

*ESCO Technologies Inc.*



# Growing *forward*

2018 ANNUAL REPORT



Utility Solutions



COURTESY NAVY.MIL



Filtration/Fluid Flow

*ESCO Technologies is a global provider of highly-engineered products and solutions delivering sustainable growth across diverse and expanding end-markets. The company consists of four technology-driven business segments – Filtration/Fluid Flow, RF Shielding & Test, Utility Solutions Group, and Technical Packaging.*



Technical Packaging



RF Shielding & Test



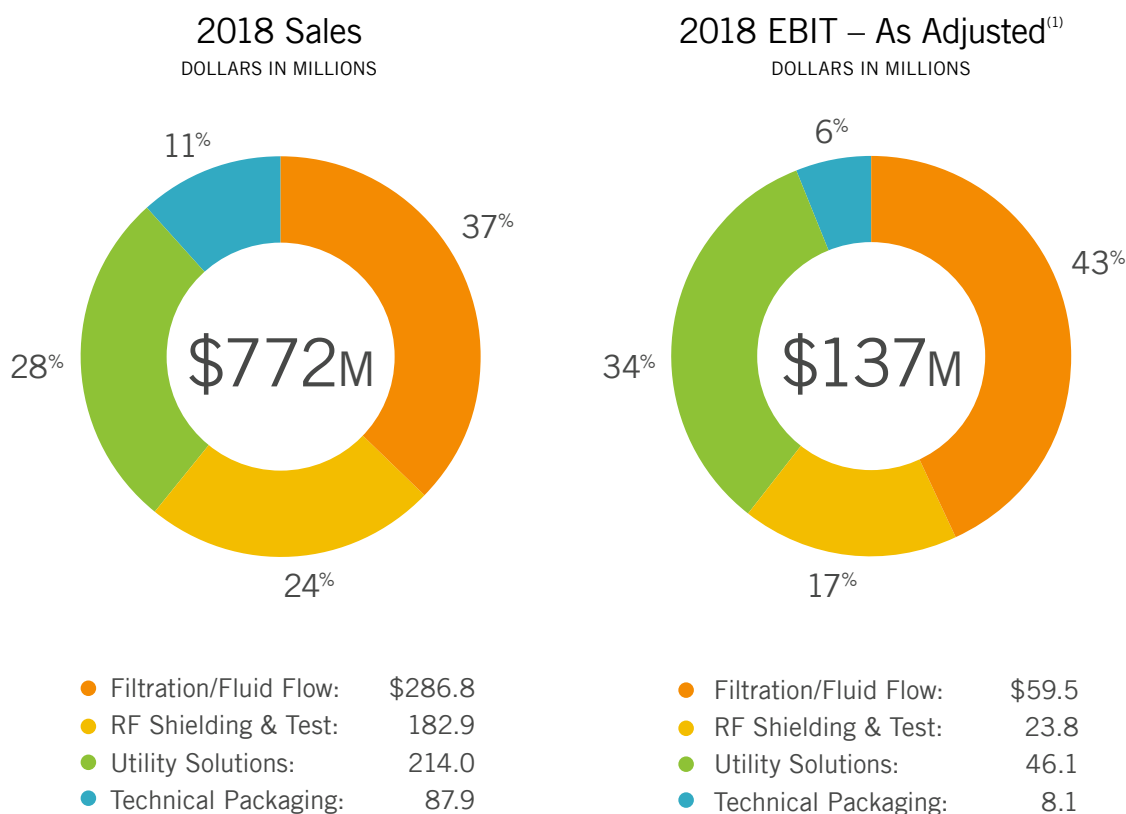
## A Solid Business Model

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*ESCO's corporate strategy remains focused on generating consistent and profitable growth across our multi-segment operating structure through continued innovation and expansion of our highly-engineered products and solutions.*

Our successful integration of recent acquisitions continues to broaden our product offerings and provide new growth opportunities across diverse end-markets. We remain focused on cost reduction and margin enhancement opportunities and took several actions in 2018 that are expected to improve operating efficiencies across our global platform.

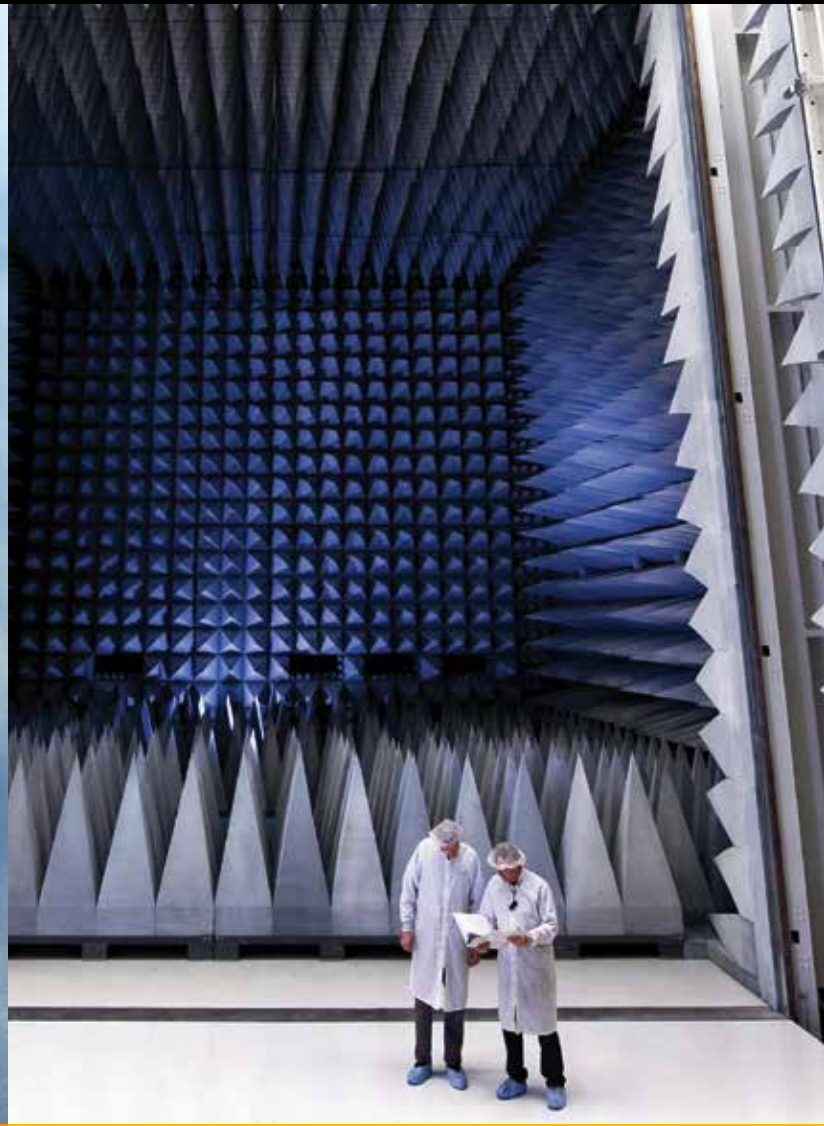
In 2018, we delivered solid operating results that exceeded our guidance for the year and our stated long-term goals of 10 percent revenue growth and 15 percent EPS growth.



(1) Excludes \$35.9 million of Corporate Costs and \$4.8 million of charges incurred related to restructuring actions.



COURTESY AF.MIL



### Filtration/Fluid Flow

Filtration/Fluid Flow (Filtration) provides innovative solutions essential to the aerospace, space, defense, and industrial markets. The combined technical capabilities and resources of Crissair, Mayday Manufacturing (Mayday), PTI Technologies (PTI), Westland Technologies (Westland), and VACCO Industries (Vacco) enable us to provide highly-engineered products for mission critical systems.

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#### Major End Markets

- + Aerospace
- + Navy
- + Space
- + Industrial

### RF Shielding & Test

ETS-Lindgren (Test) provides a broad and global customer base with highly-engineered components, chambers, and test and measurement systems. Our comprehensive solutions enable customers to perform sophisticated tests ensuring their products operate as intended and don't interfere with other electronic devices while complying with regulatory and industry-defined standards.

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#### Major End Markets

- + Wireless
- + Consumer Electronics
- + Healthcare
- + Automotive
- + Aerospace
- + Acoustics



## Utility Solutions

The Utility Solutions Group (USG) offers industry-leading diagnostic equipment and services vital for grid reliability. USG is powered by the combined offerings of Doble Engineering (Doble), Morgan Schaffer, and NRG Systems (NRG). From dissolved gas analysis and robust protection testing to renewable energy options, USG offers a complete range of diagnostic solutions that efficiently measure asset health and ensure the reliable, safe, and secure delivery of power.

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### Major End Markets

- + Global Electric Utilities
- + Renewable Energy
- + Power Generation
- + Industrial



## Technical Packaging

Technical Packaging provides innovative solutions to the medical, pharmaceutical, and commercial markets for thermoformed thin-gauge plastic and pulp-based packaging. Both Thermoform Engineered Quality (TEQ) in the U.S., and Plastique Limited (Plastique) in Europe, are focused on developing solutions for high precision applications as well as meeting the evolving need for enhanced sustainability.

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### Major End Markets

- + Medical/Pharmaceutical
- + Retail/Consumer
- + Medical Device
- + Electronic/Food/Other

DOLLARS IN MILLIONS, EXCEPT PER SHARE AMOUNTS	2018	2017	2016
Net sales	\$771.6	685.7	571.5
Net earnings	92.1	53.7	45.9
Earnings per share – GAAP	3.54	2.07	1.77
Earnings per share – As adjusted <sup>(1)</sup>	2.77	2.22	2.03

CAPITAL PERFORMANCE (AS OF SEPTEMBER 30)

Net debt	\$ 190	229	56
Leverage ratio	1.72	2.20	1.05
Cash from operating activities	93	67	74

Net Sales

IN MILLIONS



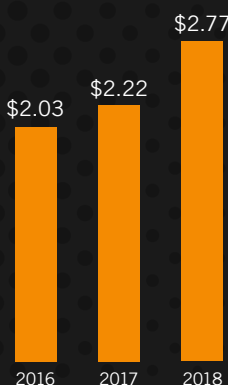
EBIT – As Adjusted<sup>(2)</sup>

IN MILLIONS

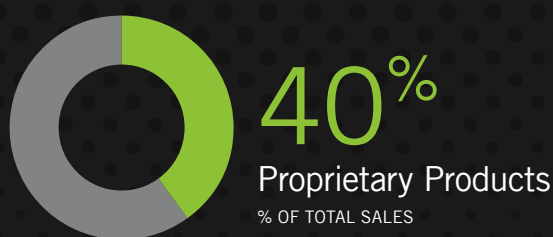


Earnings Per Share

– As Adjusted<sup>(1)</sup>



Sustainable Competitive Advantages



<sup>(1)</sup> EPS – As Adjusted excludes \$.17 per share related to restructuring charges and (\$.94) per share net tax benefit resulting from the implementation of U.S. Tax Reform in 2018, \$.15 per share of purchase accounting inventory step-up charges and acquisition costs in 2017, and \$.26 per share of restructuring charges in 2016.

<sup>(2)</sup> Excludes \$4.8 million of restructuring charges in 2018, \$6.1 million of purchase accounting inventory step-up charges and acquisition costs in 2017, and \$7.8 million of restructuring charges in 2016.

## Letter to Shareholders

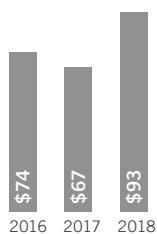
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*2018 was a year of continued profitable growth fueled by solid operating performance, supplemented by continued innovation, expanded product offerings, successful M&A integration, and a continuing focus on cost reduction.*

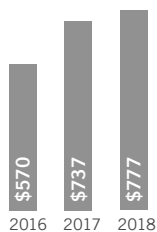
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Across ESCO, 2018 was filled with many positives: In Filtration, Mayday's revenue grew by \$12 million (20 percent organic growth) and Crissair delivered a 34 percent EBIT margin; Order strength in Test drove a 14 percent increase in revenue and a 22 percent increase in EBIT; Recent acquisitions drove a 32 percent increase in revenue in USG and a 22 percent Adjusted EBIT margin; and, Technical Packaging added a class 7 clean room which increases our capacity to serve the medical thermoforming market in Europe.

Cash Flow  
from Operations  
IN MILLIONS



Orders  
IN MILLIONS



### Financial Results

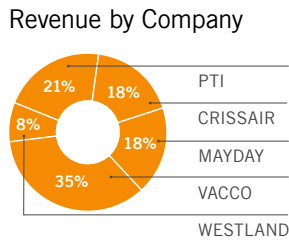
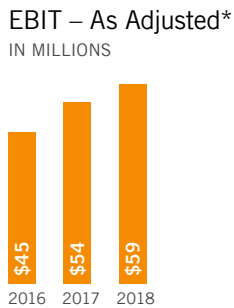
Highlights from 2018 include double digit growth in sales, earnings, and cash flow from operations.

Sales increased 13 percent to \$772 Million, led by strong organic growth in Test and commercial aerospace, and supplemented by a full year of revenue contribution from 2017's M&A activities.

Adjusted EBITDA increased 13 percent to \$139 million and Adjusted EPS increased 25 percent to \$2.77 per share. Our earnings growth was driven by strong performances in Test, Filtration and USG.

2018 GAAP EPS of \$3.54 per share reflects the favorable impact of the 2017 "Tax Cuts and Jobs Act", partially offset by cost reduction and restructuring charges incurred throughout the year.

Generating \$93 million in cash from operating activities funded internal investments in capital expenditures and R&D, and allowed us to reduce debt by \$39 million, resulting in a leverage ratio of 1.72x. Continued cash flow generation and substantial credit capacity have us well-positioned to continue to evaluate future acquisition opportunities to supplement organic growth.



\* Excludes \$0.8 million in restructuring charges in 2018 and \$1.9 million in inventory step-up charges in 2017.

## Filtration/Fluid Flow

*Crissair, Mayday, PTI, VACCO, and Westland provide innovative products and solutions to the aerospace, space, navy, and industrial markets.*

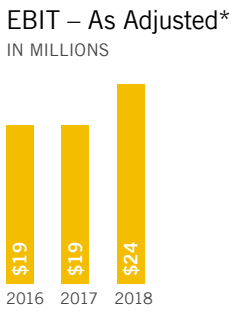
Filtration sales increased \$7 million (3 percent) to \$287 million in 2018, driven by commercial aerospace growth at Mayday and Crissair, partially offset by lower sales at PTI related to exiting a low margin automotive market. Adjusted EBIT increased \$5 million (10 percent) to \$59 million resulting in an Adjusted EBIT margin of 21 percent. Filtration’s earnings growth was primarily driven by the strength of our aerospace business.

Crissair, Mayday and PTI remain well-positioned for the future as build rates continue to grow on several major aerospace programs. Production on the Airbus A350, Embraer E2, Boeing 737 MAX, and Joint Strike Fighter (JSF) platforms are all projected to increase in 2019. In addition to increased OEM sales, as more of these planes are placed in service, our recurring aftermarket revenue will increase. In 2018, we also won new content on the 777X, T-X Trainer, Next-Generation Land-Attack Missile, and AH-64 Apache. Our proprietary content on this broad range of aerospace platforms will continue to drive the potential for significant revenue growth for the next decade.

Mayday’s revenue grew to \$52 million (20 percent organic growth) in large part driven by new contracts for additional content on the JSF, A350, 737, and 787 platforms. In addition, Mayday entered the MRO market supplying bushings for landing gear on several aircraft platform overhauls.

Vacco and Westland continued to win new content to supply advanced technology protecting U.S. naval vessels. Vacco was selected for the Reverse Osmosis Valve and the Feed Water Valve Quiet Disc Stack redesign on the Columbia-class submarine. Westland began receiving Virginia-class Block V production contracts in 2018.





\* Excludes \$5.1 million in restructuring charges in 2016.

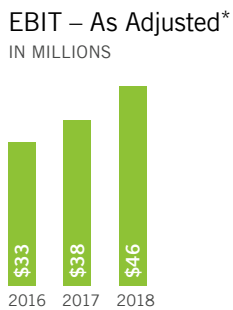
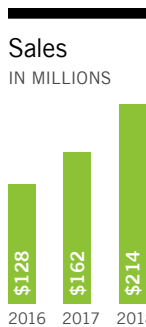
### RF Shielding & Test

*ETS-Lindgren is an innovative supplier of test and measurement systems that identify, measure and contain magnetic, electromagnetic and acoustic energy for the wireless, consumer electronics, healthcare, automotive, aerospace and acoustics markets.*

Test's revenue increased 14 percent to \$183 million in 2018 due to continued strength in our large chamber business. With over \$190 million in orders (book-to-bill of 1.04) in 2018, Test's year-end backlog grew to \$122 million, which supports our outlook for continued revenue strength. Higher revenue coupled with past cost reduction efforts resulted in a \$4 million increase in EBIT and a third consecutive year of margin expansion (13 percent EBIT).

Over the past two years Test has received a number of large chamber orders related to new product development testing for defense satellites, automotive, electric vehicle, and 5G development. ETS-Lindgren has been successful in winning several large projects for the defense industry specifically for testing satellites and high-powered radar equipment. We have also experienced an increase in automotive opportunities requiring EMC testing, with specific strength in electric vehicle motors in China. In addition, as 5G becomes the next phase of wireless communication, ETS-Lindgren is focusing their efforts on continuing to expand our leadership position within the Over-the-Air (OTA) market by providing customized test systems to the early adopters. These large projects allow for multi-year revenue streams driving growth above and beyond ETS-Lindgren's recurring base business.

To support this growth and to drive the continuation of key process improvements, we recently completed a 12,000 square foot addition to Test's main operating facility in Cedar Park, Texas which consolidates warehouse space and improves our manufacturing product flow.



\*Excludes \$3 million in restructuring charges in 2018, \$1.9 million in inventory step-up charges in 2017, and \$2.2 million in restructuring charges in 2016.

## Utility Solutions Group

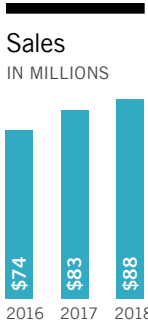
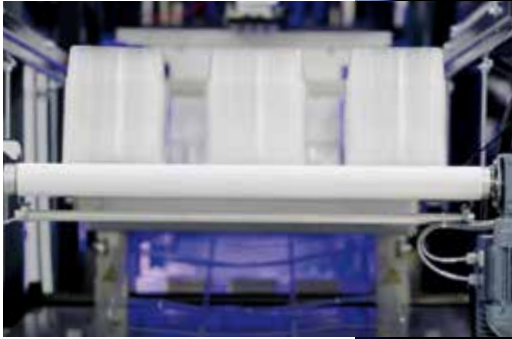
*USG provides industry-leading diagnostic equipment, software, and services to efficiently assess asset health, minimize risk, and optimize infrastructure performance for the electric utility and renewable energy industries.*

USG sales increased \$51 million (32 percent) in 2018, in large part driven by contributions from recent M&A activity. Successful integration of these new businesses resulted in an Adjusted EBIT margin of 22 percent. With the consolidation of our extensive distribution channels, we expect improved efficiency, productivity, and an expanded geographic reach for our combined product offerings. In addition, our cost reduction actions will reduce operating costs and support future growth at enhanced margins.

Another benefit of recent acquisitions is the ability of our products to work together. Doble now integrates Morgan Schaffer’s Calisto online DGA into its doblePRIME™ bushing monitoring system. The program is tied to a support service integrating Doble’s unique client service business model. Manta Test Systems expands our protection testing portfolio by adding a relay testing solution capable of operating stand-alone or in tandem with our ENOSERV software. Managing data related to the testing of protection relays and compliance with NERC/CIP requirements remains a primary objective for utilities and is expected to drive future growth.

At NRG, we expanded partnerships with tower and installation companies globally to support the expected future growth of renewable energy. In addition, the acquisition of Pentalum’s Lidar technology enables NRG to be at the forefront in using remote sensing for the wind industry. These actions combined with NRG’s established international sales and service operations provide customers with an expanded suite of solutions for their ongoing operations and development initiatives.

Globally, utilities are responding to a complex environment as demand for sustainability and resiliency of electrical supply increases while requirements for reliability and security remain. This creates a unique and exciting growth opportunity for USG as our products and services support the evolving grid requirements.



## Technical Packaging

*TEQ and Plastique provide innovative thermoformed and pulp-based packaging solutions and specialty products to the medical, pharmaceutical, and commercial markets.*

Technical Packaging sales increased \$5 million (6 percent) driven by revenue growth at both TEQ and Plastique. 2018 was a record year for medical device revenue (\$21 million) and was primarily generated from contracts to produce thermometer probe covers and operating room light handle and camera covers. In addition, we experienced significantly increased revenue related to blood collection kits and medical imaging film cassette trays and were awarded two multi-year contracts with new medical customers which will support the future growth of our technical packaging segment globally.

With the completion of recent investments expanding our capabilities and manufacturing capacity at Plastique, we expect margin improvement and attractive sales growth going forward. These projects included the completion of a building expansion at our facility in Poland, which supports future growth in both thin-gauge plastic and pulp-based fiber packaging manufacturing, as well as providing warehouse space which will reduce future logistics costs. In addition, a new state-of-the-art thermoformer was purchased and installed in Poland to increase production capacity and achieve global equipment standardization. In the United Kingdom, our new clean room was approved by several medical OEMs for the supply of medical device packaging.



*Victor L. Richey (center) Chairman, Chief Executive Officer and President / Gary E. Muenster (left) Executive Vice President and Chief Financial Officer / Alyson S. Barclay (right) Senior Vice President, Secretary and General Counsel*

## Our Focus Continues

2018 was a strong year reflecting extraordinary growth across the company. Over the past three years we have delivered compound annual growth rates of 13 percent in revenue and 20 percent in Adjusted EPS. Both are in excess of our stated long-term goals of 10 percent revenue growth and 15 percent EPS growth. We continue to see meaningful potential for sales and earnings growth across each of our business segments and anticipate continued solid operating performance and profitable growth as we enter 2019.

Our focus continues to be on broadening our product portfolio, reducing costs and increasing cash flow in accordance with our belief that these are key drivers of share price appreciation. With the contributions from recent acquisitions and anticipated organic growth, supplemented by the favorable earnings and cash flow impact from tax reform, I continue to believe we remain well-positioned to deliver sustained profitable growth and long-term shareholder value creation.

On behalf of our employees, management team and Board of Directors, I would like to thank our shareholders for their continuing interest and support.

**Vic Richey**  
Chairman, Chief Executive Officer  
& President

November 29, 2018

**Gary Muenster**  
Executive Vice President &  
Chief Financial Officer



2018 *Form 10-K*

ESCO TECHNOLOGIES, INC.

FISCAL YEAR 2018



**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, DC 20549**

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**FORM 10-K**

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

For the fiscal year ended September 30, 2018

OR

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

For the transition period from \_\_\_\_\_ to \_\_\_\_\_

Commission file number: 1-10596

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**ESCO Technologies Inc.**

(Exact name of registrant as specified in its charter)

Missouri  
(State or other jurisdiction  
of incorporation or organization)

43-1554045  
(I.R.S. Employer  
Identification No.)

9900A Clayton Road  
St. Louis, Missouri  
(Address of principal executive offices)

63124-1186  
(Zip Code)

Registrant's telephone number, including area code:  
(314) 213-7200

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

<u>Title of each class</u>	<u>Name of each exchange on which registered</u>
Common Stock, par value \$0.01 per share	New York Stock Exchange

Securities registered pursuant to section 12(g) of the Act:

None

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

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.

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

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

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

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

Large accelerated filer

Accelerated filer

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

Smaller reporting company

Emerging growth company

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

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

No

Aggregate market value of the Common Stock held by non-affiliates of the registrant as of the close of trading on March 30, 2018, the last business day of the registrant’s most recently completed second fiscal quarter: approximately \$1,481,211,000.\*

\* Based on the New York Stock Exchange closing price on March 29, 2018, the last previous trading day. For purpose of this calculation only, without determining whether the following are affiliates of the registrant, the registrant has assumed that (i) its directors and executive officers are affiliates, and (ii) no party who has filed a Schedule 13D or 13G is an affiliate.

Number of shares of Common Stock outstanding at November 12, 2018: 25,910,828

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DOCUMENTS INCORPORATED BY REFERENCE:

Part III of this Report incorporates by reference certain portions of the registrant’s definitive Proxy Statement for its 2019 Annual Meeting of Shareholders, which the registrant currently anticipates first sending to shareholders on or about December 12, 2018 (hereinafter, the “2018 Proxy Statement”).



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## FORWARD-LOOKING INFORMATION

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Statements contained in this Form 10-K regarding future events and the Company's future results that are based on current expectations, estimates, forecasts and projections about the Company's performance and the industries in which the Company operates are considered "forward-looking statements" within the meaning of the safe harbor provisions of the Federal securities laws. These include, without limitation, statements about: the adequacy of the Company's buildings, machinery and equipment; the adequacy of the Company's credit facilities and future cash flows; the outcome of litigation, claims and charges; future costs relating to environmental matters; continued reinvestment of foreign earnings and the resulting U.S. tax liability in the event such earnings are repatriated; repayment of debt within the next twelve months; the outlook for 2019 and beyond, including amounts, timing and sources of 2019 sales, revenues, sales growth, EBIT, Adjusted EBIT, EBITDA, Adjusted EBITDA, EBIT margins, EPS and EPS – As Adjusted; interest on Company debt obligations; the ability of expected hedging gains or losses to be offset by losses or gains on related underlying exposures; the Company's ability to increase shareholder value; acquisitions; income tax expense and the Company's expected effective tax rate; minimum cash funding required by, expected benefits payable from, and Management's assumptions about future events which could affect liability under, the Company's defined benefit plans and other postretirement benefit plans; the recognition of unrecognized compensation costs related to share-based compensation arrangements; the Company's exposure to market risk related to interest rates and to foreign currency exchange risk; the likelihood of future variations in the Company's assumptions or estimates used in recording contracts and expected costs at completion under the percentage of completion method; the Company's estimates and assumptions used in the preparation of its financial statements; cost and estimated earnings on long-term contracts; valuation of inventories; estimates of uncollectible accounts receivable; the risk of goodwill impairment; the Company's estimates utilized in software revenue recognition, non-cash depreciation and the amortization of intangible assets; the valuation of deferred tax assets; estimates of future cash flows and fair values in connection with the risk of goodwill impairment; amounts of NOL not realizable and the timing and amount of the reduction of unrecognized tax benefits; the effects of implementing recently issued accounting pronouncements; and any other statements contained herein which are not strictly historical. Words such as expects, anticipates, targets, goals, projects, intends, plans, believes, estimates, variations of such words, and similar expressions are intended to identify such forward-looking statements.

Investors are cautioned that such statements are only predictions and speak only as of the date of this Form 10-K, and the Company undertakes no duty to update the information in this Form 10-K except as may be required by applicable laws or regulations. The Company's actual results in the future may differ materially from those projected in the forward-looking statements due to risks and uncertainties that exist in the Company's operations and business environment, including but not limited to those described herein under "Item 1A, Risk Factors," and the following: the impacts of labor disputes, civil disorder, wars, elections, political changes, terrorist activities or natural disasters on the Company's operations and those of the Company's customers and suppliers; the timing and content of future customer orders; the appropriation and allocation of government funds; the termination for convenience of government and other customer contracts; the timing and magnitude of future contract awards; weakening of economic conditions in served markets; the success of the Company's competitors; changes in customer demands or customer insolvencies; competition; intellectual property rights; technical difficulties; the availability of selected acquisitions; delivery delays or defaults by customers; performance issues with key customers, suppliers and subcontractors; material changes in the costs of certain raw materials; material changes in the cost of credit; changes in laws and regulations including but not limited to changes in accounting standards and taxation requirements; costs relating to environmental matters; litigation uncertainty; and the Company's successful execution of internal restructuring and other plans.

## PART I

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### Item 1. Business

#### The Company

The Registrant, ESCO Technologies Inc. (ESCO), is a global provider of highly engineered products and solutions to diverse and growing end-markets that include the commercial and military aerospace, space, healthcare, wireless, consumer electronics, electric utility and renewable energy industries. ESCO is focused on generating predictable and profitable long-term growth through continued innovation and expansion of its product offerings across each of its business segments. ESCO conducts its business through a number of wholly-owned direct and indirect subsidiaries. ESCO and its subsidiaries are referred to in this Report as “the Company.”

ESCO was incorporated in Missouri in August 1990 as a wholly owned subsidiary of Emerson Electric Co. (Emerson) to be the indirect holding company for several Emerson subsidiaries, which were primarily in the defense business. Ownership of the Company was spun off by Emerson to its shareholders on October 19, 1990, through a special distribution. Since that time, through a series of acquisitions and divestitures, the Company has shifted its primary focus from defense contracting to the production and supply of engineered products and systems marketed to utility, industrial, aerospace and commercial users. ESCO’s corporate strategy is centered on a multi-segment approach designed to enhance the strength and sustainability of sales and earnings growth by providing lower risk through diversification. Its stock is listed on the New York Stock Exchange, where its ticker symbol is “ESE”.

