AMPCO PITTSBURGH CORP
Form 10-K
March 16, 2018
UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

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

For the fiscal year ended December 31, 2017

Commission File Number 1-898

AMPCO-PITTSBURGH CORPORATION

Pennsylvania	25-1117717
(State of Incorporation)	(I.R.S. Employer ID No.)
726 Bell Avenue, Suite 301	
Carnegie, PA 15106	(412) 456-4400
(Address of principal executive offices)	(Registrant’s telephone number)

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

Title of each class	Name of each exchange on which registered
Common stock, $1 par value	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 and posted on its corporate website, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T(§232.405 of this chapter) during the preceding 12 months (or such shorter period that the registrant was required to submit and post such files). Yes No

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

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

Large accelerated filer	____		Accelerated filer
Non-accelerated filer	____	(Do not check if a small reporting company)	Smaller reporting company ____
Emerging growth company	____		

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

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

The aggregate market value of the voting stock of Ampco-Pittsburgh Corporation held by non-affiliates on June 30, 2017 (based upon the closing price of the Registrant's Common Stock on the New York Stock Exchange on that date) was approximately $89 million.

As of March 12, 2018, 12,362,198 common shares were outstanding.

Documents Incorporated by Reference: Part III of this report incorporates by reference certain information from the Proxy Statement for the 2018 Annual Meeting of Shareholders.

TABLE OF CONTENTS

FORWARD-LOOKING STATEMENTS

The Private Securities Litigation Reform Act of 1995 (the “Act”) provides a safe harbor for forward-looking statements made by us or on our behalf. Management’s Discussion and Analysis of Financial Condition and Results of Operation and other sections of the Annual Report on Form 10-K as well as the consolidated financial statements and notes thereto may contain forward-looking statements that reflect our current views with respect to future events and financial performance.

All statements in this document other than statements of historical fact are statements that are, or could be, deemed “forward-looking statements” within the meaning of the Act. In this document, statements regarding future financial position, sales, costs, earnings, cash flows, other measures of results of operations, capital expenditures or debt levels and plans, objectives, outlook, targets, guidance or goals are forward-looking statements. Words such as “may,” “intend,” “believe,” “expect,” “anticipate,” “estimate,” “project,” “forecast” and other terms of similar meaning that indicate future event and trends are also generally intended to identify forward-looking statements. Forward-looking statements speak only as of the date on which such statements are made, are not guarantees of future performance or expectations, and involve risks and uncertainties. For us, these risks and uncertainties include, but are not limited to, those described under Item 1A. Risk Factors of this Annual Report on Form 10-K. In addition, there may be events in the future that we are not able to predict accurately or control which may cause actual results to differ materially from expectations expressed or implied by forward-looking statements. Except as required by applicable law, we assume no obligation, and disclaim any obligation, to update forward-looking statements whether as a result of new information, events or otherwise.

– PART I –

ITEM 1. BUSINESS

GENERAL DEVELOPMENT OF BUSINESS

Ampco-Pittsburgh Corporation (the “Corporation”) was incorporated in Pennsylvania in 1929. The Corporation, individually or together with its consolidated subsidiaries, is also referred to herein as the “Registrant.” The Corporation classifies its businesses in two segments: Forged and Cast Engineered Products and Air and Liquid Processing.

FINANCIAL INFORMATION ABOUT SEGMENTS

The sales and operating results of the Corporation’s two segments and the identifiable assets attributable to both segments for the three years ended December 31, 2017, are set forth in Note 21 (Business Segments) of this Annual Report on Form 10-K.

NARRATIVE DESCRIPTION OF BUSINESS

Forged and Cast Engineered Products Segment

Union Electric Steel Corporation produces ingot and forged products that service a wide variety of industries globally. It specializes in the production of forged hardened steel rolls used in cold rolling by producers of steel, aluminum and other metals throughout the world. In addition, it produces ingot and open-die forged products which are used in the oil and gas industry and the aluminum and plastic extrusion industries. Union Electric Steel Corporation is headquartered in Carnegie, Pennsylvania, with three manufacturing facilities in Pennsylvania, one in Indiana and one in Ohio. It is one of the largest producers of forged hardened steel rolls in the world. In addition to a few domestic competitors, several major European, South American and Asian manufacturers also compete in both the domestic and foreign markets. In 2007, a subsidiary of Union Electric Steel Corporation became a 49% partner in a joint venture in China to manufacture large forged backup rolls, principally in weights and sizes larger than those which can be made in the subsidiary's facilities in the United States. In 2016, the ownership interest in the joint venture was reduced to 33%.

