

ESCO TECHNOLOGIES INC.

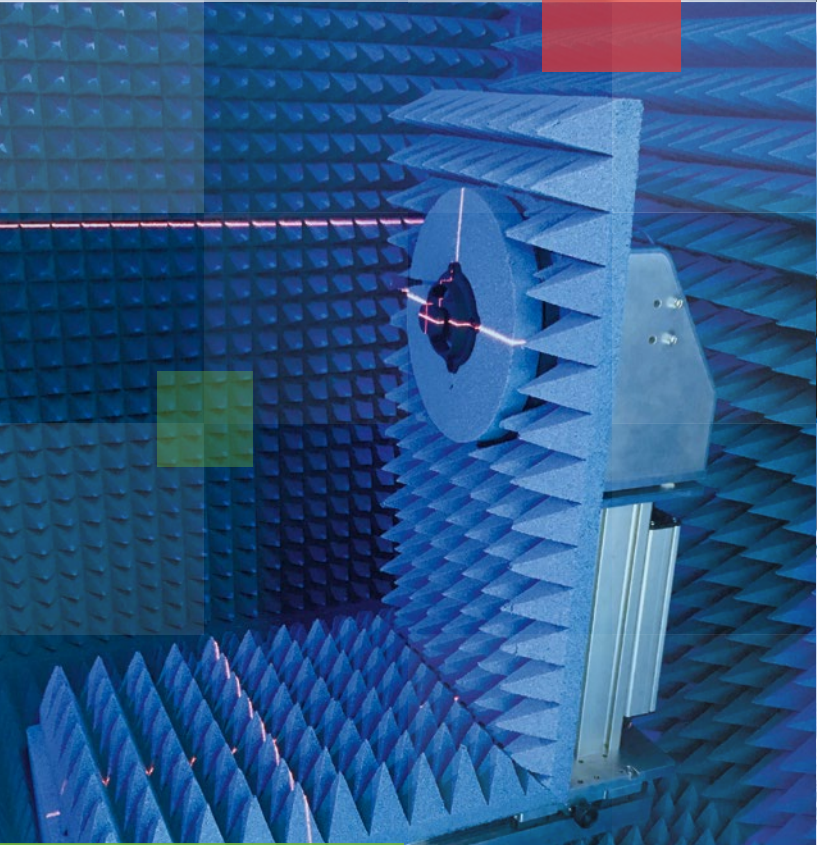
2019 ANNUAL REPORT

AEROSPACE HYDRAULIC
FILTRATION

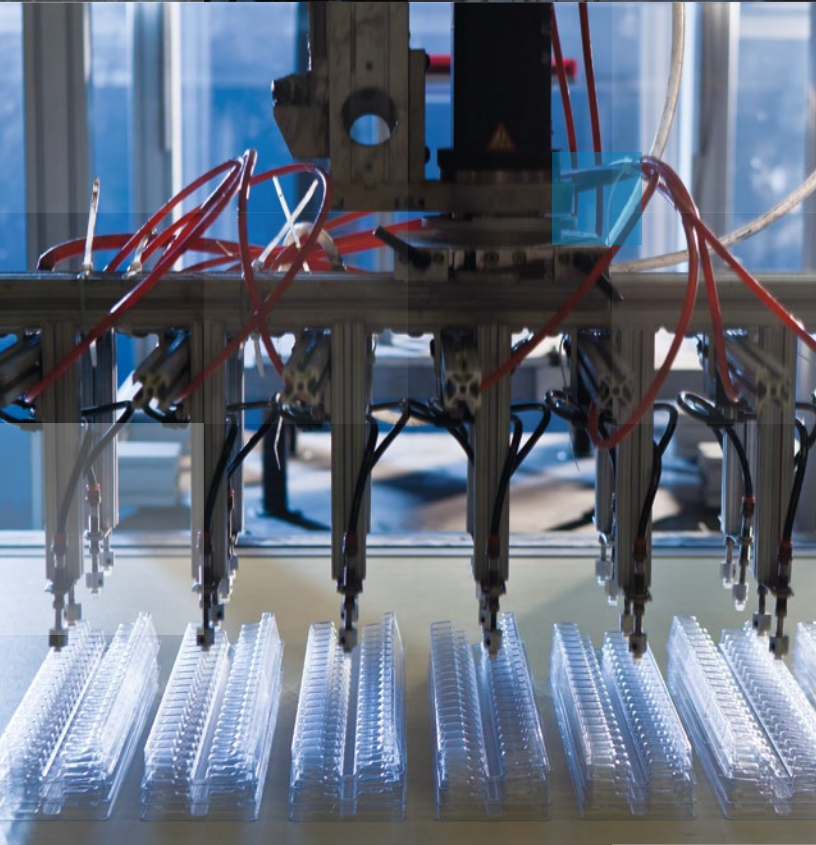


COURTESY AF.MIL

ELECTRIC GRID
INFRASTRUCTURE
MAINTENANCE



5G DEVELOPMENT
TESTING

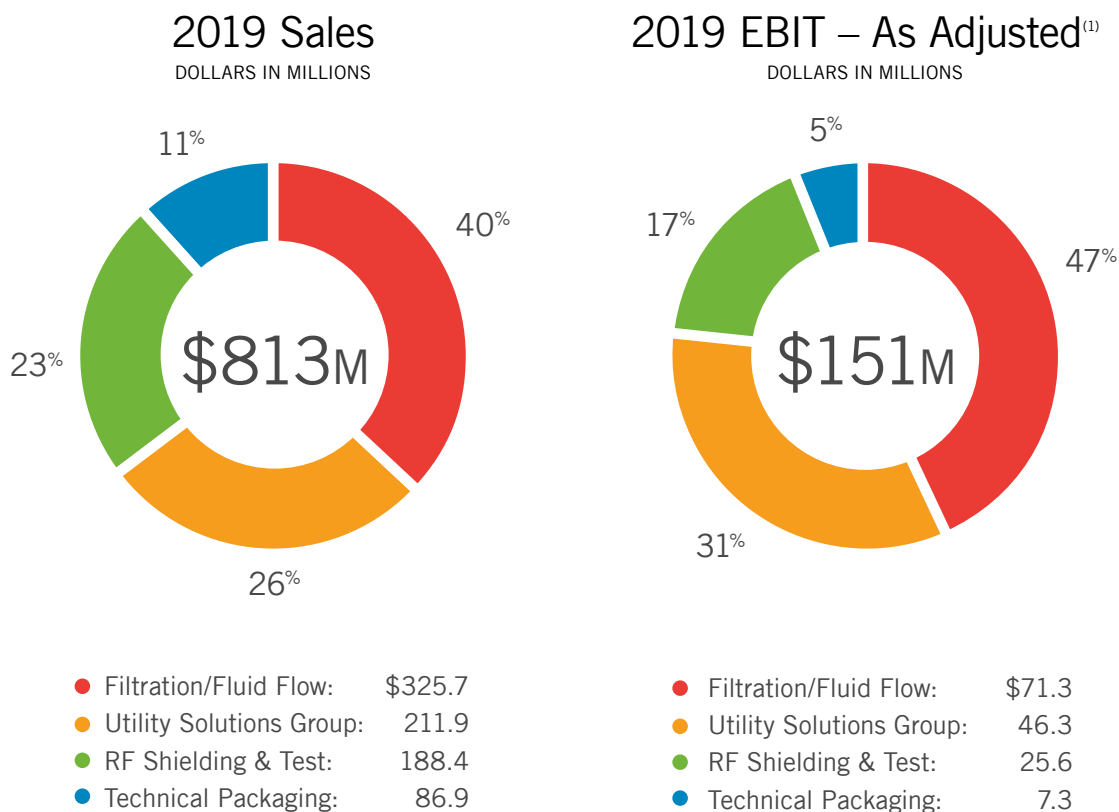


MEDICAL PACKAGING
SOLUTIONS

CONTINUING OUR HISTORY OF PROFITABLE GROWTH

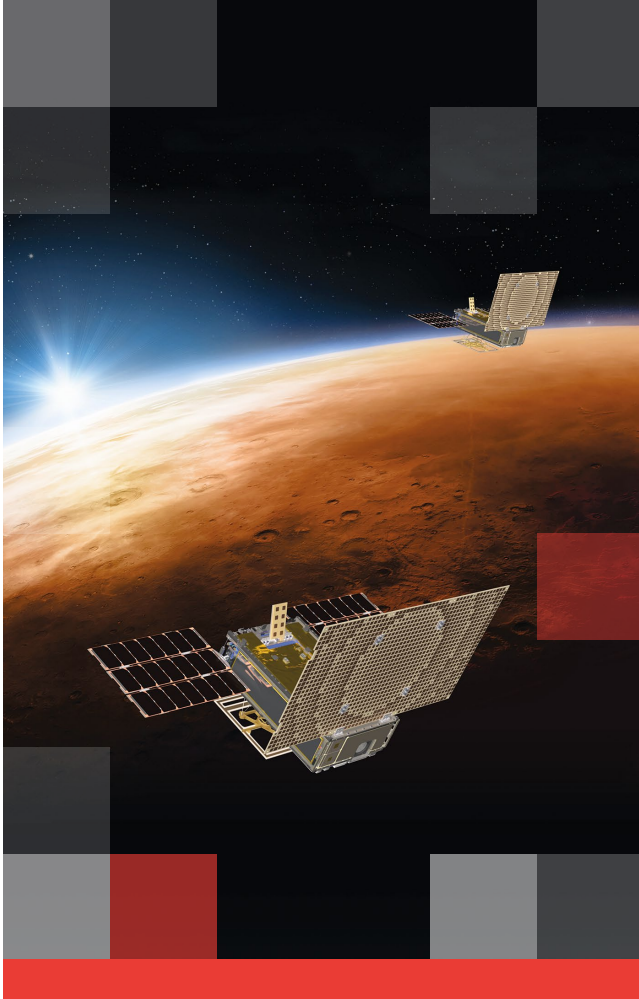
ESCO's strategy remains focused on delivering profitable long-term growth across our portfolio. We firmly believe our diversified multi-segment approach provides sustainable long-term growth opportunities and mitigates risk through serving a wide variety of end-markets.

Our stated long-term goals are to deliver 10 percent revenue growth and 15 percent earnings growth. Over the past four years we have exceeded these expectations, delivering compound annual growth rates of 11 percent in revenue and 18 percent in Adjusted EPS. These results were achieved through meaningful organic growth, supplemented by acquisitions. Our disciplined culture purposefully strives to drive margin expansion through cost reduction initiatives, continued integration of newly acquired companies, and investments in our businesses to broaden our product offerings and improve operational efficiency.



(1) Excludes \$39.4 million of Corporate Costs and \$.6 million net of inventory step-up and restructuring charges, partially offset by the gain on the sale of the Doble Watertown, MA property.

NASA/JPL-CALTECH



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, Globe Composite Solutions (Globe), Mayday Manufacturing (Mayday), PTI Technologies (PTI), Westland Technologies (Westland), and VACCO Industries (VACCO) enable us to provide highly-engineered products for mission critical systems.

Major End Markets

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



Utility Solutions Group

The Utility Solutions Group (USG) offers industry-leading diagnostic measurement and monitoring equipment and services vital for ongoing grid reliability and renewable energy project development. USG is powered by the combined offerings of Doble Engineering (Doble), Morgan Schaffer, and NRG Systems (NRG). USG offers a complete range of solutions that efficiently measure asset health and ensure the reliable, safe, and secure delivery of power.

Major End Markets

- + Global Electric Utilities
- + Power Generation
- + Renewable Energy
- + 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 do not interfere with other electronic devices while complying with regulatory and industry-defined standards.

Major End Markets

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



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.

Major End Markets

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

FINANCIAL HIGHLIGHTS

DOLLARS IN MILLIONS, EXCEPT PER SHARE AMOUNTS	2019	2018	2017	2016	2015
Net sales	\$ 813.0	771.6	685.7	571.5	537.3
Entered Orders	905.3	777.2	736.6	570.2	561.9
Earnings per share – GAAP	3.10	3.54	2.07	1.77	1.62
Earnings per share – As adjusted ⁽¹⁾	3.13	2.77	2.22	2.03	1.59

CAPITAL PERFORMANCE (AS OF SEPTEMBER 30)

Net debt	\$ 224	190	229	56	11
Leverage ratio	1.68	1.72	2.20	1.05	.68
Cash from operating activities	105	93	67	74	65

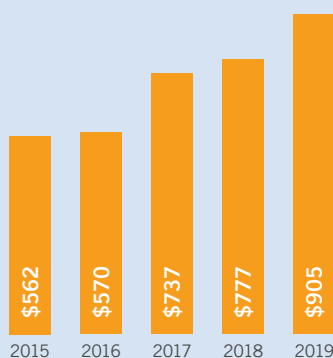
Net Sales

IN MILLIONS



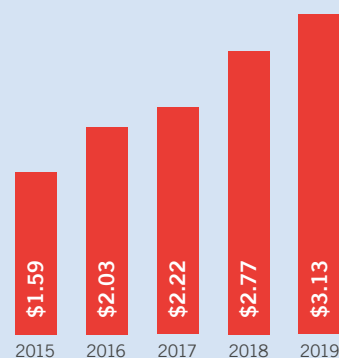
Entered Orders

IN MILLIONS

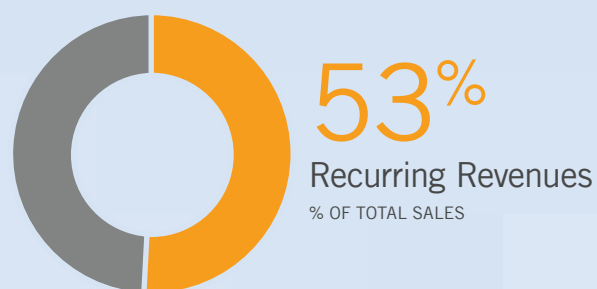
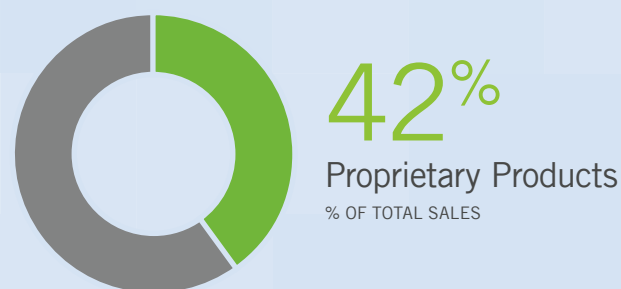


Earnings Per Share

– As Adjusted⁽¹⁾



Sustainable Competitive Advantages

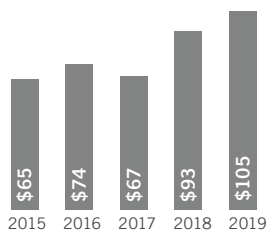


(1) EPS – As Adjusted excludes \$.03 per share of purchase accounting charges related to the Globe acquisition and restructuring charges, partially offset by the gain on the sale of the Doble Watertown property in 2019, \$.17 per share related to restructuring charges and (\$.94) per share net tax benefit 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, \$.26 per share of restructuring charges in 2016, and \$.03 per share of income from discontinued operations in 2015.

LETTER TO SHAREHOLDERS

2019 was a year of continued profitable growth fueled by solid operating results across our diversified business segments. We continued to make significant investments in new product development, automation, and capital across the company to expand our product offerings and production capabilities. Our continuing commitment to finding and implementing cost reduction initiatives has improved our operating efficiency, thereby driving margin expansion.

Cash Flow from Operations
IN MILLIONS

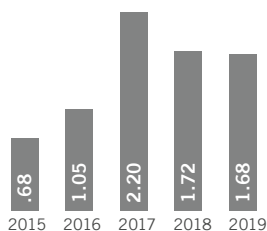


We continue to focus on generating long-term organic growth through the expansion of our highly-engineered products and solutions, and we remain committed to supplementing our organic growth through selective acquisitions. The 2019 addition of Globe Composite Solutions (Globe) to our Filtration segment builds out our portfolio of stealth technology products for the U.S. Navy on the Virginia and Columbia-Class submarines.

by the acquisition of Globe. Orders increased by 16 percent to \$905 million, resulting in a \$92 million (24 percent) increase in backlog. Filtration led the way with over \$400 million in orders and a book-to-bill of 1.26x.

Adjusted EBIT increased 9 percent to \$111M and Adjusted EPS increased 13 percent to \$3.13 per share. Earnings growth was driven by leveraging the additional sales and a continuing focus on cost reduction and capital investment aimed at driving margin expansion.

Leverage Ratio



Financial Results

2019 was another year of solid financial results highlighted by significant growth in sales, orders, earnings and cash flow from operations.

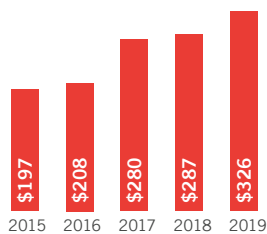
Sales increased 5 percent to \$813 million, led by Filtration with strong organic growth in commercial and defense aerospace sales, supplemented

Generating \$105 million in cash from operating activities helped fund investments in capital, R&D, and acquisitions. Our leverage ratio remains reasonable at 1.68x, and our recurring cash generation coupled with our new credit facility have us well-positioned to evaluate future opportunities to supplement organic growth.

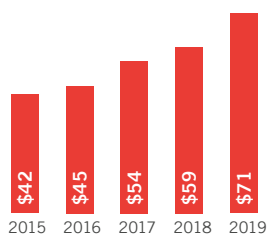
COURTESY NAVY.MIL



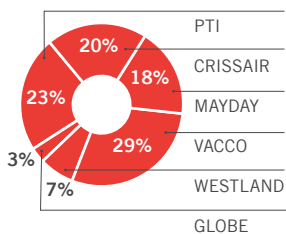
Sales
IN MILLIONS



EBIT – As Adjusted*
IN MILLIONS



Revenue by Company



* Excludes \$1.2 million in inventory step-up and restructuring charges in 2019, \$0.8 million in restructuring charges in 2018, and \$1.9 million in inventory step-up charges in 2017.

Filtration/Fluid Flow

Filtration sales increased \$39 million (14 percent) to \$326 million on the strength of our organic growth in aerospace sales across PTI, Mayday and Crissair. This growth resulted in a \$12 million increase (20 percent) in Adjusted EBIT to \$71 million and an Adjusted EBITDA margin of 24 percent, highlighting our ability to drive margin expansion as revenues increase.

The aerospace market outlook remains strong with build rates on several key programs where we have significant content (Airbus A350, Embraer E2, and the Joint Strike Fighter) projected to increase in 2020. This momentum continues to be supplemented by growth in MRO content at Mayday and increasing aftermarket revenue as more planes are placed in service.