The Company’s fiscal year ends September 30. Throughout this document, unless the context indicates otherwise, references to a year (for example 2018) refer to the Company’s fiscal year ending on September 30 of that year.

The Company is organized based on the products and services it offers, and classifies its business operations in segments for financial reporting purposes. As a result of the acquisitions of Plastique and Fremont discussed in Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” beginning in the second quarter of 2016 Management expanded the presentation of its reporting segments to include a fourth segment, Technical Packaging. Prior period segment amounts have been reclassified to conform to the current period presentation.

The Company’s four segments, together with the significant domestic and foreign operating subsidiaries within each segment during 2018, are as follows:

**Filtration/Fluid Flow (Filtration):**

PTI Technologies Inc. (PTI)  
VACCO Industries (VACCO)  
Crissair, Inc. (Crissair)  
Westland Technologies, Inc. (Westland)  
Mayday Manufacturing Co. and Hi-Tech Metals, Inc. (together, Mayday)

**RF Shielding and Test (Test):**

ETS-Lindgren Inc.  
Except as the context otherwise indicates, the term “ETS-Lindgren” as used herein includes ETS-Lindgren Inc. and the Company’s other Test segment subsidiaries.

**Utility Solutions Group (USG):**

Doble Engineering Company  
Morgan Schaffer Ltd. (Morgan Schaffer)  
NRG Systems, Inc. (NRG)

Except as the context otherwise indicates, the term “Doble” as used herein includes Doble Engineering Company and the Company’s other USG subsidiaries except Morgan Schaffer and NRG.

**Technical Packaging:**

Thermoform Engineered Quality LLC (TEQ)  
Plastique Limited  
Plastique Sp. z o.o.

Plastique Limited and Plastique Sp. z o.o. are referred to together herein as “Plastique.”

The Company's operating subsidiaries are engaged primarily in the research, development, manufacture, sale and support of the products and systems described below. Their respective businesses are subject to a number of risks and uncertainties, including without limitation those discussed in Item 1A, "Risk Factors." See also Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations," and "Forward-Looking Information."

ESCO is continually seeking ways to reduce costs, streamline its business processes and enhance the branding of its products and services. In October 2015 the Company announced several restructuring and realignment actions involving the Test and USG segments which were completed during 2016, including closing ETS-Lindgren's operating subsidiaries in Germany and the United Kingdom and consolidating their operations into other existing Test facilities; eliminating certain underperforming product line offerings in Test primarily related to lower margin international shielding end markets; reducing headcount in Test's U.S. business; and closing Doble's Brazil operating office and consolidating Doble's South American sales and support activities.

During 2018 the Company undertook several restructuring actions involving the closure of Doble's sales offices in Norway, China, Mexico and Dubai as part of its consolidation of the global distribution channels of Doble and Morgan Schaffer. Since the end of fiscal 2018, Doble has sold its headquarters facility in Watertown, Massachusetts and plans to consolidate its headquarters operations into a single, more cost-efficient facility in Marlborough, Massachusetts over the next 12 to 15 months. Also during fiscal 2019, Plastique intends to reduce its operating costs and gain efficiencies through a restructuring that involves closing its administrative and product development center in Tunbridge Wells, UK and integrating those activities into its existing manufacturing locations in Nottingham, UK and Poznan, Poland.

ESCO is also continually seeking opportunities to supplement its growth by making strategic acquisitions. During 2017, the Company acquired Mayday, a leading manufacturer of mission-critical bushings, pins, sleeves and precision-tolerance machined components for landing gear, rotor heads, engine mounts, flight controls, and actuation systems for the aerospace and defense industries; Hi-Tech, a full-service metal processor offering aerospace original equipment manufacturers ("OEMs") and Tier 1 suppliers a large portfolio of processing services including anodizing, cadmium and zinc-nickel plating, organic coatings, non-destructive testing, and heat treatment; NRG, a global market leader in the design and manufacture of decision support tools for the renewable energy industry, primarily wind; and the assets of Morgan Schaffer Inc., which designs, develops, manufactures and markets an integrated offering of dissolved gas analysis, oil testing, and data management solutions which enhance the ability of electric utilities to accurately monitor the health of critical power transformers. In August 2017, the Company acquired the assets of Vanguard Instruments Company (Vanguard Instruments), a test equipment provider serving the global electric utility market. In March 2018, the Company acquired the assets of Manta Test Systems Ltd., a manufacturer of self-contained protective relay test systems for use by electric utilities and their service companies. More information about these 2017 and 2018 acquisitions as well as the Company's acquisition activity during 2016 is provided in Note 2 to the Consolidated Financial Statements included herein.

## **Products**

The Company's principal products are described below. See Note 13 to the Consolidated Financial Statements included herein for financial information regarding business segments and 10% customers.

### ***Filtration***

The Filtration segment accounted for approximately 37%, 41% and 36% of the Company's total revenue in 2018, 2017 and 2016, respectively.

PTI is a leading supplier of filtration and fluid control products serving the commercial aerospace, military aerospace and various industrial markets. Products include filter elements, manifolds, assemblies, modules, indicators and other related components, all of which must meet stringent qualification requirements and withstand severe operating conditions. Product applications include hydraulic, fuel, cooling and air filtration systems for fixed wing and rotary aircraft, mobile transportation and construction equipment, aircraft engines and stationary plant equipment. PTI supplies products worldwide to OEMs and the U.S. government under long term contracts, and to the commercial and military aftermarket through distribution channels.

VACCO supplies filtration and fluid control products including valves, manifolds, filters, regulators and various other components for use in the space, military aerospace, defense missile systems, U.S. Navy and commercial industries. Applications include aircraft fuel and de-icing systems, missiles, satellite propulsion systems, satellite launch vehicles

and other space transportation systems such as the Space Launch System. VACCO also utilizes its multi-fab technology and capabilities to produce products for use in space and U.S. Navy applications.

Crissair supplies a wide variety of custom and standard valves, actuators, manifolds and other various components to the aerospace, defense, automotive and commercial industries. Product applications include hydraulic, fuel and air filtration systems for commercial and military fixed wing and rotary aircraft, defense missile systems and commercial engines. Crissair supplies products worldwide to OEMs and to the U.S. Government under long term contracts and to the commercial aftermarket through distribution channels.

Westland is a leading designer and manufacturer of elastomeric-based signature reduction solutions to enhance U.S. Navy maritime survivability. Westland's products include complex tiles and other shock and vibration dampening systems that reduce passive acoustic signatures and/or modify signal (radar, infrared, acoustical, sonar) emission and reflection to reduce or obscure a vessel's signature. Westland's products are used on the majority of the U.S. Naval fleet including submarines, surface ships and aircraft carriers.

Mayday is a manufacturer of mission-critical bushings, pins, sleeves and precision-tolerance machined components for landing gear, rotor heads, engine mounts, flight controls, and actuation systems for the aerospace and defense industry.

Hi-Tech is a full-service metal processor offering aerospace OEM's and Tier 1 suppliers a large portfolio of processing services including anodizing, cadmium and zinc-nickel plating, organic coatings, non-destructive testing, and heat treatment. Its portfolio includes over 100 OEM processing approvals.

### **Test**

The Test segment accounted for approximately 24%, 23% and 28% of the Company's total revenue in 2018, 2017 and 2016, respectively.

ETS-Lindgren designs and manufactures products to measure and contain magnetic, electromagnetic and acoustic energy. It supplies customers with a broad range of isolated environments and turnkey systems, including RF test facilities, acoustic test enclosures, RF and magnetically shielded rooms, secure communication facilities, RF measurement systems and broadcast and recording studios. Many of these facilities include proprietary features such as shielded doors and windows. ETS-Lindgren also provides the design, program management, installation and integration services required to successfully complete these types of facilities.

ETS-Lindgren also supplies customers with a broad range of components including RF absorptive materials, RF filters, active compensation systems, antennas, antenna masts, turntables and electric and magnetic probes, RF test cells, proprietary measurement software and other test accessories required to perform a variety of tests. ETS-Lindgren offers a variety of services including calibration for antennas and field probes, chamber certification, field surveys, customer training and a variety of product tests. ETS-Lindgren's test labs are accredited by the following organizations: American Association for Laboratory Accreditation, National Voluntary Laboratory Accreditation Program and CTIA-The Wireless Association Accredited Test Lab. ETS-Lindgren serves the acoustics, medical, health and safety, electronics, wireless communications, automotive and defense markets. ETS-Lindgren has four offices in the United States and nine international offices.

### **USG**

The USG segment accounted for approximately 28%, 24% and 23% of the Company's total revenue in 2018, 2017 and 2016, respectively.

Doble develops, manufactures, and delivers diagnostic testing solutions for electrical equipment comprising the electric power grid, and enterprise management systems, that are designed to optimize electrical power assets and system performance, minimize risk and improve operations. It combines three core elements for customers – diagnostic test and monitoring instruments, expert consulting, and testing services – and provides access to its large reserve of related empirical knowledge. Doble flagship solutions include protection diagnostics with the Doble Protection Suite, RTS, Manta MTS-5100 and F6000 series, the M4100 and new transformational patent-pending technology of the M7100 Doble Tester, the dobleARMS® asset risk management system, and the Enoserv PowerBase® and DUC™ compliance tools for the North American Electric Reliability Corporation Critical Infrastructure Protection plan (NERC CIP), a set of requirements designed to secure the assets required for operating North America's bulk electric system. Vanguard Instruments provides instrumentation for diagnostic testing of circuit breakers, current transformers and other substation apparatus.

Doble has seven offices in the United States and five international offices.

Morgan Schaffer designs, develops, manufactures and markets an integrated offering of dissolved gas analysis, oil testing, and data management solutions that enhance the ability of electric utilities to accurately monitor the health of critical power transformers. These solutions have been combined with *doblePrime*<sup>™</sup> to create a comprehensive online monitoring solution including bushing monitoring, DGA and partial discharge.

NRG, located in Vermont, is a global market leader in the design and manufacture of decision support tools for the renewable energy industry, primarily wind.

### **Technical Packaging**

The Technical Packaging segment accounted for approximately 11%, 12% and 13% of the Company's total revenue in 2018, 2017 and 2016, respectively. Prior to the second quarter of 2016 the Technical Packaging business was included in the Filtration segment.

TEQ produces highly engineered thermoformed products and packaging materials for medical, pharmaceutical, retail, food and electronic applications. Through its alliance partner program, TEQ also provides its clients with a total packaging solution including engineering services and testing, sealing equipment and tooling, contract manufacturing, and packing.

Plastique, with locations in the UK and Poland, designs and manufactures plastic and pulp fibre packaging for customers in the personal care, household products, pharmaceutical, food and broader retail markets. Through its Fibrepak brand, Plastique became the first European manufacturer of smooth-surfaced press-to-dry pulp packaging, a sustainable alternative to plastic packaging.

### **Marketing and Sales**

The Company's products generally are distributed to customers through a domestic and foreign network of distributors, sales representatives, direct sales teams and in-house sales personnel.

The Company's sales to international customers accounted for approximately 30%, 27% and 29% of the Company's total revenue in 2018, 2017 and 2016, respectively. See Note 13 to the Consolidated Financial Statements included herein for financial information by geographic area. See also Item 1A, "Risk Factors," for a discussion of risks of the Company's international operations.

Some of the Company's products are sold directly or indirectly to the U.S. Government under contracts with the Army, Navy and Air Force and subcontracts with prime contractors of such entities. Direct and indirect sales to the U.S. Government, primarily related to the Filtration segment, accounted for approximately 20%, 20% and 14% of the Company's total revenue in 2018, 2017 and 2016, respectively.

### **Intellectual Property**

The Company owns or has other rights in various forms of intellectual property (i.e., patents, trademarks, service marks, copyrights, mask works, trade secrets and other items). As a major supplier of engineered products to industrial and commercial markets, the Company emphasizes developing intellectual property and protecting its rights therein. However, the scope of protection afforded by intellectual property rights, including those of the Company, is often uncertain and involves complex legal and factual issues. Some intellectual property rights, such as patents, have only a limited term. Also, there can be no assurance that third parties will not infringe or design around the Company's intellectual property. Policing unauthorized use of intellectual property is difficult, and infringement and misappropriation are persistent problems for many companies, particularly in some international markets. In addition, the Company may not elect to pursue an unauthorized user due to the high costs and uncertainties associated with litigation. Further, there can be no assurance that courts will ultimately hold issued patents or other intellectual property valid and enforceable. See Item 1A, "Risk Factors."

A number of products in the Filtration segment are based on patented or otherwise proprietary technology that sets them apart from the competition, such as VACCO's proprietary quieting technology and Westland's signature reduction solutions.

In the Test segment, patent protection has been sought for significant inventions. Examples of such inventions include novel designs for window and door assemblies used in shielded enclosures and anechoic chambers, improved acoustic techniques for sound isolation and a variety of unique antennas. In addition, the Test segment holds a number of patents, and has patents pending, on products used to perform wireless device testing.

In the USG segment, the segment policy is to seek patent and/or other forms of intellectual property protection on new and improved products, components of products and methods of operation for its businesses, as such developments are made. Doble is pursuing patent protection on improvements to its line of diagnostic equipment and NERC CIP compliance tools. Doble also holds an extensive library of apparatus performance information useful to Doble employees and to entities that generate, distribute or consume electric energy. Doble makes part of this library available to registered users via an Internet portal. NRG is pursuing patent protection on its upcoming line of bat deterrent systems, which are expected to reduce bat mortality at windfarms. In 2018, NRG acquired patented direct detect LIDAR technology from Pentalum Technologies Ltd. with uses in wind resource assessment, wind farm operation, forecasting and research.

The Technical Packaging segment emphasizes advanced manufacturing technology and methods. For example, the TEQ 3-in-1 tooling system, with an added stacking tool, provides a competitive edge over traditional thermoform tooling; and Plastique's "Cure-In-The-Mold" technology produces high-quality, smooth-surface, thin-wall packaging products which may be made from sustainable virgin crop fibers or virgin pulp. The segment's intellectual property consists chiefly of trade secrets and proprietary technology embodied in products for which the Company is the only approved source, such as the TEQconnex™ and TEQethylene™ single polymer sterile barrier medical packaging systems for which TEQ owns the validation studies required to register the package with the FDA.

The Company considers its patents and other intellectual property to be of significant value in each of its segments.

### **Backlog**

Total Company backlog of firm orders at September 30, 2018 was \$382.8 million, representing an increase of \$5.7 million (1.5%) from the backlog of \$377.1 million on September 30, 2017. The backlog at September 30, 2018 and September 30, 2017, respectively, by segment, was \$204.2 million and \$203.1 million for Filtration; \$122.3 million and \$114.8 million for Test; \$40.7 million and \$35.6 million for USG; and \$15.5 million and \$23.6 million for Technical Packaging. The Company estimates that as of September 30, 2018 domestic customers accounted for approximately 71% of the Company's total firm orders and international customers accounted for approximately 29%. Of the total Company backlog at September 30, 2018, approximately 83% is expected to be completed in the fiscal year ending September 30, 2019.

### **Purchased Components and Raw Materials**

The Company's products require a wide variety of components and materials. Although the Company has multiple sources of supply for most of its materials requirements, certain components and raw materials are supplied by sole source vendors, and the Company's ability to perform certain contracts depends on their performance. In the past, these required raw materials and various purchased components generally have been available in sufficient quantities. However, the Company does have some risk of shortages of materials or components due to reliance on sole or limited sources of supply. See Item 1A, "Risk Factors."

The Filtration segment purchases supplies from a wide array of vendors. In most instances, multiple vendors of raw materials are screened during a qualification process to ensure that there will not be an interruption of supply should one of them underperform or discontinue operations. Nonetheless, in some situations, there is a risk of shortages due to reliance on a limited number of suppliers or because of price fluctuations due to the nature of the raw materials. For example, aerospace-grade titanium and gaseous helium, important raw materials for our Filtration segment subsidiaries, may at times be in short supply.

The Test segment is a vertically integrated supplier of electro-magnetic (EM) shielding and RF absorbing products, producing most of its critical RF components. This segment purchases significant quantities of raw materials such as polyurethane foam, polystyrene beads, steel, aluminum, copper, nickel and wood. Accordingly, it is subject to price fluctuations in the worldwide raw materials markets. While ETS-Lindgren has long-term contracts with a number of its suppliers, it is vulnerable to changes in trade policies.

The USG segment manufactures electronic instrumentation through a network of regional contract manufacturers under long term contracts. In general, USG purchases the same kinds of component parts as do other electronic products manufacturers, and it purchases only a limited amount of raw materials.

The Technical Packaging segment selects suppliers initially on the basis of their ability to meet requirements, and then conducts ongoing evaluations and ratings of the supplier's performance based on a documented evaluation process. The segment purchases raw materials according to a documented and controlled process assuring that purchased materials meet defined specifications. Thermoplastics represent the largest percentage of raw material spend, with

purchase prices subject to fluctuation depending on petrochemical industry pricing and capacity in the plastic resin market.

## **Competition**

Competition in the Company's major markets is broadly based and global in scope. Competition can be particularly intense during periods of economic slowdown, and this has been experienced in some of the Company's markets. Although the Company is a leading supplier in several of the markets it serves, it maintains a relatively small share of the business in many of the other markets it serves. Individual competitors range in size from annual revenues of less than \$1 million to billion-dollar enterprises. Because of the specialized nature of the Company's products, its competitive position with respect to its products cannot be precisely stated. In the Company's major served markets, competition is driven primarily by quality, technology, price and delivery performance. See also Item 1A, "Risk Factors."

Primary competitors of the Filtration segment include Pall Corporation, Moog, Inc., Sofrance, CLARCOR Inc., PneuDrualics, Marotta Controls, and Parker Hannifin.

The Test segment is a global leader in EM shielding. Significant competitors in this market include Rohde & Schwarz GMBH, Microwave Vision SA (MVG), TDK RF Solutions Inc., Albatross GmbH, IMEDCO AG, and Universal Shielding Corp..

Significant competitors of the USG segment include OMICRON electronics Corp., Megger Group Limited, Vaisala, and Qualitrol Company LLC (a subsidiary of Danaher Corporation).

Significant Competitors of the Technical Packaging segment include Nelipak Corporation, Prent Corporation, Placon Corporation, Poli Marian Holz, and Sonoco/Alloyd.

## **Research and Development**

Research and development and the Company's technological expertise are important factors in the Company's business. Research and development programs are designed to develop technology for new products or to extend or upgrade the capability of existing products, and to enhance their commercial potential. The Company performs research and development at its own expense, and also engages in research and development funded by customers. See Note 1 to the Consolidated Financial Statements included herein for financial information about the Company's research and development expenditures.

## **Environmental Matters**

The Company is involved in various stages of investigation and cleanup relating to environmental matters. It is difficult to estimate the potential costs of such matters and the possible impact of these costs on the Company at this time due in part to: the uncertainty regarding the extent of pollution; the complexity and changing nature of Government laws and regulations and their interpretations; the varying costs and effectiveness of alternative cleanup technologies and methods; the uncertain level of insurance or other types of cost recovery; the uncertain level of the Company's responsibility for any contamination; the possibility of joint and several liability with other contributors under applicable law; and the ability of other contributors to make required contributions toward cleanup costs. Based on information currently available, the Company does not believe that the aggregate costs involved in the resolution of any of its environmental matters will have a material adverse effect on the Company's financial condition or results of operations.

## **Government Contracts**

The Company contracts with the U.S. Government and subcontracts with prime contractors of the U.S. Government. Although VACCO and Westland have a number of "cost-plus" Government contracts, the Company's Government contracts also include firm fixed-price contracts under which work is performed and paid for at a fixed amount without adjustment for the actual costs experienced in connection with the contracts. All Government prime contracts and virtually all of the Company's Government subcontracts provide that they may be terminated at the convenience of the Government or the customer. Upon such termination, the Company is entitled to receive equitable compensation from the customer. See "Marketing and Sales" in this Item 1, and Item 1A, "Risk Factors," for additional information regarding Government contracts and related risks.



## Employees

As of September 30, 2018, the Company employed 3,117 persons, including 2,954 full time employees. Of the Company's full-time employees, 2,313 were located in the United States and 641 were located in 16 foreign countries.

## Financing

For information about the Company's credit facility, see Note 8 to the Consolidated Financial Statements included herein, which is incorporated into this Item by reference.

## Additional Information

The information set forth in Item 1A, "Risk Factors," is incorporated in this Item by reference.

The Company makes available free of charge on or through its website, [www.escotechnologies.com](http://www.escotechnologies.com), its annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, as soon as reasonably practicable after such material is electronically filed with or furnished to the Securities and Exchange Commission. Information contained on the Company's website is not incorporated into this Report.

## Executive Officers of the Registrant

The following sets forth certain information as of November 1, 2018 with respect to the Company's executive officers. These officers are elected annually to terms which expire at the first meeting of the Board of Directors after the next Annual Meeting of Stockholders.

<u>Name</u>	<u>Age</u>	<u>Position(s)</u>
Victor L. Richey	61	Chairman of the Board of Directors and Chief Executive Officer since April 2003; President since October 2006 *
Gary E. Muenster	58	Executive Vice President and Chief Financial Officer since February 2008; Director since February 2011
Alyson S. Barclay	59	Senior Vice President, Secretary and General Counsel since November 2008

\* Mr. Richey also serves as Chairman of the Executive Committee of the Board of Directors.

There are no family relationships among any of the executive officers and directors.

## Item 1A. Risk Factors

This Form 10-K, including Item 1, "Business," Item 2, "Properties," Item 3, "Legal Proceedings," Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations," and Item 7A, "Quantitative and Qualitative Disclosures About Market Risk," contains "forward-looking statements" within the meaning of the safe harbor provisions of the federal securities laws, as described under "Forward-Looking Statements" above.

In addition to the risks and uncertainties discussed in that section and elsewhere in this Form 10-K, the following important risk factors could cause actual results and events to differ materially from those contained in any forward-looking statements, or could otherwise adversely affect the Company's business, operating results or financial condition:

### ***Our sales of products to the Government depend upon continued Government funding.***

Sales to the U.S. Government and its prime contractors and subcontractors represent a significant portion of our business. Over the past three fiscal years, from 14% to 20% of our revenues have been generated from sales to the U.S. Government or its contractors, primarily within our Filtration segment. These sales are dependent on government funding of the underlying programs, which is generally subject to annual Congressional appropriations. There could be reductions or terminations of, or delays in, the government funding on programs which apply to us or our customers. These funding effects could adversely affect our sales and profit, and could bring about a restructuring of our operations, which could result in an adverse effect on our financial condition or results of operations. A significant

portion of VACCO's and Westland's sales involve major U.S. Government programs such as NASA's Space Launch System (SLS) and U.S. Navy submarines. A reduction or delay in Government spending on these programs could have a significant adverse impact on our financial results which could extend for more than a single year.

***Negative worldwide economic conditions and related credit shortages could result in a decrease in our sales and an increase in our operating costs, which could adversely affect our business and operating results.***

If there is a worsening of global and U.S. economic and financial market conditions and additional tightening of global credit markets, many of our customers may further delay or reduce their purchases of our products. Uncertainties in the global economy may cause the utility industry and commercial market customers to experience shortages in available credit, which could limit capital spending. To the extent this problem affects our customers, our sales and profits could be adversely affected. Likewise, if our suppliers face challenges in obtaining credit, they may have to increase their prices or become unable to continue to offer the products and services we use to manufacture our products, which could have an adverse effect on our business, results of operations and financial condition.

***Our quarterly results may fluctuate substantially.***

We have experienced variability in quarterly results and believe our quarterly results will continue to fluctuate as a result of many factors, including the size and timing of customer orders, governmental approvals and funding levels, changes in existing taxation rules or practices, the gain or loss of significant customers, timing and levels of new product developments, shifts in product or sales channel mix, increased competition and pricing pressure, and general economic conditions.

***A significant part of our manufacturing operations depends on a small number of third-party suppliers.***

A significant part of our manufacturing operations relies on a small number of third-party manufacturers to supply component parts or products. For example, Doble has arrangements with four manufacturers which produce and supply substantially all of its end-products, and one of these suppliers produces approximately 50% of Doble's products from a single location within the United States. As another example, PTI has a single supplier of critical electronic components for a significant aircraft production program, and if this supplier were to discontinue producing these components the need to secure another source could pose a risk to the production program. A significant disruption in the supply of those products or others provided by a small number of suppliers could negatively affect the timely delivery of products to customers as well as future sales, which could increase costs and reduce margins.

Certain of our other businesses are dependent upon sole source or a limited number of third-party manufacturers of parts and components. Many of these suppliers are small businesses. Since alternative supply sources are limited, there is an increased risk of adverse impacts on our production schedules and profits if our suppliers were to default in fulfilling their price, quality or delivery obligations. In addition, some of our customers or potential customers may prefer to purchase from a supplier which does not have such a limited number of sources of supply.

***Increases in prices of raw material and components, and decreased availability of such items, could adversely affect our business.***

The cost of raw materials and product components is a major element of the total cost of many of our products. For example, our Test segment's critical components rely on purchases of raw materials from third parties. Increases in the prices of raw materials (such as steel, copper, nickel, zinc, wood and petrochemical products) could have an adverse impact on our business by, among other things, increasing costs and reducing margins. Aerospace-grade titanium and gaseous helium, important raw materials for our Filtration segment, may at times be in short supply. Further, many of Doble's items of equipment which are provided to its customers for their use are in the maturity of their life cycles, which creates the risk that replacement components may be unavailable or available only at increased costs.

In addition, our reliance on sole or limited sources of supply of raw materials and components in each of our segments could adversely affect our business, as described in the preceding Risk Factor. Weather-created disruptions in supply, in addition to affecting costs, could impact our ability to procure an adequate supply of these raw materials and components, and delay or prevent deliveries of products to our customers.

***Increases in tariffs resulting from changes in trade policies could adversely affect our ability to compete.***

In addition to the effects of increases in market prices, increases in tariffs resulting from changes in domestic or foreign trade policies could increase the prices to us of our foreign-sourced raw materials and product components and

thereby require us to either increase our selling prices or accept reduced margins. In addition, increases in foreign-country tariffs applicable to our products could increase the effective prices of our products to our customers in those countries unless we were able to offset the tariffs by reducing our selling prices. Any or all of these factors could decrease the demand for our products, reduce our profitability, and/or make our products less competitive than those of other manufacturers that are not subject to the same tariffs. For example, during 2018 increased tariffs on US origin goods in China adversely affected sales of NRG's products in China.

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

We have significant manufacturing and sales activities in foreign countries, and our domestic operations have sales to foreign customers. Our financial results may be affected by fluctuations in foreign currencies and by the translation of the financial statements of our foreign subsidiaries from local currencies into U.S. dollars, and we may not be able to adequately or successfully hedge against these risks. In addition, a rise in the dollar against foreign currencies could make our products more expensive for foreign customers and cause them to reduce the volume of their purchases.

***Economic, political and other risks of our international operations, including tariffs and terrorist activities, could adversely affect our business.***

In 2018, approximately 30% of our net sales were to customers outside the United States. Increases in international tariffs resulting from changes in domestic or foreign trade policies could increase the costs of the raw materials used in our products and/or the costs of our products. In addition, an economic downturn or an adverse change in the political situation in certain foreign countries in which we do business could cause a decline in revenues and adversely affect our financial condition. For example, our Test segment does significant business in Asia, and changes in the Asian political climate or political changes in specific Asian countries could negatively affect our business; several of our subsidiaries are based in Europe and could be negatively impacted by weakness in the European economy; Doble's and Plastique's UK-based businesses could be adversely affected by Brexit; and Doble's future business in Saudi Arabia as well as elsewhere in the Middle East could be adversely affected by government austerity programs, continuing political unrest, wars and terrorism in the region.

Our international sales are also subject to other risks inherent in foreign commerce, including currency fluctuations and devaluations, differences in foreign laws, uncertainties as to enforcement of contract rights, and difficulties in negotiating and resolving disputes with our foreign customers.

***Our governmental sales and our international and export operations are subject to special U.S. and foreign government laws and regulations which may impose significant compliance costs, create reputational and legal risk, and impair our ability to compete in international markets.***

The international scope of our operations subjects us to a complex system of commercial and trade regulations around the world, and our foreign operations are governed by laws and business practices that often differ from those of the U.S. In addition, laws such as the U.S. Foreign Corrupt Practices Act and similar laws in other countries increase the need for us to manage the risks of improper conduct not only by our own employees but by distributors and contractors who may not be within our direct control. Many of our exports are of products which are subject to U.S. Government regulations and controls such as the U.S. International Traffic in Arms Regulations (ITAR), which impose certain restrictions on the U.S. export of defense articles and services, and these restrictions are subject to change from time to time, including changes in the countries into which our products may lawfully be sold.