The following entities are indirect subsidiaries of Union Electric Steel Corporation:

Union Electric Steel UK Limited produces cast rolls for hot and cold strip mills, medium/heavy section mills and plate mills in a variety of iron and steel qualities. It is located in Gateshead, England, and is a major supplier of cast rolls to the metalworking industry worldwide. It primarily competes with European, Asian and North and South American companies in both domestic and foreign markets. Union Electric Steel UK Limited is a 24% partner in a Chinese joint venture which produces cast rolls.

Åkers Sweden AB produces cast rolls for hot strip finishing, roughing mills and plate mills and medium/heavy section mills in a variety of iron and steel qualities. It is located in Åkers Styckebruk, Sweden.

Åkers Valji Ravne d.o.o. produces forged rolls for cluster mills and Z-Hi mills, work rolls for narrow and wide strip and aluminum mills, back-up rolls for narrow strip mills, as well as leveling rolls and shafts. It is located in Ravne, Slovenia.

Shanxi Åkers TISCO Roll Co. Ltd., is a joint venture between Taiyuan Iron and Steel Co Ltd. and Åkers AB, a subsidiary of Union Electric Steel Corporation, that produces cast hot strip mill work rolls. It is located in Taiyuan, Shanxi Province, China. Åkers AB holds a 60% interest in the joint venture.

National Roll Company is a division of Akers National Roll Company, a subsidiary of Union Electric Steel Corporation, that produces cast rolls for hot and cold strip mills, as well as plate mills. It is located in Avonmore, Pennsylvania.

Vertical Seal Company is a division of Akers National Roll Company that manufactures bearings, bushings, key and keyless bearing sleeves, as well as provides a number of services, including rebuild of mill spare parts, chock inspection and repair, and onsite inspections and installations. It is located in Pleasantville, Pennsylvania.

ASW Steel Inc. is a premier specialty steel producer located in Welland, Ontario, Canada.

Alloys Unlimited Processing, LLC is a distributor of tool steels, alloys and carbon round bar, located in Austintown, Ohio.

Air and Liquid Processing Segment

Aerofin Division of Air & Liquid Systems Corporation produces custom-engineered finned tube heat exchange coils and related heat transfer products for a variety of industries including nuclear power generation, automotive, industrial process and HVAC, and is located in Lynchburg, Virginia.

Buffalo Air Handling Division of Air & Liquid Systems Corporation produces large custom air handling systems used in commercial, institutional and industrial buildings and is located in Amherst, Virginia.

Buffalo Pumps Division of Air & Liquid Systems Corporation manufactures a line of centrifugal pumps for the refrigeration, power generation and marine defense industries and is located in North Tonawanda, New York.

All three of the divisions in this segment are principally represented by a common independent sales organization and have several major competitors.

In both segments, the products are dependent on engineering, principally custom designed, and are sold to sophisticated commercial and industrial users located throughout the world.

For additional information on the products produced and financial information about each segment, see Note 21 (Business Segments) of this Annual Report on Form 10-K.

Raw Materials

Raw materials used in both segments are generally available from many sources and neither segment is dependent upon any single supplier for any raw material. Substantial volumes of raw materials used by each segment are subject to significant variations in price. The Corporation’s subsidiaries generally do not purchase or commit for the purchase of a major portion of raw materials significantly in advance of the time they require such materials but do make forward commitments for the supply of natural gas and certain commodities (copper and aluminum). See Note 13 (Derivative Instruments) of this Annual Report on Form 10-K.

Patents and Trademarks

While the Corporation and its subsidiaries hold some patents, trademarks and licenses, in the opinion of management they are not material to either segment.

Backlog

The backlog of orders at December 31, 2017, was approximately $326 million, compared to a backlog of $234 million at year-end 2016. Approximately 6% of the backlog is expected to be released after 2018.

Competition

The Corporation faces considerable competition from a large number of companies in both segments. The Corporation believes, however, that its subsidiaries are significant participants in each of the niche markets which they serve. Competition in both segments is based on quality, service, price and delivery. For additional information, see Part I, Item 1 “General Development of Business” of this Annual Report on Form 10-K.

Research and Development

As part of an overall strategy to develop new markets and maintain a leadership position in each of the industry niches served, the Corporation's subsidiaries in both segments incur expenditures for research and development. The activities that are undertaken are designed to develop new products, improve existing products and processes, enhance product quality, adapt products to meet customer specifications and reduce manufacturing costs. In the aggregate, these expenditures approximated $3.39 million in 2017, $2.72 million in 2016 and $1.14 million in 2015.

Environmental Protection Compliance Costs

Expenditures for environmental control matters were not material to either segment in 2017 and are not expected to be material in 2018.

Employees

On December 31, 2017, the Corporation and its subsidiaries had 1,943 active employees.

FINANCIAL INFORMATION ABOUT GEOGRAPHIC AREAS

The Forged and Cast Engineered Products segment has manufacturing operations in the United States, England, Sweden, Slovenia, China and Canada; and sales offices in Brazil, China, Canada, Egypt, France, Germany, Singapore, Slovenia, Sweden, Taiwan and Turkey. For financial information relating to foreign and domestic operations see Note 21 (Business Segments) of this Annual Report on Form 10-K.