The potential for continuing growth in Filtration is supported by a record \$410 million in entered orders resulting in an \$84 million increase (41 percent) in backlog. Additionally, Globe was awarded a large long-term contract to provide Special Hull Treatment (SHT) panels for Block V on the

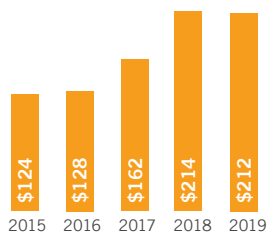
Virginia-Class submarine program, and VACCO and Westland were awarded new development hardware on the Columbia-Class program. On the space side, VACCO was awarded additional content on NASA's Space Launch System (SLS) Core Stage 3 and Japanese Aerospace Exploratory Agency's (JAXA) updated HTV-X automated cargo spacecraft.

In 2019, VACCO achieved mission success providing the Micro-Propulsion System (MiPS) aboard the JPL Mars Cube One (MarCO) Mission. Utilizing VACCO hardware on board the first interplanetary CubeSats helped NASA successfully land the InSight Vehicle on Mars.

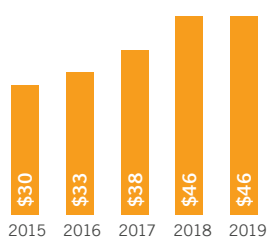
Our acquisition of Globe adds a well-established, vertically integrated supplier of proprietary military-grade composite-based solutions which expands our content on key U.S. Navy programs. The addition of Globe will help create additional avenues for meaningful growth across our shared customer base.



Sales
IN MILLIONS



EBIT – As Adjusted*
IN MILLIONS



*Excludes \$5.9 million mainly related to the gain on the sale of Doble Watertown property, partially offset by restructuring charges in 2019, \$3.0 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

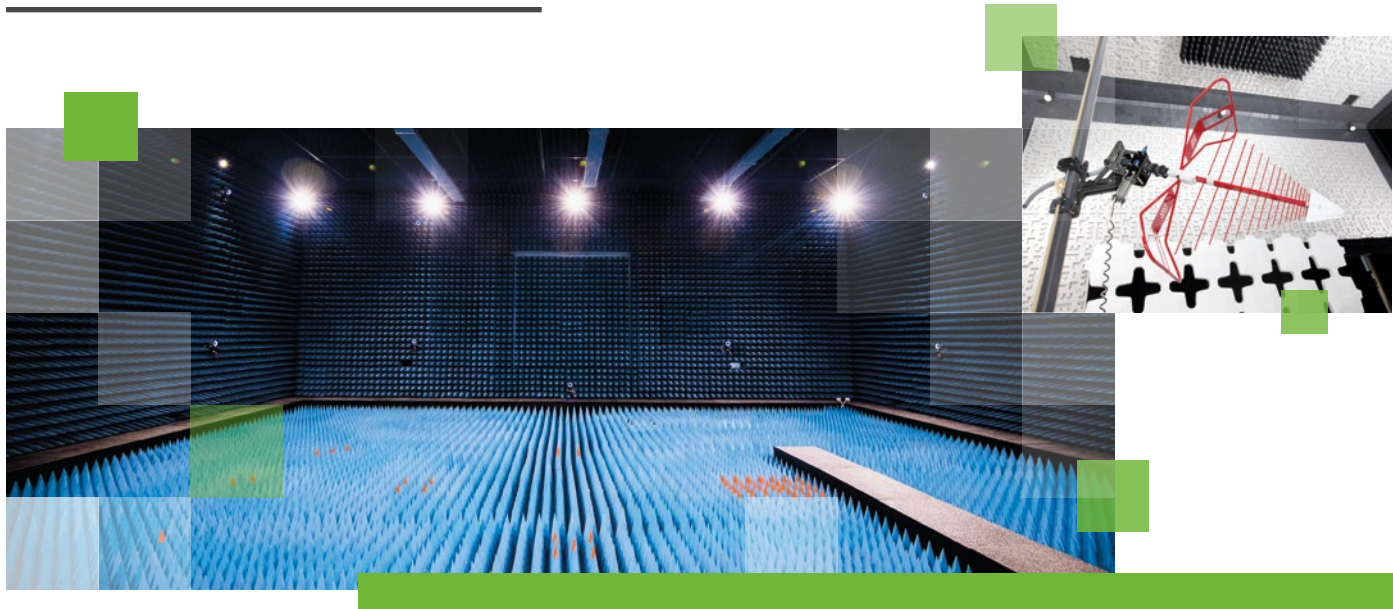
USG's sales of \$212 million were flat compared to the prior year, driven by mid-single digit growth at Doble, offset by softness in NRG's sales in the renewable energy space. Adjusted EBIT remained steady at \$46 million with an Adjusted EBITDA margin of 27 percent.

To enhance USG's ROIC and further improve its operating efficiency, Doble's headquarters building in Watertown Massachusetts was sold in October 2018 for approximately \$18 million, which resulted in a pretax gain recognized in 2019 with the net proceeds used to pay down debt. We expect to be in Doble's new leased facility and fully operational by the end of calendar year 2019. Doble's Boston area operations will now be consolidated into a single, lower cost, more efficient facility.

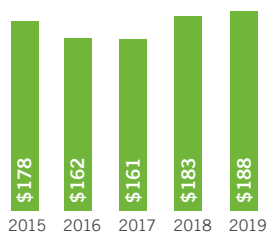
In 2019, USG released several new products including Doble's PatchAssure™ security and compliance solution offering advanced patch management for electric utility applications, and Protection Suite version 5.0, which upgrades its

industry-leading protection testing software package. Additionally, Doble released dobleASSURANCE™, a new all-inclusive long-term service program for preventative maintenance at a known total cost of ownership for up to ten years.

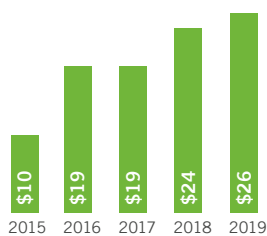
During 2019, NRG faced sales headwind as wind farm developers focused on completing existing projects prior to the expiration of U.S tax credits. We view this as a temporary setback as renewable electric capacity is projected to increase by as much as 50 percent by 2024 according to a recently released report by the International Energy Agency (IEA). While waiting for new development projects to pick up again, NRG is continuing to expand its product offerings including a new Solar Resource Monitoring System that precisely measures solar resource conditions at operational PV projects. In addition, NRG announced the first commercial sale of its Bat Deterrent System to Kawaiiloa Wind, Hawaii's largest wind farm.



Sales
IN MILLIONS



EBIT – As Adjusted*
IN MILLIONS



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

RF Shielding & Test

In 2019, Test revenue increased 3 percent to \$188 million and EBIT increased 8 percent to \$26 million (14 percent EBIT and 16 percent EBITDA margins). It was a fourth consecutive year of margin expansion following significant cost reduction initiatives undertaken to create a more efficient, lower cost operating structure. With \$200 million in orders in 2019 (book-to-bill of 1.06x), Test's ending backlog grew 9 percent to \$134 million, with the order strength spread across multiple end markets.

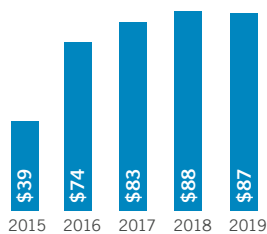
In the wireless market, we had significant orders in the 5G test space and continue to have meaningful representation on international standards bodies working to develop and define the new 5G standards. We continue to develop numerous custom 5G test solutions for specific chipset/handset manufacturers, network providers and test houses as well as a suite of standard test solutions that meet current industry test standards.

In the electric vehicle market, we have several projects currently under construction and won two new projects in China this year. In addition, we won a large Electromagnetic Pulse (EMP) shielding project in India and continue to have success winning defense projects both domestically and overseas. Our defense content includes chambers and components related to satellites, radar, aircraft (including drones), weapons systems, and shielding for government facilities. The continuing strength of our orders across these developing industries supports our outlook for meaningful organic growth in the Test segment going forward.

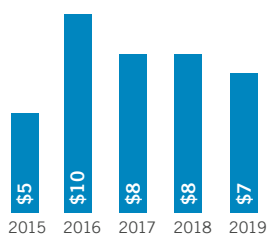
In 2019, we relocated our manufacturing operations in China into a new state-of-the-art facility in Tianjin. The move and upgrade of our manufacturing equipment enables us to significantly increase our production and development capabilities, and gives us the ability to move additional production content to China. It also allows us to better serve our customers in that region with faster delivery and better support.



Sales
IN MILLIONS



EBIT – As Adjusted*
IN MILLIONS



*Excludes \$1.4 million in restructuring charges in 2019.

Technical Packaging

Technical Packaging’s revenue was \$87 million in 2019 resulting from solid organic growth in domestic medical and pharmaceutical sales, offset by delayed new product introductions in Europe, which resulted in Adjusted EBITDA of \$11 million, or 13 percent.

Understanding the competitive nature of the packaging end market, we have undertaken a number of actions to address Technical Packaging’s cost structure in order to right-size the business and enhance future competitiveness domestically and internationally.

During 2019, the focus for our U.S. operations was on making investments to accelerate profitable growth within the business. Most significantly, we established an extrusion capability which both lowered our product cost and substantially enhanced our competitive position. The investment in the facility expansion to house the extrusion operation also provided space to bring our inventory storage in-house and to re-layout the existing operations to enhance work flow. Taken together

we expect the benefits from these investments to result in both top-line growth and significant margin expansion.

In Europe, our focus was on continuing to develop our presence in the medical packaging market. In 2019, our U.K. operation won contracts from two prominent pharmaceutical companies and developed opportunities with several others. Building on our success in the U.K., we initiated investments to establish a similar medical packaging capability in Poland. Beyond our focus on the medical market, we also completed a facility consolidation aimed at reducing costs and shortening the product development cycle. This consolidation resulted in the closure of our Administration and Engineering facility in Tunbridge Wells, U.K. and the transfer of these functions to be co-located with our production operations in Nottingham, U.K. and Poznan, Poland. Developing a presence in the medical market, coupled with our streamlined operations, offers a foundation for a more reliable and profitable book of business going forward.



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

Looking to the Future

In 2019, we delivered mid-single digit revenue growth, that when coupled with cost reductions and increased operational efficiency, drove a 13 percent increase in Adjusted EPS. Our 2019 orders increased 16 percent resulting in a 24 percent increase in backlog. This growth in profitability and our order strength gives us continuing confidence in our ability to meet our stated long-term goals.

In mid-November, we entered into a definitive agreement to sell our Technical Packaging business segment to Sonoco Products Company. The transaction is expected to be finalized upon the completion of certain customary regulatory approvals with expected gross cash proceeds of \$187 million. The divestiture monetizes the Technical Packaging segment at an opportunistic valuation and will allow us to narrow our focus to the business units which we see as core to our long-term growth.

We believe our solid market positions and expanding product and solution offerings result in tangible organic growth opportunities across the company that have us well-positioned to continue to deliver growth rates that exceed the broader industrial market. Acquisitions also remain a key focus as we strive to

augment organic growth by expanding our product portfolio both vertically and horizontally.

Our disciplined culture and focus on generating profitable growth, while improving cash flow and operational efficiency, are creating competitive advantages and driving continuing share price appreciation and shareholder value creation.

We feel that 2019 was a very positive year in the continuing evolution of ESCO, and as we look towards the future, we would like to thank our employees and shareholders for their continuing investment and support.

Vic Richey
Chairman, Chief Executive Officer
& President

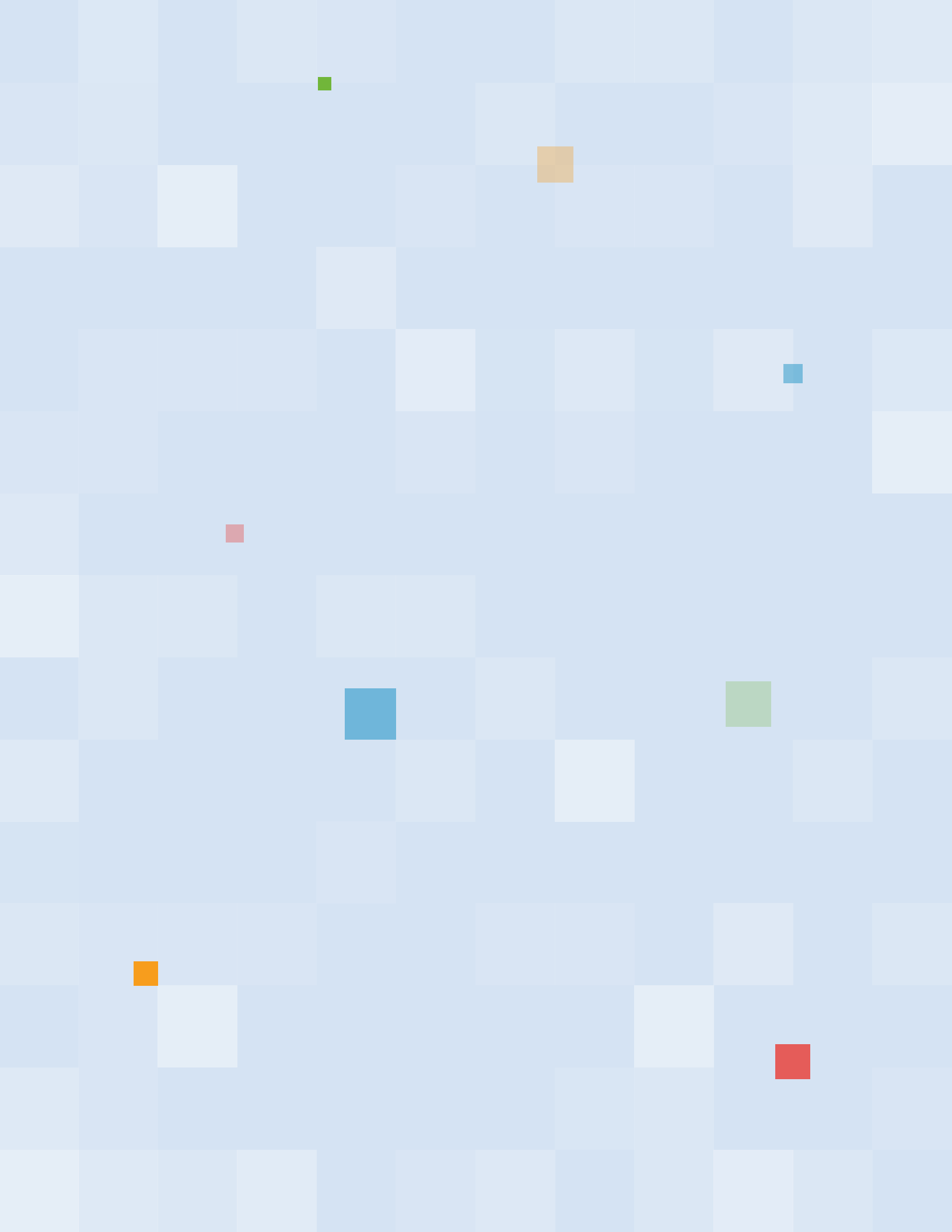
Gary Muenster
Executive Vice President &
Chief Financial Officer

November 29, 2019



2019 Form 10-K

ESCO TECHNOLOGIES, INC.
FISCAL YEAR 2019



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

FORM 10-K

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

or the fiscal year ended September 30, 2019

OR

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

For the transition period from _____ to _____

Commission file number: 1-10596

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>Trading Symbol(s)</u>	<u>Name of each exchange on which registered</u>
Common Stock, par value \$0.01 per share	ESE	New York Stock Exchange

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

None

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

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

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

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, 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

Non-accelerated filer

Accelerated filer

Smaller reporting company

Emerging growth company

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

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

Aggregate market value of the Common Stock held by non-affiliates of the registrant as of the close of trading on March 29, 2019, the last business day of the registrant's most recently completed second fiscal quarter: approximately \$1,698,000,000.*

* Based on the New York Stock Exchange closing price on March 29, 2019. 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 22, 2019: 25,981,313

DOCUMENTS INCORPORATED BY REFERENCE:

Part III of this Report incorporates by reference certain portions of the registrant's definitive Proxy Statement for its 2020 Annual Meeting of Shareholders, which the registrant currently anticipates first sending to shareholders on or about December 11, 2019 (hereinafter, the "2019 Proxy Statement").

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FORWARD-LOOKING INFORMATION

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; repayment of debt within the next twelve months; the outlook for 2020 and beyond, including amounts, timing and sources of 2020 sales, revenues, sales growth, Adjusted EBIT, EBITDA, Adjusted EBITDA and Adjusted EPS; 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; the sale of the Technical Packaging business segment and the Company's use of the expected proceeds from the sale; 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, tariffs and trade disputes, 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; the Company's inability to successfully execute internal restructuring and other plans; and the Company's inability to complete the sale of its Technical Packaging business segment.

PART I

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 Annual Report, unless the context indicates otherwise, references to a year (for example 2019) refer to the Company’s fiscal year ending on September 30 of that year, and references to the “Consolidated Financial Statements” refer to the Consolidated Financial statements included in the Financial Information section of this Annual Report beginning on page F-1, an Index to which is provided on page F-1.

The Company is organized based on the products and services it offers, and classifies its business operations in segments for financial reporting purposes. The Company’s four reportable segments during 2019, together with the significant domestic and foreign operating subsidiaries within each segment, are as follows:

Filtration/Fluid Flow (Filtration):

PTI Technologies Inc. (PTI)
VACCO Industries (VACCO)
Crissair, Inc. (Crissair)
Westland Technologies, Inc. (Westland)
Mayday Manufacturing Co. (Mayday)
Hi-Tech Metals, Inc. (Hi-Tech)
Globe Composite Solutions, LLC (Globe)

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.

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.

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 has entered into an agreement to sell the entities comprising this segment. See “Subsequent Event” on page 7.

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 overall operating costs, streamline business processes and enhance the branding of its products and services. 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. During 2019, Doble sold its headquarters facility in Watertown, Massachusetts and is in the process of consolidating its headquarters operations into a single, more cost-efficient facility in Marlborough, Massachusetts. Also during fiscal 2019, Plastique reduced its operating costs and gained efficiencies through a restructuring that involved 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, Hi-Tech, NRG, the assets of Morgan Schaffer Inc., and the assets of Vanguard Instruments Company (Vanguard Instruments); in March 2018 the Company acquired the assets of Manta Test Systems Ltd. (Manta); and in July 2019 the Company acquired Globe. More information about these acquired businesses is provided in the following section, "Products," and in Note 2 to the Consolidated Financial Statements.

In November 2019, the Company entered into an agreement to sell the businesses comprising its Technical Packaging segment. See "Subsequent Event" on page 7.