If we were to fail to comply with these laws and regulations, we could be subject to significant fines, penalties and other sanctions including the inability to continue to export our products or to sell our products to the U.S. Government or to certain other customers. In addition, some of these regulations may be viewed as too restrictive by our international customers, who may elect to develop their own domestic products or procure products from other international suppliers which are not subject to comparable export restrictions; and the laws, regulations or policies of certain other countries may also favor their own domestic suppliers over foreign suppliers such as the Company.

***Failure or delay in new product development could reduce our future sales.***

Much of our business is dependent on the continuous development of new products and technologies to meet the changing needs of our markets on a cost-effective basis. Many of these markets are highly technical from an engineering standpoint, and the relevant technologies are subject to rapid change. If we fail to timely enhance existing products or develop new products as needed to meet market or competitive demands, we could lose sales opportunities, which would adversely affect our business. In addition, in some existing contracts with customers, we

have made commitments to develop and deliver new products. If we fail to meet these commitments, the default could result in the imposition on us of contractual penalties including termination. Our inability to enhance existing products in a timely manner could make our products less competitive, while our inability to successfully develop new products may limit our growth opportunities. Development of new products and product enhancements may also require us to make greater investments in research and development than we now do, and the increased costs associated with new product development and product enhancements could adversely affect our operating results. In addition, our costs of new product development may not be recoverable if demand for our products is not as great as we anticipate it to be.

***Changes in testing standards could adversely impact our Test and USG segments' sales.***

A significant portion of the business of our Test and USG segments involves sales to technology customers who need to have a third party verify that their products meet specific international and domestic test standards. If regulatory agencies were to eliminate or reduce certain domestic or international test standards, or if demand for product testing from these customers were to decrease for some other reason, our sales could be adversely affected. For example, if Wi-Fi technology in mobile phones were to be superseded by a new communications technology, then there might be no need for certain testing on mobile phones; or if a regulatory authority were to relax the test standards for certain electronic devices because they were determined not to interfere with the broadcast spectrum, our sales of certain testing products could be significantly reduced.

***The end of customer product life cycles could negatively affect our Filtration segment's results.***

Many of our Filtration segment products are sold to be components in our customers' end-products. If a customer discontinues a certain end-product line, our ability to continue to sell those components will be reduced or eliminated. The result could be a significant decrease in our sales. For example, a substantial portion of PTI's revenue is generated from commercial aviation aftermarket sales. As certain aircraft are retired and replaced by newer aircraft, there could be a corresponding decrease in sales associated with our current products. Such a decrease could adversely affect our operating results.

***Product defects could result in costly fixes, litigation and damages.***

Our business exposes us to potential product liability risks that are inherent in the design, manufacture and sale of our products and the products of third-party vendors which we use or resell. If there are claims related to defective products (under warranty or otherwise), particularly in a product recall situation, we could be faced with significant expenses in replacing or repairing the product. For example, the Filtration segment obtains raw materials, machined parts and other product components from suppliers who provide certifications of quality which we rely on. Should these product components be defective and pass undetected into finished products, or should a finished product contain a defect, we could incur significant costs for repairs, re-work and/or removal and replacement of the defective product. In addition, if a dispute over product claims cannot be settled, arbitration or litigation may result, requiring us to incur attorneys' fees and exposing us to the potential of damage awards against us.

***We may not be able to identify suitable acquisition candidates or complete acquisitions successfully, which may inhibit our rate of growth.***

As part of our growth strategy, we plan to continue to pursue acquisitions of other companies, assets and product lines that either complement or expand our existing business. However, we may be unable to implement this strategy if we are unable to identify suitable acquisition candidates or consummate future acquisitions at acceptable prices and terms. We expect to face competition for acquisition candidates which may limit the number of acquisition opportunities available to us and may result in higher acquisition prices. As a result, we may be limited in the number of acquisitions which we are able to complete and we may face difficulties in achieving the profitability or cash flows needed to justify our investment in them.

***Our acquisitions of other companies carry risk.***

Acquisitions of other companies involve numerous risks, including difficulties in the integration of the operations, technologies and products of the acquired companies, the potential exposure to unanticipated and undisclosed liabilities, the potential that expected benefits or synergies are not realized and that operating costs increase, the potential loss of key personnel, suppliers or customers of acquired businesses and the diversion of Management's time and attention from other business concerns. Although we attempt to identify and evaluate the risks inherent in any acquisition, we may not properly ascertain or mitigate all such risks, and our failure to do so could have a material adverse effect on our business.

***We may incur significant costs, experience short-term inefficiencies, or be unable to realize expected long-term savings from facility consolidations and other business reorganizations.***

We periodically assess the cost and operational structure of our facilities in order to manufacture and sell our products in the most efficient manner, and based on these assessments, we may from time to time reorganize, relocate or consolidate certain of our facilities. These actions may require us to incur significant costs and may result in short term business inefficiencies as we consolidate and close facilities and transition our employees; and in addition, we may not achieve the expected long-term benefits. Any or all of these factors could result in an adverse impact on our operating results, cash flows and financial condition.

***The trading price of our common stock continues to be volatile and may result in investors selling shares of our common stock at a loss.***

The trading price of our common stock is volatile and subject to wide fluctuations in price in response to various factors, many of which are beyond our control, including those described in this section and including but not limited to actual or anticipated variations in our quarterly operating results, changes in financial estimates by securities analysts that cover our stock or our failure to meet those estimates, substantial sales of our common stock by our existing shareholders, and general stock market conditions. In recent years, the stock markets in general have experienced dramatic price and volume fluctuations, which may continue indefinitely, and changes in industry, general economic or market conditions could harm the price of our stock regardless of our operating performance.

***We may not realize as revenue the full amounts reflected in our backlog.***

As of September 30, 2018 our twelve-month backlog was approximately \$317.0 million, which represents confirmed orders we believe will be recognized as revenue within the next twelve months. There can be no assurance that our customers will purchase all the orders represented in our backlog, particularly as to contracts which are subject to the U.S. Government's ability to modify or terminate major programs or contracts, and if and to the extent that this occurs, our future revenues could be materially reduced.

***The Company has guaranteed certain Aclara contracts.***

During 2014, the Company sold that portion of the Company's USG segment represented by Aclara Technologies LLC and two related entities (together, Aclara), a leading supplier of data communications systems and related software used by electric, gas and water utilities in support of their advanced metering infrastructure (AMI) deployments, typically encompassing the utility's entire service area. Aclara's largest contracts, such as those with Pacific Gas & Electric Company and Southern California Gas Co. (SoCal Gas), each involve several million end points. In the normal course of business during the time that Aclara was our subsidiary, we agreed to provide guarantees of Aclara's performance under certain real property leases, certain vendor contracts, and certain large, long-term customer contracts for the delivery, deployment and performance of AMI systems. In connection with the sale of Aclara, we agreed to remain a guarantor of Aclara's performance of these contracts. Although the Company, Aclara and Aclara's parent company Hubbell Inc. are working together to obtain the release of the Company under these guarantees and have obtained some releases, including from SoCal Gas, other guarantees have not yet been released and still remain in effect. If Aclara were to fail to perform any of the remaining guaranteed contracts, the other party to the contract could seek damages from us resulting from the non-performance, and if we were determined to be liable for these damages they could have a material adverse effect on our business, operating results or financial condition. Although we would be entitled to seek indemnification from Aclara for these damages, our ability to recover would be subject to Aclara's financial position at that time.

***Despite our efforts, we may be unable to adequately protect our intellectual property.***

Much of our business success depends on our ability to protect and freely utilize our various intellectual properties, including both patents and trade secrets. Despite our efforts to protect our intellectual property, unauthorized parties or competitors may copy or otherwise obtain and use our products and technology, particularly in foreign countries such as China where the laws may not protect our proprietary rights as fully as in the United States. Our current and future actions to enforce our proprietary rights may ultimately not be successful; or in some cases we may not elect to pursue an unauthorized user due to the high costs and uncertainties associated with litigation. We may also face exposure to claims by others challenging our intellectual property rights. Any or all of these actions may divert our resources and cause us to incur substantial costs.

***Disputes with contractors could adversely affect our Test segment's results.***

A major portion of our Test segment's business involves working in conjunction with general contractors to produce complex building components constructed on-site, such as electronic test chambers, secure communication rooms and MRI facilities. If there are performance problems caused by either us or a contractor, they could result in cost overruns and may lead to a dispute as to which party is responsible. The resolution of such disputes can involve arbitration or litigation, and can cause us to incur significant expense including attorneys' fees. In addition, these disputes could result in a reduction in revenue, a loss on a particular project, or even a significant damages award against us.

***Environmental or regulatory requirements could increase our expenses and adversely affect our profitability.***

Our operations and properties are subject to U.S. and foreign environmental laws and regulations governing, among other things, the generation, storage, emission, discharge, transportation, treatment and disposal of hazardous materials and the clean-up of contaminated properties. These regulations, and changes to them, could increase our cost of compliance, and our failure to comply could result in the imposition of significant fines, suspension of production, alteration of product processes, cessation of operations or other actions which could materially and adversely affect our business, financial condition and results of operations.

We are currently involved as a responsible party in several ongoing investigations and remediations of contaminated third-party owned properties. In addition, environmental contamination may be discovered in the future on properties which we formerly owned or operated and for which we could be legally responsible. Future costs associated with these situations, including ones which may be currently unknown to us, are difficult to quantify but could have a significant effect on our financial condition. See Item 1, "Business – Environmental Matters" for a discussion of these factors.

***We are or may become subject to legal proceedings that could adversely impact our operating results.***

We are, and will likely be in the future, a party to a number of legal proceedings and claims involving a variety of matters, including environmental matters such as those described in the preceding risk factor and disputes over the ownership or use of intellectual property. Given the uncertainties inherent in litigation, including but not limited to the possible discovery of facts adverse to our position, adverse rulings by a court or adverse decisions by a jury, it is possible that such proceedings could result in a liability that we may have not adequately reserved for, that may not be adequately covered by insurance, or that may otherwise have a material adverse effect on our financial condition or results of operations.

***The loss of specialized key employees could affect our performance and revenues.***

There is a risk of our losing key employees having engineering and technical expertise. For example, our USG segment relies heavily on engineers with significant experience and reputation in the utility industry to furnish expert consulting services and support to customers. There is a current trend of a shortage of these qualified engineers because of hiring competition from other companies in the industry. Loss of these employees to other employers or for other reasons could reduce the segment's ability to provide services and negatively affect our revenues.

***Our decentralized organizational structure presents certain risks.***

We are a relatively decentralized company in comparison with some of our peers. This decentralization necessarily places significant control and decision-making powers in the hands of local management, which present various risks, including the risk that we may be slower or less able to identify or react to problems affecting a key business than we would in a more centralized management environment. We may also be slower to detect or react to compliance related problems (such as an employee undertaking activities prohibited by applicable law or by our internal policies), and Company-wide business initiatives may be more challenging and costly to implement, and the risks of noncompliance or failures higher, than they would be under a more centralized management structure. Depending on the nature of the problem or initiative in question, such noncompliance or failure could have a material adverse effect on our business, financial condition or result of operations.

***Provisions in our articles of incorporation, bylaws and Missouri law could make it more difficult for a third party to acquire us and could discourage acquisition bids or a change of control, and could adversely affect the market price of our common stock.***

Our articles of incorporation and bylaws contain certain provisions which could discourage potential hostile takeover attempts, including: a limitation on the shareholders' ability to call special meetings of shareholders; advance notice requirements to nominate candidates for election as directors or to propose matters for action at a meeting of

shareholders; a classified board of directors, which means that approximately one-third of our directors are elected each year; and the authority of our board of directors to issue, without shareholder approval, preferred stock with such terms as the board may determine. In addition, the laws of Missouri, in which we are incorporated, require a two-thirds vote of outstanding shares to approve mergers or certain other major corporate transactions, rather than a simple majority as in some other states such as Delaware. These provisions could impede a merger or other change of control not approved by our board of directors, which could discourage takeover attempts and in some circumstances reduce the market price of our common stock.

#### **Item 1B. Unresolved Staff Comments**

None

#### **Item 2. Properties**

The Company believes its buildings, machinery and equipment have been generally well maintained, are in good operating condition and are adequate for the Company's current production requirements and other needs.

The Company's principal manufacturing facilities and other materially important properties, including those described in the table below, comprise approximately 1,710,000 square feet of floor space, of which approximately 890,000 square feet are owned and approximately 820,000 square feet are leased. Leased facilities of less than 10,000 square feet are not included in the table. See also Notes 14 and 15 to the Consolidated Financial Statements included herein.

<u>Location</u>	<u>Approx. Sq. Ft.</u>	<u>Owned / Leased (with Expiration Date)</u>	<u>Principal Use(s)</u>	<u>Operating Segment</u>
Modesto, CA	181,500	Leased (9/30/2023)	Manufacturing, Engineering, Office	Filtration
Denton, TX	145,000	Leased (9/30/2029, plus options)	Manufacturing, Office, Warehouse	Filtration
Cedar Park, TX	130,000	Owned	Manufacturing, Engineering, Office, Warehouse	Test
Oxnard, CA	127,400	Owned	Manufacturing, Engineering, Office, Warehouse	Filtration
South El Monte, CA	100,100	Owned	Manufacturing, Engineering, Office, Warehouse	Filtration
Durant, OK	100,000	Owned	Manufacturing, Office, Warehouse	Test
Watertown, MA	88,700	Leased (10/2/2019, plus option)*	Manufacturing, Engineering, Office	USG
Huntley, IL	86,000	Owned	Manufacturing, Engineering, Office, Warehouse	Technical Packaging
Valencia, CA	79,300	Owned	Manufacturing, Engineering, Office	Filtration
Hinesburg, VT	77,000	Leased (5/31/2029)	Manufacturing, Engineering, Office, Warehouse	USG
South El Monte, CA	64,200	Leased (6/30/2019 & 6/30/2022)	Manufacturing, Warehouse, Office	Filtration
Eura, Finland	41,500	Owned	Manufacturing, Warehouse, Office	Test
Fremont, IN	39,800	Owned	Manufacturing, Engineering, Office, Warehouse	Technical Packaging
Tianjin, China	38,100	Leased (11/19/2027)	Manufacturing	Test
Minocqua, WI	35,400	Owned	Manufacturing, Engineering, Office	Test
Dabrowa, Poland	34,000	Owned	Manufacturing, Engineering, Office, Warehouse	Technical Packaging
Beijing, China	33,300	Leased (indefinite) **	Manufacturing	Test
LaSalle (Montreal), Quebec	32,100	Leased (8/31/2021)	Manufacturing, Engineering, Office, Warehouse	USG
Poznan, Poland	32,000	Owned	Manufacturing, Engineering, Office, Warehouse	Technical Packaging
Ontario, CA	26,900	Leased(8/29/2020)	Manufacturing, Engineering, Office, Warehouse	USG
Nottingham, England	23,900	Leased (7/8/2019)	Manufacturing, Engineering, Office, Warehouse	Technical Packaging
St. Louis, MO	21,500	Leased (8/31/2020 plus options)	ESCO Corporate Office	Corporate
Mississauga, Ontario	15,200	Leased (12/31/2018)	Manufacturing, Engineering, Office, Warehouse	USG
Tunbridge Wells, England	14,400	Leased (7/8/2019)	Manufacturing, Office	Technical Packaging
Morrisville, NC	11,600	Leased (8/31/2019)	Office	USG
Huntley, IL	11,500	Leased (12/31/2018)	Manufacturing	Technical Packaging
Marlborough, MA	11,200	Leased (6/30/2020)	Engineering, Office	USG
Wood Dale, IL	10,700	Leased (3/31/2019)	Office	Test

\* Formerly owned; property was sold in October 2018 and leased back pending relocation plans.

\*\* Original lease term ended 11/15/2018; the Company is in the process of vacating this property.



### **Item 3. Legal Proceedings**

As a normal incident of the businesses in which the Company is engaged, various claims, charges and litigation are asserted or commenced from time to time against the Company. With respect to claims and litigation currently asserted or commenced against the Company, it is the opinion of Management that final judgments, if any, which might be rendered against the Company are adequately reserved for, are covered by insurance, or are not likely to have a material adverse effect on the Company's financial condition or results of operations. Nevertheless, given the uncertainties of litigation, it is possible that such claims, charges and litigation could have a material adverse impact on the Company; see Item 1A, "Risk Factors."

### **Item 4. Mine Safety Disclosures**

Not applicable.

## PART II

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

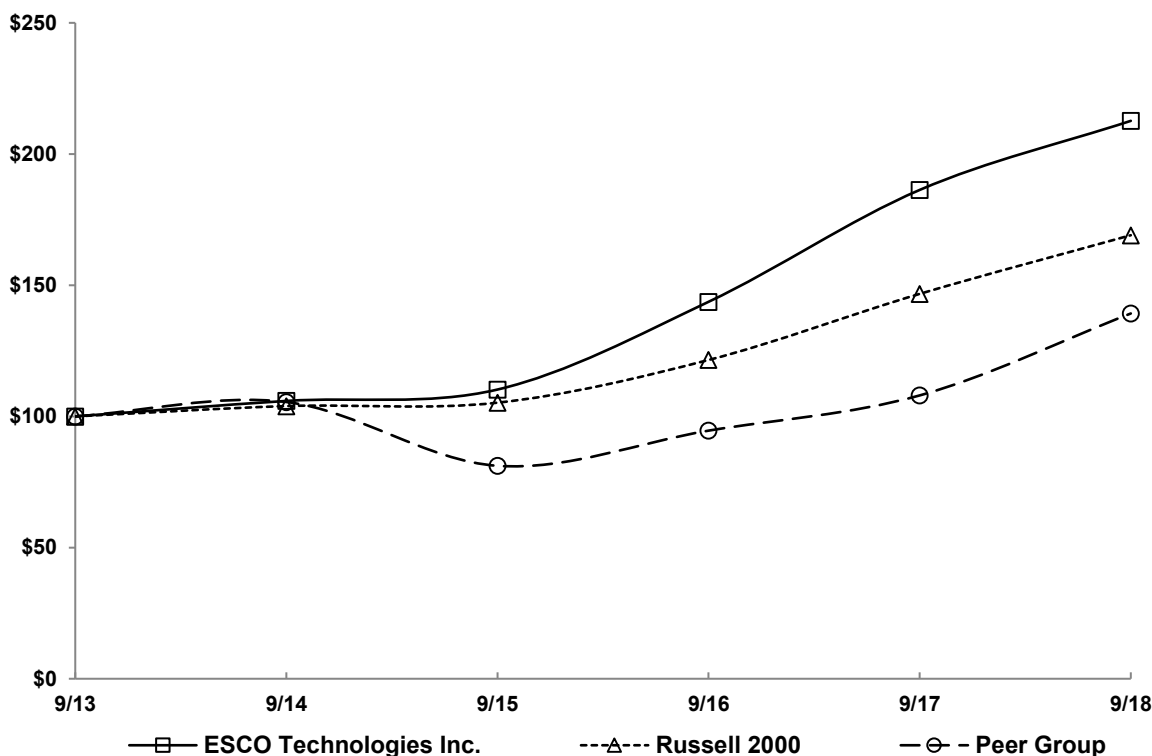
**Holdings of Record.** As of October 31, 2018 there were approximately 1,844 holders of record of the Company's common stock.

**Price Range of Common Stock and Dividends.** For information about the price range of the common stock and dividends paid on the common stock in the last two fiscal years, please refer to Note 16 to the Company's Consolidated Financial Statements included herein.

**Company Purchases of Equity Securities.** The Company did not repurchase any shares of its common stock during the fourth quarter of fiscal 2018.

**Performance Graph.** The graph and table on the following page present a comparison of the cumulative total shareholder return on the Company's common stock as measured against the Russell 2000 index and a customized peer group whose individual component companies are listed below. The composition of the peer group for 2018 is identical to that used for 2017. The Company is not a component of the 2018 peer group, but it is a component of the Russell 2000 Index. The measurement period begins on September 30, 2013 and measures at each September 30 thereafter. These figures assume that all dividends, if any, paid over the measurement period were reinvested, and that the starting values of each index and the investments in the Company's common stock were \$100 at the close of trading on September 30, 2013.

**COMPARISON OF 5 YEAR CUMULATIVE TOTAL RETURN**  
Among ESCO Technologies Inc., the Russell 2000 Index  
and the 2018 Peer Group



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	<u>9/30/13</u>	<u>9/30/14</u>	<u>9/30/15</u>	<u>9/30/16</u>	<u>9/30/17</u>	<u>9/30/18</u>
ESCO Technologies Inc.	\$100.00	\$105.89	\$110.24	\$143.68	\$186.33	\$212.65
Russell 2000	100.00	103.93	105.23	121.50	146.70	169.06
2018 Peer Group	100.00	105.49	81.16	94.57	108.00	139.22

*The stock price performance included in this graph is not necessarily indicative of future stock price performance.*

The 2018 peer group was composed of ten companies that corresponded to the Company's four industry segments used for financial reporting purposes during 2018, as follows: Filtration/Fluid Flow segment (37% of the Company's 2018 total revenue): CIRCOR International, Inc., Donaldson Company, Inc. and Moog Inc.; Test segment (24% of the Company's 2018 total revenue): EXFO Inc. and FARO Technologies, Inc.; USG segment (28% of the Company's 2018 total revenue): Aegion Corporation, Ameresco, Inc. and Thermon Group Holdings, Inc.; and Technical Packaging Segment (11% of the Company's 2018 total revenue): AptarGroup, Inc. and Bemis Company, Inc.

In calculating the composite return of the 2018 peer group, the return of each company comprising the peer group was weighted by (a) its market capitalization in relation to the other companies in its corresponding Company industry segment, and (b) the percentage of the Company's total revenue represented by its corresponding Company industry segment.

## Item 6. Selected Financial Data

The following selected consolidated financial data of the Company and its subsidiaries should be read in conjunction with the Company's Consolidated Financial Statements, the Notes thereto, and Management's Discussion and Analysis of Financial Condition and Results of Operations, as of the respective dates indicated and for the respective periods ended thereon.

(Dollars in millions, except per share amounts)	2018	2017	2016	2015	2014
<b>For years ended September 30:</b>					
Net sales	\$ 771.6	685.7	571.5	537.3	531.1
Net earnings from continuing operations	92.1	53.7	45.9	41.7	42.6
Net earnings (loss) from discontinued operations	-	-	-	0.8	(42.2)
Net earnings (loss)	92.1	53.7	45.9	42.5	0.4
Earnings (loss) per share:					
Basic:					
Continuing operations	\$ 3.56	2.08	1.78	1.60	1.61
Discontinued operations	-	-	-	0.03	(1.60)
Net earnings (loss)	\$ 3.56	2.08	1.78	1.63	0.01
Diluted:					
Continuing operations	\$ 3.54	2.07	1.77	1.59	1.60
Discontinued operations	-	-	-	0.03	(1.58)
Net earnings (loss)	\$ 3.54	2.07	1.77	1.62	0.02
<b>As of September 30:</b>					
Working capital	\$ 195.5	197.8	165.4	155.0	148.9
Total assets	1,265.1	1,260.4	978.4	864.2	845.9
Total debt	220.0	275.0	110.0	50.0	40.0
Shareholders' equity	759.4	671.9	615.1	584.2	580.2
<b>Cash dividends declared per common share</b>	<b>\$ 0.32</b>	0.32	0.32	0.32	0.32

See also Note 2 to the Consolidated Financial Statements included herein for discussion of acquisition activity.

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

The following discussion should be read in conjunction with the Consolidated Financial Statements included herein and Notes thereto and refers to the Company's results from continuing operations, except where noted.

### Introduction

ESCO Technologies Inc. and its wholly owned subsidiaries (the Company) are organized into four operating segments for financial reporting purposes: Filtration/Fluid Flow (Filtration), RF Shielding and Test (Test), Utility Solutions Group (USG), and Technical Packaging. The Company's business segments are comprised of the following primary operating entities:

- **Filtration:** PTI Technologies Inc. (PTI); VACCO Industries (VACCO); Crissair, Inc. (Crissair); Westland Technologies, Inc. (Westland); and Mayday Manufacturing Co. (Mayday) and its affiliate Hi-Tech Metals, Inc. (Hi-Tech).
- **Test:** ETS-Lindgren Inc. (ETS-Lindgren).
- **USG:** Doble Engineering Company (Doble); Morgan Schaffer Ltd. (Morgan Schaffer); and NRG Systems, Inc. (NRG).
- **Technical Packaging:** Thermoform Engineered Quality LLC (TEQ); Plastique Limited and Plastique Sp. z o.o. (together, Plastique).

**Filtration.** PTI, VACCO and Crissair primarily design and manufacture specialty filtration products, including hydraulic filter elements and fluid control devices used in commercial aerospace applications, unique filter mechanisms used in micro-propulsion devices for satellites and custom designed filters for manned aircraft and submarines. Westland designs, develops and manufactures elastomeric-based signature reduction solutions for U.S. naval vessels. Mayday designs and manufactures mission-critical bushings, pins, sleeves and precision-tolerance machined components for landing gear, rotor heads, engine mounts, flight controls, and actuation systems for the aerospace and defense industries. Hi-Tech is a full-service metal processor serving aerospace suppliers.

**Test.** ETS-Lindgren is an industry leader in providing its customers with the ability to identify, measure and contain magnetic, electromagnetic and acoustic energy.

**USG.** Doble provides high-end, intelligent diagnostic test solutions for the electric power delivery industry and is a leading supplier of power factor and partial discharge testing instruments used to assess the integrity of high-voltage power delivery equipment. Morgan Schaffer provides an integrated offering of dissolved gas analysis, oil testing, and data management solutions which enhance the ability of electric utilities to accurately monitor the health of critical power transformers. NRG designs and manufactures decision support tools for the renewable energy industry, primarily wind.

**Technical Packaging.** The companies within this segment provide innovative solutions to the medical and commercial markets for thermoformed and precision molded pulp fiber packages and specialty products using a wide variety of thin gauge plastics and pulp.

Selected financial information for each of the Company's business segments is provided in the discussion below and in Note 13 to the Company's Consolidated Financial Statements beginning on page F-1 of this Annual Report.

The Company continues to operate with meaningful growth prospects in its primary served markets and with considerable financial flexibility. The Company continues to focus on new products that incorporate proprietary design and process technologies. Management is committed to delivering shareholder value through organic growth, ongoing performance improvement initiatives, and acquisitions.

### Highlights of 2018 Operations

- Sales, net earnings and diluted earnings per share in 2018 were \$771.6 million, \$92.1 million and \$3.54 per share, respectively, compared to sales, net earnings and diluted earnings per share in 2017 of \$685.7 million, \$53.7 million and \$2.07 per share, respectively.
- Diluted EPS – As Adjusted for 2018 was \$2.77 and excludes \$4.8 million of pretax charges (or \$0.17 per share after tax) consisting primarily of charges related to closing the Doble offices in Norway, China, Dubai and Mexico, consisting of employee severance and compensation benefits, professional fees, and asset impairment charges; and restructuring charges at PTI related to the exit of the low margin industrial/automotive market. Also excluded was a \$24.4 million (or \$0.94 per share) of net tax benefit recorded resulting from the implementation of U.S. Tax Reform in 2018. Diluted EPS – As Adjusted for 2017 was \$2.22 and excludes \$6.1 million of pretax charges (or \$0.15 per share after tax) of non-cash purchase accounting inventory step-up charges and costs incurred to complete the Company's 2017 acquisitions.
- Net cash provided by operating activities was approximately \$93.2 million in 2018 compared to \$67.3 million in 2017, mainly due to the increase in net earnings.
- At September 30, 2018, cash on hand was \$30.5 million and outstanding debt was \$220.0 million, for a net debt position (total debt less net cash) of approximately \$189.5 million.
- Entered orders for 2018 were \$777.2 million resulting in a book-to-bill ratio of 1.01x. Backlog at September 30, 2018 was \$382.8 million compared to \$377.1 million at September 30, 2017.
- In March 2018, the Company acquired the assets of Manta Test Systems Ltd. (Manta), a North American utility solutions provider located in Mississauga, Ontario, for a purchase price of \$9.5 million in cash. Since the date of acquisition, the operating results for Manta have been included as a product line of Doble within the Company's USG segment.
- The Company declared dividends of \$0.32 per share during 2018, totaling \$8.3 million in dividend payments.