AVAILABLE INFORMATION

The Corporation files annual, quarterly and current reports, amendments to those reports, proxy statements and other information with the Securities and Exchange Commission ("SEC"). You may access and read the Corporation's filings without charge through the SEC's website at www.sec.gov. You may also read and copy any document the Corporation files at the SEC's Public Reference Room located at 100 F. Street, N.E., Room 1580, Washington, DC 20549. Please call the SEC at 1-800-SEC-0330 for further information on the Public Reference Room.

The Corporation's internet address is www.ampcopittsburgh.com. The Corporation makes available, free of charge on its internet website, access to these reports as soon as reasonably practicable after such material is filed with, or furnished to, the SEC. The information on the Corporation's website is not part of this Annual Report on Form 10-K.

EXECUTIVE OFFICERS

The name, age, position with the Corporation(1) and business experience for the past five years of the Executive Officers of the Corporation are as follows:

John S. Stanik (age 64). Mr. Stanik has served as the Corporation's Chief Executive Officer since January 2015. He previously worked at Calgon Carbon Corporation, an international company specializing in purification products, technologies and services, from 1991 through 2012, when he retired for personal reasons. Mr. Stanik served as President and Chief Executive Officer of Calgon Carbon from 2003 to 2012 and became its Chairman of the Board in 2007. On October 3, 2017, the Corporation announced that Mr. Stanik had notified the Board of Directors of the Corporation of his intention to retire as Chief Executive Officer sometime in the middle of 2018 or at such time as a suitable successor is identified and appointed.

Rose Hoover (age 62). Ms. Hoover has been employed by the Corporation for more than thirty-five years. She has served as President and Chief Administrative Officer of the Corporation since August 2015 and Executive Vice President from 2011 to August 2015.

Michael G. McAuley (age 54). Mr. McAuley has served as Vice President, Chief Financial Officer and Treasurer of the Corporation since April 2016. Mr. McAuley was named Senior Vice President in March 2018. Previously, he served as Senior Vice President and Chief Financial Officer of RTI International Metals, Inc., a producer of titanium mill products and fabricated metal components, from July 2014 to October 2015; Chief Financial Officer of ECI Development, Ltd., a private real estate developer, from January 2013 until June 2014, and Vice President and Treasurer of Goodrich Corporation, a manufacturer of aerospace and defense components and systems, from December 2007 until July 2012.

Maria Trainor (age 43). Ms. Trainor has served as Vice President, General Counsel and Secretary of the Corporation since June 2015. Prior to joining the Corporation, Ms. Trainor was a partner at K&L Gates, LLP, an international law firm, where she had practiced for nearly fourteen years.

Rodney L. Scagline (age 51). Mr. Scagline has served as President of Union Electric Steel Corporation since November 2015; Executive Vice President of Union Electric Steel Corporation from April 2014 to November 2015, Vice President of Manufacturing of Union Electric Steel Corporation from June 2013 to April 2014 and Director of Technology of Union Electric Steel Corporation from July 2011 to May 2013. He previously worked at Akers National Roll Company, a cast engineered product manufacturer that was acquired by the Corporation in 2016 as part of the Åkers group acquisition, where he served as its Vice President of Metallurgical Services for three years and Vice President of Sales and Marketing for one year.

Terrence W. Kenny (age 58). Mr. Kenny has been employed by the Corporation for more than thirty years. He has served as President of the Air & Liquid Systems Corporation for more than five years.

Timothy R. Clutterbuck (age 59). Mr. Clutterbuck has served as President of ASW Steel Inc. since November 2011.

(1) Officers serve at the discretion of the Board of Directors and none of the listed individuals serves as a director of a public company, except Mr. Stanik is a director of the Corporation and F.N.B. Corporation.

ITEM 1A. RISK FACTORS

From time to time, important factors may cause actual results to differ materially from future expected results based on performance expressed or implied by any forward-looking statements made by us, including known and unknown risks, uncertainties and other factors, many of which are not possible to predict or control. Several of these factors are described from time to time in our filings with the Securities and Exchange Commission, but the factors described in filings are not the only risks that the Corporation faces.

Cyclical demand for products and economic downturns may reduce the demand for, and sales of, our products, which could adversely affect our margins and profitability.

A significant portion of the Forged and Cast Engineered Products segment's sales consists of mill rolls to customers in the global steel industry which can be periodically impacted by economic or cyclical downturns. Such downturns, the timing and length of which are difficult to predict, may reduce the demand for, and sales of, our forged and cast steel rolls both in the United States and the rest of the world. Lower demand for rolls may also adversely impact profitability as other competing roll producers lower selling prices in the marketplace in order to fill their manufacturing capacity. Cancellation of orders or deferral of delivery of rolls may occur and produce an adverse impact on financial results. In addition, sales of non-roll product, consisting of open-die forged product primarily for the oil and gas industries, are impacted by fluctuations in global energy prices.