Products

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

Filtration

The Filtration segment accounted for approximately 40%, 37% and 41% of the Company's total revenue in 2019, 2018 and 2017, 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, the Orion Multi-Purpose Crew Vehicle and the European Service Module. 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 the U.S. submarine fleet and various surface ships including aircraft carriers.

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 industries.

Hi-Tech is a full-service metal processor offering aerospace 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. Its portfolio includes over 100 OEM processing approvals.

Globe is a well-established, vertically integrated supplier of mission-critical composite-based products and solutions for navy, defense, and industrial customers; it works directly with the U.S. Navy and also through prime contractors to cost-effectively and efficiently produce parts that meet rigid military-grade specifications through its internally developed expertise. Its products are utilized for acoustic, signature-reduction, communications, sealing, vibration-reducing, surface control, and hydrodynamic-related applications.

USG

The USG segment accounted for approximately 26%, 28% and 24% of the Company's total revenue in 2019, 2018 and 2017, 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 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 which have been combined with *doblePrime*TM to create a comprehensive online monitoring solution including bushing monitoring, DGA and partial discharge.

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

Test

The Test segment accounted for approximately 23%, 24% and 23% of the Company's total revenue in 2019, 2018 and 2017, 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.

Technical Packaging

The Technical Packaging segment accounted for approximately 11%, 11% and 12% of the Company's total revenue in 2019, 2018 and 2017, respectively.

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 28%, 30% and 27% of the Company's total revenue in 2019, 2018 and 2017, respectively. See Note 13 to the Consolidated Financial Statements 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 19%, 20% and 20% of the Company's total revenue in 2019, 2018 and 2017, 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 addition, Globe has developed significant manufacturing and logistics capability useful for special hull treatments for submarines. Globe has also obtained patent protection in the U.S. and Europe for a novel shielding curtain to be used with electromagnetic radiation scanning systems.

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.

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.

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, 2019 was \$475.1 million, representing an increase of \$92.3 million (24.1%) from the backlog of \$382.8 million on September 30, 2018. By segment, the backlog at September 30, 2019 and September 30, 2018, respectively, was \$288.4 million and \$204.2 million for Filtration; \$41.7 million and \$40.7 million for USG; \$133.6 million and \$122.3 million for Test; and \$11.4 million and \$15.5 million for Technical Packaging. The Company estimates that as of September 30, 2019 domestic customers accounted for approximately 73% of the Company's total firm orders and international customers accounted for approximately 27%. Of the total Company backlog at September 30, 2019, approximately 90% is expected to be completed in the fiscal year ending September 30, 2020.

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 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 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 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., Safran (Sofrance), CLARCOR Inc., TransDigm (PneuDrualics), Marotta Controls, and Parker Hannifin.

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

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 Technical Packaging segment include Nelipak Corporation, Prent Corporation, Placon Corporation, and Poli Marian Holz.

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 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, 2019, the Company employed 3,239 persons, including 3,012 full time employees. Of the Company's full-time employees, 2,440 were located in the United States and 572 were located in 15 foreign countries.

Financing

For information about the Company's credit facility, see Note 8 to the Consolidated Financial Statements, 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, 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.

Subsequent Event

On November 15, 2019 the Company, through its wholly owned subsidiaries ESCO Technologies Holding LLC and ESCO UK Holding Company I Ltd., entered into an agreement to sell its Technical Packaging business segment, consisting of Thermoform Engineered Quality LLC, Plastique Ltd. and Plastique sp. z o.o., to subsidiaries of Sonoco Products Company (NYSE: SON) for a cash purchase price of \$187 million, plus or minus certain customary adjustments based on working capital and other typical post-closing adjustments specified in the sale agreement. Closing of the transaction is subject to specified representations, warranties, covenants and conditions customary in agreements of this kind and scope. The buyers have agreed to waive any post-closing claims against the sellers for indemnity under the representations and warranties in the sale agreement (except in the event of fraud) and intend to obtain a Representation and Warranty Insurance policy to provide coverage in the event of a breach by the sellers.

The Company expects to finalize the sale upon receipt of regulatory clearance under the Hart-Scott-Rodino Antitrust Improvements Act of 1976 and similar foreign regulations, and upon satisfaction or waiver of the conditions to Closing specified in the Agreement. The Company expects the Closing to occur in late 2019 or early 2020.

The Technical Packaging business segment will be reported as discontinued operations in 2020.

The Company intends to use the proceeds from the sale to pay down debt and for other corporate purposes, including funding, terminating and annuitizing the Company's defined benefit pension plan, which has been frozen since 2003, during fiscal 2020.

Information about our Executive Officers

The following sets forth certain information as of November 1, 2019 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	62	Chairman of the Board of Directors and Chief Executive Officer since April 2003; President since October 2006 *
Gary E. Muenster	59	Executive Vice President and Chief Financial Officer since February 2008; Director since February 2011
Alyson S. Barclay	60	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 19% 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, Westland's and Globe'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 six manufacturers which produce and supply a substantial portion of its end-products, and one of these suppliers produces approximately 35% 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 or other changes in trade policies could adversely affect our ability to compete.

In addition to the effects of increases in market prices, increases in domestic import tariffs 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 the case of ETS-Lindgren, for example, tariffs on imports of Chinese goods have raised the costs of components purchased by it either from its China facility or from other Chinese suppliers, and its margins in China have been impacted by the increased costs of its products made in the U.S. and sold through its Chinese business.

In addition, increases in foreign-country tariffs applicable to our exported 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 and 2019 increased tariffs imposed by China on US origin goods have adversely affected sales of NRG's products in China by increasing their prices to Chinese customers.

In addition, trade restrictions against certain foreign-made products or entities may adversely affect our business. For example, because ETS-Lindgren sells wireless test solutions to Huawei in China the proposed trade ban against Huawei would adversely impact ETS-Lindgren's Chinese business.

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 terrorist activities, could adversely affect our business.

In 2019, approximately 28% 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 the Middle East could be adversely affected by 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 or intellectual property 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.

Our inability to timely develop new products 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 USG and Test 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, 2019, our twelve-month backlog was approximately \$428 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. Despite our active recruitment efforts, there remains 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.

At September 30, 2019, the Company's physical properties, including those described in the table below, comprised approximately 1,903,800 square feet of floor space, of which approximately 852,200 square feet were owned and approximately 1,051,600 square feet were leased. The table below includes the Company's principal physical properties. The Company does not believe any of the omitted properties, consisting primarily of office and/or warehouse space, are individually or collectively material to its operations or business. See also Notes 14 and 15 to the Consolidated Financial Statements.

Location	Approx. Sq. Ft.	Owned / Leased (with Expiration Date)	Principal Use(s) (M=Manufacturing, E=Engineering, O=Office, W=Warehouse)	Operating Segment
Modesto, CA	181,500	Leased (9/30/2023)	M, E, O	Filtration
Denton, TX	145,000	Leased (9/30/2029, plus options)	M, O, W	Filtration
Huntley, IL	132,800	Owned	M, E, O, W	Technical Packaging
Cedar Park, TX	130,000	Owned	M, E, O, W	Test
Oxnard, CA	127,400	Owned	M, E, O, W	Filtration
South El Monte, CA	100,100	Owned	M, E, O, W	Filtration
Durant, OK	100,000	Owned	M, O, W	Test
Watertown, MA	88,700	Leased (month-to-month)*	M, E, O	USG
Valencia, CA	79,300	Owned	M, E, O	Filtration
Marlborough, MA	79,100	Leased (1/31/2032)	M, E, O, W	USG
Hinesburg, VT	77,000	Leased (12/31/2024)	M, E, O, W	USG
Stoughton, MA	71,200	Leased (1/31/2024)	M, E, O, W	Filtration
South El Monte, CA	64,200	Leased (various term ends)	M, O, W	Filtration
Eura, Finland	41,500	Owned	M, E, O, W	Test
Fremont, IN	39,800	Owned	M, E, O, W	Technical Packaging
Tianjin, China	38,100	Leased (11/19/2027)	M, E, O	Test
Minocqua, WI	35,400	Owned	M, O, W	Test
LaSalle (Montreal), Quebec	35,200	Leased (8/31/2021)	M, E, O	USG
Dabrowa, Poland	34,000	Owned	M, E, O, W	Technical Packaging
Dabrowa, Poland	32,000	Owned	M, E, O, W	Technical Packaging
Avon, MA	30,000	Leased (4/30/2022)	W	Filtration
Ontario, CA	26,900	Leased(8/31/2020)	M, E, O, W	USG
Nottingham, England	23,900	Leased (8/6/2034)	M, E, O, W	Technical Packaging
St. Louis, MO	21,500	Leased (8/31/2020 plus options)	ESCO Corporate Office	Corporate
Mississauga, Ontario	15,600	Leased (11/30/2023)	M, E, O, W	USG
Morrisville, NC	11,600	Leased (1/31/2027)	O	USG
Huntley, IL	11,500	Leased (12/31/2022)	M	Technical Packaging
Marlborough, MA	11,200	Leased (6/30/2020)	E, O	USG
Wood Dale, IL	10,700	Leased (6/30/2024)	E, O	Test

* Property was sold in October 2018 and leased back pending consolidation into Marlborough facility (expected Q1 2020).

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

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

Holdings of Record. As of November 22, 2019, there were approximately 1,827 holders of record of the Company's common stock.

Price Range of Common Stock and Dividends. The Company's common stock is listed on the New York Stock Exchange; its trading symbol is "ESE". 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 18 to the Company's Consolidated Financial Statements.

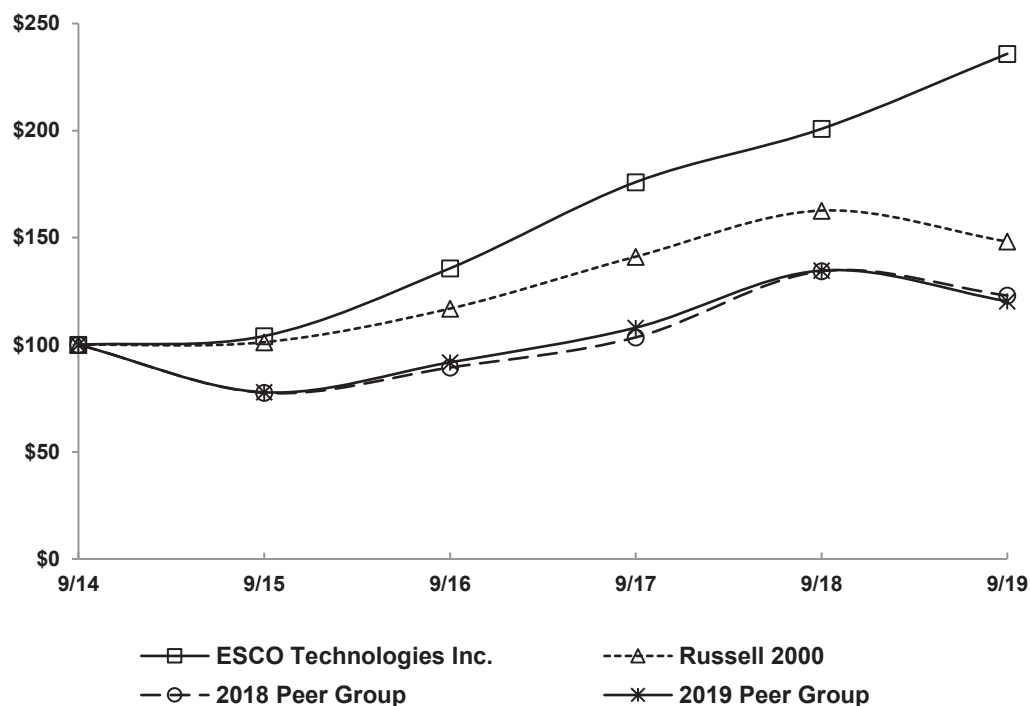
Company Purchases of Equity Securities. The Company did not repurchase any shares of its common stock during the fourth quarter of fiscal 2019.

Securities Authorized for Issuance Under Equity Compensation Plans. For information about securities authorized for issuance under the Company's equity compensation plans, please refer to Item 12 of this Form 10-K and to Note 10 to the Company's Consolidated Financial Statements.

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 two customized peer groups whose individual component companies are listed below. Because the Company changed the composition of the peer group for 2019, as described below, the peer group used for the corresponding disclosures in 2018 is also shown for comparison. The Company is not a component of either the 2019 peer group or the 2018 peer group, but it is a component of the Russell 2000 Index. The measurement period begins on September 30, 2014 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, 2014.

COMPARISON OF 5 YEAR CUMULATIVE TOTAL RETURN

Among ESCO Technologies Inc., the Russell 2000 Index,
and the 2019 and 2018 Peer Groups



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	9/30/14	9/30/15	9/30/16	9/30/17	9/30/18	9/30/19
ESCO Technologies Inc.	\$100.00	\$104.11	\$135.69	\$175.96	\$200.83	\$235.87
Russell 2000	100.00	101.25	116.91	141.15	162.66	148.20
2019 Peer Group	100.00	77.58	89.37	103.47	134.34	122.99
2018 Peer Group	100.00	77.84	91.81	108.00	134.67	120.34

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

The 2019 peer group was composed of ten companies that corresponded to the Company's four industry segments used for financial reporting purposes during 2019, as follows: Filtration/Fluid Flow segment (40% of the Company's 2019 total revenue): CIRCOR International, Inc., Donaldson Company, Inc. and Moog Inc.; USG segment (26% of the Company's 2019 total revenue): Aegion Corporation, Ameresco, Inc. and Thermon Group Holdings, Inc.; Test segment (23% of the Company's 2019 total revenue): EXFO Inc. and FARO Technologies, Inc.; and Technical Packaging segment (11% of the Company's 2019 total revenue): AptarGroup, Inc. and Berry Global Group, Inc.

The 2018 peer group was composed of nine 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.; USG segment (28% of the Company's 2018 total revenue): Aegion Corporation, Ameresco, Inc. and Thermon Group Holdings, Inc.; Test segment (24% of the Company's 2018 total revenue): EXFO Inc. and FARO Technologies, Inc.; and Technical Packaging Segment (11% of the Company's 2018 total revenue): AptarGroup, Inc. and Bemis Company, Inc. Bemis Company, Inc. was originally a member of the 2018 peer group, but it was acquired during 2019 and is therefore not included in the total return calculations.

In calculating the composite return of the 2019 and 2018 peer groups, 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)	2019	2018	2017	2016	2015
For years ended September 30:					
Net sales	\$ 813.0	771.6	685.7	571.5	537.3
Net earnings from continuing operations	81.0	92.1	53.7	45.9	41.7
Net earnings from discontinued operations	-	-	-	-	0.8
Net earnings	\$ 81.0	92.1	53.7	45.9	42.5
Earnings per share:					
Basic:					
Continuing operations	\$ 3.12	3.56	2.08	1.78	1.60
Discontinued operations	-	-	-	-	0.03
Net earnings	\$ 3.12	3.56	2.08	1.78	1.63
Diluted:					
Continuing operations	\$ 3.10	3.54	2.07	1.77	1.59
Discontinued operations	-	-	-	-	0.03
Net earnings	\$ 3.10	3.54	2.07	1.77	1.62
As of September 30:					
Working capital	\$ 243.6	195.5	197.8	165.4	155.0
Total assets	1,466.7	1,265.1	1,260.4	978.4	864.2
Total debt	286.3	220.0	275.0	110.0	50.0
Shareholders' equity	\$ 826.2	759.4	671.9	615.1	584.2
Cash dividends declared per common share	\$ 0.32	0.32	0.32	0.32	0.32

See also Notes 1 and 2 to the Consolidated Financial Statements for discussion of the Company's adoption of ASU 2014-09, *Revenue from Contracts with Customers* (ASC 606) and acquisition activity which affect comparability between years.

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 and Notes thereto and refers to the Company's results from continuing operations, except where noted.

This section includes comparisons of certain 2019 financial information to the same information for 2018. Year-to-year comparisons of the 2018 financial information to the same information for 2017 are contained in Item 7 of the Company's Form 10-K for 2018 filed with the Securities and Exchange Commission on November 29, 2018 and available through the SEC's website at <https://www.sec.gov/edgar/searchedgar/companysearch.html>.

Introduction

ESCO Technologies Inc. and its wholly owned subsidiaries (the Company) are organized into four reportable 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); Mayday Manufacturing Co. (Mayday), Hi-Tech Metals, Inc. (Hi-Tech); and Globe Composite Solutions, LLC (Globe).

- **USG:** Doble Engineering Company (Doble); Morgan Schaffer Ltd. (Morgan Schaffer); and NRG Systems, Inc. (NRG).
- **Test:** ETS-Lindgren Inc. (ETS-Lindgren).
- **Technical Packaging:** Thermoform Engineered Quality LLC (TEQ); Plastique Limited and Plastique Sp. z o.o. (together, Plastique). In November 2019 the Company entered into an agreement to sell the businesses comprising this segment. See “Subsequent Event” on page 7.

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. Globe is a vertically integrated supplier of composite-based products and solutions for acoustic, signature-reduction, communications, sealing, vibration-reducing, surface control, and hydrodynamic-related applications.

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.

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

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.

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 2019 Operations

- Sales, net earnings and diluted earnings per share in 2019 were \$813.0 million, \$81.0 million and \$3.10 per share, respectively, compared to sales, net earnings and diluted earnings per share in 2018 of \$771.6 million, \$92.1 million and \$3.54 per share, respectively.
- Diluted EPS – As Adjusted for 2019 was \$3.13 and excludes \$0.6 million of pretax charges (or \$0.03 per share after tax) consisting primarily of purchase accounting charges related to the Globe acquisition and certain restructuring charges related to facility consolidations at Doble, Plastique, PTI and VACCO partially offset by the gain on the Doble Watertown building sale. 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 for 2018 was a \$24.4 million (or \$0.94 per share) of net tax benefit recorded resulting from the implementation of U.S. Tax Reform.
- Net cash provided by operating activities was approximately \$105.1 million in 2019 compared to \$93.3 million in 2018.
- At September 30, 2019, cash on hand was \$61.8 million and outstanding debt was \$286.3 million, for a net debt position (total debt less net cash) of approximately \$224.5 million.

- Entered orders for 2019 were \$905.3 million resulting in a book-to-bill ratio of 1.11x. Backlog at September 30, 2019 was \$475.1 million compared to \$382.8 million at September 30, 2018.
- In July 2019, the Company acquired Globe for a purchase price of approximately \$95 million, net of cash acquired. Since the date of acquisition, the operating results for Globe have been included within the Company's Filtration segment.
- The Company declared dividends of \$0.32 per share during 2019, totaling \$8.3 million in dividend payments.