## Results of Operations

### Net Sales

(Dollars in millions)	Fiscal year ended			Change	Change
	2018	2017	2016	2018 vs. 2017	2017 vs. 2016
Filtration	\$ 286.8	279.5	207.8	2.6%	34.5%
Test	182.9	160.9	161.5	13.7%	(0.4)%
USG	214.0	162.4	127.8	31.8%	27.1%
Technical Packaging	87.9	82.9	74.4	6.0%	11.4%
Total	\$ 771.6	685.7	571.5	12.5%	20.0%

Net sales increased \$85.9 million, or 12.5%, to \$771.6 million in 2018 from \$685.7 million in 2017. The increase in net sales in 2018 as compared to 2017 was due to a \$51.6 million increase in the USG segment, a \$22.0 million increase in the Test segment, a \$7.3 million increase in the Filtration segment, and a \$5.0 million increase in the Technical Packaging segment.

Net sales increased \$114.2 million, or 20.0%, to \$685.7 million in 2017 from \$571.5 million in 2016. The increase in net sales in 2017 as compared to 2016 was due to a \$71.7 million increase in the Filtration segment, a \$34.6 million increase in the USG segment and an \$8.5 million increase in the Technical Packaging segment, partially offset by a \$0.6 million decrease in the Test segment.

#### Filtration.

The \$7.3 million, 2.6% increase in net sales in 2018 as compared to 2017 was mainly due to a \$12.1 million increase in net sales at Mayday (acquired in November 2016) and a \$3.3 million increase in net sales at Crissair both due to higher aerospace shipments, partially offset by a \$7.4 million decrease in net sales at PTI due to lower aerospace assembly and industrial/automotive shipments.

The \$71.7 million, or 34.5% increase in net sales in 2017 as compared to 2016 was primarily driven by the Company's acquisitions of Westland and Mayday, which contributed \$21.0 million and \$40.0 million, respectively; and a \$12.4 million increase at VACCO due to higher shipments of its defense products including Navy spares, partially offset by a \$2.4 million decrease in sales at Crissair due to lower aerospace shipments.

#### Test.

The net sales increase of \$22.0 million, or 13.7% in 2018 as compared to 2017 was mainly due a \$17.0 million increase in net sales from the segment's U.S. operations and a \$3.8 million increase in net sales from the segment's Asian operations both due to increased shipments of test and measurement chamber projects.

The net sales decrease of \$0.6 million in 2017 as compared to 2016 was mainly due to a \$6.4 million decrease in net sales from the segment's European operations due to the 2016 restructuring activities to close the Test business operating facilities in Germany and England, offset by a \$7.5 million increase in net sales from its U.S. operations related to higher sales volumes of chamber projects.

#### USG.

The net sales increase of \$51.6 million, or 31.8% in 2018 as compared to 2017 was mainly due to the Company's acquisitions of NRG, Morgan Schaffer, and Vanguard Instruments, which contributed \$21.2 million, \$19.7 million and \$11.9 million, respectively.

The net sales increase of \$34.6 million, or 27.1% in 2017 as compared to 2016 was mainly driven by the Company's acquisitions of NRG and Morgan Schaffer, which contributed \$16.2 million and \$6.5 million, respectively; and an \$11.9 million increase in net sales at Doble from new products and software solutions.

#### Technical Packaging.

The \$5.0 million, or 6.0%, increase in net sales in 2018 as compared to 2017 was mainly due to the \$2.7 million increase in sales from Plastique driven by fluctuations in currency and a \$2.3 million increase in net sales from TEQ due to higher shipments to medical customers.

The \$8.5 million, or 11.4%, increase in net sales in 2017 as compared to 2016 was mainly due to the \$9.3 million increase in sales contribution from Plastique which was acquired in January 2016 partially offset by a \$0.8 million decrease in net sales from TEQ due to lower shipments to medical customers.

### **Orders and Backlog**

New orders received in 2018 were \$777.2 million as compared to \$736.6 million in 2017, resulting in order backlog of \$382.8 million at September 30, 2018 as compared to order backlog of \$377.1 million at September 30, 2017. Orders are entered into backlog as firm purchase order commitments are received.

In 2018, the Company recorded \$287.9 million of orders related to Filtration products, \$190.4 million of orders related to Test products, \$219.1 million of orders related to USG products and \$79.8 million of orders related to Technical Packaging products. In 2017, the Company recorded \$286.8 million of orders related to Filtration products, \$198.6 million of orders related to Test products, \$164.3 million of orders related to USG products and \$86.9 million of orders related to Technical Packaging products.

### **Selling, General and Administrative Expenses**

Selling, general and administrative (SG&A) expenses were \$162.4 million, or 21.0% of net sales, in 2018; \$148.4 million, or 21.6% of net sales, in 2017; and \$131.5 million, or 23.0% of net sales, in 2016.

The increase in SG&A expenses in 2018 as compared to 2017 was mainly due to an increase in SG&A expenses within the USG segment due to the Company's recent acquisitions (NRG, Morgan Schaffer, Vanguard Instruments and Manta) as well as additional sales and marketing expenses at Doble, and higher professional fees and headcount expenses at Corporate.

The increase in SG&A expenses in 2017 as compared to 2016 was mainly due to an increase in SG&A expenses both within the Filtration segment (due to the acquisitions of Mayday and Westland, which contributed \$9.3 million to the increase) and the USG segment (due to the acquisitions of NRG and Morgan Schaffer, which contributed \$6.9 million to the increase, as well as additional sales and marketing expenses at Doble), partially offset by a decrease in SG&A expenses in the Test segment (as a result of the 2016 restructuring activities).

### **Amortization of Intangible Assets**

Amortization of intangible assets was \$18.3 million in 2018, \$16.3 million in 2017 and \$11.6 million in 2016. Amortization of intangible assets included \$10.9 million, \$8.6 million and \$4.9 million of amortization of acquired intangible assets in 2018, 2017 and 2016, respectively, related to the Company's acquisitions. The amortization of acquired intangible assets related to the Company's acquisitions is included in the Corporate operating segment's results. The remaining amortization expenses relate to other identifiable intangible assets (primarily software, patents and licenses), which are included in the respective segment's operating results. The increase in amortization expense in 2018 as compared to 2017 was mainly due to an increase in amortization of intangibles related to the Company's recent acquisitions. The increase in amortization expense in 2017 as compared to 2016 was mainly due to the amortization of intangibles related to the Company's acquisitions and an increase in software amortization.

### **Other Expenses or Income, Net**

Other expenses, net, were \$3.7 million in 2018, compared to other income, net, of \$0.7 million in 2017 and other expenses, net, of \$7.8 million in 2016. The principal components of other expenses, net, in 2018 included \$3.0 million of charges related to the USG segment restructuring activities, including the Doble facility consolidations in Norway, China, Dubai and Mexico; and \$0.8 million of charges within the Filtration segment due to the exit of the low margin industrial/automotive market. The principal components of other income, net, in 2017 included \$0.6 million from the sale of certain intellectual property and \$0.4 million related to death benefit insurance proceeds from a former subsidiary. The principal components of other expenses, net, in 2016 included \$4.9 million of restructuring costs related to the Test segment facility consolidation and \$2.2 million of costs related to the USG segment restructuring activities. The restructuring costs mainly related to severance and compensation benefits, professional fees and asset impairment charges related to abandoned assets. There were no other individually significant items included in other expenses (income), net, in 2018, 2017 or 2016.

### **Non-GAAP Financial Measures**

The information reported herein includes the financial measures EPS – As Adjusted, which the Company defines as EPS excluding per-share restructuring charges related to the Company's restructuring actions in 2018 and the net recorded per-share tax benefit resulting from the implementation of U.S. Tax Reform in 2018, defined purchase accounting inventory step-up charges and acquisition costs in 2017 and the restructuring charges related to the Test and Doble restructuring actions in 2016; EBIT, which the Company defines as earnings before interest and taxes, without adjustment for the defined purchase accounting inventory step-up charges, acquisition costs and restructuring charges; and EBIT margin, which the Company defines as EBIT expressed as a percentage of net sales. EPS – As Adjusted, EBIT on a consolidated basis, and EBIT margin on a consolidated basis are not recognized in accordance

with U.S. generally accepted accounting principles (GAAP). However, the Company believes that EBIT and EBIT margin provide investors and Management with valuable information for assessing the Company's operating results. Management evaluates the performance of its operating segments based on EBIT and believes that EBIT is useful to investors to demonstrate the operational profitability of the Company's business segments by excluding interest and taxes, which are generally accounted for across the entire company on a consolidated basis. EBIT is also one of the measures Management uses to determine resource allocations and incentive compensation. The Company believes that the presentation of EBIT, EBIT margin and EPS – As Adjusted provides important supplemental information to investors by facilitating comparisons with other companies, many of which use similar non-GAAP financial measures to supplement their GAAP results. The use of non-GAAP financial measures is not intended to replace any measures of performance determined in accordance with GAAP.

### EBIT

(Dollars in millions)	Fiscal year ended			Change	Change
	2018	2017	2016	2018 vs. 2017	2017 vs. 2016
Filtration	\$ 58.7	52.2	45.2	12.5%	15.5%
% of net sales	20.5%	18.7%	21.8%		
Test	23.8	19.5	13.9	22.1%	40.3%
% of net sales	13.0%	12.1%	8.6%		
USG	43.2	36.6	31.1	18.0%	17.7%
% of net sales	20.2%	22.5%	24.3%		
Technical Packaging	8.1	8.5	9.6	(4.7)%	(11.5)%
% of net sales	9.2%	10.3%	12.9%		
Corporate	(37.0)	(32.1)	(30.1)	15.3%	6.6%
Total	\$ 96.8	84.7	69.7	14.3%	21.5%
% of net sales	12.5%	12.4%	12.2%		

The reconciliation of EBIT to a GAAP financial measure is as follows:

(Dollars in millions)	2018	2017	2016
Net earnings from continuing operations	\$ 92.1	53.7	45.9
Add: Interest expense	8.8	4.6	1.3
(Less) Add: Income taxes	(4.1)	26.4	22.5
EBIT	\$ 96.8	84.7	69.7

### Filtration

EBIT increased \$6.5 million in 2018 as compared to 2017 primarily due to the EBIT contribution from Mayday and Crissair due to increased sales volumes, partially offset by a decrease at PTI due to the decrease in sales volumes and the 2018 restructuring charges related to the exit of the low margin industrial/automotive market consisting primarily of severance and compensation benefits and asset impairment charges.

EBIT increased \$7.0 million in 2017 as compared to 2016 mainly due to the EBIT contribution from the Westland and Mayday acquisitions and an increase at VACCO and PTI due to increased sales volumes. EBIT as a percent of net sales decreased in 2017 compared to 2016 mainly due to the purchase accounting inventory step-up charge at Mayday of \$1.9 million in 2017 and engineering and development cost growth on certain fixed price development contracts at VACCO.

### Test

The \$4.3 million increase in EBIT in 2018 as compared to 2017 was primarily due to the increased sales volumes mainly from the segment's U.S. operations.

The \$5.6 million increase in EBIT in 2017 as compared to 2016 was primarily due to the \$5.1 million of restructuring charges incurred in 2016 related to closing the Test business operating facilities in Germany and England, consisting mainly of employee severance and compensation benefits, professional fees, and asset impairment charges.

### USG

The \$6.6 million increase in EBIT in 2018 as compared to 2017 was mainly due to the higher sales volumes as well as the EBIT contribution from the acquisitions of NRG, Morgan Schaffer and Vanguard Instruments. EBIT in 2018 was



negatively impacted by \$3 million of charges recorded related to closing the Doble facilities in Norway, China, Dubai and Mexico, consisting mainly of employee severance and compensation benefits, professional fees, and asset impairment charges.

The \$5.5 million increase in EBIT in 2017 as compared to 2016 was primarily due to higher sales volumes and additional contribution from new products and software solutions, as well as the EBIT contribution from the 2017 acquisitions of NRG, Morgan Schaffer and Vanguard Instruments. EBIT as a percent of net sales decreased in 2017 compared to 2016 mainly due to the purchase accounting inventory step-up charges at NRG, Morgan Schaffer and Vanguard Instruments totaling \$1.9 million.

#### Technical Packaging

EBIT decreased \$0.4 million in 2018 as compared to 2017 mainly due to product mix at TEQ and Plastique including lower margin projects and higher material prices.

EBIT decreased \$1.1 million in 2017 as compared to 2016 mainly due to higher SG&A expenses at Plastique due to the full year being included in 2017.

#### Corporate

Corporate operating charges included in 2018 consolidated EBIT increased to \$37.0 million as compared to \$32.1 million in 2017 due to an increase in professional fees and increased amortization of intangible assets on acquisitions.

Corporate operating charges included in 2017 consolidated EBIT increased to \$32.1 million as compared to \$30.1 million in 2016 due to an increase in acquisition related expenses, mainly from increased amortization of intangible assets on acquisitions.

The “Reconciliation to Consolidated Totals (Corporate)” in Note 13 to the Consolidated Financial Statements included herein represents Corporate office operating charges.

#### **Interest Expense, Net**

Interest expense was \$8.8 million in 2018, \$4.6 million in 2017 and \$1.3 million in 2016. The increase in interest expense in 2018 as compared to 2017 was due to higher average outstanding borrowings (\$258.8 million compared to \$211.3 million) and higher average interest rates (3.0% vs. 2.1%) as a result of the additional borrowings to fund the Company’s recent acquisitions. The increase in interest expense in 2017 as compared to 2016 was due to higher average outstanding borrowings (\$211.3 million compared to \$89.2 million) and higher average interest rates (2.1% vs. 1.6%) as a result of the additional borrowings to fund the Company’s 2017 acquisitions (Mayday, Morgan Schaffer, NRG and Vanguard Instruments).

#### **Income Tax Expense**

On December 22, 2017, President Trump signed into law new tax legislation commonly referred to as the Tax Cut and Jobs Act (the “TCJA”). The TCJA includes broad and complex changes to the U.S. tax code that impacted the Company’s accounting and reporting for income taxes in 2018. These impacts primarily resulted from a reduction in the U.S. federal corporate income tax rate from 35% to 21%, effective January 1, 2018; a remeasurement of U.S. deferred tax assets and liabilities; and a one-time mandatory deemed repatriation tax on unremitted foreign earnings (the “Transition Tax”), which may be paid over an eight-year period. The Company also established a liability related to foreign withholding taxes in connection with the reversal of our indefinite reinvestment assertion related to foreign earnings subject to the Transition Tax.

See Note 7, Income Taxes, to the Consolidated Financial Statements of the Company included in the Financial Information section of this Annual Report for further discussion related to the TCJA.

The effective tax rates for 2018, 2017 and 2016 were (4.7)%, 33.0% and 32.9%, respectively. The decrease in the 2018 effective tax rate as compared to 2017 was primarily due to the enactment of the TCJA, which was signed into law on December 22, 2017. The total impact of the TCJA in 2018 was a net benefit of \$24.4 million. The specific impacts of the TCJA were primarily as follows:

- The Company’s 2018 federal statutory rate decreased from 35.0% to 24.5% which required an adjustment to the value of its deferred tax assets and liabilities. This adjustment of \$30.6 million (complete as of September 30, 2018) favorably impacted the 2018 effective tax rate by 34.8%.
- The TCJA subjected the Company’s cumulative foreign earnings to \$3.7 million (provisional amount, refer to Note 7 to the Company’s Consolidated Financial Statement included in this Report) of federal

income tax which unfavorably impacted the 2018 effective tax rate by 4.2%. In addition to the impacts from the TCJA, the Company recorded \$2.4 million (complete as of September 30, 2018) for the income tax effects of the current and future repatriation of the cumulative earnings of its foreign subsidiaries which unfavorably impacted the 2018 effective tax rate by 2.8%.

- The Company approved an additional \$7.5 million pension contribution for the 2017 plan year during the second quarter of 2018 resulting in a favorable adjustment to the 2018 effective tax rate of 0.9%.
- An accounting method change was filed with the 2017 tax return which resulted in a favorable adjustment to the 2018 effective tax rate of 0.7%.

The increase in the 2017 effective tax rate as compared to 2016 was primarily due to normal tax fluctuations within the ordinary course of business.

The Company's foreign subsidiaries had accumulated unremitted earnings of \$3.5 million at September 30, 2018. No deferred taxes have been provided on these accumulated unremitted earnings because these funds are not needed to meet the liquidity requirements of the Company's U.S. operations and it is the Company's intention to indefinitely reinvest these earnings in continuing international operations. In the event these foreign entities' earnings were distributed, it is estimated that approximately \$0.3 million of foreign tax withholding would be paid. The Company does not expect that these taxes would be creditable against U.S. income tax, so they would correspondingly reduce the Company's net earnings. No significant portion of the Company's foreign subsidiaries' earnings was taxed at a rate significantly less than the U.S. statutory tax rate.

### **Capital Resources and Liquidity**

The Company's overall financial position and liquidity are strong. Working capital (current assets less current liabilities) decreased to \$195.5 million at September 30, 2018 from \$197.8 million at September 30, 2017, mainly due to higher accounts payable balances. The \$8.2 million increase in accounts payable at September 30, 2018 was mainly due to a \$4.9 million increase within the Test segment and a \$4.0 million increase within the Technical Packaging segment both due to the timing of payments. The \$10.9 million increase in inventory at September 30, 2018 was mainly due to a \$7.0 million increase in the Filtration segment and a \$4.0 million increase in the USG segment due to the timing of receipt of raw materials to meet increased sales volumes and the acquisition of Manta.

Net cash provided by operating activities was \$93.3 million, \$67.3 million and \$73.9 million in 2018, 2017 and 2016, respectively; the changes were mainly due to changes in working capital and an increase in net earnings in 2018.

Net cash used in investing activities was \$41.6 million, \$233.9 million and \$104.6 million in 2018, 2017, and 2016, respectively. The decrease in net cash used in investing activities in 2018 as compared to 2017 was due to the Company's 2017 acquisitions of Mayday, NRG, Morgan Schaffer and Vanguard Instruments. The increase in net cash used in investing activities in 2017 as compared to 2016 was due to those acquisitions. Capital expenditures were \$20.6 million, \$29.7 million and \$13.8 million in 2018, 2017 and 2016, respectively. The decrease in capital expenditures in 2018 as compared to 2017 was mainly due to higher levels of capital expenditures in 2017 including machinery and equipment at VACCO and a facility expansion at Plastique. The increase in capital expenditures in 2017 as compared to 2016 was mainly due to an increase in machinery and equipment at VACCO, a facility expansion at Plastique and the capital expenditures specific to the Company's recently acquired entities. There were no commitments outstanding that were considered material for capital expenditures at September 30, 2018. In addition, the Company incurred expenditures for capitalized software of \$9.5 million, \$9.0 million and \$8.7 million in 2018, 2017 and 2016, respectively.

The Company made pension contributions of \$10.0 million (including the additional \$7.5 million contribution for 2017 described above), \$2.7 million and \$0 in 2018, 2017 and 2016, respectively.

Net cash used by financing activities was \$66.4 million in 2018, compared to net cash provided by financing activities of \$156.8 million and \$46.2 million in 2017 and 2016, respectively. The change in 2018 as compared to 2017 was primarily due to the Company's repayment of outstanding debt of \$55 million in 2018 under its Credit Facility. The increase in 2017 compared to 2016 was mainly due to an increase in borrowings related to the Company's acquisitions.

## Acquisitions

Information regarding the Company's acquisitions during 2018, 2017 and 2016 is set forth in Note 2 to the Company's Consolidated Financial Statements beginning on Page F-1 of this Annual Report, which Note is incorporated by reference herein.

All of the Company's acquisitions have been accounted for using the purchase method of accounting, and accordingly, the respective purchase prices were allocated to the assets (including intangible assets) acquired and liabilities assumed based on estimated fair values at the date of acquisition. The financial results from these acquisitions have been included in the Company's financial statements from the date of acquisition.

## Subsequent Event

In October 2018, the Company sold its Doble headquarters facility in Watertown, Massachusetts, and plans to consolidate its headquarters operations into a single, more cost-efficient facility in Marlborough, Massachusetts over the next twelve to fifteen months.

## Bank Credit Facility

A description of the Company's credit facility (the "Credit Facility") is set forth in Note 8 to the Company's Consolidated Financial Statements beginning on Page F-1 of this Annual Report, which Note is incorporated by reference herein.

Cash flow from operations and borrowings under the Credit Facility is expected to provide adequate resources to meet the Company's capital requirements and operational needs for the foreseeable future.

## Dividends

Since 2010 the Company has paid a regular quarterly cash dividend at an annual rate of \$0.32 per share. The Company paid dividends of \$8.3 million, \$8.3 million and \$8.2 million in 2018, 2017 and 2016, respectively.

## Contractual Obligations

The following table shows the Company's contractual obligations as of September 30, 2018:

(Dollars in millions)	Payments due by period				
	Total	Less than 1 year	1 to 3 years	3 to 5 years	More than 5 years
Long-Term Debt Obligation	\$ 220.0	-	220.0	-	-
Estimated Interest Payments <sup>(1)</sup>	23.2	7.7	12.0	3.5	-
Operating Lease Obligations	22.0	6.7	9.0	5.1	1.2
Purchase Obligations <sup>(2)</sup>	23.2	21.0	2.2	-	-
Total	\$ 288.4	35.4	243.2	8.6	1.2

(1) Estimated interest payments for the Company's debt obligations were calculated based on Management's determination of the estimated applicable interest rates and payment dates.

(2) A purchase obligation is defined as a legally binding and enforceable agreement to purchase goods and services that specifies all significant terms. Since the majority of the Company's purchase orders can be cancelled, they are not included in the table above.

As of September 30, 2018, the Company had \$0.1 million of liabilities for uncertain tax positions. The unrecognized tax benefits have been excluded from the table above due to uncertainty as to the amounts and timing of settlement with taxing authorities.

The Company had no off-balance-sheet arrangements outstanding at September 30, 2018.

## Share Repurchases

In August 2012, the Company's Board of Directors authorized a common stock repurchase program under which the Company may repurchase shares of its stock from time to time in its discretion, in the open market or otherwise, up to a maximum total repurchase amount of \$100 million (or such lesser amount as may be permitted under the Company's bank credit agreements). This program has been twice extended by the Company's Board of Directors and is currently scheduled to expire September 30, 2019. There were no share repurchases in 2017 or 2018. The Company repurchased approximately 120,000 shares for \$4.3 million in 2016. At September 30, 2018, approximately \$50.4 million remained available for repurchases under the program.

### **Pension Funding Requirements**

The minimum cash funding requirements related to the Company's defined benefit pension plans are estimated to be approximately \$0.8 million in 2019, \$1.3 million in 2020, and \$1.9 million in 2021.

### **Other**

As a normal incident of the business in which the Company is engaged, various claims, charges and litigation are asserted or commenced from time to time against the Company. Additionally, the Company is currently involved in various stages of investigation and remediation relating to environmental matters. It is the opinion of Management that the aggregate costs involved in the resolution of these matters, and final judgments, if any, which might be rendered against the Company are adequately reserved for, are covered by insurance or are not likely to have a material adverse effect on the Company's results of operations, capital expenditures or competitive position.

### **Outlook**

Management continues to see meaningful organic sales, Adjusted EBIT and Adjusted EBITDA growth across each of the Company's business segments, and anticipates that growth rates in 2019 and beyond will generally exceed the broader industrial market. The details of management's growth expectations for 2019 compared to 2018 are as follows:

- Organic sales are expected to increase in the mid-single digits on a consolidated basis, with Filtration and Technical Packaging growing four to six percent each, USG growing five to seven percent (partially muted by slower growth in the renewable energy space at NRG), and Test growing three to five percent;
- Interest expense is expected to be similar to 2018 despite the lower debt levels as the Company is projecting higher interest rates over the next twelve months;
- Non-cash depreciation and amortization of intangibles is expected to increase approximately \$3.7 million (or \$0.11 per share after-tax) related to previous acquisitions and capital spending;
- Income tax expense is expected to increase as management is projecting a 24 percent effective tax rate calculated on higher pretax earnings;
- In summary, management projects 2019 Adjusted EPS to be in the range of \$2.95 to \$3.05 reflecting meaningful organic sales growth offset by the additional depreciation and amortization charges and incremental tax expense noted above. In making this projection management is excluding the following expected adjustments to 2019 GAAP EPS:
  - A pre-tax gain of approximately \$7 million from the October 2018 sale of Doble's headquarters building in Watertown, Massachusetts; and
  - Pre-tax costs aggregating approximately \$4.5 million related to the relocation of Doble's headquarters, the closure of Plastique's headquarters in Tunbridge Wells, UK and the consolidation of its product design and administrative functions into its facilities in Nottingham, UK and Poznan, Poland, the consolidation of VACCO's aircraft/aerospace business into PTI's aerospace facility in Oxnard, California, and the completion of other restructuring activities begun in 2018.

On a quarterly basis and consistent with prior years, management expects 2019 revenues and Adjusted EPS to be more second-half weighted. Management expects Q1 2019 Adjusted EPS to be in the range of \$0.40 to \$0.45 per share.

### **Market Risk Exposure**

Market risks relating to the Company's operations result primarily from changes in interest rates and changes in foreign currency exchange rates. The Company is exposed to market risk related to changes in interest rates and selectively uses derivative financial instruments, including forward contracts and swaps, to manage these risks. During 2016, the Company entered into forward contracts to purchase pounds sterling (GBP) to hedge two deferred payments due in connection with the acquisition of Plastique. During 2018, the Company entered into three interest rate swaps with a notional amount of \$150 million to hedge some of its exposure to variability in future LIBOR-based interest payments on variable rate debt. In addition, the Company's Canadian subsidiary Morgan Schaffer entered into foreign exchange contracts to manage foreign currency risk, as a portion of their revenue is denominated in U.S. dollars. All derivative instruments are reported on the balance sheet at fair value. For derivative instruments designated as cash flow hedges, the gain or loss on the derivative is deferred in accumulated other comprehensive

income until recognized in earnings with the underlying hedged item. The interest rate swaps entered into during 2018 were not designated as cash flow hedges and therefore the gain or loss on the derivative is reflected in earnings each period.

The Company is also subject to foreign currency exchange rate risk inherent in its sales commitments, anticipated sales, anticipated purchases and assets and liabilities denominated in currencies other than the U.S. dollar. The foreign currencies most significant to the Company's operations are the Canadian Dollar and the Euro. The Company occasionally hedges certain foreign currency commitments by purchasing foreign currency forward contracts. The Company does not have material foreign currency market risk; net foreign currency transaction gain/loss was less than 2% of net earnings for 2018, 2017 and 2016.

The Company has determined that the market risk related to interest rates with respect to its variable debt is not material. The Company estimates that if market interest rates averaged one percentage point higher, the effect would have been less than 3% of net earnings for the year ended September 30, 2018.

For more information about the Company's derivative financial instruments, see Note 12 to the Company's Consolidated Financial Statements beginning on page F-1 of this Annual Report.

### **Critical Accounting Policies**

The preparation of financial statements in conformity with U.S. generally accepted accounting principles (GAAP) requires Management to make estimates and assumptions in certain circumstances that affect amounts reported in the accompanying Consolidated Financial Statements. In preparing these financial statements, Management has made its best estimates and judgments of certain amounts included in the Consolidated Financial Statements, giving due consideration to materiality. The Company does not believe there is a great likelihood that materially different amounts would be reported under different conditions or using different assumptions related to the accounting policies described below. However, application of these accounting policies involves the exercise of judgment and use of assumptions as to future uncertainties and, as a result, actual results could differ from these estimates. The Company's senior Management discusses the critical accounting policies described below with the Audit and Finance Committee of the Company's Board of Directors on a periodic basis.

The following discussion of critical accounting policies is intended to bring to the attention of readers those accounting policies which Management believes are critical to the Consolidated Financial Statements and other financial disclosure. It is not intended to be a comprehensive list of all significant accounting policies that are more fully described in Note 1 to the Consolidated Financial Statements included herein.

#### ***Revenue Recognition***

Information regarding the recognition of revenue by the entities in each of the Company's business segments is set forth in Note 1.E to the Company's Consolidated Financial Statements beginning on page F-1 of this Annual Report, which Note is incorporated by reference herein.

#### ***Income Taxes***

The Company operates in numerous taxing jurisdictions and is subject to examination by various U.S. Federal, state and foreign jurisdictions for various tax periods. The Company's income tax positions are based on research and interpretations of the income tax laws and rulings in each of the jurisdictions in which the Company does business. Due to the subjectivity of interpretations of laws and rulings in each jurisdiction, the differences and interplay in tax laws between those jurisdictions, as well as the inherent uncertainty in estimating the final resolution of complex tax audit matters, Management's estimates of income tax liabilities may differ from actual payments or assessments.

At the end of each interim reporting period, Management estimates the effective tax rate expected to apply to the full fiscal year. The estimated effective tax rate contemplates the expected jurisdiction where income is earned. Current and projected growth in income in higher tax jurisdictions may result in an increasing effective tax rate over time. If the actual results differ from Management's estimates, Management may have to adjust the effective tax rate in the interim period if such determination is made.

