end of period excludes the engineered valves accounts receivable allowances of \$2.4 million, which are classified as long-term as of December 31, 2015.