Results of Operations

Net Sales

(Dollars in millions)	Fiscal year ended		Change
	2019	2018	2019 vs. 2018
Filtration	\$ 325.8	286.8	13.6%
USG	211.9	214.0	(1.0)%
Test	188.4	182.9	3.0%
Technical Packaging	86.9	87.9	(1.1)%
Total	\$ 813.0	771.6	5.4%

Net sales increased \$41.4 million, or 5.4%, to \$813.0 million in 2019 from \$771.6 million in 2018. The increase in net sales in 2019 as compared to 2018 was due to a \$39.0 million increase in the Filtration segment and a \$5.5 million increase in the Test segment, partially offset by a \$2.1 million decrease in the USG segment and a \$1.0 million decrease in the Technical Packaging segment.

Filtration.

The \$39.0 million, or 13.6%, increase in net sales in 2019 as compared to 2018 was mainly due to a \$14.3 million increase in net sales at PTI due to higher aerospace and assembly element shipments, a \$11.1 million increase in net sales at Crissair due to higher aerospace shipments, an \$8.9 million sales contribution from Globe (acquired in July 2019), a \$6.8 million increase in net sales at Mayday due to higher aerospace shipments, and a \$1.1 million increase in net sales at Westland, partially offset by a \$3.2 million decrease in net sales at VACCO due to lower shipments of defense spares.

USG.

The \$2.1 million, or 1.0%, decrease in net sales in 2019 as compared to 2018 was mainly due to a \$9.5 million decrease in net sales at NRG due to continued softness in the renewable energy market, partially offset by a \$7.4 million increase in net sales at Doble driven by a full year of Manta's sales and higher F series product shipments.

Test.

The \$5.5 million, or 3.0%, increase in net sales in 2019 as compared to 2018 was mainly due to a \$7.7 million increase in net sales from the segment's U.S. and Asian operations partially offset by a \$2.2 million decrease in net sales from the segment's European operations, both due to the timing of test and measurement chamber projects.

Technical Packaging.

The \$1.0 million, or 1.1%, decrease in net sales in 2019 as compared to 2018 was mainly due to a \$5.5 million decrease in net sales from Plastique due to lower shipments to commercial customers partially offset by a \$4.5 million increase in net sales at TEQ.

Orders and Backlog

New orders received in 2019 were \$905.3 million as compared to \$777.2 million in 2018, resulting in order backlog of \$475.1 million at September 30, 2019 as compared to order backlog of \$382.8 million at September 30, 2018. Orders are entered into backlog as firm purchase order commitments are received.

In 2019, the Company recorded orders of \$409.9 million related to Filtration products, \$212.9 million related to USG products, \$199.6 million related to Test products and \$82.9 million related to Technical Packaging products. In 2018, the Company recorded orders of \$287.9 million related to Filtration products, \$219.1 million related to USG products, \$190.4 million related to Test products and \$79.8 million related to Technical Packaging products.

Selling, General and Administrative Expenses

Selling, general and administrative (SG&A) expenses were \$172.1 million, or 21.2% of net sales, in 2019, and \$162.4 million, or 21.0% of net sales, in 2018.

The increase in SG&A expenses in 2019 as compared to 2018 was mainly due to an increase in the USG segment due to higher sales commissions including additional sales and marketing expenses to support future revenue growth.

Amortization of Intangible Assets

Amortization of intangible assets was \$19.5 million in 2019 and \$18.3 million in 2018. Amortization of intangible assets included \$11.8 million and \$10.9 million of amortization of acquired intangible assets in 2019 and 2018, 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 2019 as compared to 2018 was mainly due to an increase in amortization of intangible assets related to the Company's recent acquisitions.

Other Expenses or Income, Net

Other expenses, net, were \$2.2 million in 2019, compared to other expenses, net, of \$3.7 million in 2018. The principal components of other expenses, net, in 2019 included \$3 million of purchase accounting charges related to the Globe acquisition; \$1.4 million of restructuring charges incurred related to the Plastique facility consolidation in 2019 consisting primarily of severance and compensation benefits and asset impairment charges; \$0.9 million of restructuring charges related to the consolidation of VACCO's aircraft/aerospace business into PTI's aerospace facility in Oxnard, California; approximately \$1 million of charges at Doble related to facility consolidations begun in 2018; and approximately \$3 million of losses on derivative instruments; partially offset by a net gain of approximately \$8 million on the sale of the Doble Watertown, MA building and land. The principal components of other expenses, net, in 2018 included \$3 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. There were no other individually significant items included in other expenses, net, in 2019 or 2018.

Non-GAAP Financial Measures

The information reported herein includes the financial measures EPS – As Adjusted, which the Company defines as EPS excluding the per-share net impact of the purchase accounting charges related to the Globe acquisition and the restructuring charges incurred at Doble, Plastique, PTI and VACCO during fiscal 2019, partially offset by the gain on the Doble Watertown, MA property sale; and 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; EBIT, which the Company defines as earnings before interest and taxes; 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
	2019	2018	2019 vs. 2018
Filtration	\$ 70.1	58.7	19.4%
% of net sales	21.5%	20.5%	
USG	52.2	43.2	20.8%
% of net sales	24.6%	20.2%	
Test	25.6	23.8	7.6%
% of net sales	13.6%	13.0%	
Technical Packaging	5.9	8.1	(27.2)%
% of net sales	6.8%	9.2%	
Corporate	(43.2)	(37.0)	16.8%
Total	\$ 110.6	96.8	14.3%
% of net sales	13.6%	12.5%	

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

(Dollars in millions)	2019	2018
Net earnings	\$ 81.0	92.1
Add: Interest expense	8.4	8.8
Add (less): Income taxes	21.2	(4.1)
EBIT	\$ 110.6	96.8

Filtration

The \$11.4 million increase in EBIT in 2019 as compared to 2018 was primarily due to the EBIT contribution from higher sales volumes at PTI, Crissair, Mayday and Westland and Globe (acquired July 2019). EBIT in 2019 was negatively impacted by \$0.9 million of restructuring charges related to the consolidation of VACCO's aircraft/aerospace business into PTI's aerospace facility in Oxnard, California and \$0.3 million of purchase accounting charges at Globe related to the inventory step-up charge.

USG

The \$9.0 million increase in EBIT in 2019 as compared to 2018 was primarily due to a \$12.0 million increase in EBIT at Doble (which included a net gain on the sale of the Doble Watertown facility of approximately \$8.0 million partially offset by certain charges to close the Doble facilities in Dubai and Mexico), and also due to higher sales volumes at Doble; partially offset by a \$3.0 million decrease in EBIT from NRG due to softness in the renewable energy market.

Test

The \$1.8 million increase in EBIT in 2019 as compared to 2018 was primarily due to the increased sales volumes from the segment's U.S. and Asian operations.

Technical Packaging

The \$2.2 million decrease in EBIT in 2019 as compared to 2018 was primarily due to the \$1.4 million of restructuring charges incurred related to the Plastique facility consolidation in 2019. These charges consisted primarily of severance and compensation benefits and asset impairment charges.

Corporate

Corporate operating charges included in 2019 consolidated EBIT increased to \$43.2 million as compared to \$37.0 million in 2018 due to purchase accounting charges related to the Globe acquisition, higher professional fees and acquisition costs.

The "Reconciliation to Consolidated Totals (Corporate)" in Note 13 to the Consolidated Financial Statements represents Corporate office operating charges.

Interest Expense, Net

Interest expense was \$8.4 million in 2019 compared to \$8.8 million in 2018, due to lower average outstanding borrowings (\$236.4 million compared to \$258.8 million) partially offset by higher average interest rates (3.2% vs. 3.0%) as a result of the additional borrowings to fund the Company's recent acquisitions.

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"). Provisions under the TCJA affecting the Company include a further reduction in the U.S. statutory rate to 21%, a new minimum tax on global intangible low-taxed income ("GILTI"), the benefit of the deduction for foreign-derived intangible income ("FDII"), and changes to IRC Section 162(m) related to the deductibility of executive compensation.

The effective tax rates for 2019, 2018 and 2017 were 20.7%, (4.7)% and 33.0%, respectively. The increase in the 2019 effective tax rate as compared to 2018 was primarily due to the enactment of the TCJA. The specific impacts of the TCJA in 2018 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 (complete as of December 31, 2018) 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 2019 effective tax rate was favorably impacted by tax planning strategies to increase foreign tax credits claimed retrospectively. The Company reduced the valuation allowance for excess foreign tax credits by \$2.4 million and recorded an amended return benefit of \$0.3 million, which favorably impacted the 2019 effective tax rate by 2.8%.

The TCJA made comprehensive changes to U.S. federal income tax laws by moving from a global to a modified territorial tax regime. As a result, cash repatriated to the U.S. is generally no longer subject to U.S. federal income tax. No provision is made for foreign withholding any applicable U.S. income taxes on the undistributed earnings of non-U.S. subsidiaries where these earnings are considered indefinitely invested or otherwise retained for continuing international operations. Determination of the amount of taxes that might be paid on these undistributed earnings if eventually remitted is not practicable.

Acquisitions and Dispositions

Information regarding the Company's acquisitions during 2019, 2018 and 2017 is set forth in Note 2 to the Company's Consolidated Financial Statements, 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 to the end of fiscal 2019 the Company entered into an agreement to sell the businesses comprising its Technical Packaging segment. See "Subsequent Event" on page 7.

Capital Resources and Liquidity

The Company's overall financial position and liquidity are strong. Working capital (current assets less current liabilities) increased to \$243.6 million at September 30, 2019 from \$195.5 million at September 30, 2018. Contract assets increased \$62.3 million in 2019 mainly within the Filtration segment due to the adoption of ASU No. 2014-09, *Revenue from Contracts with Customers* (ASC 606). Inventories decreased by \$6.6 million during 2019 mainly due to a 9.5 million decrease within the Filtration segment resulting primarily from the adoption of ASC 606. The

\$8.3 million increase in accounts payable at September 30, 2019 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.

Net cash provided by operating activities was \$105.1 million and \$93.3 million in 2019 and 2018, respectively.

Net cash used in investing activities was \$125.1 million and \$41.6 million in 2019 and 2018, respectively. The increase in net cash used in investing activities in 2019 as compared to 2018 was due to the Globe acquisition and higher capital expenditures. Capital expenditures were \$37.2 million and \$20.6 million in 2019 and 2018, respectively. The increase in capital expenditures in 2019 as compared to 2018 was mainly due to the facility expansion at TEQ in 2019. There were no commitments outstanding that were considered material for capital expenditures at September 30, 2019. In addition, the Company incurred expenditures for capitalized software of \$8.4 million and \$9.6 million in 2019 and 2018, respectively.

The Company made pension contributions of \$2.5 million and \$10.0 million in 2019 and 2018, respectively.

Net cash provided by financing activities was \$53.5 million in 2019, compared to net cash used by financing activities of \$66.4 million in 2018. The change in 2019 as compared to 2018 was primarily due to additional borrowings in 2019 related to the Globe acquisition.

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, 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 and \$8.3 million in 2019 and 2018, respectively.

Contractual Obligations

The following table shows the Company's contractual obligations as of September 30, 2019:

(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	\$ 286.3	1.3	-	285.0	-
Estimated Interest Payments ⁽¹⁾	25.1	9.6	12.9	2.6	-
Operating Lease Obligations	30.0	6.4	9.9	5.7	8.0
Purchase Obligations ⁽²⁾	18.2	18.2	-	-	-
Total	\$ 359.6	35.5	22.8	293.3	8.0

⁽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.

The Company had no off-balance-sheet arrangements outstanding at September 30, 2019.

Share Repurchases

Information about the Company's common stock repurchases is provided in Note 9 to the Consolidated Financial Statements.

Pension Funding Requirements

The minimum cash funding requirements related to the Company's defined benefit pension plans are estimated to be approximately \$0 in 2020, \$0 in 2021, and \$1.4 million in 2022. Additional information about the Company's pension plans is provided in Note 11 to the Consolidated Financial Statements.

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 2020 and beyond will generally exceed the broader industrial market. Given the pending sale of the Technical Packaging business expected to be completed in the first half of 2020 (see "Subsequent Event" on page 7), this business will be reported as discontinued operations in 2020 and is excluded from the Outlook section and comparisons to 2019 described below. The details of Management's growth expectations for 2020 compared to 2019 are as follows:

- Sales from continuing operations are expected to increase 9 to 10 percent on a consolidated basis, with Filtration growing 13.5 to 14.5 percent, USG growing 7 to 8 percent and Test growing 4 to 5 percent;
- Interest expense is expected to be lower than 2019, and will be impacted by the timing of the final after-tax cash proceeds received on the sale of the Technical Packaging business;
- Non-cash depreciation and amortization of intangible assets is expected to increase approximately \$5 million, or \$0.15 per share after-tax, related to previous acquisitions and capital spending;
- Income tax expense is expected to increase as Management is expecting a 23 to 24 percent effective tax rate calculated on higher pretax earnings;
- In summary, excluding Technical Packaging and the accounting impact of terminating and annuitizing the Company's defined benefit pension plan, Management projects 2020 Adjusted EPS to be in the range of \$3.20 to \$3.30 per share (compared to 2019 Adjusted EPS of \$2.95 per share, excluding the 2019 results of Technical Packaging).

On a quarterly basis and consistent with prior years, Management expects 2020 revenues and Adjusted EPS to be more second-half weighted. Management expects Q1 2020 Adjusted EPS to be in the range of \$0.35 to \$0.40 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. In 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 2019 and 2018.

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, 2019.

For more information about the Company's derivative financial instruments, see Note 12 to the Company's Consolidated Financial Statements included herein.

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 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.

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.

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.

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. The Company completed its analysis of the impact of the TCJA during the first quarter of 2019.

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 each of our reporting units' current business models. 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, 2019, the Company has determined that no reporting units are at risk of goodwill impairment as the fair value of each reporting unit 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. In 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.V to the Company's Consolidated Financial Statements included herein.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

See “Market Risk Exposure” 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 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 2019, 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 effective as of September 30, 2019.

As disclosed in Item 9A, Controls and Procedures, in our Annual Report on Form 10-K for the fiscal year ended September 30, 2018, during the fourth quarter of 2018 we identified a material weakness in internal control related to the ineffective design and operation of controls impacting the deferred revenue general ledger account. During 2019, Management implemented our previously disclosed remediation plan that included enhancing our policies and procedures related to the deferred revenue reconciliation and review and providing additional training to certain personnel in our finance department. During the fourth quarter of 2019, we completed our testing of the operating effectiveness of the implemented controls and found them to be effective. As a result we have concluded the material weakness has been remediated as of September 30, 2019.

Except for the changes in connection with our implementation of the remediation plan discussed above, there have been no other 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, 2019 that have materially affected, or are reasonably likely to materially affect, the Company’s internal control over financial reporting.

For the remainder of the information required by this item, see “Management’s Report on Internal Control over Financial Reporting” and the related “Report of Independent Registered Public Accounting Firm” of KPMG LLP, in the Financial Information section beginning on page F-1 of this Annual Report, which are incorporated into this Item by reference.

Item 9B. Other Information

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

Information regarding directors, nominees and nominating procedures, the Company's Code of Ethics, its Audit and Finance Committee, and non-compliance (if any) 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" in the 2019 Proxy Statement.

Information regarding the Company's executive officers is set forth in Item 1, "Business – Information about our Executive Officers," 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 2019 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 2019 Proxy Statement.

The following table summarizes certain information regarding shares of Company common stock that may be issued by the Company pursuant to its equity compensation plans existing as of September 30, 2019:

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants and rights ⁽¹⁾	Weighted-average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a)) ⁽¹⁾
Equity compensation plans approved by security holders ⁽²⁾	281,004 ⁽³⁾	N/A ⁽⁴⁾	792,196 ⁽⁵⁾⁽⁶⁾
Equity compensation plans not approved by security holders	<u>70,362</u> ⁽⁷⁾	N/A ⁽⁴⁾	<u>51,833</u> ⁽⁷⁾
Total	351,366	N/A ⁽⁴⁾	844,029

(1) The number of shares is subject to adjustment for future changes in capitalization by stock splits, stock dividends and similar events.

(2) Consists of the Company's 2013 Incentive Compensation Plan and 2018 Omnibus Incentive Plan.

(3) Consists of 96,322 and 184,682 shares issuable in connection with the vesting and distribution of outstanding performance-accelerated restricted share units awarded under the 2013 Incentive Compensation Plan and 2018 Omnibus Incentive Plan, respectively.

(4) The securities outstanding at September 30, 2019 have no exercise price.

(5) Represents shares currently available for awards under the 2018 Omnibus Incentive Plan. No shares remain available for issuance under the 2013 Incentive Compensation Plan.

(6) Does not include shares that may be purchased on the open market pursuant to the Company's Employee Stock Purchase Plan (ESPP). Under the ESPP, participants may elect to have up to 10% of their current salary or wages withheld and contributed to one or more independent trustees for the purchase of shares. At the discretion of an officer of the Company, the Company or a domestic subsidiary or division may contribute cash in an amount not to exceed 20% of the amounts contributed by participants; however, the total number of shares purchased with the Company's matching contributions after October 15, 2003 may not exceed 275,000. As of September 30, 2019, 611,833 shares had been purchased with the Company's matching funds of which 199,811 were purchased after October 15, 2003.

(7) Represents shares issuable pursuant to the Company's Compensation Plan for Non-Employee Directors (Director Compensation Plan). The Director Compensation Plan provides for each director to be paid an annual retainer fee payable in shares of Company stock as well as an annual retainer fee and certain other fees payable in cash, all as determined periodically by the Human Resources and Compensation Committee of the Board of Directors. Directors may elect to defer receipt of their stock and/or cash compensation. The maximum number of shares available for issuance under the Director Compensation Plan is 400,000 shares; as of September 30, 2019, 277,805 shares had been issued and four directors had elected to defer the issuance of a total of approximately 70,362 shares. Deferred amounts are credited to the director's deferred compensation account in stock equivalents and are distributed at a future date or dates specified by the director unless distribution is accelerated in certain circumstances, including a change in control of the Company. Deferred cash compensation may be distributed in shares or cash, but any deferred stock portion may only be distributed in shares.