On December 22, 2017, the U.S. government enacted the TCJA, which, among other things, lowered the U.S. corporate statutory income tax rate and established a modified territorial system requiring a mandatory deemed repatriation on undistributed earnings of foreign subsidiaries.

In accordance with Securities and Exchange Commission ("SEC") Staff Accounting Bulletin 118, as of September 30, 2018, the Company recorded certain TCJA related provisional charges using available information and estimates.

Adjustments to the provisional charges will be recorded in the period in which those adjustments become reasonably estimable and/or the accounting is complete. Such adjustments may result from, among other things, future guidance, interpretations and regulatory changes from the U.S. Internal Revenue Service, the SEC, the Financial Accounting Standards Board and/or various state and local tax jurisdictions. The Company will complete this analysis no later than December 22, 2018.

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. 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. Deferred tax assets may be reduced by a valuation allowance if it is more likely than not that some portion of the deferred tax assets will not be realized. 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. The Company regularly reviews its deferred tax assets for recoverability and establishes a valuation allowance when Management believes it is more likely than not such assets will not be recovered, taking into consideration historical operating results, expectations of future earnings, tax planning strategies, and the expected timing of the reversals of existing temporary differences.

#### ***Goodwill And Other Long-Lived Assets***

Management annually reviews goodwill and other long-lived assets with indefinite useful lives for impairment or whenever events or changes in circumstances indicate the carrying amount may not be recoverable. If the Company determines that the carrying value of the long-lived asset may not be recoverable, a permanent impairment charge is recorded for the amount by which the carrying value of the long-lived asset exceeds its fair value. Fair value is measured based on a discounted cash flow method using a discount rate determined by Management to be commensurate with the risk inherent in the Company's current business model. The estimates of cash flows and discount rate are subject to change due to the economic environment, including such factors as interest rates, expected market returns and volatility of markets served. Management believes that the estimates of future cash flows and fair value are reasonable; however, changes in estimates could result in impairment charges. At September 30, 2018, the Company has determined that no reporting units are at risk of goodwill impairment as the fair value of each reporting unit substantially exceeded its carrying value.

Intangible assets with estimable useful lives are amortized over their respective estimated useful lives to their estimated residual values, and are reviewed for impairment whenever events or changes in business circumstances indicate the carrying value of the assets may not be recoverable.

#### **Other Matters**

##### ***Contingencies***

As a normal incident of the businesses in which the Company is engaged, various claims, charges and litigation are asserted or commenced from time to time against the Company. Additionally, the Company is currently involved in various stages of investigation and remediation relating to environmental matters. It is the opinion of Management that the aggregate costs involved in the resolution of these matters, and final judgments, if any, which might be rendered against the Company are adequately accrued, are covered by insurance or are not likely to have a material adverse effect on the Company's results from continuing operations, capital expenditures, or competitive position.

##### ***Quantitative and Qualitative Disclosures About Market Risk***

Market risks relating to the Company's operations result primarily from changes in interest rates and changes in foreign currency exchange rates. The Company is exposed to market risk related to changes in interest rates and selectively uses derivative financial instruments, including forward contracts and swaps, to manage these risks. During 2016 the Company entered into several forward contracts to purchase pounds sterling (GBP) to hedge two deferred payments due in connection with the acquisition of Plastique. During 2018, the Company entered into three interest rate swaps with a notional amount of \$150 million to hedge some of its exposure to variability in future LIBOR-based interest payments on variable rate debt. In addition, the Company's Canadian subsidiary Morgan Schaffer has entered into foreign exchange contracts to manage foreign currency risk as a portion of their revenue is denominated in U.S. dollars. All derivative instruments are reported on the balance sheet at fair value. For derivative instruments designated as cash flow hedges, the gain or loss on the derivative is deferred in accumulated other comprehensive income until recognized in earnings with the underlying hedged item. See further discussion regarding the Company's market risks in "Market Risk Analysis," above.

### **Controls and Procedures**

For a description of the Company's evaluation of its disclosure controls and procedures, see Item 9A, "Controls and Procedures."

### **New Accounting Pronouncements**

Information regarding new and updated accounting standards which affect the content and/or presentation of the Company's financial information is set forth in Note 1.W to the Company's Consolidated Financial Statements beginning on page F-1 of this Annual Report, which Note is incorporated by reference herein.

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

See "Market Risk Analysis" and "Other Matters – Quantitative And Qualitative Disclosures About Market Risk" in Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations," which are incorporated into this Item by reference.

### **Item 8. Financial Statements and Supplementary Data**

The information required by this Item is incorporated by reference to the Consolidated Financial Statements of the Company, the Notes thereto, and the related "Report of Independent Registered Public Accounting Firm" of KPMG LLP, as set forth in the Financial Information section beginning on page F-1 of this Annual Report; an Index is provided on page F-1.

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

Not Applicable.

### **Item 9A. Controls and Procedures**

For 2018, the Company carried out an evaluation of the effectiveness of the design and operation of the Company's disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the Exchange Act). The evaluation was conducted under the supervision and with the participation of the Company's Management, including the Company's Chief Executive Officer and Chief Financial Officer, using the *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Disclosure controls and procedures are designed to ensure that information required to be disclosed by the Company in reports filed or submitted under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission's rules and forms. Based upon that evaluation, the Company's Chief Executive Officer and Chief Financial Officer concluded that the Company's disclosure controls and procedures were not effective as of September 30, 2018, as a result of a material weakness in the Company's internal control over financial reporting related to the ineffective design and operation of controls impacting the deferred revenue general ledger account, as described in Management's Report on Internal Control over Financial Reporting.

Notwithstanding the material weakness impacting the deferred revenue general ledger account, Management has concluded that the Consolidated Financial Statements included in this Form 10-K fairly present, in all material respects, the financial position of the Company as of September 30, 2018 and 2017 and the consolidated results of operations and cash flows for each of the three years in the period ended September 30, 2018, in conformity with U.S. generally accepted accounting principles.

For additional information required by this item, see "Management's Report on Internal Control over Financial Reporting" in the Financial Information section beginning on page F-1 of this Annual Report, which is incorporated into this Item by reference.

Other than identifying the specific deficiencies related to the material weakness disclosed, there were no changes in the Company's internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act) during the fiscal quarter ended September 30, 2018 that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

The Company is in the process of remediating the material weakness and has taken the following actions: enhanced our policies and procedures related to the deferred revenue reconciliation and review and provided additional training to certain personnel in our finance department. We believe these measures will remediate the control deficiencies and strengthen our internal control over financial reporting. We will test the operating effectiveness of the revised and new controls subsequent to full implementation, and will consider the material weakness remediated after the applicable controls have operated effectively for a sufficient period of time.

**Item 9B. Other Information**

None.



## **PART III**

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

Information regarding nominees and directors, the Company's Code of Ethics, its Audit and Finance Committee, and compliance with Section 16(a) of the Securities Exchange Act of 1934 is hereby incorporated by reference to the sections captioned "Proposal 1: Election of Directors," "Board of Directors – Governance Policies and Management Oversight," "Committees" and "Securities Ownership – Section 16(a) Beneficial Ownership Reporting Compliance" in the 2018 Proxy Statement.

Information regarding the Company's executive officers is set forth in Item 1, "Business – Executive Officers of the Registrant," above.

### **Item 11. Executive Compensation**

Information regarding the Company's compensation committee and director and executive officer compensation is hereby incorporated by reference to the sections captioned "Committees – Compensation Committee Interlocks and Insider Participation," "Director Compensation" and "Executive Compensation Information" in the 2018 Proxy Statement.

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

Information regarding the beneficial ownership of shares of the Company's common stock by nominees and directors, by executive officers, by directors and executive officers as a group and by any known five percent stockholders is hereby incorporated by reference to the section captioned "Securities Ownership" in the 2018 Proxy Statement.

### **Item 13. Certain Relationships and Related Transactions and Director Independence**

Information regarding transactions with related parties and the independence of the Company's directors, nominees for directors and members of the committees of the board of directors is hereby incorporated by reference to the sections captioned "Board of Directors" and "Committees" in the 2018 Proxy Statement.

### **Item 14. Principal Accounting Fees and Services**

Information regarding the Company's independent registered public accounting firm, its fees and services, and the Company's Audit and Finance Committee's pre-approval policies and procedures regarding such fees and services, is hereby incorporated by reference to the section captioned "Audit-Related Matters" in the 2018 Proxy Statement.

## PART IV

### Item 15. Exhibits, Financial Statement Schedules

(a) The following documents are filed as a part of this Report:

- (1) **Financial Statements.** The Consolidated Financial Statements of the Company, and the Report of Independent Registered Public Accounting Firm thereon of KPMG LLP, are included in this Report beginning on page F-1; an Index thereto is set forth on page F-1.
- (2) **Financial Statement Schedules.** Financial Statement Schedules are omitted because either they are not applicable or the required information is included in the Consolidated Financial Statements or the Notes thereto.
- (3) **Exhibits.** The following exhibits are filed with this Report or incorporated herein by reference to the document location indicated:

<u>Exhibit No.</u>	<u>Description</u>	<u>Document Location</u>
3.1(a)	Restated Articles of Incorporation	Exhibit 3(a) to the Company's Form 10-K for the fiscal year ended September 30, 1999
3.1(b)	Amended Certificate of Designation, Preferences and Rights of Series A Participating Cumulative Preferred Stock	Exhibit 4(e) to the Company's Form 10-Q for the fiscal quarter ended March 31, 2000
3.1(c)	Articles of Merger, effective July 10, 2000	Exhibit 3(c) to the Company's Form 10-Q for the fiscal quarter ended June 30, 2000
3.1(d)	Amendment to Articles of Incorporation, effective February 5, 2018	Exhibit 3.1 to the Company's Form 8-K filed February 7, 2018
3.2	Bylaws	Exhibit 3.2 to the Company's Form 8-K filed February 7, 2018
4.1	Specimen revised Common Stock Certificate	Exhibit 4.1 to the Company's Form 10-Q for the fiscal quarter ended March 31, 2010
4.2	Amended and Restated Credit Agreement dated as of December 21, 2015 among the Registrant, the Foreign Subsidiary Borrowers from time to time party thereto, the Lenders from time to time party thereto, JP Morgan Chase Bank, N.A. as Administrative Agent, and Bank of America, N.A., BMO Harris Bank, N.A., SunTrust Bank and Wells Fargo Bank, National Association as Co-Documentation Agents	Exhibit 4.1 to the Company's Form 8-K filed December 23, 2015
4.3	Amendment No. 1 to Credit Agreement dated as of December 21, 2015, effective September 30, 2016	Exhibit 4.4 to the Company's Form 10-K filed November 29, 2016
4.4	Amendment No. 2 to Credit Agreement dated as of December 21, 2015, effective May 15, 2017	Exhibit 4.4 to the Company's Form 10-Q filed August 8, 2017
10.1	Securities Purchase Agreement dated March 14, 2014 between ESCO Technologies Holding LLC and Meter Readings Holding LLC	Exhibit 10.1 to the Company's Form 8-K filed March 28, 2014
10.2	Form of Indemnification Agreement with each of ESCO's non-employee directors	Exhibit 10.1 to the Company's Form 10-K for the fiscal year ended September 30, 2012
10.3(a)	* First Amendment to the ESCO Electronics Corporation Supplemental Executive Retirement Plan, effective August 2, 1993 (comprising restatement of entire Plan)	Exhibit 10.2(a) to the Company's Form 10-K for the fiscal year ended September 30, 2012

<u>Exhibit No.</u>	<u>Description</u>	<u>Document Location</u>
10.3(b)	* Second Amendment to Supplemental Executive Retirement Plan, effective May 1, 2001	Exhibit 10.4 to the Company's Form 10-K for the fiscal year ended September 30, 2001
10.3(c)	* Form of Supplemental Executive Retirement Plan Agreement	Exhibit 10.28 to the Company's Form 10-K for the fiscal year ended September 30, 2002
10.4(a)	* Directors' Extended Compensation Plan, adopted effective October 11, 1993	Exhibit 10.3(a) to the Company's Form 10-K for the fiscal year ended September 30, 2012
10.4(b)	* First Amendment to Directors' Extended Compensation Plan effective January 1, 2000	Exhibit 10.11 to the Company's Form 10-K for the fiscal year ended September 30, 2000
10.4(c)	* Second Amendment to Directors' Extended Compensation Plan, effective April 1, 2001	Exhibit 10.7 to the Company's Form 10-K for the fiscal year ended September 30, 2001
10.4(d)	* Third Amendment to Directors' Extended Compensation Plan, effective October 3, 2007	Exhibit 10.43 to the Company's Form 10-K for the fiscal year ended September 30, 2007
10.4(e)	* Fourth Amendment to Directors' Extended Compensation Plan, effective August 7, 2013	Exhibit 10.3(e) to the Company's Form 10-K for the fiscal year ended September 30, 2013
10.5(a)	* Compensation Plan For Non-Employee Directors, as restated to reflect all amendments through May 29, 2014	Exhibit 10.1 to the Company's Form 8-K filed October 2, 2014
10.5(b)	* Compensation Plan For Non-Employee Directors, as amended and restated November 8, 2017	Exhibit 10.3 to the Company's Form 8-K filed November 14, 2017
10.6(a)	* 2013 Incentive Compensation Plan	Appendix A to the Company's Schedule 14A Proxy Statement filed December 19, 2012
10.6(b)	* Form of Notice of Award (2013-14) – Performance-Accelerated Restricted Stock (2013 Incentive Compensation Plan)	Exhibit 10.7(b) to the Company's Form 10-K for the fiscal year ended September 30, 2013
10.6(c)	* Form of Award Agreement under 2013 Incentive Compensation Plan, effective November 11, 2015	Exhibit 10.1 to the Company's Form 8-K filed November 12, 2015
10.6(d)	* Form of Amendment to 2012-2014 Awards under 2004 and 2013 Incentive Compensation Plans, effective November 11, 2015	Exhibit 10.2 to the Company's Form 8-K filed November 12, 2015
10.6(e)	* 2018 Omnibus Incentive Plan	Exhibit 10.1 to the Company's Form 8-K filed February 6, 2018
10.6(f)	* Form of Award Agreement for Performance-Accelerated Restricted Shares under 2018 Omnibus Incentive Plan (Omnibus Form, last revised August 29, 2018)	Filed herewith
10.7	* Eighth Amendment and Restatement of Employee Stock Purchase Plan, effective as of August 2, 2018	Filed herewith
10.8	* Performance Compensation Plan for Corporate, Subsidiary and Division Officers and Key Managers, adopted August 2, 1993, as amended and restated through November 9, 2017	Exhibit 10.1 to the Company's Form 8-K filed November 14, 2017
10.9	* Incentive Compensation Plan for Executive Officers, adopted November 9, 2005, as amended and restated through August 8, 2012	Exhibit 10.10 to the Company's Form 10-K for the fiscal year ended September 30, 2012
10.10	* Compensation Recovery Policy, adopted effective February 4, 2010	Exhibit 10.6 to the Company's Form 8-K filed February 10, 2010

<u>Exhibit No.</u>	<u>Description</u>	<u>Document Location</u>
10.11	Severance Plan adopted as of August 10, 1995, as Amended and Restated November 11, 2015	Exhibit 10.1 to the Company's Form 8-K/A filed November 30, 2015
10.12(a)	* Employment Agreement with Victor L. Richey, effective November 3, 1999	Exhibit 10(bb) to the Company's Form 10-K for the fiscal year ended September 30, 1999  (Note: Agreement with Victor L. Richey is substantially identical to the referenced Exhibit and is therefore omitted as a separate exhibit pursuant to Rule 12b-31)
10.12(b)	* Second Amendment to Employment Agreement with Victor L. Richey, effective May 5, 2004	Exhibit 10.1 to the Company's Form 10-Q for the fiscal quarter ended June 30, 2004
10.12(c)	* Third Amendment to Employment Agreement with Victor L. Richey, effective December 31, 2007	Exhibit 10.1 to the Company's Form 8-K filed January 7, 2008
10.13(a)	* Employment Agreement with Gary E. Muenster, effective November 3, 1999	Exhibit 10(bb) to the Company's Form 10-K for the fiscal year ended September 30, 1999  (Note: Agreement with Gary E. Muenster is substantially identical to the referenced Exhibit except that it provides a minimum base salary of \$108,000, and is therefore omitted as a separate exhibit pursuant to Rule 12b-31)
10.13(b)	* Second Amendment to Employment Agreement with Gary E. Muenster, effective May 5, 2004	Exhibit 10.2 to the Company's Form 10-Q for the fiscal quarter ended June 30, 2004
10.13(c)	* Third Amendment to Employment Agreement with Gary E. Muenster, effective December 31, 2007	Exhibit 10.1 to the Company's Form 8-K filed January 7, 2008  (Note: Third Amendment with Gary E. Muenster is substantially identical to the referenced Exhibit except that (i) the termination amounts payable under Paragraph 9.a(1) are equal to base salary for 12 months and (ii) under Paragraph 9.a(1)(B), such termination amounts may be paid in biweekly installments equal to 1/26th of such amounts, and is therefore omitted as a separate exhibit pursuant to Rule 12b-31)
10.13(d)	* Fourth Amendment to Employment Agreement with Gary E. Muenster, effective February 6, 2008	Exhibit 10.1 to the Company's Form 8-K filed February 12, 2008
10.14(a)	* Employment Agreement with Alyson S. Barclay, effective November 3, 1999	Exhibit 10(bb) to the Company's Form 10-K for the fiscal year ended September 30, 1999  (Note: Agreement with Alyson S. Barclay is substantially identical to the referenced Exhibit except that it provides a minimum base salary of \$94,000, and is therefore omitted as a separate exhibit pursuant to Rule 12b-31)
10.14(b)	* Second Amendment to Employment Agreement with Alyson S. Barclay, effective May 5, 2004	Exhibit 10.2 to the Company's Form 10-Q for the fiscal quarter ended June 30, 2004  (Note: Second Amendment with Alyson S. Barclay is substantially identical to the referenced Exhibit, and is therefore omitted as a separate exhibit pursuant to Rule 12b-31)

<u>Exhibit No.</u>	<u>Description</u>	<u>Document Location</u>
10.14(c)	* Third Amendment to Employment Agreement with Alyson S. Barclay, effective December 31, 2007	Exhibit 10.1 to the Company's Form 8-K filed January 7, 2008  (Note: Third Amendment with Alyson S. Barclay is substantially identical to the referenced Exhibit except that (i) the termination amounts payable under Paragraph 9.a(1) are equal to base salary for 12 months and (ii) under Paragraph 9.a(1)(B), such termination amounts may be paid in biweekly installments equal to 1/26th of such amounts, and is therefore omitted as a separate exhibit pursuant to Rule 12b-31)
10.14(d)	* Fourth Amendment to Employment Agreement with Alyson S. Barclay, effective July 29, 2010	Exhibit 10.1 to the Company's Form 8-K filed August 3, 2010
21	Subsidiaries of the Company	Filed herewith
23	Consent of Independent Registered Public Accounting Firm	Filed herewith
31.1	Certification of Chief Executive Officer	Filed herewith
31.2	Certification of Chief Financial Officer	Filed herewith
32	** Certification of Chief Executive Officer and Chief Financial Officer	Filed herewith
101.INS	*** XBRL Instance Document	Submitted herewith
101.SCH	*** XBRL Schema Document	Submitted herewith
101.CAL	*** XBRL Calculation Linkbase Document	Submitted herewith
101.LAB	*** XBRL Label Linkbase Document	Submitted herewith
101.PRE	*** XBRL Presentation Linkbase Document	Submitted herewith
101.DEF	*** XBRL Definition Linkbase Document	Submitted herewith

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\* Indicates a management contract or compensatory plan or arrangement.

\*\* Furnished (and not filed) with the Commission pursuant to Item 601(b)(32)(ii) of Regulation S-K.

\*\*\* Exhibit 101 to this report consists of documents formatted in XBRL (Extensible Business Reporting Language).

## SIGNATURES

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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.

ESCO TECHNOLOGIES INC.

By: /s/ Victor L. Richey  
Victor L. Richey  
President and Chief Executive Officer

Date: November 29, 2018

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 in the capacities and on the dates indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Victor L. Richey</u> Victor L. Richey	Chairman, President, Chief Executive Officer and Director	November 29, 2018
<u>/s/ Gary E. Muenster</u> Gary E. Muenster	Executive Vice President, Chief Financial Officer (Principal Accounting Officer) and Director	November 29, 2018
<u>/s/ Patrick M. Dewar</u> Patrick M. Dewar	Director	November 29, 2018
<u>/s/ Vinod M. Khilnani</u> Vinod M. Khilnani	Director	November 29, 2018
<u>/s/ Leon J. Olivier</u> Leon J. Olivier	Director	November 29, 2018
<u>/s/ Robert J. Phillippy</u> Robert J. Phillippy	Director	November 29, 2018
<u>/s/ Larry W. Solley</u> Larry W. Solley	Director	November 29, 2018
<u>/s/ James M. Stolze</u> James M. Stolze	Director	November 29, 2018

## **FINANCIAL INFORMATION**

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## REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

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To the Shareholders and Board of Directors  
ESCO Technologies Inc.:

### *Opinion on the Consolidated Financial Statements*

We have audited the accompanying consolidated balance sheets of ESCO Technologies Inc. and subsidiaries (the Company) as of September 30, 2018 and 2017, the related consolidated statements of operations, comprehensive income (loss), shareholders' equity, and cash flows for each of the years in the three-year period ended September 30, 2018, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of September 30, 2018 and 2017, and the results of its operations and its cash flows for each of the years in the three-year period ended September 30, 2018, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of September 30, 2018, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated November 29, 2018 expressed an adverse opinion on the effectiveness of the Company's internal control over financial reporting.

### *Basis for Opinion*

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

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

/s/ KPMG LLP

We have served as the Company's auditor since 1990.

St. Louis, Missouri  
November 29, 2018



## CONSOLIDATED STATEMENTS OF OPERATIONS

(Dollars in thousands, except per share amounts)

Years ended September 30,	2018	2017	2016
Net sales	\$ 771,582	685,740	571,459
Costs and expenses:			
Cost of sales	490,397	436,918	350,807
Selling, general and administrative expenses	162,431	148,433	131,493
Amortization of intangible assets	18,328	16,338	11,630
Interest expense, net	8,748	4,578	1,308
Other expenses (income), net	3,655	(680)	7,801
Total costs and expenses	<u>683,559</u>	<u>605,587</u>	<u>503,039</u>
Earnings before income tax	88,023	80,153	68,420
Income tax (benefit) expense	<u>(4,113)</u>	<u>26,450</u>	<u>22,538</u>
Net earnings	<u>\$ 92,136</u>	<u>53,703</u>	<u>45,882</u>
Earnings per share:			
Basic:			
Net earnings	<u>\$ 3.56</u>	<u>2.08</u>	<u>1.78</u>
Diluted:			
Net earnings	<u>\$ 3.54</u>	<u>2.07</u>	<u>1.77</u>
Average common shares outstanding (in thousands):			
Basic	25,874	25,774	25,762
Diluted	26,058	25,995	25,968

See accompanying Notes to Consolidated Financial Statements.

## CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

(Dollars in thousands)

Years ended September 30,	2018	2017	2016
Net earnings	\$ 92,136	53,703	45,882
Other comprehensive (loss) income, net of tax:			
Foreign currency translation adjustments	(2,254)	6,383	(1,462)
Amortization of prior service costs and actuarial (losses) gains	(2,003)	5,573	(5,250)
Net unrealized gain (loss) on derivative instruments	37	19	(33)
Total other comprehensive (loss) income, net of tax	<u>(4,220)</u>	<u>11,975</u>	<u>(6,745)</u>
Comprehensive income	<u>\$ 87,916</u>	<u>65,678</u>	<u>39,137</u>

See accompanying Notes to Consolidated Financial Statements.

## CONSOLIDATED BALANCE SHEETS

(Dollars in thousands)  
As of September 30,

	<u>2018</u>	<u>2017</u>
<b>ASSETS</b>		
Current assets:		
Cash and cash equivalents	\$ 30,477	45,516
Accounts receivable, less allowance for doubtful accounts of \$1,683 and \$2,030 in 2018 and 2017, respectively	163,740	160,580
Costs and estimated earnings on long-term contracts, less progress billings of \$27,636 and \$64,099 in 2018 and 2017, respectively	53,034	47,286
Inventories, net	135,416	124,515
Other current assets	13,356	14,895
Total current assets	<u>396,023</u>	<u>392,792</u>
Property, plant and equipment:		
Land and land improvements	9,944	9,964
Buildings and leasehold improvements	92,418	88,469
Machinery and equipment	141,711	129,366
Construction in progress	6,609	4,599
	<u>250,682</u>	<u>232,398</u>
Less accumulated depreciation and amortization	<u>(115,728)</u>	<u>(99,650)</u>
Net property, plant and equipment	134,954	132,748
Intangible assets, net	345,353	351,134
Goodwill	381,652	377,879
Other assets	7,140	5,891
Total Assets	<u>\$ 1,265,122</u>	<u>1,260,444</u>

See accompanying Notes to Consolidated Financial Statements.

## CONSOLIDATED BALANCE SHEETS

(Dollars in thousands)  
As of September 30,

	2018	2017
<b>LIABILITIES AND SHAREHOLDERS' EQUITY</b>		
Current liabilities:		
Current maturities of long-term debt	\$ 20,000	20,000
Accounts payable	63,033	54,789
Advance payments on long-term contracts, less costs incurred of \$26,693 and \$59,772 in 2018 and 2017, respectively	19,467	22,451
Accrued salaries	29,379	32,259
Current portion of deferred revenue	29,568	28,583
Accrued other expenses	39,083	36,887
Total current liabilities	200,530	194,969
Pension obligations	16,286	30,223
Deferred tax liabilities	64,794	86,378
Other liabilities	24,102	21,956
Long-term debt	200,000	255,000
Total liabilities	505,712	588,526
Shareholders' equity:		
Preferred stock, par value \$.01 per share, authorized 10,000,000 shares		
Common stock, par value \$.01 per share, authorized 50,000,000 shares; issued 30,534,786 and 30,468,824 shares in 2018 and 2017, respectively	305	305
Additional paid-in capital	291,190	289,785
Retained earnings	606,837	516,718
Accumulated other comprehensive loss, net of tax	(31,528)	(27,308)
	866,804	779,500
Less treasury stock, at cost (4,623,958 and 4,635,622 common shares in 2018 and 2017, respectively)	(107,394)	(107,582)
Total shareholders' equity	759,410	671,918
Total Liabilities and Shareholders' Equity	\$ 1,265,122	1,260,444

See accompanying Notes to Consolidated Financial Statements.

## CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY

(In thousands)	Common Stock		Additional Paid-In Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Treasury Stock	Total
	Shares	Amount					
Balance, September 30, 2015	30,359	\$ 304	286,485	433,632	(32,538)	(103,701)	584,182
Comprehensive income (loss):							
Net earnings	—	—	—	45,882	—	—	45,882
Translation adjustments, net of tax of \$383	—	—	—	—	(1,462)	—	(1,462)
Net unrecognized actuarial loss, net of tax of \$3,059	—	—	—	—	(5,250)	—	(5,250)
Forward exchange contract, net of tax of \$95	—	—	—	—	(33)	—	(33)
Cash dividends declared (\$0.32 per share)	—	—	—	(8,242)	—	—	(8,242)
Stock options and stock compensation plans, net of tax of \$18	5	—	4,103	—	—	232	4,335
Purchases into treasury	—	—	—	—	—	(4,303)	(4,303)
Balance, September 30, 2016	30,364	\$ 304	290,588	471,272	(39,283)	(107,772)	615,109
Comprehensive income (loss):							
Net earnings	—	—	—	53,703	—	—	53,703
Translation adjustments, net of tax of \$0	—	—	—	—	6,383	—	6,383
Net unrecognized actuarial gain, net of tax of \$(2,938)	—	—	—	—	5,573	—	5,573
Forward exchange contracts, net of tax of \$(66)	—	—	—	—	19	—	19
Cash dividends declared (\$0.32 per share)	—	—	—	(8,257)	—	—	(8,257)
Stock options and stock compensation plans, net of tax of \$0	105	1	(803)	—	—	190	(612)
Balance, September 30, 2017	30,469	\$ 305	289,785	516,718	(27,308)	(107,582)	671,918
Comprehensive income (loss):							
Net earnings	—	—	—	92,136	—	—	92,136
Translation adjustments, net of tax of \$0	—	—	—	—	(2,254)	—	(2,254)
Net unrecognized actuarial loss, net of tax of \$(1,326)	—	—	—	—	(2,003)	—	(2,003)
Forward exchange contracts, net of tax of \$(41)	—	—	—	—	37	—	37
Cash dividends declared (\$0.32 per share)	—	—	—	(8,278)	—	—	(8,278)
Reclassification from accumulated other comprehensive loss as a result of the adoption of a new accounting standard				6,261			6,261
Stock options and stock compensation plans, net of tax of \$0	66	—	1,405	—	—	188	1,593
Balance, September 30, 2018	30,535	\$ 305	291,190	606,837	(31,528)	(107,394)	759,410

See accompanying Notes to Consolidated Financial Statements.