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 2019 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 2019 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 3.1 to the Company's Form 8-K filed November 19, 2019
4.1(a)	Description of Common Stock	Filed herewith
4.1(b)	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	Credit Agreement dated September 27, 2019, incorporated by reference to Exhibit 10.1 hereto	Exhibit 10.1 to the Company's Form 8-K filed September 30, 2019
10.1	Credit Agreement dated as of September 27, 2019 among the Registrant, the Foreign Subsidiary Borrowers party thereto, the Lenders party thereto, JPMorgan Chase Bank, N.A. as Administrative Agent, BMO Harris Bank N.A. as Syndication Agent, and Bank of America, N.A., SunTrust Bank, U.S. Bank National Association and Wells Fargo Bank, National Association as Co-Documentation Agents	Exhibit 10.1 to the Company's Form 8-K filed September 30, 2019
10.2	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
10.3	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
10.4(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
10.4(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

<u>Exhibit No.</u>	<u>Description</u>	<u>Document Location</u>
10.4(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
10.5	* Directors' Extended Compensation Plan, adopted effective October 11, 1993, restated to include all amendments through August 7, 2013 (current as of November 2019)	Filed herewith
10.6	* 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
10.7(a)	* 2013 Incentive Compensation Plan	Appendix A to the Company's Schedule 14A Proxy Statement filed December 19, 2012
10.7(b)	* 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
10.7(c)	* 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
10.8(a)	* 2018 Omnibus Incentive Plan	Exhibit 10.1 to the Company's Form 8-K filed February 6, 2018
10.8(b)	* Form of Award Agreement for Performance-Accelerated Restricted Shares under 2018 Omnibus Incentive Plan (revised August 29, 2018)	Exhibit 10.6(f) to the Company's Form 10-K for the fiscal year ended September 30, 2018
10.8(c)	* Form of Award Agreement for Performance-Accelerated Restricted Shares under 2018 Omnibus Incentive Plan (revised May 1, 2019)	Exhibit 10.1 to the Company's Form 8-K filed May 7, 2019
10.9(a)	* Eighth Amendment and Restatement of Employee Stock Purchase Plan, effective August 2, 2018	Exhibit 10.7 to the Company's Form 10-K for the fiscal year ended September 30, 2018
10.9(b)	Ninth Amendment and Restatement of Employee Stock Purchase Plan, effective February 5, 2019	Exhibit 10.1 to the Company's Form 8-K filed February 7, 2019
10.10	* Performance Compensation Plan for Corporate, Subsidiary and Division Officers and Key Managers, adopted August 2, 1993, as amended and restated through February 4, 2019	Exhibit 10.1 to the Company's Form 8-K filed November 19, 2019
10.11	* Compensation Recovery Policy, adopted effective February 4, 2010	Exhibit 10.6 to the Company's Form 8-K filed February 10, 2010
10.12	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
10.13(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)
10.13(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
10.13(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

<u>Exhibit No.</u>	<u>Description</u>	<u>Document Location</u>
10.14(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)
10.14(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
10.14(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)
10.14(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
10.15(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)
10.15(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)
10.15(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)
10.15(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

<u>Exhibit No.</u>	<u>Description</u>	<u>Document Location</u>
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	*** Inline XBRL Instance Document	Submitted herewith
101.SCH	*** Inline XBRL Schema Document	Submitted herewith
101.CAL	*** Inline XBRL Calculation Linkbase Document	Submitted herewith
101.LAB	*** Inline XBRL Label Linkbase Document	Submitted herewith
101.PRE	*** Inline XBRL Presentation Linkbase Document	Submitted herewith
101.DEF	*** Inline XBRL Definition Linkbase Document	Submitted herewith
104	*** Cover Page Inline Interactive Data File (contained in Exhibit 101)	Submitted herewith

* 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.

*** Exhibits 101 and 104 to this report consist of documents formatted in XBRL (Extensible Business Reporting Language).

SIGNATURES

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

ESCO TECHNOLOGIES INC.

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

Date: November 29, 2019

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant 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, 2019
<u>/s/ Gary E. Muenster</u> Gary E. Muenster	Executive Vice President, Chief Financial Officer (Principal Accounting Officer) and Director	November 29, 2019
<u>/s/ Patrick M. Dewar</u> Patrick M. Dewar	Director	November 29, 2019
<u>/s/ Vinod M. Khilnani</u> Vinod M. Khilnani	Director	November 29, 2019
<u>/s/ Leon J. Olivier</u> Leon J. Olivier	Director	November 29, 2019
<u>/s/ Robert J. Phillippy</u> Robert J. Phillippy	Director	November 29, 2019
<u>/s/ Larry W. Solley</u> Larry W. Solley	Director	November 29, 2019
<u>/s/ James M. Stolze</u> James M. Stolze	Director	November 29, 2019
<u>/s/ Gloria L. Valdez</u> Gloria L. Valdez	Director	November 29, 2019

FINANCIAL INFORMATION

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

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, 2019 and 2018, 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, 2019, 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, 2019 and 2018, and the results of its operations and its cash flows for each of the years in the three-year period ended September 30, 2019, 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, 2019, 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, 2019 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Change in Accounting Principle

As discussed in Note 2 to the consolidated financial statements, the Company has changed its method of accounting for revenue from contracts with customers as of October 1, 2018 due to the adoption of ASU No. 2014-09, *Revenue from Contracts with Customers (ASC Topic 606)*.

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.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Assessment of the estimation of total contract costs at completion for contracts in the Filtration segment for which revenue is recognized over time using a cost-to-cost model

As discussed in Notes 2 and 14 to the consolidated financial statements, the Company's Filtration segment enters into certain long-term fixed price contracts with aerospace and defense customers to produce various products. These products do not have an alternative use and the Company has an enforceable right to payment for costs incurred plus a reasonable margin. Revenue for these contracts is recognized over time using a cost-to-cost model. Under such model, the Company measures the extent of progress towards completion of these contracts based on the ratio of contract

costs incurred to date to the estimate of total contract costs at completion. The estimation of these costs requires judgment by the Company given the unique product specifications and requirements for contracts related to the design, development, and manufacture of complex products.

We identified the assessment of the estimation of total contract costs at completion for contracts in the Filtration segment for which revenue is recognized over time using a cost-to-cost model as a critical audit matter. Complex auditor judgment was required in evaluating expected engineering and production requirements of the contracts and the associated cost estimates for labor hours and materials.

The primary procedures we performed to address this critical audit matter included the following. We tested certain internal controls over the Company's revenue recognition process, including controls over the accumulation and estimation of labor hours and costs of materials. We compared the Company's historical estimated costs and profit margin to the actual costs and profit margin for completed contracts to assess the Company's ability to accurately estimate costs. We challenged the Company's assumptions for labor hours and materials to be incurred for a sample of contracts by:

- Reading the underlying contract documents to obtain an understanding of the contractual requirements and deliverables;
- Comparing the costs incurred to date, as a percentage of the estimated costs at completion, to the Company's physical production to date under the contract;
- Comparing actual incurred and remaining estimated material costs to the original estimated amount of material costs at the beginning of the project plus incremental material costs due to modifications;
- Comparing actual incurred and remaining estimated labor hours to the original estimate of labor hours at the beginning of the project plus incremental labor hours due to modification;
- Comparing the estimated costs at completion, which includes costs incurred to date plus estimated costs to complete, to actual costs incurred for similar products previously developed and produced, if applicable; and
- Inspecting correspondence between the Company and the customer regarding actual and expected contract performance to date and comparing to the estimate to complete.

Evaluation of the sufficiency of audit evidence obtained over net sales

As discussed in Notes 1 and 16 to the consolidated financial statements, and disclosed in the consolidated statements of operations, the Company recorded \$813.0 million of net sales in 2019. Net sales are recognized primarily from the sale of highly engineered products and systems across various industries and through multiple Company divisions and locations around the world.

We identified the evaluation of the sufficiency of audit evidence obtained over net sales as a critical audit matter. Evaluating the sufficiency of audit evidence obtained over net sales required especially subjective auditor judgment because of the disaggregated nature of the Company's operations, including revenue recognition accounting policies and procedures that differ among the various divisions and locations. This included determining the Company divisions and locations at which procedures were performed.

The primary procedures we performed to address this critical audit matter included the following. We applied auditor judgment to determine the nature and extent of procedures to be performed over net sales, including the determination of the Company divisions and locations at which those procedures were to be performed. At each Company division and location where procedures were performed, we:

- Tested certain internal controls over the Company's net sales process at the applicable division and location; and
- Assessed the recorded net sales by selecting a sample of transactions and compared the amount recognized for consistency with underlying documentation, including contracts with customers and shipping documentation, if applicable, and the Company's revenue recognition policies.

After completion of these procedures, we evaluated the overall sufficiency of audit evidence obtained over net sales.

Evaluation of initial measurement of customer relationship and trade name intangible assets acquired in the Globe Composite Solutions, LLC business combination

As discussed in Note 2 to the consolidated financial statements, the Company acquired Globe Composite Solutions, LLC (Globe) on July 2, 2019. As a result of the transaction, the Company acquired a customer relationship intangible asset associated with the generation of future income from Globe's existing customers and a trade name intangible asset associated with the Globe Composite Solutions trade name (collectively, the intangible assets).

We identified the evaluation of the initial measurement of these intangible assets acquired in the Globe business combination as a critical audit matter. There was a high degree of subjectivity in evaluating the discounted cash flow model used to calculate the acquisition-date fair value of the intangible assets. In addition, auditor judgment was required to evaluate the following assumptions used by the Company in valuing the intangible assets:

- Forecasted revenues and revenue growth rates;
- Forecasted revenues from existing customer contracts, inclusive of attrition;
- Forecasted earnings before interest, taxes, depreciation, and amortization (EBITDA);
- Royalty rate; and
- Estimated discount rate.

The primary procedures we performed to address this critical audit matter included the following. We tested certain internal controls over the Company's acquisition-date valuation process, including controls related to the development of the relevant assumptions, as listed above. We compared the Company's estimates of forecasted revenues and EBITDA to Globe's historical results. We evaluated the Company's forecasted revenues from existing customers, exclusive of attrition, and forecasted EBITDA by comparing forecasted revenue growth and EBITDA assumptions to those of the Company's peers and trends in the industry. We tested the Company's determination of the weighted average cost of capital (WACC) by comparing it to the WACCs of comparable peer companies. In addition, we involved valuation professionals with specialized skills and knowledge, who assisted in:

- Comparing the valuation approaches used by the Company to calculate the fair value of the intangible assets to standard valuation approaches for comparable types of assets;
- Comparing customer attrition to an independent estimate developed based on historical attrition rates for Globe and certain qualitative market factors;
- Evaluating the Company's royalty rate, by comparing it to royalty rates used for similar assets in the same industry;
- Evaluating the Company's discount rate, by comparing it against a discount rate range that was independently developed using publicly available market data for comparable peers;
- Developing an estimate of the fair value of the customer relationship intangible asset using the Company's cash flow forecast and an independently developed discount rate; and
- Developing an estimate of the fair value of the trade name intangible asset using the Company's forecasted revenues and estimated royalty rate and an independently developed discount rate.

/s/ KPMG LLP

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

St. Louis, Missouri
November 29, 2019

CONSOLIDATED STATEMENTS OF OPERATIONS

(Dollars in thousands, except per share amounts)

Years ended September 30,	2019	2018	2017
Net sales	\$ 812,970	771,582	685,740
Costs and expenses:			
Cost of sales	508,521	490,397	436,918
Selling, general and administrative expenses	172,109	162,431	148,433
Amortization of intangible assets	19,488	18,328	16,338
Interest expense, net	8,396	8,748	4,578
Other expenses (income), net	2,240	3,655	(680)
Total costs and expenses	<u>710,754</u>	<u>683,559</u>	<u>605,587</u>
Earnings before income tax	102,216	88,023	80,153
Income tax expense (benefit)	21,177	(4,113)	26,450
Net earnings	<u>\$ 81,039</u>	<u>92,136</u>	<u>53,703</u>
Earnings per share:			
Basic:			
Net earnings	<u>\$ 3.12</u>	<u>3.56</u>	<u>2.08</u>
Diluted:			
Net earnings	<u>\$ 3.10</u>	<u>3.54</u>	<u>2.07</u>
Average common shares outstanding (in thousands):			
Basic	25,946	25,874	25,774
Diluted	26,097	26,058	25,995

See accompanying Notes to Consolidated Financial Statements.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

(Dollars in thousands)

Years ended September 30,	2019	2018	2017
Net earnings	\$ 81,039	92,136	53,703
Other comprehensive (loss) income, net of tax:			
Foreign currency translation adjustments	(6,474)	(2,254)	6,383
Amortization of prior service costs and actuarial (losses) gains	(6,066)	(2,003)	5,573
Net unrealized gain on derivative instruments	94	37	19
Total other comprehensive (loss) income, net of tax	<u>(12,446)</u>	<u>(4,220)</u>	<u>11,975</u>
Comprehensive income	<u>\$ 68,593</u>	<u>87,916</u>	<u>65,678</u>

See accompanying Notes to Consolidated Financial Statements.

CONSOLIDATED BALANCE SHEETS

(Dollars in thousands)
As of September 30,

	2019	2018
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 61,808	30,477
Accounts receivable, less allowance for doubtful accounts of \$1,505 and \$1,683 in 2019 and 2018, respectively	174,427	163,740
Contract assets, net	115,310	53,034
Inventories, net	128,825	135,416
Other current assets	14,824	13,356
Total current assets	495,194	396,023
Property, plant and equipment:		
Land and land improvements	9,830	9,944
Buildings and leasehold improvements	102,178	92,418
Machinery and equipment	166,693	141,711
Construction in progress	12,639	6,609
	291,340	250,682
Less accumulated depreciation and amortization	(129,870)	(115,728)
Net property, plant and equipment	161,470	134,954
Intangible assets, net	393,047	345,353
Goodwill	409,215	381,652
Other assets	7,794	7,140
Total Assets	\$ 1,466,720	1,265,122

See accompanying Notes to Consolidated Financial Statements.

CONSOLIDATED BALANCE SHEETS

(Dollars in thousands)
As of September 30,

	<u>2019</u>	<u>2018</u>
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current liabilities:		
Current maturities of long-term debt	\$ 21,261	20,000
Accounts payable	71,370	63,033
Contract liabilities, net	81,177	49,035
Accrued salaries	38,531	29,379
Accrued other expenses	39,296	39,083
Total current liabilities	<u>251,635</u>	<u>200,530</u>
Pension obligations	22,682	16,286
Deferred tax liabilities	64,855	64,794
Other liabilities	36,326	24,102
Long-term debt	265,000	200,000
Total liabilities	<u>640,498</u>	<u>505,712</u>
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 30,596,940 and 30,534,786 shares in 2019 and 2018, respectively	306	305
Additional paid-in capital	292,408	291,190
Retained earnings	684,741	606,837
Accumulated other comprehensive loss, net of tax	(43,974)	(31,528)
	<u>933,481</u>	<u>866,804</u>
Less treasury stock, at cost (4,615,627 and 4,623,958 common shares in 2019 and 2018, respectively)	(107,259)	(107,394)
Total shareholders' equity	<u>826,222</u>	<u>759,410</u>
Total Liabilities and Shareholders' Equity	<u>\$ 1,466,720</u>	<u>1,265,122</u>

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	Treasury Stock	Total
	Shares	Amount			Income (Loss)		
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 new accounting standard ASU 2018-02	—	—	—	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
Comprehensive income (loss):							
Net earnings	—	—	—	81,039	—	—	81,039
Translation adjustments, net of tax of \$0	—	—	—	—	(6,474)	—	(6,474)
Net unrecognized actuarial loss, net of tax of \$1,817	—	—	—	—	(6,066)	—	(6,066)
Forward exchange contracts, net of tax of \$(22)	—	—	—	—	94	—	94
Cash dividends declared (\$0.32 per share)	—	—	—	(8,302)	—	—	(8,302)
Adoption of new accounting standard ASU 2014-09	—	—	—	5,167	—	—	5,167
Stock options and stock compensation plans, net of tax of \$0	62	1	1,218	—	—	135	1,354
Balance, September 30, 2019	30,597	\$ 306	292,408	684,741	(43,974)	(107,259)	826,222

See accompanying Notes to Consolidated Financial Statements.

CONSOLIDATED STATEMENTS OF CASH FLOWS

(Dollars in thousands)

Years ended September 30,	2019	2018	2017
Cash flows from operating activities:			
Net earnings	\$ 81,039	92,136	53,703
Adjustments to reconcile net earnings to net cash provided by operating activities:			
Depreciation and amortization	40,050	37,755	32,229
Stock compensation expense	5,353	5,218	5,444
Changes in assets and liabilities	(9,944)	(10,315)	(17,889)
Change in property, plant and equipment from gain on building sale	(8,922)	—	—
Effect of deferred taxes on tax provision	61	(21,584)	1,360
Pension contributions	(2,500)	(9,951)	(2,677)
Other	—	—	(4,830)
Net cash provided by operating activities	<u>105,137</u>	<u>93,259</u>	<u>67,340</u>
Cash flows from investing activities:			
Acquisition of businesses, net of cash acquired	(96,777)	(11,445)	(198,628)
Capital expenditures	(37,183)	(20,589)	(29,728)
Additions to capitalized software	(8,386)	(9,573)	(9,002)
Proceeds from sale of building and land	17,201	—	1,184
Proceeds from life insurance	—	—	2,307
Net cash used by investing activities	<u>(125,145)</u>	<u>(41,607)</u>	<u>(233,867)</u>
Cash flows from financing activities:			
Proceeds from long-term debt	131,261	55,000	257,000
Principal payments on long-term debt	(65,000)	(110,000)	(92,000)
Dividends paid	(8,302)	(8,278)	(8,257)
Debt issuance costs	(1,071)	—	—
Other	(3,371)	(3,078)	20
Net cash provided (used) by financing activities	<u>53,517</u>	<u>(66,356)</u>	<u>156,763</u>
Effect of exchange rate changes on cash and cash equivalents	<u>(2,178)</u>	<u>(335)</u>	<u>1,455</u>
Net increase (decrease) in cash and cash equivalents	31,331	(15,039)	(8,309)
Cash and cash equivalents at beginning of year	30,477	45,516	53,825
Cash and cash equivalents at end of year	<u>\$ 61,808</u>	<u>30,477</u>	<u>45,516</u>
Changes in assets and liabilities:			
Accounts receivable, net	\$ (7,230)	(2,789)	(23,587)
Contract assets	(66,885)	(5,748)	(18,540)
Inventories	10,150	(9,830)	3,959
Other assets and liabilities	8,020	(695)	(2,014)
Accounts payable	7,400	9,442	8,735
Contract liabilities	36,751	(1,466)	7,914
Accrued expenses	1,850	771	5,644
	<u>\$ (9,944)</u>	<u>(10,315)</u>	<u>(17,889)</u>
Supplemental cash flow information:			
Interest paid	\$ 8,076	8,540	3,731
Income taxes paid (including state & foreign)	26,084	8,789	25,674

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 on September 30. Throughout the Consolidated Financial Statements, unless the context indicates otherwise, references to a year (for example 2019) 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; products and systems to reduce vibration and/or acoustic signatures and otherwise reduce or obscure a vessel's signature, and other communications, sealing, surface control and hydrodynamic related applications to enhance U.S. Navy maritime survivability; precision-tolerance machined components for the aerospace and defense industry; and metal processing services.

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.

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

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

On October 1, 2018, we adopted ASU No. 2014-09, *Revenue from Contracts with Customers* (ASC 606). Significant changes to our policies resulting from the adoption are provided below. We adopted ASC 606 using the modified retrospective transition method applied to contracts that were not substantially complete at the end of fiscal year 2018. We recorded a \$5.2 million adjustment to increase retained earnings to reflect the cumulative impact of adopting this standard at the beginning of fiscal year 2019, primarily related to certain long-term contracts in our Filtration and Technical Packaging segments that converted to the cost-to-cost method for revenue recognition. The comparative information has not been restated and is reported under the accounting standards in effect for those periods. A reconciliation of the financial statement line items impacted for the year ended September 30, 2019 under ASC 606 to the prior accounting standards is provided in Note 16.

Revenue Recognition

Revenue is recognized when control of the goods or services promised under the contract is transferred to the customer either at a point in time (e.g., upon delivery) or over time (e.g., as we perform under the contract). We account for a contract when it has approval and commitment from both parties, the rights and payment terms of the parties are identified, the contract has commercial substance and collectability of consideration is probable. Contracts are reviewed to determine whether there is one or multiple performance obligations. A performance obligation is a promise to transfer a distinct good or service to a customer and represents the unit of accounting for revenue recognition. For contracts with multiple performance obligations, the expected consideration, or the transaction price, is allocated to each performance obligation identified in the contract based on the relative standalone selling price of each performance obligation. Revenue is then recognized for the transaction price allocated to the performance obligation when control of the promised goods or services underlying the performance obligation is transferred. Payment terms with customers vary by the type and location of the customer and the products or services offered. The Company does not adjust the promised amount of consideration for the effects of significant financing components based on the expectation that the period between when the Company transfers a promised good or service to a customer and when the customer pays for that good or service will be one year or less. Arrangements with customers that include payment terms extending beyond one year are not significant.

Filtration: Within the Filtration segment, approximately 50% of revenues (approximately 20% of consolidated revenues) are recognized at a point in time when products are shipped (when control of the goods transfers) to unaffiliated customers. The related contracts are with commercial and military customers and have a single performance obligation as there is only one good promised or the promise to transfer the goods or services is not distinct or separately identifiable from other promises in the contract. The transaction price for these contracts reflects our estimate of returns, rebates and discounts, which are based on historical, current and forecasted information to determine the expected amount to which the Company will be entitled in exchange for transferring the promised goods or services to the customer. The realization of variable consideration occurs within a short period of time from product delivery; therefore, the time value of money effect is not significant. Amounts billed to customers for shipping and handling are included in the transaction price as the related activities are performed prior to customer obtaining control of the products. They generally are not treated as separate performance obligations as these costs fulfill a promise to transfer the product to the customer and are expensed in selling, general, and other costs in the period they are incurred. Taxes collected from customers and remitted to government authorities are recorded on a net basis. We primarily provide standard warranty programs for products in our commercial businesses for periods that typically range from one to two years. These assurance-type programs typically cannot be purchased separately and do not meet the criteria to be considered a performance obligation.

Approximately 50% of the segment's revenues (approximately 20% of consolidated revenues) are accounted for over time as the product does not have an alternative use and the Company has an enforceable right to payment for costs incurred plus a reasonable margin or the inventory is owned by the customer. The related contracts are primarily cost-plus or fixed price contracts related to the design, development and manufacture of complex fluid control products, quiet valves, manifolds, shock and vibration dampening, thermal insulation and systems primarily for the commercial aerospace and military (U.S. Government) markets. The contracts may contain multiple products, which are capable of being distinct as the customer could benefit from each product on its own or together with other readily available resources. Each product is separately identifiable from the other products in the contract. Therefore, each product is distinct in context of the contract and will be accounted for as a separate performance obligation. Our contracts are frequently modified for changes in contract specifications and requirements. Most of our contract modifications are for products that are not distinct from the existing contract and are accounted for as part of that existing contract.

Contracts with the U.S. Government generally contain clauses that provide lien rights to work-in-process along with clauses that allow the customer to unilaterally terminate the contract for convenience, pay us for costs incurred plus a reasonable profit and take control of any work-in-process. Due to the continuous transfer of control to the U.S. Government, we recognize revenue over the time that we perform under the contract.

Selecting the method to measure progress towards completion for the commercial and military contracts requires judgment and is based on the nature of the products or service to be provided. We generally use the cost-to-cost method to measure progress for our Filtration segment contracts, as the rate at which costs are incurred to fulfill a contract best depicts the transfer of control to the customer. Under this measure, the extent of progress towards completion is measured based on the ratio of costs incurred to date to the estimated costs at completion of the performance obligation, and revenue is recorded proportionally as costs are incurred based on an estimated profit margin.

The transaction price for our contracts represents our best estimate of the consideration we will receive and includes assumptions regarding variable consideration as applicable. Certain of our long-term contracts contain incentive fees that can increase the transaction price. These variable amounts generally are awarded upon achievement of certain performance metrics, program milestones or cost targets and can be based upon customer discretion. We include estimated amounts in the transaction price to the extent it is probable that a significant reversal of cumulative revenue recognized will not occur when the uncertainty associated with the variable consideration is resolved. Our estimates of variable consideration and determination of whether to include estimated amounts in the transaction price are based largely on an assessment of our anticipated performance and all other information that is reasonably available to us.

Total contract cost is estimated utilizing current contract specifications and expected engineering requirements. Contract costs typically are incurred over a period of several months to one or more years, and the estimation of these costs requires judgment. Our cost estimation process is based on the professional knowledge and experience of engineers and program managers along with finance professionals. We review and update our projections of costs quarterly or more frequently when circumstances significantly change.

Under the typical payment terms of our long term fixed price contracts, the customer pays us either performance-based or progress payments. Performance-based payments represent interim payments based on quantifiable measures of performance or on the achievement of specified events or milestones. Progress payments are interim payments of costs incurred as the work progresses. Because of the timing difference of revenue recognition and customer billing, these contracts will often result in revenue recognized in excess of billings and billings in excess of costs incurred, which we present as contract assets and contract liabilities, respectively, in the Consolidated Balance Sheets. Amounts billed and due from our customers are classified in Accounts receivable, net. For short term fixed price and cost-type contracts, we are generally paid within a short period of time.

For contracts where revenue is recognized over time, we generally recognize changes in estimated contract revenues, costs and profits using the cumulative catch-up method of accounting. This method recognizes the cumulative effect of changes on current and prior periods with the impact of the change from inception-to-date recorded in the current period. We have net revenue recognized in the current year from performance obligations satisfied in the prior year due to changes in our estimated costs to complete the related performance obligations. Anticipated losses on contracts are recognized in full in the period in which the losses become probable and estimable.

USG: Within the USG segment, approximately 75% of revenues (approximately 19% of consolidated revenues) are recognized at a point in time when products are shipped (when control of the goods transfers) to unaffiliated customers. The related contracts are with commercial customers. The contracts may contain multiple products which are capable of being distinct as the customer could benefit from each product on its own or together with other readily available resources. Each product is separately identifiable from the other products in the contract. Therefore, each product is distinct in context of the contract and is accounted for as a separate performance obligation. The transaction price for these contracts reflects our estimate of variable consideration in the form of returns, rebates and discounts, which are based on historical, current and forecasted information to determine the expected amount to which the Company will be entitled in exchange for transferring the promised goods or services to the customer. The realization of variable consideration occurs within a short period of time from product delivery; therefore, the time value of money effect is not significant. Amounts billed to customers for shipping and handling are included in the transaction price as the related activities are performed prior to customer obtaining control of the products. They generally are not treated as separate performance obligations as these costs fulfill a promise to transfer the product to the customer and are expensed in selling, general, and other costs in the period they are incurred. Taxes collected from customers and remitted to government authorities are recorded on a net basis. We primarily provide standard warranty programs for products in our commercial businesses for periods that typically range from one to two years. These assurance-type programs typically cannot be purchased separately and do not meet the criteria to be considered a performance obligation.

Approximately 25% of the segment's revenues (approximately 7% of consolidated revenues) are recognized over time as services are performed. The services accounted for under this method include an obligation to provide testing services using hardware and embedded software, software maintenance, training, lab testing, and consulting services. The related contracts contain a bundle of goods and services that are integrated in the context of the contract. Therefore, the goods and services are not distinct and the Company has a single performance obligation. Selecting the method to measure progress towards completion for these contracts requires judgment and is based on the nature of the products and service to be provided. We will recognize revenue as a series of distinct services based on each day of providing services (straight-line over the contract term) for our USG segment contracts. The transaction price for our contracts represents our best estimate of the consideration we will receive and includes assumptions regarding variable consideration as applicable. Under the typical payment terms of our service contracts, the customer pays us in advance of when services are performed. Because of the timing difference of revenue recognition and customer

payment, which is typically received upon commencement of the contract, these contracts result in deferred revenue, which we present as contract liabilities, in the Consolidated Balance Sheets.

Included in this category, approximately 10% of the segment's revenues (approximately 2% of consolidated revenues) are recognized based on the terms of the software contract. For contracts that transfer a software license to the customer, revenue will be recognized at a point in time. These type of software contracts represent a right to use the software, or a functional license, in which revenue should be recognized upon transfer of the license. For contracts in software as a service (SaaS) arrangements, revenue will be recognized over time. The customer receives and consumes the benefits of the SaaS arrangement through access to the system which is for a stated period. We will recognize revenue based on each day of providing access (straight-line over the contract term). The transaction price for our contracts represents our best estimate of the consideration we will receive and includes assumptions regarding variable consideration as applicable. Under the typical payment terms of our software contracts, the customer pays us in advance of when services are performed. Because of the timing difference of revenue recognition and customer payment, these contracts result in deferred revenue, which we present as contract liabilities, in the Consolidated Balance Sheets.

Test: Within the Test segment, approximately 20% of revenues (approximately 4% of consolidated revenues) are recognized at a point in time when products such as, antennas and probes are shipped (when control of the goods transfers) to unaffiliated customers. The related contracts are with commercial customers. The contracts may contain multiple products which are capable of being distinct as the customer could benefit from each product on its own or together with other readily available resources. Each product is separately identifiable from the other products in the contract. Therefore, each product is distinct in context of the contract and will be accounted for as a separate performance obligation. The transaction price for these contracts reflects our estimate of variable consideration in the form of returns, rebates and discounts, which are based on historical, current and forecasted information to determine the expected amount to which the Company will be entitled in exchange for transferring the promised goods or services to the customer. The realization of variable consideration occurs within a short period of time from product delivery; therefore, the time value of money effect is not significant. Amounts billed to customers for shipping and handling are included in the transaction price as the related activities are performed prior to customer obtaining control of the products. They generally are not treated as separate performance obligations as these costs fulfill a promise to transfer the product to the customer and are expensed in selling, general, and other costs in the period they are incurred. Taxes collected from customers and remitted to government authorities are recorded on a net basis. We primarily provide standard warranty programs for products in our commercial businesses for periods that typically range from one to two years. These assurance-type programs typically cannot be purchased separately and do not meet the criteria to be considered a performance obligation.

Approximately 80% of the segment's revenues (approximately 19% of consolidated revenues) are recorded over time as the product does not have an alternative use and the Company has an enforceable right to payment for costs incurred plus a reasonable margin. Products accounted for under this guidance include the construction and installation of test chambers to a buyer's specifications that provide its customers with the ability to measure and contain magnetic, electromagnetic and acoustic energy. The goods and services related to each installed test chamber are not distinct due to the significant amount of integration provided and each installed chamber is accounted for as a single performance obligation. Selecting the method to measure progress towards completion for these contracts requires judgment and is based on the nature of the products and service to be provided. We use milestones to measure progress for our Test segment contracts because it best depicts the transfer of control to the customer that occurs as we incur costs on our contracts. 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 transaction price for our contracts represents our best estimate of the consideration we will receive and includes assumptions regarding variable consideration as applicable.

Total contract cost is estimated utilizing current contract specifications and expected engineering requirements. Contract costs typically are incurred over a period of several months to a year, and the estimation of these costs requires judgment. Our cost estimation process is based on the professional knowledge and experience of engineers and program managers along with finance professionals. We review and update our projections of costs quarterly or more frequently when circumstances significantly change.

Under the typical payment terms of our fixed price contracts, the customer pays us either performance-based or progress payments. Performance-based payments represent interim payments based on quantifiable measures of performance or on the achievement of specified events or milestones. Progress payments are interim payments of costs incurred as the work progresses. Because of the timing difference of revenue recognition and customer billing, these contracts result in revenue recognized in excess of billings and billings in excess of costs incurred, which we

present as contract assets and contract liabilities, respectively, in the Consolidated Balance Sheets. Amounts billed and due from our customers are classified in Accounts receivable, net.

For contracts where revenue is recognized over time, we generally recognize changes in estimated contract revenues, costs and profits using the cumulative catch-up method of accounting. This method recognizes the cumulative effect of changes on current and prior periods with the impact of the change from inception-to-date recorded in the current period. We have net revenue recognized in the current year from performance obligations satisfied in the prior year due to changes in our estimated costs to complete the related performance obligations. Anticipated losses on contracts are recognized in full in the period in which the losses become probable and estimable.

Technical Packaging: Within the Technical Packaging segment, 100% of the revenues (approximately 11% of consolidated revenues) are recognized over time as the product does not have an alternative use and the Company has an enforceable right to payment. Selecting the method to measure progress towards completion for the contracts requires judgment and is based on the nature of the products to be provided. We use the cost-to-cost method to measure progress for our Technical Packaging segment contracts because it best depicts the transfer of control to the customer that occurs as we incur costs on our contracts. Under this measure, the extent of progress towards completion is measured based on the ratio of costs incurred to date to the estimated costs at completion of the performance obligation, and revenue is recorded proportionally as costs are incurred. The transaction price for our contracts reflects our estimate of variable consideration in the form of returns, rebates and discounts, which are based on historical, current and forecasted information to determine the expected amount to which the Company will be entitled in exchange for transferring the promised goods or services to the customer. The realization of variable consideration occurs within a short period of time from product delivery; therefore, the time value of money effect is not significant.

Total contract cost is estimated utilizing current contract specifications and expected engineering requirements. Contract costs typically are incurred over a period of weeks, minimizing the amount of judgment in developing the cost estimate. Our cost estimation process is based on the professional knowledge and experience of engineers and program managers along with finance professionals. We review and update our projections of costs quarterly or more frequently when circumstances significantly change.

Under the typical payment terms of our contracts, the customer is billed upon shipment of product. Amounts billed and due from our customers are classified in Accounts receivable, net. Because of the timing difference of revenue recognition and customer billing, these contracts result in revenue recognized in excess of billings, which we present as contract assets in the Consolidated Balance Sheets.

For contracts where revenue is recognized over time, we generally recognize changes in estimated contract revenues, costs and profits using the cumulative catch-up method of accounting. This method recognizes the cumulative effect of changes on current and prior periods with the impact of the change from inception-to-date recorded in the current period. Anticipated losses on contracts are recognized in full in the period in which the losses become probable and estimable.

Contract Assets and Liabilities

Contract assets arise from contracts when revenue is recognized over time and the amount of revenue recognized, including our estimate of variable consideration that has been included in the transaction price, exceeds the amount billed to the customer. These amounts are included in contract assets until the right to payment is no longer conditional on events other than the passage of time. These contract assets are reclassified to receivables when the right to consideration becomes unconditional. Contract liabilities include deposits, deferred revenue, upfront payments and billings in excess of revenue recognized. Liabilities for customer rebates and discounts are included in other current liabilities in the accompanying balance sheet.

See the further discussion of the Company's revenue recognition in Note 16 below.

Prior to Adoption of ASC 606

Prior to October 1, 2018, Management recognized revenue consistent with ASC 605. The Filtration and Technical Packaging segments were most impacted by the change in the timing of revenue recognition. Under ASC 605, the Filtration segment recognized 85% and 86% of revenues upon delivery of products (when title and risk of ownership transfers) and when the other general conditions to revenue recognition (collectability of revenues is probable, there is evidence of an arrangement, fees are fixed and determinable) were met, and 15% and 14% of revenues under percentage-of-completion in 2018 and 2017, respectively. Under ASC 605, the Technical Packaging segment recognized 100% of revenues upon delivery of products (when title and risk of ownership transfers) in 2018 and 2017. The change to recording more revenue over time as costs are incurred at both segments is the result of the products not

having an alternative use and the Company having an enforceable right to payment for costs incurred plus a reasonable margin or the inventory is owned by the customer.

The timing of revenue recognition under ASC 605 and ASC 606 was similar for the USG and Test segments. Within the USG segment, 25% and 22% of revenues were recognized under percentage-of-completion and 75% and 78% of revenues were recognized when products were delivered or services performed (when title and risk of ownership transfers) and when the other general conditions to revenue recognition (collectability of revenues is probable, there is evidence of an arrangement, fees are fixed and determinable) were met in 2018 and 2017, respectively. Within the Test segment, 75% and 70% of revenues were recognized under percentage-of-completion and 25% and 30% of revenues were recognized when products were delivered or services performed (when title and risk of ownership transfers) in 2018 and 2017, respectively.

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. 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.

I. 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.

J. 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).

K. 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 each of our reporting units' current business models.

During 2019, the revenue softness in the Company's renewable energy subsidiary NRG led management to perform a more comprehensive impairment analysis, which included a detailed calculation surrounding the carrying value of its \$8 million of goodwill and \$8 million of tradename related to that reporting unit. The results of these additional analyses indicated that our estimates of discounted cash flows for assets measured in accordance with ASC 350, *Intangibles – Goodwill and Other* would allow the carrying amounts to be recovered. Since we are using estimates of discounted cash flows, these may change, and if they change negatively it could result in the need to write down those assets to fair value.

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.

L. 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.

M. 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.

N. 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 \$14.5 million, \$13.1 million and \$14.0 million for 2019, 2018 and 2017, respectively. These expense amounts exclude certain engineering costs primarily associated with product line extensions, modifications and maintenance, which amounted to approximately \$15.8 million, \$13.1 million and \$10.4 million for 2019, 2018 and 2017, respectively.

O. 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.

P. 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)	2019	2018	2017
Weighted Average Shares Outstanding — Basic	25,946	25,874	25,774
Performance- Accelerated Restricted Stock	151	184	221
Shares — Diluted	26,097	26,058	25,995

Q. 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).

R. Accumulated Other Comprehensive Loss

Accumulated other comprehensive loss of \$(44.0) million at September 30, 2019 consisted of \$(37.0) million related to the pension actuarial loss; and \$(7.0) million related to currency translation adjustments. 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.

S. 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.

T. 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.

U. 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, 2019 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 2019.