## CONSOLIDATED STATEMENTS OF CASH FLOWS

(Dollars in thousands)

Years ended September 30,	2018	2017	2016
<b>Cash flows from operating activities:</b>			
Net earnings	\$ 92,136	53,703	45,882
Adjustments to reconcile net earnings to net cash provided by operating activities:			
Depreciation and amortization	37,755	32,229	23,568
Stock compensation expense	5,218	5,444	4,704
Changes in assets and liabilities	(10,315)	(17,889)	1,746
Effect of deferred taxes on tax provision	(21,584)	1,360	(2,993)
Pension contributions	(9,951)	(2,677)	—
Other	—	(4,830)	952
Net cash provided by operating activities	<u>93,259</u>	<u>67,340</u>	<u>73,859</u>
<b>Cash flows from investing activities:</b>			
Acquisition of businesses, net of cash acquired	(11,445)	(198,628)	(82,062)
Capital expenditures	(20,589)	(29,728)	(13,843)
Additions to capitalized software	(9,573)	(9,002)	(8,665)
Proceeds from sale of land	—	1,184	—
Proceeds from life insurance	—	2,307	—
Net cash used by investing activities	<u>(41,607)</u>	<u>(233,867)</u>	<u>(104,570)</u>
<b>Cash flows from financing activities:</b>			
Proceeds from long-term debt	55,000	257,000	140,000
Principal payments on long-term debt	(110,000)	(92,000)	(80,000)
Dividends paid	(8,278)	(8,257)	(8,248)
Purchases of shares into treasury	—	—	(4,303)
Debt issuance costs	—	—	(1,097)
Other	(3,078)	20	(128)
Net cash (used) provided by financing activities	<u>(66,356)</u>	<u>156,763</u>	<u>46,224</u>
Effect of exchange rate changes on cash and cash equivalents	<u>(335)</u>	<u>1,455</u>	<u>(1,099)</u>
Net (decrease) increase in cash and cash equivalents	<u>(15,039)</u>	<u>(8,309)</u>	<u>14,414</u>
Cash and cash equivalents at beginning of year	<u>45,516</u>	<u>53,825</u>	<u>39,411</u>
Cash and cash equivalents at end of year	<u>\$ 30,477</u>	<u>45,516</u>	<u>53,825</u>
<b>Changes in assets and liabilities:</b>			
Accounts receivable, net	\$ (2,789)	(23,587)	(9,088)
Costs and estimated earnings on long-term contracts, net	(5,748)	(18,540)	(359)
Inventories	(9,830)	3,959	1,101
Other assets and liabilities	(695)	(2,014)	4,982
Accounts payable	9,442	8,735	(1,953)
Advance payments on long-term contracts, net	(2,984)	6,264	(2,439)
Accrued expenses	771	5,644	4,042
Deferred revenue and costs, net	1,518	1,650	5,460
	<u>\$ (10,315)</u>	<u>(17,889)</u>	<u>1,746</u>
<b>Supplemental cash flow information:</b>			
Interest paid	\$ 8,540	3,731	1,361
Income taxes paid (including state & foreign)	8,789	25,674	22,631

See accompanying Notes to Consolidated Financial Statements.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

### 1. Summary of Significant Accounting Policies

#### A. Principles of Consolidation

The Consolidated Financial Statements include the accounts of ESCO Technologies Inc. (ESCO) and its wholly owned subsidiaries (the Company). All significant intercompany transactions and accounts have been eliminated in consolidation.

#### B. Basis of Presentation

The Company's fiscal year ends September 30. Throughout these Consolidated Financial Statements, unless the context indicates otherwise, references to a year (for example 2018) refer to the Company's fiscal year ending on September 30 of that year.

The Company accounts for shipping and handling costs on a gross basis and they are included in net sales. The Company accounts for taxes collected from customers and remitted to governmental authorities on a net basis and they are excluded from net sales.

#### C. Nature of Operations

The Company is organized based on the products and services it offers, and classifies its business operations in segments for financial reporting purposes. Under the current organization structure, the Company has four segments for financial reporting purposes: Filtration/Fluid Flow (Filtration), RF Shielding and Test (Test), Utility Solutions Group (USG) and Technical Packaging.

**Filtration:** The companies within this segment primarily design and manufacture specialty filtration products, including hydraulic filter elements and fluid control devices used in commercial aerospace applications, unique filter mechanisms used in micro-propulsion devices for satellites, custom designed filters for manned aircraft and submarines, elastomeric-based signature reduction solutions to enhance U.S. Navy maritime survivability, precision-tolerance machined components for the aerospace and defense industry, and metal processing services.

**Test:** ETS-Lindgren Inc. provides its customers with the ability to identify, measure and contain magnetic, electromagnetic and acoustic energy.

**USG:** The companies within this segment provide high-end, intelligent, diagnostic test and data management solutions for the electric power delivery industry, and decision support tools for the renewable energy industry, primarily wind.

**Technical Packaging:** The companies within this segment provide innovative solutions to the medical and commercial markets for thermoformed and precision molded pulp fiber packages and specialty products using a wide variety of thin gauge plastics and pulp.

#### D. Use of Estimates

The preparation of financial statements in conformity with GAAP requires Management to make estimates and assumptions that affect the reported amounts of assets and liabilities. Actual results could differ from those estimates.

#### E. Revenue Recognition

**Filtration:** Within the Filtration segment, approximately 85% of revenues (approximately 31% of consolidated revenues) are recognized when products are delivered (when title and risk of ownership transfers) or when services are performed for unaffiliated customers.

Approximately 15% of the segment's revenues (approximately 6% of consolidated revenues) are recorded under the percentage-of-completion method. The majority of these contracts are cost-reimbursable contracts which provide for the payment of allowable costs incurred during the performance of the contract plus an incentive fee. The remainder of the contracts are fixed-price contracts. Products accounted for under this guidance include the design, development and manufacture of complex fluid control products, quiet valves, manifolds and systems primarily for the aerospace and military markets. For fixed-price contracts that are accounted for under this guidance, the Company estimates profit as the difference between total estimated revenue and total estimated cost of a contract and recognizes these revenues and costs based on units delivered. The percentage-of-completion method of accounting involves the use of

various techniques to estimate expected costs at completion. These estimates are based on Management's judgment and the Company's substantial experience in developing these types of estimates.

**Test:** Within the Test segment, approximately 25% of revenues (approximately 6% of consolidated revenues) are recognized when products are delivered (when title and risk of ownership transfers) or when services are performed for unaffiliated customers.

Approximately 75% of the segment's revenues (approximately 18% of consolidated revenues) are recorded under the percentage-of-completion method due to the complex nature of the enclosures that are designed and produced under these contracts. Products accounted for under this guidance include the construction and installation of complex test chambers to a buyer's specifications that provide its customers with the ability to measure and contain magnetic, electromagnetic and acoustic energy. As discussed above, for arrangements that are accounted for under this guidance, the Company estimates profit as the difference between total revenue and total estimated cost of a contract and recognizes these revenues and costs based primarily on contract milestones. The percentage-of-completion method of accounting involves the use of various techniques to estimate expected costs at completion. These estimates are based on Management's judgment and the Company's substantial experience in developing these types of estimates.

**USG:** Within the USG segment, approximately 75% of revenues (approximately 21% of consolidated revenues) are recognized when products are delivered (when title and risk of ownership transfers), or when services are performed for unaffiliated customers. Approximately 17% of the segment's revenues (approximately 5% of consolidated revenues) are recognized on a straight-line basis over the term. Approximately 8% of the segment's revenues (approximately 2% of consolidated revenues) are recognized based on the terms of the software contract.

**Technical Packaging:** Within the Technical Packaging segment, 100% of revenues (approximately 11% of consolidated revenues) are recognized when products are delivered (when title and risk of ownership transfers) or when services are performed for unaffiliated customers.

See the further discussion of the Company's revenue recognition in Note 1.W, below.

## **F. Cash and Cash Equivalents**

Cash equivalents include temporary investments that are readily convertible into cash, such as money market funds, with original maturities of three months or less.

## **G. Accounts Receivable**

Accounts receivable have been reduced by an allowance for amounts that the Company estimates are uncollectible in the future. This estimated allowance is based on Management's evaluation of the financial condition of the customer and historical write-off experience.

## **H. Costs and Estimated Earnings on Long-Term Contracts**

Costs and estimated earnings on long-term contracts represent unbilled revenues, including accrued profits, accounted for under the percentage-of-completion method, net of progress billings.

## **I. Inventories**

Inventories are valued at the lower of cost (first-in, first-out) or market value. Inventories are regularly reviewed for excess quantities and obsolescence based upon historical experience, specific identification of discontinued items, future demand, and market conditions. Inventories under long-term contracts reflect accumulated production costs, factory overhead, initial tooling and other related costs less the portion of such costs charged to cost of sales.

## **J. Property, Plant and Equipment**

Property, plant and equipment are recorded at cost. Depreciation and amortization are computed primarily on a straight-line basis over the estimated useful lives of the assets: buildings, 10-40 years; machinery and equipment, 3-10 years; and office furniture and equipment, 3-10 years. Leasehold improvements are amortized over the remaining term of the applicable lease or their estimated useful lives, whichever is shorter. Long-lived tangible assets are reviewed for impairment whenever events or changes in business circumstances indicate the carrying value of the assets may not be recoverable. Impairment losses are recognized based on fair value.

## **K. Leases**

Lease agreements are evaluated to determine whether they are capital or operating leases in accordance with ASC 840, *Leases* (ASC 840). When any one of the four test criteria in ASC 840 is met, the lease then qualifies as a capital lease. Capital leases are capitalized at the lower of the net present value of the total amount payable under the leasing agreement (excluding finance charges) or the fair market value of the leased asset. Capital lease assets are depreciated on a straight-line basis, over a period consistent with the Company's normal depreciation policy for tangible fixed assets. The Company allocates each lease payment between a reduction of the lease obligation and interest expense using the effective interest method. Rent expense for operating leases, which may include free rent or fixed escalation amounts in addition to minimum lease payments, is recognized on a straight-line basis over the duration of the lease term. Capital lease obligations are included within other long-term liabilities (long-term portion) and accrued other expenses (current portion).

## **L. Goodwill and Other Long-Lived Assets**

Goodwill represents the excess of purchase price over the fair value of net identifiable assets acquired in business acquisitions. Management annually reviews goodwill and other long-lived assets with indefinite useful lives for impairment or whenever events or changes in circumstances indicate the carrying amount may not be recoverable. If the Company determines that the carrying value of the long-lived asset may not be recoverable, a permanent impairment charge is recorded for the amount by which the carrying value of the long-lived asset exceeds its fair value. Fair value is measured based on a discounted cash flow method using a discount rate determined by Management to be commensurate with the risk inherent in the Company's current business model.

Other intangible assets represent costs allocated to identifiable intangible assets, principally customer relationships, capitalized software, patents, trademarks, and technology rights. Intangible assets with estimable useful lives are amortized over their respective estimated useful lives to their estimated residual values, and are reviewed for impairment whenever events or changes in business circumstances indicate the carrying value of the assets may not be recoverable. See Note 3 regarding goodwill and other intangible assets activity.

## **M. Capitalized Software**

The costs incurred for the development of computer software that will be sold, leased, or otherwise marketed are charged to expense when incurred as research and development until technological feasibility has been established for the product. Technological feasibility is typically established upon completion of a detailed program design. Costs incurred after this point are capitalized on a project-by-project basis. Capitalized costs consist of internal and external development costs. Upon general release of the product to customers, the Company ceases capitalization and begins amortization, which is calculated on a project-by-project basis as the greater of (1) the ratio of current gross revenues for a product to the total of current and anticipated future gross revenues for the product or (2) the straight-line method over the estimated economic life of the product. The Company generally amortizes the software development costs over a three-to-seven year period based upon the estimated future economic life of the product. Factors considered in determining the estimated future economic life of the product include anticipated future revenues, and changes in software and hardware technologies. Management annually reviews the carrying values of capitalized costs for impairment or whenever events or changes in circumstances indicate the carrying amount may not be recoverable. If expected cash flows are insufficient to recover the carrying amount of the asset, then an impairment loss is recognized to state the asset at its net realizable value.

## **N. 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. 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. Deferred tax assets may be reduced by a valuation allowance if it is more likely than not that some portion or all of the deferred tax assets will not be realized. 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. The Company regularly reviews its deferred tax assets for recoverability and establishes a valuation allowance when Management believes it is more likely than not such assets will not be recovered, taking into consideration historical operating results, expectations of future earnings, tax planning strategies, and the expected timing of the reversals of existing temporary differences.



## O. Research and Development Costs

Company-sponsored research and development costs include research and development and bid and proposal efforts related to the Company's products and services. Company-sponsored product development costs are charged to expense when incurred. Customer-sponsored research and development costs incurred pursuant to contracts are accounted for similarly to other program costs. Customer-sponsored research and development costs refer to certain situations whereby customers provide funding to support specific contractually defined research and development costs. Total Company and customer-sponsored research and development expenses were approximately \$13.1 million, \$14.0 million and \$12.2 million for 2018, 2017 and 2016, respectively. These expense amounts exclude certain engineering costs primarily associated with product line extensions, modifications and maintenance, which amounted to approximately \$13.1 million, \$10.4 million and \$8.2 million for 2018, 2017 and 2016, respectively.

## P. Foreign Currency Translation

The financial statements of the Company's foreign operations are translated into U.S. dollars in accordance with FASB ASC Topic 830, *Foreign Currency Matters*. The resulting translation adjustments are recorded as a separate component of accumulated other comprehensive income.

## Q. Earnings Per Share

Basic earnings per share is calculated using the weighted average number of common shares outstanding during the period. Diluted earnings per share is calculated using the weighted average number of common shares outstanding during the period plus shares issuable upon the assumed exercise of dilutive common share options and vesting of performance-accelerated restricted shares using the treasury stock method. There are no anti-dilutive shares.

The number of shares used in the calculation of earnings per share for each year presented is as follows:

(in thousands)	2018	2017	2016
Weighted Average Shares Outstanding — Basic	25,874	25,774	25,762
Performance- Accelerated Restricted Stock	184	221	206
Shares — Diluted	26,058	25,995	25,968

## R. Share-Based Compensation

The Company provides compensation benefits to certain key employees under several share-based plans providing for employee stock options and/or performance-accelerated restricted shares (restricted shares), and to non-employee directors under a non-employee directors compensation plan. Share-based payment expense is measured at the grant date based on the fair value of the award and is recognized on a straight-line basis over the requisite service period (generally the vesting period of the award).

## S. Accumulated Other Comprehensive Loss

Accumulated other comprehensive loss of \$(31.5) million at September 30, 2018 consisted of \$(30.9) million related to the pension net actuarial loss; \$(0.5) million related to currency translation adjustments; and \$(0.1) million related to forward exchange contracts. Accumulated other comprehensive loss of \$(27.3) million at September 30, 2017 consisted of \$(28.9) million related to the pension net actuarial loss; \$1.7 million related to currency translation adjustments; and \$(0.1) million related to forward exchange contracts.

## T. Deferred Revenue and Costs

Deferred revenue and costs are recorded when products or services have been provided or cash has been received but the criteria for revenue recognition have not been met. If there is a customer acceptance provision or there is uncertainty about customer acceptance, revenue and costs are deferred until the customer has accepted the product or service.

## U. Derivative Financial Instruments

All derivative financial instruments are reported on the balance sheet at fair value. The accounting for changes in fair value of a derivative instrument depends on whether it has been designated and qualifies as a hedge and on the type of hedge. For each derivative instrument designated as a cash flow hedge, the effective portion of the gain or loss on the derivative is deferred in accumulated other comprehensive income until recognized in earnings with the underlying hedged item. For each derivative instrument designated as a fair value hedge, the gain or loss on the derivative and the

offsetting gain or loss on the hedged item are recognized immediately in earnings. Regardless of type, a fully effective hedge will result in no net earnings impact while the derivative is outstanding. To the extent that any hedge is ineffective at offsetting cash flow or fair value changes in the underlying hedged item, there could be a net earnings impact.

## **V. Fair Value Measurements**

Fair value is defined as the price at which an asset could be exchanged in a current transaction between knowledgeable, willing parties or the amount that would be paid to transfer a liability to a new obligor, not the amount that would be paid to settle the liability with the creditor. Where available, fair value is based on observable market prices or parameters or derived from such prices or parameters. Where observable prices or inputs are not available, valuation models are applied. These valuation techniques involve some level of Management estimation and judgment, the degree of which is dependent on the price transparency for the instruments or market and the instruments' complexity.

The accounting guidance establishes a three-level hierarchy for disclosure of fair value measurements, based upon the transparency of inputs to the valuation of an asset or liability as of the measurement date, as follows:

Level 1 – Inputs to the valuation methodology are quoted prices (unadjusted) for identical assets or liabilities in active markets.

Level 2 – Inputs to the valuation methodology include quoted prices for similar assets and liabilities in active markets, and inputs that are observable for the asset or liability, either directly or indirectly, for substantially the full term of the financial instrument.

Level 3 – Inputs to the valuation methodology are unobservable and significant to the fair value measurement.

### **Financial Assets and Liabilities**

The Company has estimated the fair value of its financial instruments as of September 30, 2018 using available market information or other appropriate valuation methodologies. The carrying amounts of cash and cash equivalents, receivables, inventories, payables and other current assets and liabilities approximate fair value because of the short maturity of those instruments. The carrying amounts due under the revolving credit facility approximate fair value as the interest on outstanding borrowings is calculated at a spread over the London Interbank Offered Rate (LIBOR) or based on the prime rate, at the Company's election.

### **Nonfinancial Assets and Liabilities**

The Company's nonfinancial assets such as property, plant and equipment, and other intangible assets are not measured at fair value on a recurring basis; however they are subject to fair value adjustments in certain circumstances, such as when there is evidence that an impairment may exist. No impairments were recorded during 2018.

## **W. New Accounting Standards**

### **Revenue Recognition**

In May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers*, which requires an entity to recognize the amount of revenue to which it expects to be entitled for the transfer of promised goods or services to customers. This guidance has been further clarified and amended. This new standard became effective for the Company as of October 1, 2018, and will be adopted using the modified retrospective transition method. Under this method, the Company will record the cumulative effect of adopting the new standard in the first quarter of 2019.

Because the new standard impacts the Company's business processes, systems and controls, it developed a project plan to guide the implementation. This project plan included analyzing the standard's impact on the Company's contract portfolio, comparing the Company's historical accounting policies and practices to the requirements of the new standard, and identifying differences from applying the requirements of the new standard to the Company's contracts. The Company developed internal controls to ensure that it adequately evaluated its portfolio of contracts under the five-step model to ensure proper assessment of the Company's operating results under ASU 2014-09. Management reported on the progress of the implementation to the Company's Audit Committee and the Board of Directors on a regular basis during the project's duration. The primary impact of the adoption of ASU 2014-09 on the Company's portfolio of contracts and its Consolidated Financial Statements is that more of the Company's contracts within the Filtration and Technical Packaging segments will recognize revenue and earnings over time as the work progresses versus at a single point of time.

Based on review and analysis of the Company's contracts, the standard primarily impacts the Filtration and Technical Packaging segments, which have long-term production contracts with the U.S. Government and other commercial customers. Revenue for certain of the contracts within the Filtration segment, and the majority of contracts within the Technical Packaging segment will be recognized over time primarily as: (i) services performed or products installed by the Company are for the enhancement of assets owned and controlled by the customer, (ii) customized products and services performed do not have an alternative use to the Company; and (iii) there is continuous transfer of control to the customer.

Prior to adoption of the new standard, revenue was generally recognized for these contracts as units were delivered, while under the new standard, revenue will be recognized over time, principally as costs are incurred. This change will generally result in an acceleration of revenue for these contracts. The Company determined that revenues in the Test and USG segments are expected to follow a revenue recognition pattern under the new guidance consistent with the Company's current practice. The Company identified required changes under the new guidance for the recognition of capitalization of commissions on contracts within the Company's Test segment; however, based on the review of contracts within the Test segment, changes related to this item are expected to have an inconsequential impact on the timing or amount of liabilities accrued as compared to current business practices.

At the adoption date, the impact of recognizing these revenues under the new standard for historical periods ending prior to September 30, 2018 is expected to result in a cumulative pretax transition adjustment to increase retained earnings by approximately \$5 million, related to the Filtration and Technical Packaging segments. In addition, the transition adjustment will establish contract assets of approximately \$35 million, with corresponding decreases in inventory of approximately \$30 million and in contract liabilities (deferred revenue and customer deposits) and accounts receivables, primarily reflecting the conversion of contracts to the cost-to-cost method. This change is not expected to have a significant impact on the Company's future operating results as the revenue on contracts that would have been recognized under the units-of-delivery method in future years will essentially be replaced by the acceleration of revenue on contracts into earlier periods using the cost-to-cost method. The new standard will have no impact on cash flows and does not affect the economics of the underlying customer contracts.

The Company implemented changes to its financial reporting processes, systems and controls to comply with the disclosure requirements of the new guidance including: (i) changes to balances in contract assets and contract liabilities; and (ii) disaggregation of revenues. The Company expects to change the presentation of certain financial statement accounts to align with the new standard. The most notable change will be presenting costs and estimated earnings in excess of billings as contract assets and billings in excess of costs and estimated earnings as contract liabilities. The Company will report contract balances as a net contract asset or liability position on a contract-by-contract basis at the end of each reporting period.

#### Other Standards

In January 2018, the FASB issued ASU No. 2018-02, *Income Statement – Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income*, which gives entities the option to reclassify to retained earnings the tax effects resulting from the Act related to items in accumulated other comprehensive income (loss) (AOCI) that the FASB refers to as having been stranded in AOCI. This new standard is effective for annual periods beginning after December 15, 2018. The Company adopted this ASU in the fourth quarter of 2018 and, as a result of adopting this standard, the Company reclassified \$6.3 million from AOCI to retained earnings.

In March 2017, the FASB issued ASU 2017-07, *Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost*, which updates ASC 715, *Compensation – Retirement Benefits*. This update permits only the service cost component of net periodic pension and postretirement expense to be reported with other compensation costs, while all other components are required to be reported separately in other deductions, outside any subtotal of operating income. These updates are effective for fiscal years beginning after December 15, 2017, with early adoption permitted, and must be adopted on a retrospective basis. The updates change presentation only and will not impact the Company's results of operations.

In August 2017, the FASB issued ASU 2017-12, *Targeted Improvements to Accounting for Hedge Activities*, which updates ASC 815, *Derivatives and Hedging*. This update is intended to amend the hedge accounting model to enable entities to better align the economics of risk management activities and financial reporting. The updates eliminate the requirement to separately measure and report hedge ineffectiveness and simplify hedge documentation and effectiveness assessment requirements. These updates are effective for fiscal years beginning after December 15, 2018, with early adoption permitted, and must be adopted using a modified retrospective approach. These updates are not expected to materially impact the Company's results of operations.

In January 2017, the FASB issued Accounting Standards Update (ASU) No. 2017-04, *Simplifying the Test for Goodwill Impairment* (ASU 2017-04), which eliminates Step 2 from the goodwill impairment test. Under the amendments in this update, an entity should recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value; however, the loss recognized should not exceed the total amount of goodwill allocated to that reporting unit. The new standard is effective for fiscal years beginning after December 15, 2019. Early adoption is permitted for interim or annual goodwill impairment test performed on testing dates after January 1, 2017. The Company adopted this standard in the fourth quarter of 2017 with its annual goodwill impairment tests. The adoption of ASU 2017-04 did not have an impact on the Company's consolidated financial statements.

In March 2016, the FASB issued ASU No. 2016-09, *Improvements to Employee Share-Based Payment Accounting*, which simplified the income tax consequences, accounting for forfeitures and classification on the Statements of Consolidated Cash Flows. The Company adopted this standard in 2017 resulting in the income tax expense in the third quarter and fiscal year 2017 being favorably impacted by additional tax benefits on share-based compensation that vested during the third quarter of 2017 decreasing the effective tax rate by 5.1% and 1.1%, respectively.

In February 2016, the FASB issued ASU No. 2016-062, *Leases (Topic 842)*, which, among other things, requires an entity to recognize lease assets and lease liabilities on the balance sheet and disclose key information about leasing arrangements. This standard will increase an entity's reported assets and liabilities. The new standard is effective for fiscal years beginning after December 15, 2018 and mandates a modified retrospective transition period for all entities. The Company is currently assessing the impact of this new standard on its consolidated financial statements and related disclosures.

## **2. Acquisitions**

### **2018**

On March 14, 2018, the Company acquired the assets of Manta Test Systems Inc. (Manta), a North American utility solutions provider located in Mississauga, Ontario, Canada, for a purchase price of \$9.5 million in cash. Manta has annualized sales of approximately \$8 million. Since the date of acquisition, the operating results for Manta have been included as a product line of Doble Engineering Company within the Company's USG segment. Based on the purchase price allocation, the Company recorded approximately \$0.4 million of accounts receivable, \$1.1 million of inventory, \$0.2 million of property, plant and equipment, \$0.4 million of accounts payable and accrued expenses, \$3.5 million of goodwill, \$1.2 million of tradenames and \$3.5 million of amortizable intangible assets consisting of customer relationships with a weighted average life of 13 years.

### **2017**

On August 30, 2017, the Company acquired the assets of Vanguard Instruments Company (Vanguard Instruments), a test equipment provider serving the global electric utility market, located in Ontario, California, for a purchase price of \$36.0 million in cash. Vanguard Instruments has annualized sales of approximately \$14 million. Since the date of acquisition, the operating results for Vanguard Instruments have been included as a product line of Doble within the Company's USG segment. Based on the purchase price allocation, the Company recorded approximately \$1.8 million of accounts receivable, \$2.1 million of inventory, \$0.3 million of property, plant and equipment, \$0.2 million of accounts payable and accrued expenses, \$10.7 million of goodwill, \$3.2 million of tradenames and \$18.0 million of amortizable intangible assets consisting of customer relationships with a weighted average life of 15 years.

On May 25, 2017, the Company acquired the assets of Morgan Schaffer Inc. (Morgan Schaffer), a global utilities provider located in Montreal, Quebec, Canada, for a purchase price of \$48.8 million in cash. Morgan Schaffer has annualized sales of approximately \$25 million. It designs, develops, manufactures and markets an integrated offering of dissolved gas analysis, oil testing, and data management solutions which enhance the ability of electric utilities to accurately monitor the health of critical power transformers. Since the date of acquisition, the operating results for Morgan Schaffer have been included in the Company's USG segment. Based on the purchase price allocation, the Company recorded approximately \$2.5 million of accounts receivable, \$5.2 million of inventory, \$1.7 million of property, plant and equipment, \$0.4 million of other assets, \$4.9 million of accounts payable and accrued expenses, \$4.8 million of goodwill, \$35.6 million of trade names and \$3.6 million of amortizable intangible assets consisting of customer relationships and developed technology with a weighted average life of approximately 10 years.

On May 8, 2017, the Company acquired NRG Systems, Inc. (NRG), located in Hinesburg, Vermont, for a purchase price of \$38.6 million in cash (net of cash acquired). NRG is a global market leader in the design and manufacture of decision support tools for the renewable energy industry, primarily wind. NRG has annualized sales of approximately \$45 million. Since the date of acquisition, the operating results for NRG have been included in the Company's USG

segment. Based on the purchase price allocation, the Company recorded approximately \$1.5 million of cash, \$4.1 million of accounts receivable, \$5.1 million of inventory, \$0.4 million of other assets, \$9.4 million of property, plant and equipment (including a capital lease), \$4.3 million of accounts payable and accrued expenses, \$8.9 million of long-term lease liability, \$7.5 million of goodwill, \$8.1 million of trade names and \$17.2 million of amortizable intangible assets consisting of customer relationships with a weighted average life of approximately 14 years.

On November 7, 2016, the Company acquired aerospace suppliers Mayday Manufacturing Co. (Mayday) and its affiliate, Hi-Tech Metals, Inc. (Hi-Tech), which share a state-of-the-art, expandable 130,000 square foot facility in Denton, Texas, for a purchase price of approximately \$75 million in cash. Mayday is a leading manufacturer of mission-critical bushings, pins, sleeves and precision-tolerance machined components for landing gear, rotor heads, engine mounts, flight controls and actuation systems for the aerospace and defense industry. Hi-Tech is a full-service metal processor offering aerospace OEM's and Tier 1 suppliers a large portfolio of processing services including anodizing, cadmium and zinc-nickel plating, organic coatings, non-destructive testing and heat treatment. Mayday and Hi-Tech together have annual sales of approximately \$40 million. Since the date of acquisition, the consolidated operating results for Mayday and Hi-Tech have been included in the Company's Filtration segment. Based on the purchase price allocation, the Company recorded approximately \$7.4 million of accounts receivable, \$11.0 million of inventory, \$0.3 million of other assets, \$16.6 million of property, plant and equipment (including a capital lease), \$2.8 million of accounts payable and accrued expenses, \$9.5 million of long-term lease liability, \$15.7 million of deferred tax liabilities, \$30.1 million of goodwill, \$4.8 million of trade names and \$32.8 million of amortizable identifiable intangible assets consisting primarily of customer relationships with a weighted-average life of approximately 20 years.