V. New Accounting Standards

Leases

In February 2016, the FASB issued ASU No. 2016-062, "Leases" (ASU 2016-02) which supersedes ASC 840, "Leases" and creates a new topic, ASC 842, "Leases." Subsequent to the issuance of ASU 2016-02, ASC 842 was amended by various updates that amend and clarify the impact and implementation of the aforementioned update. These updates require lessees to recognize a lease liability and a lease asset for all leases, including operating leases, with a term greater than 12 months on its balance sheet. Upon initial application, the provisions of these updates are required to be applied using the modified retrospective method which requires retrospective adoption to each prior reporting period presented with the cumulative effect of adoption recorded to the earliest reporting period presented. An optional transition method can be utilized which requires retrospective adoption beginning on the date of adoption with the cumulative effect of initially applying these updates recognized at the date of initial adoption. These updates also expand the required quantitative and qualitative disclosures surrounding leases. These updates are effective for fiscal years beginning after December 15, 2018 and interim periods within those fiscal years, with earlier application permitted. We adopted these updates on October 1, 2019 using the optional transition method. The adoption resulted in the addition of "right of use" assets and lease liabilities of approximately \$25 million to our consolidated balance sheet, with no significant change to our consolidated statements of operations or cash flows. The updates will also have an impact on our accounting policies, internal controls and disclosures related to leases.

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, it reclassified \$6.3 million from AOCI to retained earnings.

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.

2. Acquisitions

2019

On July 2, 2019 the Company acquired Globe Composite Solutions, LLC, for a purchase price of approximately \$95 million, net of cash acquired. Globe, based in Stoughton, Massachusetts, is a well-established, vertically integrated supplier of mission-critical composite-based products and solutions for navy, defense, and industrial customers, Globe has annualized sales of approximately \$37 million. Since the date of acquisition, the operating results for Globe have been included in the Company's Filtration segment. Based on the preliminary purchase price allocation, the Company recorded approximately \$3.5 million of accounts receivable, \$3.5 million of inventory, \$6.3 million of property, plant and equipment, \$10.5 million of accounts payable, accrued expenses and advance payments, \$28.5 million of goodwill, \$3.7 million of tradenames and \$59.7 million of amortizable intangible assets consisting mainly of \$56.7 million of customer relationships with a weighted average life of 20 years and \$2.8 million of customer contract assets. The final working capital adjustment is due in January 2020. The acquired goodwill relates to excess value associated with the opportunities to expand the services and markets that the Company can offer to its customers. The Company estimates approximately \$25 million of the goodwill will be deductible for tax purposes.

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. 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. 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. 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. 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. 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. 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.

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 acquisition mentioned above is not expected to be deductible for U.S. Federal or state income tax purposes. The goodwill recorded for the Globe, 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, 2019 and 2018 are the following intangible assets gross carrying amounts and accumulated amortization:

(Dollars in millions)	<u>2019</u>	<u>2018</u>
Goodwill	<u>\$ 409.2</u>	<u>381.7</u>
Intangible assets with determinable lives:		
Patents		
Gross carrying amount	\$ 2.1	1.8
Less: accumulated amortization	<u>0.9</u>	<u>0.8</u>
Net	<u>\$ 1.2</u>	<u>1.0</u>
Capitalized software		
Gross carrying amount	\$ 79.7	71.3
Less: accumulated amortization	<u>49.2</u>	<u>41.6</u>
Net	<u>\$ 30.5</u>	<u>29.7</u>
Customer Relationships		
Gross carrying amount	\$ 241.3	185.3
Less: accumulated amortization	<u>59.0</u>	<u>47.8</u>
Net	<u>\$ 182.3</u>	<u>137.5</u>
Other		
Gross carrying amount	\$ 5.3	5.5
Less: accumulated amortization	<u>2.6</u>	<u>2.0</u>
Net	<u>\$ 2.7</u>	<u>3.5</u>
Intangible assets with indefinite lives:		
Trade names	<u>\$ 176.3</u>	<u>173.7</u>

The Company performed its annual evaluation of goodwill and intangible assets for impairment during the fourth quarter of 2019 and concluded no impairment existed at September 30, 2019 and there are no accumulated impairment losses as of September 30, 2019.

The changes in the carrying amount of goodwill attributable to each business segment for 2019 and 2018 are as follows:

(Dollars in millions)	Filtration	Test	USG	Technical Packaging	Total
Balance as of September 30, 2017	\$ 73.7	34.1	250.2	19.9	377.9
Acquisition activity	-	-	3.9	-	3.9
Foreign currency translation and other	-	-	-	(0.1)	(0.1)
Balance as of September 30, 2018	73.7	34.1	254.1	19.8	381.7
Acquisition activity	28.5	-	-	-	28.5
Foreign currency translation and other	-	-	(0.1)	(0.9)	(1.0)
Balance as of September 30, 2019	<u>\$ 102.2</u>	<u>34.1</u>	<u>254.0</u>	<u>18.9</u>	<u>409.2</u>

Amortization expense related to intangible assets with determinable lives was \$19.5 million, \$18.3 million and \$16.3 million in 2019, 2018 and 2017, 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 2020 through 2024 is estimated at approximately \$22 million per year.

4. Accounts Receivable

Accounts receivable, net of the allowance for doubtful accounts, consist of the following at September 30, 2019 and 2018:

(Dollars in thousands)	2019	2018
Commercial	\$ 153,265	146,049
U.S. Government and prime contractors	21,162	17,691
Total	<u>\$ 174,427</u>	<u>163,740</u>

5. Inventories, Net

Inventories consist of the following at September 30, 2019 and 2018:

(Dollars in thousands)	2019	2018
Finished goods	\$ 23,550	26,678
Work in process	26,407	47,765
Raw materials	78,868	60,973
Total	<u>\$ 128,825</u>	<u>135,416</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 \$3.3 million, \$2.1 million and \$3.6 million during fiscal 2019, 2018 and 2017, 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 2019, 2018 and 2017 consisted of the following:

(Dollars in thousands)	2019	2018	2017
United States	\$ 93,654	80,994	72,353
Foreign	8,562	7,029	7,800
Total income before income taxes	<u>\$ 102,216</u>	<u>88,023</u>	<u>80,153</u>

The principal components of income tax expense (benefit) for 2019, 2018 and 2017 consist of:

(Dollars in thousands)	2019	2018	2017
Federal:			
Current	\$ 14,097	9,174	21,448
Deferred	1,020	(22,943)	628
State and local:			
Current	3,189	2,121	1,795
Deferred	204	2,972	(49)
Foreign:			
Current	2,493	2,233	4,450
Deferred	174	2,330	(1,822)
Total	\$ 21,177	(4,113)	26,450

The actual income tax expense (benefit) for 2019, 2018 and 2017 differs from the expected tax expense for those years (computed by applying the U.S. Federal corporate statutory rate) as follows:

	2019	2018	2017
Federal corporate statutory rate	21.0%	24.5%	35.0%
State and local, net of Federal benefits	3.3	3.0	2.4
Foreign	0.7	0.6	(0.1)
Research credit	(0.9)	(1.6)	(1.1)
Domestic production deduction	-	(1.1)	(2.7)
Change in uncertain tax positions	(0.1)	(0.1)	-
Executive compensation	0.3	(0.1)	(0.1)
Valuation allowance	(2.4)	3.0	(0.3)
GILTI and FDII	(0.8)	-	-
Tax reform – impact on U.S. deferred tax assets and liabilities	(0.3)	(37.2)	-
Tax reform – transition tax	(0.1)	1.5	-
Tax reform – taxes related to foreign unremitted earnings	-	2.8	-
Other, net	-	-	(0.1)
Effective income tax rate	20.7%	(4.7)%	33.0%

On December 22, 2017, President Trump signed into law new tax legislation commonly referred to as the Tax Cut and Jobs Act (the “TCJA”). Provisions under the TCJA that became effective for the Company in the current fiscal year include a further reduction in the U.S. statutory rate to 21%, a new minimum tax on global intangible low-taxed income (“GILTI”), the benefit of the deduction for foreign-derived intangible income (“FDII”), and changes to IRC Section 162(m) related to the deductibility of executive compensation.

The tax effects of temporary differences that give rise to significant portions of the deferred tax assets and liabilities at September 30, 2019 and 2018 are presented below:

(Dollars in thousands)	2019	2018
Deferred tax assets:		
Inventories	\$ 5,089	5,834
Pension and other postretirement benefits	5,533	3,969
Net operating and capital loss carryforwards — domestic	617	639
Net operating loss carryforward — foreign	3,766	4,603
Foreign tax credit carryforward	—	2,377
Other compensation-related costs and other cost accruals	7,952	7,048
State credit carryforward	1,914	2,103
Total deferred tax assets	<u>24,871</u>	<u>26,573</u>
Deferred tax liabilities:		
Timing differences related to revenue recognition	(1,508)	—
Goodwill	(2,673)	(969)
Acquisition assets	(60,224)	(62,841)
Depreciation, software amortization	(20,161)	(19,584)
Net deferred tax liabilities before valuation allowance	<u>(59,695)</u>	<u>(56,821)</u>
Less valuation allowance	(4,520)	(7,144)
Net deferred tax liabilities	<u>\$ (64,215)</u>	<u>(63,965)</u>

The Company has a foreign net operating loss (NOL) carryforward of \$16.6 million at September 30, 2019, which reflects tax loss carryforwards in Germany, Finland, South Africa, Japan, Canada, Norway and the United Kingdom. Approximately \$16.0 million of the tax loss carryforwards have no expiration date while the remaining \$0.6 million will expire between 2027 and 2039. The Company has deferred tax assets related to state NOL carryforwards of \$0.6 million at September 30, 2019 which expire between 2027 and 2039. The Company also has net state research and other credit carryforwards of \$1.9 million of which \$1.4 million expires between 2025 and 2037. The remaining \$0.5 million does not have an expiration date.

The valuation allowance for deferred tax assets as of September 30, 2019 and 2018 was \$4.5 million and \$7.1 million, respectively. The net change in the total valuation allowance for each of the years ended September 30, 2019 and 2018 was a decrease of \$2.6 million and an increase of \$2.7 million, respectively. The Company has established a valuation allowance for excess foreign tax credits that are not expected to be utilized in future periods of \$0 and \$2.4 million at September 30, 2019 and 2018, respectively. The Company has established a valuation allowance against state credit carryforwards of \$0.4 million at both September 30, 2019 and 2018. 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 at both September 30, 2019 and 2018. Lastly, the Company has established a valuation allowance against certain NOL carryforwards in foreign jurisdictions which may not be realized in future periods of \$3.6 million and \$3.8 million at September 30, 2019 and 2018, respectively.

On December 22, 2017, the U.S. government enacted the Tax Cuts and Jobs Act, which made comprehensive changes to U.S. federal income tax laws by moving from a global to a modified territorial tax regime. As a result, cash repatriated to the U.S. is generally no longer subject to U.S. federal income tax. No provision is made for foreign withholding any applicable U.S. income taxes on the undistributed earnings of non-U.S. where these earnings are considered indefinitely invested or otherwise retained for continuing international operations. Determination of the amount of taxes that might be paid on these undistributed earnings if eventually remitted is not practicable.

The Company had \$0 and \$0.1 million of unrecognized tax benefits as of September 30, 2019 and 2018, respectively, which, if recognized, would affect the Company's effective tax rate. 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, 2019, 2018 and 2017, the Company had zero accrued interest related to uncertain tax positions on its Consolidated Balance Sheets. No 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, 2016 and forward remain subject to income tax examination. Various state tax years for the periods ended September 30, 2015 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, 2019 and 2018:

(Dollars in thousands)	2019	2018
Revolving credit facility, including current portion	\$ 286,261	220,000
Current portion of long-term debt	(21,261)	(20,000)
Total long-term debt, less current portion	\$ 265,000	200,000

On September 27, 2019, the Company entered into a new five-year credit facility (“the Credit Facility”), modifying its previous credit facility which would have matured December 21, 2020. The Credit Facility includes a \$500 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 eight banks led by JP Morgan Chase Bank, N.A., as Administrative Agent. The Credit Facility matures September 27, 2024.

Interest on borrowings under the Credit Facility is calculated at a spread over either the London Interbank Offered Rate (LIBOR), the New York Federal Reserve Bank Rate or the prime rate, depending on various factors. The Credit Facility also requires a facility fee ranging from 10 to 25 basis points per annum on the unused portion. The interest rate spreads and the facility fee are subject to increase or decrease depending on the Company’s leverage ratio.

The Credit Facility is secured by the unlimited guaranty of the Company’s direct and indirect material U.S. subsidiaries and the pledge of 100% of the equity interests of its direct and indirect material foreign subsidiaries. The financial covenants of the Credit Facility include a leverage ratio and an interest coverage ratio. As of September 30, 2019, the Company was in compliance with all covenants.

At September 30, 2019, the Company had approximately \$207 million available to borrow under the Credit Facility, plus the \$250 million increase option, in addition to \$61.8 million cash on hand. The Company classified \$21.3 million as the current portion of long-term debt as of September 30, 2019, 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.

During 2019 and 2018, the maximum aggregate short-term borrowings at any month-end were \$308 million and \$271 million, respectively, and the average aggregate short-term borrowings outstanding based on month-end balances were \$236.4 million and \$258.8 million, respectively. The weighted average interest rates were 3.21%, 3.03% and 2.09% for 2019, 2018 and 2017, respectively. The letters of credit issued and outstanding under the Credit Facility totaled \$8.2 million and \$7.8 million at September 30, 2019 and 2018, respectively.

9. Capital Stock

The 30,596,940 and 30,534,786 common shares as presented in the accompanying Consolidated Balance Sheets at September 30, 2019 and 2018 represent the actual number of shares issued at the respective dates. The Company held 4,615,627 and 4,623,958 common shares in treasury at September 30, 2019 and 2018, 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, 2021. There were no share repurchases in 2019, 2018 or 2017. At September 30, 2019, approximately \$50.4 million remained available for repurchases under the program.

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, 2019, the Company’s equity compensation plans had a total of 844,029 shares authorized and available for future issuance.

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 \$4.3 million, \$4.1 million and \$4.4 million for 2019, 2018 and 2017, respectively.

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

	FY 2019		FY 2018		FY 2017	
	Shares	Estimated Weighted Avg. Price	Shares	Estimated Weighted Avg. Price	Shares	Estimated Weighted Avg. Price
Nonvested at October 1,	315,544	\$ 47.23	335,825	\$ 40.35	427,438	\$ 35.40
Granted	84,862	74.77	104,320	56.06	110,422	51.16
Vested	(113,402)	37.00	(121,301)	35.59	(202,035)	35.78
Cancelled	(6,000)	45.20	(3,300)	53.86	–	–
Nonvested at September 30,	281,004	\$ 59.72	315,544	\$ 47.23	335,825	\$ 40.35

Compensation Plan for Non-Employee Directors

Through the first quarter of 2018 the Company's Compensation Plan for Non-Employee Directors 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, \$1.1 million and \$1.0 million for 2019, 2018 and 2017, 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 \$5.4 million, \$5.2 million and \$5.4 million for 2019, 2018 and 2017, respectively. The total income tax benefit recognized in results of operations for share-based compensation arrangements was \$1.1 million, \$1.3 million and \$1.8 million for 2019, 2018 and 2017, respectively. As of September 30, 2019, there was \$9.6 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 2.0 years.

11. Retirement and Other Benefit Plans

Formerly, substantially all domestic employees were covered by a defined benefit 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. Subsequent to September 30, 2019, the Company announced that it plans to terminate and annuitize the defined benefit pension plan during fiscal 2020. 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. In addition, substantially all domestic employees are covered by a defined contribution plan maintained by the Company.

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 \$0.6 million and \$0.5 million at September 30, 2019 and 2018, 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, 2019, and a statement of the funded status as of September 30, 2019 and 2018:

(Dollars in millions)

Reconciliation of benefit obligation	2019	2018
Net benefit obligation at beginning of year	\$ 89.8	95.3
Interest cost	3.7	3.4
Actuarial loss (gain)	11.3	(4.3)
Gross benefits paid	(4.7)	(4.6)
Settlements	-	-
Net benefit obligation at end of year	\$ 100.1	89.8

(Dollars in millions)

Reconciliation of fair value of plan assets	2019	2018
Fair value of plan assets at beginning of year	\$ 73.3	65.0
Actual return on plan assets	5.9	2.7
Employer contributions	2.7	10.2
Gross benefits paid	(4.7)	(4.6)
Settlements	-	-
Fair value of plan assets at end of year	\$ 77.2	73.3

(Dollars in millions)

Funded Status	2019	2018
Funded status at end of year	\$ (22.9)	(16.5)
Accrued benefit cost	(22.9)	(16.5)

Amounts recognized in the Balance Sheet consist of:

Current liability	(0.2)	(0.2)
Noncurrent liability	(22.7)	(16.3)
Accumulated other comprehensive (income)/loss (before tax effect)	49.6	41.9

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

Net actuarial loss	49.6	41.9
Accumulated other comprehensive (income)/loss (before tax effect)	\$ 49.6	41.9

The estimated amount that will be amortized from accumulated other comprehensive (income) loss into net periodic benefit cost (income) in 2020 is \$2.7 million.

The following table provides the components of net periodic benefit cost for the plans for 2019, 2018 and 2017:

(Dollars in millions)	2019	2018	2017
Service cost	\$ -	-	-
Interest cost	3.7	3.4	3.2
Expected return on plan assets	(4.4)	(3.8)	(3.9)
Net actuarial loss	2.1	2.3	2.6
Net periodic benefit cost	1.4	1.9	1.9
Defined contribution plans	7.3	7.1	6.3
Total	\$ 8.7	9.0	8.2

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>2019</u>	<u>2018</u>	<u>2017</u>
Discount rate	4.15%	3.65%	3.25%
Rate of increase in compensation levels	N/A	N/A	N/A
Expected long-term rate of return on assets	6.00%	6.00%	6.25%

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

	<u>2019</u>	<u>2018</u>
Discount rate	3.05%	4.15%
Rate of increase in compensation levels	N/A	N/A

The assumed rate of increase in compensation levels is not applicable in 2019, 2018 and 2017 as the plan was frozen in earlier years.

The asset allocation for the Company's pension plans at the end of 2019 and 2018, and the Company's acceptable range and the target allocation for 2020, by asset category, are as follows:

<u>Asset Category</u>	Target Allocation 2020	Acceptable Range	Percentage of Plan Assets at Year-end	
			<u>2019</u>	<u>2018</u>
Return seeking	53%	48%-58%	41%	44%
Liability hedging	47%	42%-52%	56%	54%
Cash/cash equivalents	0%	0%-10%	3%	2%

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, 2019 and 2018, by asset category, were as follows:

(Dollars in millions)	<u>2019</u>	<u>2018</u>
Investments at fair value:		
Cash and cash equivalents	\$ 2.1	2.1
Common and preferred stock funds:		
Domestic large capitalization	8.8	8.7
Domestic small-/mid-capitalization	2.4	2.7
International funds	10.6	10.8
Fixed income funds	49.7	45.6
Real estate investment funds	3.6	3.4
Total investments at fair value	<u>\$ 77.2</u>	<u>73.3</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.