## **2016**

On September 2, 2016, the Company acquired the stock of Westland Technologies, Inc. (Westland), located in Modesto, California, for a purchase price of approximately \$41 million in cash (net of cash acquired). Westland is a market leader in the design, development and manufacture of elastomeric-based signature reduction solutions which enhance U.S. Naval maritime platform survivability. Westland has annual sales of approximately \$25 million. Since the date of acquisition, the operating results for Westland have been included within the Company's Filtration segment. Based on the purchase price allocation, the Company recorded tangible assets, net, of \$4.6 million, deferred tax liabilities of \$9.5 million, goodwill of \$17.3 million, and \$28.3 million of identifiable intangible assets primarily consisting of customer relationships.

On January 29, 2016, the Company acquired Plastique Limited and Plastique Sp. z o.o. (together, Plastique), headquartered in Tunbridge Wells, England with manufacturing locations in Nottingham, England and Poznan, Poland, for a purchase price of approximately \$31.6 million (of which \$2.7 million is due over the next two years, one payment in January 2018 and one in January 2019). Plastique is a market leader in the development and manufacture of highly-technical thermoformed plastic and precision molded pulp fiber packaging primarily serving pharmaceutical, personal care, and various specialty end markets. Since the date of acquisition, the operating results for Plastique have been included within the Company's Technical Packaging segment. Plastique has annual sales of approximately \$35 million. Based on the purchase price allocation, the Company recorded tangible assets, net, of \$9.6 million, goodwill of \$10.2 million, and \$11.9 million of identifiable intangible assets primarily consisting of customer relationships.

On October 16, 2015, the Company acquired the stock of Fremont Plastics, Inc. (Fremont) for a purchase price of \$10.5 million in cash. The Company also purchased for \$2 million Fremont's real property located in Fremont, Indiana. Fremont was a developer, manufacturer, promoter and seller of high quality sterile-ready and non-sterile thin gauge thermoformed medical plastic packaging products. Immediately following the closing of the transaction, Fremont was merged into TEQ, and therefore since the date of acquisition the operating results for Fremont have been included as part of TEQ.

All of the Company's acquisitions have been accounted for using the purchase method of accounting, and accordingly, the respective purchase prices were allocated to the assets (including intangible assets) acquired and liabilities assumed based on estimated fair values at the date of acquisition. The financial results from these acquisitions have been included in the Company's financial statements from the date of acquisition.

The goodwill recorded for the Mayday, Westland, Plastique and Fremont acquisitions mentioned above is not expected to be deductible for U.S. Federal or state income tax purposes. The goodwill recorded for the Vanguard Instruments and NRG acquisitions mentioned above is expected to be deductible for U.S. Federal and state income tax purposes. The goodwill recorded for the Manta and Morgan Schaffer acquisitions is expected to be deductible for Canadian income tax purposes.

### 3. Goodwill and Other Intangible Assets

Included on the Company's Consolidated Balance Sheets at September 30, 2018 and 2017 are the following intangible assets gross carrying amounts and accumulated amortization:

(Dollars in millions)	2018	2017
<b>Goodwill</b>	<b>\$ 381.7</b>	<b>377.9</b>
Intangible assets with determinable lives:		
Patents		
Gross carrying amount	\$ 1.8	1.0
Less: accumulated amortization	0.8	0.8
Net	<u>\$ 1.0</u>	<u>0.2</u>
Capitalized software		
Gross carrying amount	\$ 71.3	63.0
Less: accumulated amortization	41.6	34.4
Net	<u>\$ 29.7</u>	<u>28.6</u>
Customer Relationships		
Gross carrying amount	\$ 185.3	181.9
Less: accumulated amortization	47.8	37.4
Net	<u>\$ 137.5</u>	<u>144.5</u>
Other		
Gross carrying amount	\$ 5.5	5.4
Less: accumulated amortization	2.0	1.4
Net	<u>\$ 3.5</u>	<u>4.0</u>
Intangible assets with indefinite lives:		
Trade names	<u>\$ 173.7</u>	<u>173.8</u>

The Company performed its annual evaluation of goodwill and intangible assets for impairment during the fourth quarter of 2018 and concluded no impairment existed at September 30, 2018 and there are no accumulated impairment losses as of September 30, 2018.

The changes in the carrying amount of goodwill attributable to each business segment for 2018 and 2017 are as follows:

(Dollars in millions)	Filtration	Test	USG	Technical Packaging	Total
Balance as of September 30, 2016	\$ 43.9	34.1	226.2	19.4	323.6
Acquisition activity	29.8	-	23.6	-	53.4
Foreign currency translation and other	-	-	0.4	0.5	0.9
Balance as of September 30, 2017	<u>73.7</u>	<u>34.1</u>	<u>250.2</u>	<u>19.9</u>	<u>377.9</u>
Acquisition activity	-	-	3.9	-	3.9
Foreign currency translation and other	-	-	-	(0.1)	(0.1)
Balance as of September 30, 2018	<u>\$ 73.7</u>	<u>34.1</u>	<u>254.1</u>	<u>19.8</u>	<u>381.7</u>

Amortization expense related to intangible assets with determinable lives was \$18.3 million, \$16.3 million and \$11.6 million in 2018, 2017 and 2016, respectively. Patents are amortized over the life of the patents, generally 17 years. Capitalized software is amortized over the estimated useful life of the software, generally three to seven years. Customer relationships are generally amortized over fifteen to twenty years. Intangible asset amortization for fiscal years 2019 through 2023 is estimated at approximately \$19 million per year.

#### 4. Accounts Receivable

Accounts receivable, net of the allowance for doubtful accounts, consist of the following at September 30, 2018 and 2017:

(Dollars in thousands)	2018	2017
Commercial	\$ 146,049	152,265
U.S. Government and prime contractors	17,691	8,315
Total	<u>\$ 163,740</u>	<u>160,580</u>

#### 5. Inventories, Net

Inventories consist of the following at September 30, 2018 and 2017:

(Dollars in thousands)	2018	2017
Finished goods	\$ 26,678	28,127
Work in process	47,765	43,750
Raw materials	60,973	52,638
Total	<u>\$ 135,416</u>	<u>124,515</u>

#### 6. Related Parties

One of the Company's directors is an officer at a customer of the Company's subsidiary Doble. Doble sells products, rents equipment and provides testing services to the customer in the ordinary course of Doble's business. The total amount of these sales were approximately \$2.1 million, \$3.6 million and \$1.4 million during fiscal 2018, 2017 and 2016, respectively. All transactions between Doble and the customer are intended to be and have been consistent with Doble's normal commercial terms offered to its customers, and the Company's Board of Directors has determined that the relationship between the Company and the customer is not material and did not impair either the Company's or the director's independence.

#### 7. Income Tax Expense

The components of income before income taxes for 2018, 2017 and 2016 consisted of the following:

(Dollars in thousands)	2018	2017	2016
United States	\$ 80,994	72,353	62,353
Foreign	7,029	7,800	6,067
Total income before income taxes	<u>\$ 88,023</u>	<u>80,153</u>	<u>68,420</u>

The principal components of income tax expense (benefit) for 2018, 2017 and 2016 consist of:

(Dollars in thousands)	2018	2017	2016
Federal:			
Current	\$ 9,174	21,448	19,236
Deferred	(22,943)	628	(909)
State and local:			
Current	2,121	1,795	1,674
Deferred	2,972	(49)	(222)
Foreign:			
Current	2,233	4,450	1,899
Deferred	2,330	(1,822)	860
Total	<u>\$ (4,113)</u>	<u>26,450</u>	<u>22,538</u>

The actual income tax expense (benefit) for 2018, 2017 and 2016 differs from the expected tax expense for those years (computed by applying the U.S. Federal corporate statutory rate) as follows:

	2018	2017	2016
Federal corporate statutory rate	24.5%	35.0%	35.0%
State and local, net of Federal benefits	3.0	2.4	2.0
Foreign	0.6	(0.1)	(1.0)
Research credit	(1.6)	(1.1)	(2.5)
Domestic production deduction	(1.1)	(2.7)	(2.8)
Change in uncertain tax positions	(0.1)	-	-
Executive compensation	(0.1)	(0.1)	0.9
Valuation allowance	3.0	(0.3)	1.8
Tax reform – impact on U.S. deferred tax assets and liabilities	(37.2)	-	-
Tax reform – transition tax	1.5	-	-
Tax reform – taxes related to foreign unremitted earnings	2.8	-	-
Other, net	-	(0.1)	(0.5)
Effective income tax rate	<u>(4.7)%</u>	<u>33.0%</u>	<u>32.9%</u>

On December 22, 2017, President Trump signed into law new tax legislation commonly referred to as the Tax Cut and Jobs Act (the “TCJA”). The TCJA includes broad and complex changes to the U.S. tax code that impacted the Company’s accounting and reporting for income taxes in the current year. These impacts primarily consist of the following:

- A reduction in the U.S. federal corporate income tax rate from 35% to 21%, effective January 1, 2018, which resulted in a fiscal 2018 U.S. blended statutory income tax rate for the Company of 24.5%.
- A remeasurement of U.S. deferred tax assets and liabilities.
- A one-time mandatory deemed repatriation tax on unremitted foreign earnings (the “Transition Tax”), which may be paid over an eight-year period.

Staff Accounting Bulletin No. 118 (SAB 118) was issued by the SEC effective December 22, 2017. SAB 118 allows registrants to record provisional amounts of the income tax effects of the TCJA where the information necessary to complete the accounting under ASC Topic 740 is not available but the amounts are based on reasonable estimates. SAB 118 permits registrants to record adjustments to its provisional amounts during the measurement period (which cannot exceed one year).

The statutory tax rate reduction of the TCJA reduced U.S. net deferred tax liabilities by \$30.7 million. An additional \$1.0 million benefit was recorded as a result of a \$7.5 million pension contribution approved during the second quarter of 2018. In addition, a tax accounting method change was filed in the third quarter of 2018 which resulted in an additional favorable deferred tax liability adjustment of \$1.0 million. The remeasurement of U.S. net deferred tax liabilities is complete as of September 30, 2018.

The Company recorded a provisional charge for the Transition Tax of \$3.7 million for the year ended September 30, 2018. Certain technical aspects of the TCJA remain subject to varying degrees of uncertainty and the Company has therefore made interpretations of the enacted legislation in its provisional income tax computations based upon the best available guidance while it awaits expected technical guidance and clarification from the U.S. government. One such calculation requiring further guidance is the possible unintended benefit of the application of new Section 245A (dividend received deduction) as it relates to the Transition Tax for fiscal year companies. The Company believes there is insufficient clarity and significant uncertainty with respect to this issue as of September 30, 2018 and, therefore, has decided not to reduce its Transitional Tax provisional charge for the possible benefit at this time.

In addition, as a result of the Transition Tax, the Company recorded a charge of \$2.4 million related to foreign withholding taxes in connection with the reversal of its indefinite reinvestment assertion related to cumulative undistributed foreign earnings as of December 31, 2017. This charge is complete as of September 30, 2018.

There are other impacts under the TCJA that are not effective for the Company until fiscal 2019. These primarily include a further reduction in the U.S. statutory rate to 21%, a new minimum tax on global intangible low-taxed income (“GILTI”) and the benefit of the deduction for Foreign-Derived Intangible Income (“FDII”). With respect to the new GILTI provision, U.S. GAAP allows companies to make an accounting policy election and record taxes as a period cost as incurred or factor such amounts in the measurement of deferred taxes. The Company has made an accounting policy election to record these taxes as a period cost.

The tax effects of temporary differences that give rise to significant portions of the deferred tax assets and liabilities at September 30, 2018 and 2017 are presented below:



(Dollars in thousands)	2018	2017
Deferred tax assets:		
Inventories	\$ 5,834	9,639
Pension and other postretirement benefits	3,969	11,345
Net operating and capital loss carryforwards — domestic	639	501
Net operating loss carryforward — foreign	4,603	4,486
Foreign tax credit carryforward	2,377	—
Other compensation-related costs and other cost accruals	7,048	12,104
State credit carryforward	2,103	2,098
Total deferred tax assets	<u>26,573</u>	<u>40,173</u>
Deferred tax liabilities:		
Goodwill	(969)	(4,874)
Acquisition assets	(62,841)	(91,752)
Depreciation, software amortization	(19,584)	(24,092)
Net deferred tax liabilities before valuation allowance	<u>(56,821)</u>	<u>(80,545)</u>
Less valuation allowance	(7,144)	(4,440)
Net deferred tax liabilities	<u>\$ (63,965)</u>	<u>(84,985)</u>

The Company has a foreign net operating loss (NOL) carryforward of \$19.0 million at September 30, 2018, which reflects tax loss carryforwards in Germany, India, Finland, China, South Africa, Japan, Canada and the United Kingdom. \$16.7 million of the tax loss carryforwards have no expiration date while the remaining \$2.3 million will expire between 2019 and 2027. The Company has deferred tax assets related to state NOL carryforwards of \$0.6 million at September 30, 2018 which expire between 2025 and 2038. The Company also has net state research and other credit carryforwards of \$2.1 million of which \$1.7 million expires between 2025 and 2037. The remaining \$0.4 million does not have an expiration date.

The valuation allowance for deferred tax assets as of September 30, 2018 and 2017 was \$7.1 million and \$4.4 million, respectively. The net change in the total valuation allowance for each of the years ended September 30, 2018 and 2017 was an increase of \$2.7 million and a decrease of \$1.3 million, respectively. In 2018 the Company established a valuation allowance for excess foreign tax credits that are not expected to be utilized in future periods of \$2.4 million at September 30, 2018. The Company has established a valuation allowance against state credit carryforwards of \$0.4 million at both September 30, 2018 and 2017. In addition, the Company has established a valuation allowance against state NOL carryforwards that are not expected to be realized in future periods of \$0.6 million and \$0.4 million at September 30, 2018 and 2017, respectively. Lastly, the Company has established a valuation allowance against certain NOL carryforwards in foreign jurisdictions which may not be realized in future periods of \$3.8 million and \$3.7 million at September 30, 2018 and 2017, respectively.

The Company's subsidiary ETS-Lindgren Oy, Finland, has recorded a deferred tax asset of \$0.2 million reflecting the benefit of \$2.2 million in loss carryforwards, which expires in 2027. Realization is dependent on generating sufficient taxable income prior to expiration of the loss carryforwards. Although realization is not assured, Management believes it is more likely than not that all of the deferred tax asset will be realized. The amount of the deferred tax asset considered realizable, however, could be reduced in the near term if estimates of future taxable income during the carryforward period are reduced.

The Company's foreign subsidiaries have accumulated unremitted earnings of \$3.5 million at September 30, 2018. No deferred taxes have been provided on these accumulated unremitted earnings because these funds are not needed to meet the liquidity requirements of the Company's U.S. operations and it is the Company's intention to indefinitely reinvest these earnings in continuing international operations. In the event these foreign entities' earnings were distributed, it is estimated that approximately \$0.3 million of foreign tax withholding would be paid. The Company does not expect that these taxes would be creditable against U.S. income tax, so they would correspondingly reduce the Company's net earnings. No significant portion of the Company's foreign subsidiaries' earnings was taxed at a very low tax rate.

The Company had \$0.1 million of unrecognized tax benefits as of both September 30, 2018 and 2017, which, if recognized, would affect the Company's effective tax rate. The Company expects \$0.1 million of unrecognized tax benefits to reverse in the next twelve months. The Company's policy is to include interest related to unrecognized tax benefits in income tax expense and penalties in operating expense. As of September 30, 2018, 2017 and 2016, the Company had zero accrued interest related to uncertain tax positions on its Consolidated Balance Sheets. No significant penalties have been accrued.

The principal jurisdictions for which the Company files income tax returns are U.S. Federal and the various city, state, and international locations where the Company has operations. The U.S. Federal tax years for the periods ended September 30, 2015 and forward remain subject to income tax examination. Various state tax years for the periods ended September 30, 2014 and forward remain subject to income tax examinations. The Company is subject to income tax in many jurisdictions outside the United States, none of which is individually significant.

## 8. Debt

Debt consists of the following at September 30, 2018 and 2017:

(Dollars in thousands)	2018	2017
Revolving credit facility, including current portion	\$ 220,000	275,000
Current portion of long-term debt	(20,000)	(20,000)
Total long-term debt, less current portion	\$ 200,000	255,000

The Company's existing credit facility ("the Credit Facility") matures December 21, 2020. The Credit Facility includes a \$450 million revolving line of credit as well as provisions allowing for the increase of the credit facility commitment amount by an additional \$250 million, if necessary, with the consent of the lenders. The bank syndication supporting the facility is comprised of a diverse group of nine banks led by JP Morgan Chase Bank, N.A., as Administrative Agent.

At September 30, 2018, the Company had approximately \$204 million available to borrow under the Credit Facility, plus the \$250 million increase option, in addition to \$30.5 million cash on hand. The Company classified \$20 million as the current portion of long-term debt as of September 30, 2018, as the Company intends to repay this amount within the next twelve months; however, the Company has no contractual obligation to repay such amount during the next twelve months.

The Credit Facility requires, as determined by certain financial ratios, a facility fee ranging from 12.5 to 27.5 basis points per annum on the unused portion. The terms of the facility provide that interest on borrowings may be calculated at a spread over the London Interbank Offered Rate (LIBOR) or based on the prime rate, at the Company's election. The facility is secured by the unlimited guaranty of the Company's material domestic subsidiaries and a 65% pledge of its material foreign subsidiaries' share equity. The financial covenants of the Credit Facility include a leverage ratio and an interest coverage ratio. As of September 30, 2018, the Company was in compliance with all bank covenants.

During 2018 and 2017, the maximum aggregate short-term borrowings at any month-end were \$271 million and \$298 million, respectively, and the average aggregate short-term borrowings outstanding based on month-end balances were \$258.8 million and \$211.3 million, respectively. The weighted average interest rates were 3.03%, 2.09% and 1.58% for 2018, 2017 and 2016, respectively. The letters of credit issued and outstanding under the Credit Facility totaled \$7.8 million and \$9.7 million at September 30, 2018 and 2017, respectively.

## 9. Capital Stock

The 30,534,786 and 30,468,824 common shares as presented in the accompanying Consolidated Balance Sheets at September 30, 2018 and 2017 represent the actual number of shares issued at the respective dates. The Company held 4,623,958 and 4,635,622 common shares in treasury at September 30, 2018 and 2017, respectively.

In August 2012, the Company's Board of Directors authorized a common stock repurchase program under which the Company may repurchase shares of its stock from time to time in its discretion, in the open market or otherwise, up to a maximum total repurchase amount of \$100 million (or such lesser amount as may be permitted under the Company's bank credit agreements). This program has been repeatedly extended by the Company's Board of Directors and is currently scheduled to expire September 30, 2019. There were no share repurchases in 2018 or 2017. The Company repurchased approximately 120,000 shares for \$4.3 million in 2016.

## 10. Share-Based Compensation

The Company provides compensation benefits to certain key employees under several share-based plans providing for performance-accelerated restricted share unit (PARS) awards, and to non-employee directors under a non-employee directors compensation plan. The Company has no stock options currently outstanding. As of September 30, 2018, the Company had 947,377 shares available for future issuance under equity compensation plans.

### **Performance-Accelerated Restricted Share Unit (PARS) Awards**

A PARS award represents the right to receive a specified number of shares of Company common stock if and when the award vests. A PARS award is not stock and does not give the recipient any rights as a shareholder until it vests and is paid out in shares of stock. PARS awards currently outstanding have a five-year vesting period, with accelerated vesting if certain targets based on market conditions are achieved. In these cases, if it is probable that the performance condition will be met, the Company recognizes compensation cost on a straight-line basis over the shorter performance period; otherwise, it will recognize compensation cost over the longer service period.

Compensation cost for the outstanding PARS awards is being recognized over the shorter performance period, as it is probable the performance condition will be met. The PARS award grants were valued at the stock price on the date of grant. Pretax compensation expense related to the PARS awards for continuing operations was \$4.1 million, \$4.4 million and \$3.9 million for 2018, 2017 and 2016, respectively.

The following summary presents information regarding outstanding PARS awards as of the specified dates, and changes during the specified periods:

	FY 2018		FY 2017		FY 2016	
	Shares	Estimated Weighted Avg. Price	Shares	Estimated Weighted Avg. Price	Shares	Estimated Weighted Avg. Price
Nonvested at October 1,	335,825	40.35	427,438	\$ 35.40	326,536	\$ 35.29
Granted	104,320	56.06	110,422	51.16	120,902	35.75
Vested	(121,301)	35.59	(202,035)	35.78	(8,000)	36.06
Cancelled	(3,300)	53.86	–	–	(12,000)	35.47
Nonvested at September 30,	315,544	47.23	335,825	\$ 40.35	427,438	\$ 35.40

### **Non-Employee Directors Plan**

Through the first quarter of 2018 the non-employee directors compensation plan provided to each non-employee director a retainer of 900 common shares per quarter. Beginning in the second quarter of 2018, the quarterly retainer was replaced by an annual retainer of Company stock having a grant date market value of \$180,000. Non-employee director grants were valued at the NYSE closing price of the Company's stock on the date of grant and were issued from the Company's treasury stock. Compensation expense related to the non-employee director grants was \$1.1 million, \$1.0 million and \$0.8 million for 2018, 2017 and 2016, respectively.

### **Total Share-Based Compensation**

The total share-based compensation cost that has been recognized in results of operations and included within SG&A from continuing operations was \$5.2 million, \$5.4 million and \$4.7 million for 2018, 2017 and 2016, respectively. The total income tax benefit recognized in results of operations for share-based compensation arrangements was \$1.3 million, \$1.8 million and \$1.3 million for 2018, 2017 and 2016, respectively. As of September 30, 2018, there was \$7.8 million of total unrecognized compensation cost related to share-based compensation arrangements. That cost is expected to be recognized over a weighted-average period of 1.7 years.

## **11. Retirement and Other Benefit Plans**

Formerly, substantially all domestic employees were covered by a defined contribution pension plan maintained by the Company. Effective December 31, 2003, the Company's defined benefit plan was frozen and no additional benefits have been accrued after that date. As a result, the accumulated benefit obligation and projected benefit obligation are equal. These frozen retirement income benefits are provided to employees under defined benefit pay-related and flat-dollar plans, which are noncontributory. The annual contributions to the defined benefit retirement plan equal or exceed the minimum funding requirements of the Employee Retirement Income Security Act. In addition to providing retirement income benefits, the Company provides unfunded postretirement health and life insurance benefits to certain retirees. To qualify, an employee must retire at age 55 or later and the employee's age plus service must equal or exceed 75. Retiree contributions are defined as a percentage of medical premiums. Consequently, retiree contributions increase with increases in the medical premiums. The life insurance plans are noncontributory and provide coverage of a flat dollar amount for qualifying retired employees. Effective December 31, 2004, no new retirees were eligible for life insurance benefits.

The Company uses a measurement date of September 30 for its pension and other postretirement benefit plans. The Company has an accrued benefit liability of \$0.5 million and \$0.6 million at September 30, 2018 and 2017,

respectively, related to its other postretirement benefit obligations. All other information related to its postretirement benefit plans is not considered material to the Company's results of operations or financial condition.

The following tables provide a reconciliation of the changes in the pension plans and fair value of assets over the two-year period ended September 30, 2018, and a statement of the funded status as of September 30, 2018 and 2017:

(Dollars in millions)

<b>Reconciliation of benefit obligation</b>	<b>2018</b>	<b>2017</b>
Net benefit obligation at beginning of year	\$ 95.3	100.6
Interest cost	3.4	3.2
Actuarial (gain) loss	(4.3)	(4.1)
Gross benefits paid	(4.6)	(4.4)
Settlements	—	—
Net benefit obligation at end of year	\$ 89.8	95.3

(Dollars in millions)

<b>Reconciliation of fair value of plan assets</b>	<b>2018</b>	<b>2017</b>
Fair value of plan assets at beginning of year	\$ 65.0	60.6
Actual return on plan assets	2.7	5.9
Employer contributions	10.2	2.9
Gross benefits paid	(4.6)	(4.4)
Settlements	—	—
Fair value of plan assets at end of year	\$ 73.3	65.0

(Dollars in millions)

<b>Funded Status</b>	<b>2018</b>	<b>2017</b>
Funded status at end of year	\$ (16.5)	(30.3)
Accrued benefit cost	(16.5)	(30.3)

Amounts recognized in the Balance Sheet consist of:

Current liability	(0.2)	(0.2)
Noncurrent liability	(16.3)	(30.1)
Accumulated other comprehensive (income)/loss (before tax effect)	41.9	47.4

Amounts recognized in accumulated other comprehensive (income)/loss consist of:

Net actuarial loss	41.9	47.4
Accumulated other comprehensive (income)/loss (before tax effect)	\$ 41.9	47.4

The estimated amount that will be amortized from accumulated other comprehensive (income) loss into net periodic benefit cost (income) in 2019 is \$2.1 million.

The following table provides the components of net periodic benefit cost for the plans for 2018, 2017 and 2016:

(Dollars in millions)	<b>2018</b>	<b>2017</b>	<b>2016</b>
Service cost	\$ —	—	—
Interest cost	3.4	3.2	3.9
Expected return on plan assets	(3.8)	(3.9)	(4.4)
Net actuarial loss	2.3	2.6	2.0
Net periodic benefit cost	1.9	1.9	1.5
Defined contribution plans	7.1	6.3	5.2
Total	\$ 9.0	8.2	6.7

The discount rate used in measuring the Company's pension obligations was developed by matching yields of actual high-quality corporate bonds to expected future pension plan cash flows (benefit payments). Over 400 Aa-rated, non-callable bonds with a wide range of maturities were used in the analysis. After using the bond yields to determine the present value of the plan cash flows, a single representative rate that resulted in the same present value was developed. The expected long-term rate of return on plan assets assumption was determined by reviewing the actual investment

return of the plans since inception and evaluating those returns in relation to expectations of various investment organizations to determine whether long-term future returns are expected to differ significantly from the past.

The following weighted-average assumptions were used to determine the net periodic benefit cost for the pension plans:

	<u>2018</u>	<u>2017</u>	<u>2016</u>
Discount rate	3.65%	3.25%	4.25%
Rate of increase in compensation levels	N/A	N/A	N/A
Expected long-term rate of return on assets	6.00%	6.25%	6.75%

The following weighted-average assumptions were used to determine the net periodic benefit obligations for the pension plans:

	<u>2018</u>	<u>2017</u>
Discount rate	4.15%	3.65%
Rate of increase in compensation levels	N/A	N/A

The assumed rate of increase in compensation levels is not applicable in 2018, 2017 and 2016 as the plan was frozen in earlier years.

The asset allocation for the Company's pension plans at the end of 2018 and 2017, and the Company's acceptable range and the target allocation for 2019, by asset category, are as follows:

<u>Asset Category</u>	Target Allocation 2019	Acceptable Range	Percentage of Plan Assets at Year-end	
			2018	2017
Return seeking	37%	39%-47%	44%	62%
Liability hedging	63%	53%-61%	54%	35%
Cash/cash equivalents	-	0%-5%	2%	3%

The Company's pension plan assets are managed by outside investment managers and assets are rebalanced when the target ranges are exceeded. Pension plan assets consist principally of funds which invest in marketable securities including common stocks, bonds, and interest-bearing deposits. The Company's investment strategy with respect to pension assets is to achieve a total rate of return (income and capital appreciation) that is sufficient to accomplish the purpose of providing retirement benefits to all eligible and future retirees of the pension plan. The Company regularly monitors performance and compliance with investment guidelines.

#### **Fair Value of Financial Measurements**

The fair values of the Company's defined benefit plan investments as of September 30, 2018 and 2017, by asset category, were as follows:

<u>(Dollars in millions)</u>	<u>2018</u>	<u>2017</u>
Investments at fair value:		
Cash and cash equivalents	\$ 2.1	1.9
Common and preferred stock funds:		
Domestic large capitalization	8.7	10.6
Domestic small-/mid-capitalization	2.7	3.3
International funds	10.8	14.3
Fixed income funds	45.6	30.7
Real estate investment funds	3.4	4.2
Total investments at fair value	<u>\$ 73.3</u>	<u>65.0</u>

The following methods were used to estimate the fair value of each class of financial instrument:

**Cash and cash equivalents:** The carrying value of cash represents fair value as it consists of actual currency.

**Investment Funds:** The fair value of the investment funds, which offer daily redemptions, is determined based on the published net asset value of the funds as a practical expedient for fair value.