As of September 30, 2019, the fair values of the investments were classified within the valuation hierarchy under ASC 825 as follows: \$44.9 million within Level 0, \$13.0 million within Level 1 and \$19.3 million within Level 2.

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 — 2020	\$ 0.7	0.1
Expected Benefit Payments:		
2020	5.8	0.1
2021	5.5	0.1
2022	5.7	0.1
2023	5.8	0.1
2024	5.9	0.1
2025-2029	\$ 30.2	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. In 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, 2019.

(In thousands)	Notional Amount (Currency)	Fair Value (US\$)	Fix Rate
Forward contracts	5,750 USD	(35)	
Interest rate swap	150,000 USD	(19)	2.09%
Interest rate swap *	150,000 USD	(1,143)	2.24%

* 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 ASC 825, as presented below as of September 30, 2019:

(In thousands)	Level 1	Level 2	Level 3	Total
Asset:				
Forward contracts	\$ -	(1,197)	-	(1,197)

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 four reportable segments for financial reporting purposes: Filtration/Fluid Flow (Filtration), Utility Solutions Group (USG), RF Shielding and Test (Test) 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), Westland Technologies, Inc. (Westland), and Globe Composite Solutions, LLC (Globe). 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. Globe supplies navy, defense, and industrial customers with mission-critical composite-based products and solutions for acoustic, signature-reduction, communications, sealing, vibration-reducing, surface control, and hydrodynamic-related applications.

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 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 Technical Packaging segment's operations consist of Thermoform Engineered Quality LLC (TEQ), Plastique Limited and Plastique sp. z o.o. 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,	2019	2018	2017
Filtration	\$ 325.8	286.8	279.5
USG	211.9	214.0	162.4
Test	188.4	182.9	160.9
Technical Packaging	86.9	87.9	82.9
Consolidated totals	\$ 813.0	771.6	685.7

No customer exceeded 10% of sales in 2019 or 2018.

EBIT

(Dollars in millions)

Year ended September 30,	2019	2018	2017
Filtration	\$ 70.1	58.7	52.2
USG	52.2	43.2	36.6
Test	25.6	23.8	19.5
Technical Packaging	5.9	8.1	8.5
Reconciliation to consolidated totals (Corporate)	(43.2)	(37.0)	(32.1)
Consolidated EBIT	110.6	96.8	84.7
Less: interest expense	(8.4)	(8.8)	(4.6)
Earnings before income tax	\$ 102.2	88.0	80.1

Identifiable Assets

(Dollars in millions)

Year ended September 30,	2019	2018	
Filtration	\$ 260.3	204.7	
USG	190.0	176.9	
Test	154.2	138.3	
Technical Packaging	59.1	50.9	
Corporate – Goodwill	409.2	381.7	
Corporate – Other assets	393.9	312.6	
Consolidated totals	\$ 1,466.7	1,265.1	

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

Capital Expenditures

(Dollars in millions)

Year ended September 30,	2019	2018	2017
Filtration	\$ 11.7	7.0	10.2
USG	8.5	5.2	7.6
Test	4.0	3.0	4.5
Technical Packaging	13.0	5.4	7.4
Corporate	–	–	–
Consolidated totals	\$ 37.2	20.6	29.7

In addition to the above amounts, the Company incurred expenditures for capitalized software of \$8.4 million, \$9.5 million and \$9.0 million in 2019, 2018 and 2017, respectively.

Depreciation and Amortization

(Dollars in millions)

Year ended September 30,	2019	2018	2017
Filtration	\$ 8.3	7.6	6.6
USG	11.3	11.0	9.8
Test	5.1	4.5	3.6
Technical Packaging	4.1	4.1	3.5
Corporate	11.3	10.6	8.7
Consolidated totals	\$ 40.1	37.8	32.2

Depreciation expense of property, plant and equipment was \$20.6 million, \$19.4 million and \$15.9 million for 2019, 2018 and 2017, respectively.

Geographic Information

Net Sales

(Dollars in millions)

Year ended September 30,	2019	2018	2017
United States	\$ 583.0	536.7	503.1
Asia	88.3	94.5	69.8
Europe	82.8	85.0	75.4
Canada	33.2	30.3	22.2
India	11.7	9.4	4.8
Other	14.0	15.7	10.4
Consolidated totals	\$ 813.0	771.6	685.7

Long-Lived Assets

(Dollars in millions)

Year ended September 30,	2019	2018
United States	\$ 140.0	113.2
Europe	16.6	17.1
Other	4.9	4.7
Consolidated totals	\$ 161.5	135.0

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 \$6.4 million, \$6.9 million and \$6.8 million for 2019, 2018 and 2017, 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, 2019, are:

(Dollars in thousands)

Years ending September 30:

2020	\$ 6,405
2021	5,279
2022	4,592
2023	3,567
2024 and thereafter	10,197
Total	\$ 30,040

At September 30, 2019, the Company had \$8.2 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 new Doble building in Marlborough, Massachusetts and the 2017 acquisitions of NRG and Mayday. The Doble facility lease expires in 2036, the NRG and Mayday facility leases expire in 2029, and the machinery leases expire in 2020. As of September 30, 2019, the net carrying value and accumulated depreciation of the assets under capital leases recorded by the Company were \$28.4 million and \$3.5 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, 2019, are:

(Dollars in thousands)

Years ending September 30:

2020	\$ 2,518
2021	2,930
2022	3,012
2023	3,094
2024 and thereafter	<u>31,499</u>
Total minimum lease payments	43,053
Less: amounts representing interest	11,241
Present value of net minimum lease payments	<u>31,812</u>
Current portion of capital lease obligations	1,832
Non-current portion of capital lease obligations	<u>\$ 29,980</u>

16. Revenues

(a) Disaggregation of Revenues

Our revenues by customer type, geographic location, and revenue recognition method for the year ended September 30, 2019 are presented in the table below as the Company deems it best depicts how the nature, amount, timing and uncertainty of net sales and cash flows are affected by economic factors. The table below also includes a reconciliation of the disaggregated revenue within our reportable segments.

Year Ended September 30, 2019 (In thousands)	Filtration	USG	Test	Technical Packaging	Total
Customer type:					
Commercial	\$ 180,356	\$ 207,666	\$ 168,201	\$ 86,599	\$ 642,822
Government	145,379	4,249	20,193	327	170,148
Total revenues	<u>\$ 325,735</u>	<u>\$ 211,915</u>	<u>\$ 188,394</u>	<u>\$ 86,926</u>	<u>\$ 812,970</u>
Geographic location:					
United States	\$ 274,446	\$ 150,381	\$ 112,358	\$ 45,787	\$ 582,972
International	51,289	61,534	76,036	41,139	229,998
Total revenues	<u>\$ 325,735</u>	<u>\$ 211,915</u>	<u>\$ 188,394</u>	<u>\$ 86,926</u>	<u>\$ 812,970</u>
Revenue recognition method:					
Point in time	\$ 164,224	\$ 164,126	\$ 36,787	\$ —	\$ 365,137
Over time	161,511	47,789	151,607	86,926	447,833
Total revenues	<u>\$ 325,735</u>	<u>\$ 211,915</u>	<u>\$ 188,394</u>	<u>\$ 86,926</u>	<u>\$ 812,970</u>

(b) Remaining Performance Obligations

Our remaining performance obligations, which is the equivalent of our backlog, represent the expected transaction price allocated to our contracts that we expect to recognize as revenue in future periods when we perform under the contracts. These remaining obligations include amounts that have been formally appropriated under contracts with the U.S. Government, and exclude unexercised contract options and potential orders under ordering-type contracts such as Indefinite Delivery, Indefinite Quantity contracts. At September 30, 2019, we had \$475 million in remaining performance obligations of which we expect to recognize revenues of 90% in the next twelve months.

(c) Contract assets and liabilities

Assets and liabilities related to our contracts with customers are reported on a contract-by-contract basis at the end of each reporting period. At September 30, 2019, contract assets and liabilities totaled \$115.3 million and \$81.2 million, respectively. Upon adoption of ASC 606 on October 1, 2018, contract assets and liabilities related to our contracts

with customers were \$87 million and \$51 million, respectively. During 2019, we recognized approximately \$40 million in revenues that were included in the contract liabilities balance at the adoption date.

(d) Reconciliation of ASC 606 to Prior Accounting Standards

The amount by which each financial statement line item is affected in 2019 as a result of applying the new accounting standard as discussed in Note 1 is presented below:

<i>(In thousands)</i>	September 30, 2019		
	As Reported	Effect of the adoption of ASC 606	Under Prior Accounting
Consolidated Balance Sheets			
Contract assets, net (1)	\$ 115,310	\$ (39,055)	\$ 76,255
Inventories	128,825	34,065	162,890
Total current assets	495,194	(4,990)	490,204
Total assets	1,466,720	(4,990)	1,461,730
Contract liabilities, net (2)	81,177	2,870	84,047
Total current liabilities	251,635	2,870	254,505
Deferred tax liabilities	64,855	(658)	64,197
Total liabilities	640,498	2,212	642,710
Retained earnings	684,741	(7,202)	677,539
Total shareholders' equity	826,222	(7,202)	819,020
Total liabilities and shareholders' equity	\$ 1,466,720	(4,990)	1,461,730

(1) Previously "cost and estimated earnings on long-term contracts"

(2) Previously "advance payments on long-term contracts" and "current portion of deferred revenue"

<i>(In thousands, except per share amounts)</i>	Year Ended September 30, 2019		
	As Reported	Effect of the adoption of ASC 606	Under Prior Accounting
Consolidated Statements of Operations			
Net sales	\$ 812,970	\$ (5,598)	\$ 807,372
Cost of sales	508,521	(6,658)	501,863
Total costs and expenses	710,754	(6,658)	704,096
Earnings before income tax	102,216	1,060	103,276
Income tax expense	21,177	255	21,432
Net earnings	81,039	805	81,844
Earnings per share:			
Basic:			
Net earnings	\$ 3.12	\$ 0.03	\$ 3.15
Diluted:			
Net earnings	\$ 3.10	\$ 0.03	\$ 3.13
Consolidated Statements of Comprehensive Income			
Net earnings	\$ 81,039	\$ 805	\$ 81,844
Comprehensive income	68,593	805	69,398
Consolidated Statements of Cash flows			
Net earnings	\$ 81,039	\$ 805	\$ 81,844
Adjustments to reconcile net earnings to net cash provided by operating activities:			
Change in assets and liabilities	\$ (9,944)	(805)	\$ (10,749)
Net cash provided by operating activities	105,137	—	105,137

17. Subsequent Event

On November 15, 2019 the Company, through its wholly owned subsidiaries ESCO Technologies Holding LLC and ESCO UK Holding Company I Ltd., entered into an agreement to sell its Technical Packaging business segment,

consisting of Thermoform Engineered Quality LLC, Plastique Ltd. and Plastique sp. z o.o., to subsidiaries of Sonoco Products Company (NYSE: SON) for a cash purchase price of \$187 million, plus or minus certain customary adjustments based on working capital and other typical post-closing adjustments specified in the sale agreement. Closing of the transaction is subject to specified representations, warranties, covenants and conditions customary in agreements of this kind and scope. The buyers have agreed to waive any post-closing claims against the sellers for indemnity under the representations in the sale agreement (except in the event of fraud) and intend to obtain a Representation and Warranty Insurance policy to provide coverage in the event of a breach by the sellers.

The Company expects to finalize the sale upon receipt of regulatory clearance under the Hart-Scott-Rodino Antitrust Improvements Act of 1976 and similar foreign regulations, and upon satisfaction or waiver of the conditions to Closing specified in the Agreement. The Company expects the Closing to occur in late 2019 or early 2020.

The Technical Packaging business segment will be reported as discontinued operations in 2020.

The Company intends to use the proceeds from the sale to pay down debt and for other corporate purposes, including funding, terminating and annuitizing the Company's defined benefit pension plan, which has been frozen since 2003, during fiscal 2020.

18. Quarterly Financial Information (Unaudited)

<u>(Dollars in thousands, except per share amounts)</u>	<u>First Quarter</u>	<u>Second Quarter</u>	<u>Third Quarter</u>	<u>Fourth Quarter</u>
<u>2019</u>				
Net sales	\$ 182,597	193,949	199,766	236,658
Net earnings	17,317	18,797	20,067	24,858
<i>Earnings per share:</i>				
Basic	\$ 0.67	0.73	0.77	0.96
Diluted	0.66	0.72	0.77	0.95
Dividends declared per common share	\$ 0.08	0.08	0.08	0.08
<i>Common stock price per share:</i>				
High	\$ 71.47	71.29	82.70	85.86
Low	59.00	62.91	67.43	73.04
<u>2018</u>				
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

MANAGEMENT'S STATEMENT OF FINANCIAL RESPONSIBILITY

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, 2019

/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

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.

Management assessed the effectiveness of the Company's internal control over financial reporting as of September 30, 2019, 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 maintained effective internal control over financial reporting as of September 30, 2019, based on these criteria.

Our internal control over financial reporting as of September 30, 2019, has been audited by KPMG LLP, an independent registered public accounting firm, as stated in its report which is included herein.

We acquired Globe Composite Solutions, LLC (Globe) on July 2, 2019. Globe had total assets representing 7.0 percent of consolidated assets, and total net sales representing 1.1 percent of consolidated net sales, as of and for the year ended September 30, 2019. We excluded from our assessment of the effectiveness of our internal control over financial reporting as of September 30, 2019 internal control over financial reporting associated with Globe.

November 29, 2019

/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

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, 2019, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of September 30, 2019, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by 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, 2019 and 2018, 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, 2019, and the related notes (collectively, the consolidated financial statements), and our report dated November 29, 2019 expressed an unqualified opinion 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.

The Company acquired Globe Composite Solutions, LLC (Globe) during the year ended September 30, 2019, and management excluded from its assessment of the effectiveness of the Company's internal control over financial reporting as of September 30, 2019, Globe's internal control over financial reporting associated with total assets representing 7.0 percent of consolidated assets, and total sales representing 1.1 percent of consolidated net sales, included in the consolidated financial statements of ESCO Technologies Inc. and subsidiaries as of and for the year ended September 30, 2019. Our audit of internal control over financial reporting of the Company also excluded an evaluation of the internal control over financial reporting of Globe.

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, 2019

EXHIBITS

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>
4.1(a)	* Description of Common Stock
10.5	* Esco Technologies Inc. Directors' Extended Compensation Plan, restated to include all amendments through August 7, 2013
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	*** Inline XBRL Instance Document
101.SCH	*** Inline XBRL Schema Document
101.CAL	*** Inline XBRL Calculation Linkbase Document
101.LAB	*** Inline XBRL Label Linkbase Document
101.PRE	*** Inline XBRL Presentation Linkbase Document
101.DEF	*** Inline XBRL Definition Linkbase Document
104	*** Cover Page Inline Interactive Data File (contained in Exhibit 101)

* 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.

*** Exhibits 101 and 104 to this report consist 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.

<u>Name</u>	<u>State or Jurisdiction of Incorporation or Organization</u>	<u>Name(s) Under Which It Does Business</u>
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
ETS-Lindgren Technology (Tianjin) Co., Ltd.	People's Republic of China	Same; also ETS-Lindgren
Globe Composite Solutions, LLC	Massachusetts	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, 333-186537, 333-192663, 333-223029 and 333-231364) on Form S-8 of ESCO Technologies Inc. (the Company) of our reports dated November 29, 2019, with respect to the consolidated balance sheets of ESCO Technologies Inc. and subsidiaries as of September 30, 2019 and 2018, 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, 2019, and the related notes, and the effectiveness of internal control over financial reporting as of September 30, 2019, which reports appear in the September 30, 2019 annual report on Form 10-K of the Company.

Our report dated November 29, 2019, on the effectiveness of internal control over financial reporting as of September 30, 2019, contains an explanatory paragraph that states the Company acquired Globe Composite Solutions, LLC (Globe) during the year ended September 30, 2019, and management excluded from its assessment of the effectiveness of the Company's internal control over financial reporting as of September 30, 2019, Globe's internal control over financial reporting associated with total assets representing 7.0 percent of consolidated assets and total sales representing 1.1 percent of consolidated net sales, included in the consolidated financial statements of the Company as of and for the year ended September 30, 2019. Our audit of internal control over financial reporting of the Company also excluded an evaluation of the internal control over financial reporting of Globe.

/s/ KPMG LLP

St. Louis, Missouri
November 29, 2019

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, 2019

/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, 2019

/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, 2019 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, 2019

/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

SHAREHOLDERS' SUMMARY

Shareholders' Annual Meeting

The Annual Meeting of Shareholders of ESCO Technologies Inc. will be held at 9:00 a.m. Eastern Time on Friday, January 31, 2020 at Naples Bay Resort & Marina, 1500 Fifth Avenue South, Naples, FL 34102. 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.

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 12, 2019 and February 6, 2018, 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, 2019 and September 30, 2018.

10-K Report

The Company's 2019 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, 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 or via e-mail to 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 505000
Louisville, KY 40233-5000
(800) 368-5948
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 1,778 holders of record of shares of common stock at October 31, 2019.

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.

Rowland Ellis
President
PTI Technologies Inc.

Bryan Saylor
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

Mike Dyson
President
Globe Composite
Solutions, LLC

Board of Directors

Patrick M. Dewar²
Chief Executive
The Trenton Group, LLC

Leon J. Olivier⁴
EVP of Enterprise
Energy Strategy &
Business Development
Eversource Energy

Larry W. Solley^{3,4}
Retired Executive
Vice President
Emerson Electric Co.

Vinod M. Khilnani^{2,3}
Retired Executive
Chairman
CTS Corporation

Robert J. Phillippy^{2,4}
Executive Advisor;
Former President and
Chief Executive Officer
of Newport Corporation

James M. Stolze^{1,2,3}
Retired Vice President &
Chief Financial Officer
Stereotaxis, Inc.

Gary E. Muenster
Executive Vice President
& Chief Financial Officer

Victor L. Richey¹
Chairman, Chief
Executive Officer
& President

Gloria L. Valdez⁴
Retired Deputy Assistant
Secretary of the Navy

¹ Executive Committee

² Audit and Finance Committee

³ Human Resources and Compensation Committee

⁴ Nominating and Corporate Governance Committee

This annual report is printed on recycled paper, made in the USA, with 10% post-consumer waste.



ESCO Technologies Inc.
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www.escotechnologies.com