### **Expected Cash Flows**

Information about the expected cash flows for the pension and other postretirement benefit plans follows:

(Dollars in millions)	Pension Benefits	Other Benefits
Expected Employer Contributions — 2019	\$ 1.0	0.1
Expected Benefit Payments:		
2019	5.1	0.1
2020	5.8	0.1
2021	5.5	0.1
2022	5.7	0.1
2023	5.8	0.1
2024-2028	\$ 30.0	0.2

### **12. Derivative Financial Instruments**

Market risks relating to the Company's operations result primarily from changes in interest rates and changes in foreign currency exchange rates. The Company is exposed to market risk related to changes in interest rates and selectively uses derivative financial instruments, including forward contracts and swaps, to manage these risks. During 2016, the Company entered into forward contracts to purchase pounds sterling (GBP) to hedge two deferred payments due in connection with the acquisition of Plastique. During 2018, the Company entered into three interest rate swaps with a notional amount of \$150 million to hedge its exposure to variability in future LIBOR-based interest payments on variable rate debt. In addition, the Company's Canadian subsidiary Morgan Schaffer enters into foreign exchange contracts to manage foreign currency risk as a portion of their revenue is denominated in U.S. dollars. The Company expects hedging gains or losses to be essentially offset by losses or gains on the related underlying exposures. The amounts ultimately recognized may differ for open positions, which remain subject to ongoing market price fluctuations until settlement. All derivative instruments are reported in either accrued expenses or other assets on the balance sheet at fair value. For derivative instruments designated as cash flow hedges, the gain or loss on the derivative is deferred in accumulated other comprehensive income until recognized in earnings with the underlying hedged item. The interest rate swaps entered into during 2018 were not designated as cash flow hedges and, therefore, the gain or loss on the derivative is reflected in earnings each period. The following is a summary of the notional transaction amounts and fair values for the Company's outstanding derivative financial instruments as of September 30, 2018.

(In thousands)	Notional Amount (Currency)	Fair Value (US\$)	Float Rate	Fix Rate
Forward contracts	700 GBP	(94)		
Forward contracts	9,500 USD	(17)		
Forward contracts	200 EUR	6		
Interest rate swap	150,000 USD	94	2.18%	1.80%
Interest rate swap *	150,000 USD	913	N/A	2.09%
Interest rate swap **	150,000 USD	1,235	N/A	2.24%

\* This swap represents a forward contract and will be effective in November 2018.

\*\* This swap represents a forward contract and will be effective in November 2019.

### **Fair Value of Financial Instruments**

The Company's forward contracts are classified within Level 2 of the valuation hierarchy in accordance with FASB Accounting Standards Codification (ASC) 825, as presented below as of September 30, 2018:

(In thousands)	Level 1	Level 2	Level 3	Total
Asset:				
Forward contracts	\$ -	2,137	-	2,137

Valuation was based on third party evidence of similarly priced derivative instruments. There are no master netting arrangements with financial parties.

### 13. Business Segment Information

The Company is organized based on the products and services it offers, and classifies its business operations in segments for financial reporting purposes. Currently, the Company has four reporting segments: Filtration/Fluid Flow (Filtration), RF Shielding and Test (Test), Utility Solutions Group (USG) and Technical Packaging.

The Filtration segment's operations consist of PTI Technologies Inc. (PTI), VACCO Industries (VACCO), Crissair, Inc. (Crissair), Mayday Manufacturing Co. (Mayday), Hi-Tech Metals, Inc. (Hi-Tech) and Westland Technologies, Inc. (Westland). PTI, VACCO and Crissair design and manufacture specialty filtration products, including hydraulic filter elements and fluid control devices used in commercial aerospace applications, unique filter mechanisms used in micro-propulsion devices for satellites and custom designed filters for manned aircraft and submarines. Mayday designs and manufactures mission-critical bushings, pins, sleeves and precision-tolerance machined components for landing gear, rotor heads, engine mounts, flight controls, and actuation systems for the aerospace and defense industries. Hi-Tech is a full-service metal processor offering aerospace OEM's and Tier 1 suppliers, a large portfolio of processing services including anodizing, cadmium and zinc-nickel plating, organic coatings, non-destructive testing, and heat treatment. Westland designs, develops and manufactures elastomeric-based signature reduction solutions for U.S. naval vessels.

The Test segment's operations consist of ETS-Lindgren Inc. and related subsidiaries (ETS-Lindgren). ETS-Lindgren is an industry leader in providing its customers with the ability to identify, measure and contain magnetic, electromagnetic and acoustic energy. ETS-Lindgren also manufactures radio frequency shielding products and components used by manufacturers of medical equipment, communications systems, electronic products, and shielded rooms for high-security data processing and secure communication.

The USG segment's operations consist of Doble Engineering Company and related subsidiaries (Doble), Morgan Schaffer Ltd. (Morgan Schaffer), and NRG Systems, Inc. (NRG). Doble provides high-end, intelligent diagnostic test solutions for the electric power delivery industry and is a leading supplier of power factor and partial discharge testing instruments used to assess the integrity of high-voltage power delivery equipment. Morgan Schaffer provides an integrated offering of dissolved gas analysis, oil testing, and data management solutions which enhance the ability of electric utilities to accurately monitor the health of critical power transformers. NRG designs and manufactures decision support tools for the renewable energy industry, primarily wind.

The Technical Packaging segment's operations consist of Thermoform Engineered Quality LLC (TEQ) and Plastique. The companies within this segment provide innovative solutions to the medical and commercial markets for thermoformed and precision molded pulp fiber packages and specialty products using a wide variety of thin gauge plastics and pulp.

Accounting policies of the segments are the same as those described in the summary of significant accounting policies in Note 1 to the Consolidated Financial Statements. The operating units within each reporting segment have been aggregated because of similar economic characteristics and meet the other aggregation criteria of FASB ASC 280.

The Company evaluates the performance of its operating units based on EBIT, which is defined as earnings before interest and taxes. EBIT on a consolidated basis is a non-GAAP financial measure; see "Non-GAAP Financial Measures" in Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations." Intersegment sales and transfers are not significant. Segment assets consist primarily of customer receivables, inventories, capitalized software and fixed assets directly associated with the production processes of the segment. Segment depreciation and amortization is based upon the direct assets listed above.

#### **Net Sales**

(Dollars in millions)

Year ended September 30,	2018	2017	2016
Filtration	\$ 286.8	279.5	207.8
Test	182.9	160.9	161.5
USG	214.0	162.4	127.8
Technical Packaging	87.9	82.9	74.4
Consolidated totals	\$ 771.6	685.7	571.5

No customer exceeded 10% of sales in 2018 or 2017.

**EBIT**

(Dollars in millions)

Year ended September 30,	2018	2017	2016
Filtration	\$ 58.7	52.2	45.2
Test	23.8	19.5	13.9
USG	43.2	36.6	31.1
Technical Packaging	8.1	8.5	9.6
Reconciliation to consolidated totals (Corporate)	(37.0)	(32.1)	(30.1)
Consolidated EBIT	96.8	84.7	69.7
Less: interest expense	(8.8)	(4.6)	(1.3)
Earnings before income tax	\$ 88.0	80.1	68.4

**Identifiable Assets**

(Dollars in millions)

Year ended September 30,	2018	2017	
Filtration	\$ 204.7	194.2	
Test	138.3	132.2	
USG	176.9	175.5	
Technical Packaging	50.9	47.1	
Corporate – Goodwill	381.7	377.9	
Corporate – Other assets	312.6	333.5	
Consolidated totals	\$ 1,265.1	1,260.4	

Corporate assets consist primarily of goodwill, deferred taxes, acquired intangible assets and cash balances.

**Capital Expenditures**

(Dollars in millions)

Year ended September 30,	2018	2017	2016
Filtration	\$ 7.0	10.2	3.3
Test	3.0	4.5	3.3
USG	5.2	7.6	3.3
Technical Packaging	5.4	7.4	3.9
Corporate	–	–	–
Consolidated totals	\$ 20.6	29.7	13.8

In addition to the above amounts, the Company incurred expenditures for capitalized software of \$9.5 million, \$9.0 million and \$8.7 million in 2018, 2017 and 2016, respectively.

**Depreciation and Amortization**

(Dollars in millions)

Year ended September 30,	2018	2017	2016
Filtration	\$ 7.6	6.6	4.0
Test	4.5	3.6	3.6
USG	11.0	9.8	8.1
Technical Packaging	4.1	3.5	2.9
Corporate	10.6	8.7	5.0
Consolidated totals	\$ 37.8	32.2	23.6

Depreciation expense of property, plant and equipment was \$19.4 million, \$15.9 million and \$11.9 million for 2018, 2017 and 2016, respectively.



## **Geographic Information**

### **Net Sales**

(Dollars in millions)

Year ended September 30,	2018	2017	2016
United States	\$ 536.7	503.1	403.6
Asia	94.5	69.8	68.1
Europe	85.0	75.4	71.6
Canada	30.3	22.2	12.9
India	9.4	4.8	2.9
Other	15.7	10.4	12.4
Consolidated totals	\$ 771.6	685.7	571.5

### **Long-Lived Assets**

(Dollars in millions)

Year ended September 30,	2018	2017
United States	\$ 113.2	111.5
Europe	17.1	16.8
Other	4.7	4.4
Consolidated totals	\$ 135.0	132.7

Net sales are attributed to countries based on location of customer. Long-lived assets are attributed to countries based on location of the asset.

## **14. Commitments and Contingencies**

The Company leases certain real property, equipment and machinery under non-cancelable operating leases. Rental expense under these operating leases was \$6.9 million, \$6.8 million and \$6.0 million for 2018, 2017 and 2016, respectively. Future aggregate minimum lease payments under operating leases that have initial or remaining non-cancelable lease terms in excess of one year as of September 30, 2018, are:

(Dollars in thousands)

Years ending September 30:

2019	\$ 6,702
2020	5,428
2021	3,540
2022	2,822
2023 and thereafter	3,467
Total	\$ 21,959

At September 30, 2018, the Company had \$7.8 million in letters of credit outstanding as guarantees of contract performance. As a normal incident of the businesses in which the Company is engaged, various claims, charges and litigation are asserted or commenced from time to time against the Company. Additionally, the Company is currently involved in various stages of investigation and remediation relating to environmental matters. It is the opinion of Management that the aggregate costs involved in the resolution of these matters, and final judgments, if any, which might be rendered against the Company are adequately accrued, are covered by insurance or are not likely to have a material adverse effect on the Company's results from continuing operations, capital expenditures or competitive position.

## **15. Capital Leases**

The Company leases certain real property, equipment and machinery under capital leases, primarily associated with the 2017 acquisitions of NRG and Mayday. The facility leases expire in 2029 and the machinery leases expire in 2020. As of September 30, 2018, the net carrying value and accumulated depreciation of the assets under capital leases recorded by the Company were \$14.9 million and \$2.0 million, respectively. Capital lease obligations are included within other long-term liabilities (long-term portion) and accrued other expenses (current portion). Remaining payments due on the Company's capital lease obligations as of September 30, 2018, are:

(Dollars in thousands)  
 Years ending September 30:

2019	\$ 1,922
2020	1,917
2021	1,859
2022	1,900
2023 and thereafter	<u>14,077</u>
Total minimum lease payments	21,675
Less: amounts representing interest	<u>3,514</u>
Present value of net minimum lease payments	18,161
Current portion of capital lease obligations	1,346
Non-current portion of capital lease obligations	<u>\$ 16,815</u>

## 16. Quarterly Financial Information (Unaudited)

(Dollars in thousands, except per share amounts)	<u>First Quarter</u>	<u>Second Quarter</u>	<u>Third Quarter</u>	<u>Fourth Quarter</u>
<b>2018</b>				
Net sales	\$ 173,495	174,778	192,223	231,086
Net earnings	34,671	9,994	19,019	28,452
<i>Earnings per share:</i>				
Basic	\$ 1.34	0.39	0.73	1.10
Diluted	1.33	0.38	0.73	1.09
Dividends declared per common share	\$ 0.08	0.08	0.08	0.08
<i>Common stock price per share:</i>				
High	\$ 65.95	66.80	60.25	70.20
Low	51.55	57.15	54.35	57.00
<b>2017</b>				
Net sales	\$ 146,368	161,178	171,189	207,005
Net earnings	10,727	11,157	12,645	19,174
<i>Earnings per share:</i>				
Basic	\$ 0.42	0.43	0.49	0.74
Diluted	0.41	0.43	0.49	0.74
Dividends declared per common share	\$ 0.08	0.08	0.08	0.08
<i>Common stock price per share:</i>				
High	\$ 58.75	58.95	61.40	63.80
Low	42.95	51.80	55.15	50.30

## MANAGEMENT'S STATEMENT OF FINANCIAL RESPONSIBILITY

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The Company's Management is responsible for the fair presentation of the Company's financial statements in accordance with accounting principles generally accepted in the United States of America, and for their integrity and accuracy. Management is confident that its financial and business processes provide accurate information on a timely basis.

Management, with the oversight of ESCO's Board of Directors, has established and maintains a strong ethical climate in which the Company's affairs are conducted. Management also has established an effective system of internal controls that provide reasonable assurance as to the integrity and accuracy of the financial statements, and responsibility for the Company's assets. KPMG LLP, the Company's independent registered public accounting firm, reports directly to the Audit and Finance Committee of the Board of Directors. The Audit and Finance Committee has established policies consistent with corporate reform laws for auditor independence. In accordance with corporate governance listing requirements of the New York Stock Exchange:

- A majority of Board members are independent of the Company and its Management.
- All members of the key Board committees — the Audit and Finance, the Human Resources and Compensation and the Nominating and Corporate Governance Committees — are independent.
- The independent members of the Board meet regularly without the presence of Management.
- The Company has a clear code of ethics and a conflict of interest policy to ensure that key corporate decisions are made by individuals who do not have a financial interest in the outcome, separate from their interest as Company officials.
- The charters of the Board committees clearly establish their respective roles and responsibilities.
- The Company has a Corporate Ethics Committee, ethics officers at each operating location and an ombudsman hot line available to all domestic employees and all foreign employees have local ethics officers and access to the Company's ombudsman.

The Company has a strong financial team, from its executive leadership to each of its individual contributors. Management monitors compliance with its financial policies and practices over critical areas including internal controls, financial accounting and reporting, accountability, and safeguarding of its corporate assets. The internal audit function maintains oversight over the key areas of the business and financial processes and controls, and reports directly to the Audit and Finance Committee. Additionally, all employees are required to adhere to the ESCO Code of Business Conduct and Ethics, which is monitored by the Corporate Ethics Committee.

Management is dedicated to ensuring that the standards of financial accounting and reporting that are established are maintained. The Company's culture demands integrity and a commitment to strong internal practices and policies.

The Consolidated Financial Statements have been audited by KPMG LLP, whose report is included herein.

November 29, 2018

/s/Victor L. Richey

Victor L. Richey  
Chairman, Chief Executive Officer  
and President

/s/Gary E. Muenster

Gary E. Muenster  
Executive Vice President  
and Chief Financial Officer

## MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

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The Company's Management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rule 13a-15(f) under the Securities Exchange Act of 1934). Our internal control over financial reporting is 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 in the United States of America.

Because of its inherent limitations, any system of internal control over financial reporting, no matter how well designed, may not prevent or detect misstatements due to the possibility that a control can be circumvented or overridden or that misstatements due to error or fraud may occur that are not detected. Also, because of changes in conditions, internal control effectiveness may vary over time.

A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of the Company's annual or interim consolidated financial statements will not be prevented or detected on a timely basis.

Management assessed the effectiveness of the Company's internal control over financial reporting as of September 30, 2018, using criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) and concluded that the Company had a material weakness in internal control over financial reporting as of September 30, 2018, based on these criteria. The material weakness relates to the ineffective design and operation of certain controls impacting the deferred revenue general ledger account. Specifically, the control deficiencies affected the accuracy of the financial information used in a reconciliation control, resulting in errors in the recalculation of revenue to be recognized over the related contract term not being detected on a timely basis. As a result, an adjustment was identified primarily related to revenue and deferred revenue that was corrected prior to the issuance of the Company's consolidated financial statements as of and for the year ended September 30, 2018. Although the adjustment was not material, Management concluded the ineffectiveness of the controls noted above in the aggregate constituted a material weakness in the Company's internal control over financial reporting.

Our internal control over financial reporting as of September 30, 2018, has been audited by KPMG LLP, an independent registered public accounting firm, as stated in its report which is included elsewhere in this Form 10-K and contains an adverse opinion on the effectiveness of our internal control over financial reporting.

November 29, 2018

/s/Victor L. Richey

Victor L. Richey  
Chairman, Chief Executive Officer  
and President

/s/Gary E. Muenster

Gary E. Muenster  
Executive Vice President  
and Chief Financial Officer

## REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

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To the Shareholders and Board of Directors  
ESCO Technologies Inc.:

### *Opinion on Internal Control Over Financial Reporting*

We have audited ESCO Technologies Inc. and subsidiaries' (the Company) internal control over financial reporting as of September 30, 2018, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, because of the effect of the material weakness, described below, on the achievement of the objectives of the control criteria, the Company has not maintained effective internal control over financial reporting as of September 30, 2018, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of September 30, 2018 and 2017, the related consolidated statements of operations, comprehensive income (loss), shareholders' equity, and cash flows for each of the years in the three-year period ended September 30, 2018, and the related notes (collectively, the consolidated financial statements), and our report dated November 29, 2018 expressed an unqualified opinion on those consolidated financial statements.

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the company's annual or interim financial statements will not be prevented or detected on a timely basis. A material weakness related to the ineffective design and operation of certain controls impacting the deferred revenue general ledger account has been identified and included in management's assessment. The material weakness was considered in determining the nature, timing, and extent of audit tests applied in our audit of the 2018 consolidated financial statements, and this report does not affect our report on those consolidated financial statements.

### *Basis for Opinion*

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

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit 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 audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

### *Definition and Limitations of Internal Control Over Financial Reporting*

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

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

/s/ KPMG LLP

St. Louis, Missouri  
November 29, 2018

## EXHIBITS

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The following exhibits are submitted with and attached to this Form 10-K; exhibit numbers correspond to the exhibit table in Item 601 of Regulation S-K. For a complete list of exhibits including those incorporated by reference, see Item 15(a)(3) of this Form 10-K, above.

<u>Exhibit No.</u>	<u>Exhibit</u>
10.6(f)	* Form of Award Agreement for Performance-Accelerated Restricted Shares under 2018 Omnibus Incentive Plan (Omnibus Form, last revised August 29, 2018)
10.7	* Eighth Amendment and Restatement of Employee Stock Purchase Plan, effective as of August 2, 2018
21	Subsidiaries of the Company
23	Consent of Independent Registered Public Accounting Firm
31.1	Certification of Chief Executive Officer
31.2	Certification of Chief Financial Officer
32	** Certification of Chief Executive Officer and Chief Financial Officer
101.INS	*** XBRL Instance Document
101.SCH	*** XBRL Schema Document
101.CAL	*** XBRL Calculation Linkbase Document
101.LAB	*** XBRL Label Linkbase Document
101.PRE	*** XBRL Presentation Linkbase Document
101.DEF	*** XBRL Definition Linkbase Document

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\* Filed with the Securities and Exchange Commission but not included in the Company's Annual Report to Shareholders; the Exhibit may be viewed and copied on the SEC's website or a printed copy may be obtained from the Company on request.

\*\* Furnished (and not filed) herewith pursuant to Item 601(b)(32)(ii) of Regulation S-K.

\*\*\* Exhibit 101 to this report consists of documents formatted in XBRL (Extensible Business Reporting Language); a printed copy is not included.

**Subsidiaries of Esco Technologies Inc.**

The following list omits certain of the Company's subsidiaries which, if considered in the aggregate as a single subsidiary, would not, as of the end of the year covered by this Report, constitute a "significant subsidiary" as defined in SEC Regulation S-X.

<b><u>Name</u></b>	<b><u>State or Jurisdiction of Incorporation or Organization</u></b>	<b><u>Name(s) Under Which It Does Business</u></b>
Beijing Lindgren ElectronMagnetic Technology Co., Ltd.	People's Republic of China	Same; also ETS-Lindgren
Crissair, Inc.	California	Same
Doble Engineering Company	Massachusetts	Same
Doble PowerTest Limited	United Kingdom	Same
ESCO International Holding Inc.	Delaware	Same
ESCO Technologies Holding LLC	Delaware	Same
ESCO UK Global Holdings Ltd	United Kingdom	Same
ETS-Lindgren Inc.	Illinois	Same
ETS-Lindgren OY	Finland	Same
Hi-Tech Metals, Inc.	Texas	Same
Mayday Manufacturing Co.	Texas	Same
Morgan Schaffer Ltd.	Quebec, Canada	Same
NRG Systems, Inc.	Vermont	Same
Plastique Limited	United Kingdom	Same
Plastique Sp. z o.o.	Poland	Same
PTI Technologies Inc.	Delaware	Same
Thermoform Engineered Quality LLC	Delaware	Same
VACCO Industries	California	Same
Westland Technologies, Inc.	California	Same



**Consent of Independent Registered Public Accounting Firm**

The Board of Directors  
ESCO Technologies Inc.:

We consent to the incorporation by reference in the registration statements (Nos. 333-63930, 333-77887, 333-186537, 333-192663 and 333-223029) on Form S-8 of ESCO Technologies Inc. (the Company) of our reports dated November 29, 2018, with respect to the consolidated balance sheets of ESCO Technologies Inc. and subsidiaries as of September 30, 2018 and 2017, the related consolidated statements of operations, comprehensive income (loss), shareholders' equity, and cash flows for each of the years in the three-year period ended September 30, 2018, and the related notes, and the effectiveness of internal control over financial reporting as of September 30, 2018, which reports appear in the September 30, 2018 annual report on Form 10-K of the Company.

Our report dated November 29, 2018, on the effectiveness of internal control over financial reporting as of September 30, 2018, expresses our opinion that ESCO Technologies Inc. and subsidiaries did not maintain effective internal control over financial reporting as of September 30, 2018 because of the effect of a material weakness on the achievement of the objectives of the control criteria and contains an explanatory paragraph that states a material weakness related to the ineffective design and operation of certain controls impacting the deferred revenue general ledger account has been identified and included in management's assessment.

/s/ KPMG LLP

St. Louis, Missouri  
November 29, 2018

**Certification**

I, Victor L. Richey, certify that:

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

Date: November 29, 2018

/s/ Victor L. Richey  
Victor L. Richey  
Chairman, President and Chief Executive Officer

**Certification**

I, Gary E. Muenster, certify that:

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

Date: November 29, 2018

/s/ Gary E. Muenster  
Gary E. Muenster  
Executive Vice President and Chief Financial Officer

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

In connection with the annual report of ESCO Technologies Inc. (the “Company”) on Form 10-K for the period ended September 30, 2018 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), we, Victor L. Richey, Chairman, President and Chief Executive Officer of the Company, and Gary E. Muenster, Executive Vice President and Chief Financial Officer of the Company, certify, to the best of our knowledge, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

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

Date: November 29, 2018

/s/ Victor L. Richey  
Victor L. Richey  
Chairman, President and Chief Executive Officer

/s/ Gary E. Muenster  
Gary E. Muenster  
Executive Vice President and Chief Financial Officer

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## Shareholders' Summary

### Shareholders' Annual Meeting

The Annual Meeting of Shareholders of ESCO Technologies Inc. will be held at 9:30 a.m. Central Time on Tuesday, February 5, 2019 at Mayday Manufacturing Co., 3100 Jim Christal Rd., Denton, TX 76207. You may access this Annual Report as well as the Notice of the meeting and the Proxy Statement on the Company's Annual Meeting website at [www.envisionreports.com/ese](http://www.envisionreports.com/ese).

### Certifications

Pursuant to New York Stock Exchange (NYSE) requirements, the Company submitted to the NYSE the annual certifications by the Company's chief executive officer dated February 6, 2018 and February 9, 2017, that he was not aware of any violations by the Company of NYSE's corporate governance listing standards. In addition, the Company filed with the Securities and Exchange Commission the certifications by the Company's chief executive officer and chief financial officer required under Section 302 of the Sarbanes-Oxley Act of 2002 as exhibits to the Company's Forms 10-K for its fiscal years ended September 30, 2018 and September 30, 2017.

### 10-K Report

The Company's 2018 Annual Report on Form 10-K as filed with the Securities and Exchange Commission is included in this Annual Report to Shareholders, except that certain of its Exhibits have been omitted. The complete Form 10-K is available on the Company's website at [www.escotechnologies.com](http://www.escotechnologies.com), or a copy will be provided to shareholders without charge upon written request to Kate Lowrey, Director of Investor Relations, ESCO Technologies Inc., 9900A Clayton Road, St. Louis, MO 63124.

### Investor Relations

Additional investor-related information may be obtained by contacting the Director of Investor Relations at (314) 213-7277 or toll free at (888) 622-3726. Information is also available through the Company's website at [www.escotechnologies.com](http://www.escotechnologies.com) or via e-mail to [klowrey@escotechnologies.com](mailto:klowrey@escotechnologies.com).

### Transfer Agent and Registrar

Shareholder inquiries concerning lost certificates, transfer of shares or address changes should be directed to:

Computershare Shareholder Services  
P.O. Box 30170  
College Station, TX 77842-3170  
(800) 368-5948  
[www.computershare.com/investor](http://www.computershare.com/investor)

### Capital Stock Information

ESCO Technologies Inc. common stock shares (symbol ESE) are listed on the New York Stock Exchange. There were approximately 1,844 holders of record of shares of common stock at October 31, 2018.

### Independent Registered Public Accounting Firm

KPMG LLP  
10 South Broadway, Suite 900  
St. Louis, MO 63102

## Management and Board of Directors

### Executive Officers

**Victor Richey**  
Chairman,  
Chief Executive Officer  
& President

**Gary Muenster**  
Executive Vice President  
& Chief Financial Officer

**Alyson Barclay**  
Senior Vice President,  
Secretary &  
General Counsel

### Corporate Staff

**Deborah Boniske**  
Vice President  
Human Resources

**Richard Garretson**  
Vice President  
Tax

**Michele Marren**  
Vice President &  
Corporate Controller

**Mark Dunger**  
Vice President Planning  
& Development

**Charles Kretschmer**  
Vice President

**David Schatz**  
Vice President  
& Intellectual  
Property Counsel &  
Asst. Secretary

### Operating Executives

**Mike Alfred**  
President  
Crissair, Inc.

**Antonio Gonzalez**  
President  
VACCO Industries

**Bryan Sayler**  
Utility Solutions Group  
President & President  
Doble Engineering  
Company

**Bruce Butler**  
President  
ETS-Lindgren Inc.

**John Grizzard**  
President  
Westland Technologies,  
Inc.

**Tom Shaw**  
President  
Mayday  
Manufacturing Co.

**Sam Chapetta**  
Filtration Group  
President

**Randall Loga**  
Technical Packaging  
Group Vice President  
& President  
Thermoform Engineered  
Quality LLC

**May Scally**  
Chief Operating Officer  
Morgan Schaffer Ltd.

**Trevor Drew**  
Managing Director  
Plastique Limited

**Rowland Ellis**  
President  
PTI Technologies Inc.

**Justin Wheatling**  
President  
NRG Systems, Inc.

### Board of Directors

**Patrick M. Dewar**<sup>2</sup>  
Chief Executive  
The Trenton Group, LLC

**Leon J. Olivier**<sup>4</sup>  
EVP of Enterprise  
Energy Strategy &  
Business Development  
Eversource Energy

**Victor L. Richey**<sup>1</sup>  
Chairman, Chief  
Executive Officer  
& President

**Vinod M. Khilnani**<sup>2,3</sup>  
Retired Executive  
Chairman  
CTS Corporation

**Robert J. Phillippy**<sup>2,4</sup>  
Executive Advisor;  
Former President and  
Chief Executive Officer  
of Newport Corporation

**Larry W. Solley**<sup>3,4</sup>  
Retired Executive  
Vice President  
Emerson Electric Co.

**Gary E. Muenster**  
Executive Vice President  
& Chief Financial Officer

**James M. Stolze**<sup>1,2,3</sup>  
Retired Vice President &  
Chief Financial Officer  
Stereotaxis, Inc.

<sup>1</sup> Executive Committee

<sup>2</sup> Audit and Finance Committee

<sup>3</sup> Human Resources and Compensation Committee

<sup>4</sup> Nominating and Corporate Governance Committee



ESCO Technologies Inc.  
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[www.escotechnologies.com](http://www.escotechnologies.com)