Excess global capacity in steel industry could lower prices for our products, which would adversely affect our sales, margins and profitability, as well as collectability of receivables and salability of in-process inventory.

The global steel manufacturing capacity continues to exceed global consumption of steel products. Such excess capacity often results in manufacturers in certain countries exporting steel at prices significantly below their home market prices (often due to local government assistance or subsidies), which leads to global market destabilization and reduced sales and profitability of some of our and our subsidiaries' customers, which, in turn, affects our sales and profit margins, as well as collectability of receivables and salability of in-process inventory.

Steel industry consolidation resulted in certain customers having increased buying power, which could put pressure on prices of our products and result in lower profit margins.

As a result of reduced demand for steel products, the steel industry has undergone structural change by way of consolidation and mergers. In certain markets, the resultant reduction in the number of steel plants and the increased buying power of the enlarged steel producing companies may put pressure on the selling prices and profit margins of mill rolls.

A reduction in the level of export sales, as well as other economic factors in foreign countries, may have an adverse impact on our financial results.

Exports are a significant proportion of our subsidiaries' sales. Historically, changes in foreign exchange rates, particularly in respect of the U.S. dollar, British pound, Swedish krona and the euro, have impacted the export of our products and may do so again in the future. Other factors that may adversely impact export sales and operating results include political and economic instability, export controls, changes in tax laws and tariffs and new indigenous producers in overseas markets. A reduction in the level of export sales may have an adverse impact on our financial results. In addition, exchange rate changes may allow foreign roll suppliers to compete in our home markets.

Fluctuation of the value of the U.S. dollar relative to other currencies may adversely affect our business, results of operations and financial condition.

Certain of our subsidiaries operate in foreign jurisdictions and, accordingly, earn revenues, pay expenses, own assets and incur liabilities in countries using currencies other than the U.S. dollar. Since our consolidated financial statements are presented in U.S. dollars, we must translate revenues and expenses into U.S. dollars at the average exchange rate during each reporting period, and assets and liabilities into U.S. dollars at the exchange rate in effect at the end of each reporting period. Therefore, increases or decreases in the value of the U.S. dollar against other major currencies will affect the translated value for revenue, expenses and balance sheet items denominated in foreign currencies and could materially affect our financial results expressed in U.S. dollars.

A downturn in capital spending in the United States and other jurisdictions may reduce demand for and sales of certain of our products, which would result in reduced profit margins.

Each of our businesses is susceptible to the general level of economic activity, particularly as it impacts industrial and construction capital spending. A downturn in capital spending in the United States and elsewhere may reduce demand for and sales of our subsidiaries' air handling, power generation and refrigeration equipment, forged engineered products and mill rolls. Lower demand may also reduce profit margins due to our competitors and us striving to maximize manufacturing capacity by lowering prices.

Commodity price increases, as well as any reductions in electricity, gas supply or shortage of key production materials, could adversely impact our production, which would result in lower profitability.

Our subsidiaries use certain commodities in the manufacture of their products. These include steel scrap, ferroalloys, energy and graphite electrodes. Any sudden price increase may cause a reduction in profit margins or losses where fixed-priced contracts have been accepted or increases cannot be obtained in future selling prices. In addition, there may be curtailment in electricity or gas supply which would adversely impact production. Shortage of critical materials, while driving up costs, may be of such severity as to disrupt production, all of which may impact sales and profitability. The current global supply shortage of graphite electrodes used for electric arc furnace melting of our steels could materially impact results of operations should we be unable to secure sufficient supply for our production requirements.

We may not be able to realize the expected benefits from the acquisitions that we make, and we may experience difficulties in integrating the acquired businesses.

We have made in the past, and may continue to make, certain acquisitions and enter into joint ventures, which are intended to complement or expand our businesses. These acquisitions involve a variety of challenges and risks. We may encounter difficulties integrating acquired businesses with our operations or applying our internal control processes to these acquisitions. Other risks associated with acquisitions are the diversion of management's attention from other business concerns, the potential loss of key employees and customers of the acquired companies, the possible assumption of unknown liabilities, and potential disputes with the sellers. We may not be able to complete certain acquisitions due to antitrust laws and regulations in various jurisdictions. Additionally, we may not realize the degree of timing of benefits we anticipate when we first enter into a transaction. Any of the foregoing could adversely affect our business and results of operations.

A work stoppage or another industrial action on the part of any of our unions may be disruptive to our operations.

Our subsidiaries have several key operations which are subject to multi-year collective bargaining agreements with their hourly work forces. While we believe we have good relations with our unions, there is the risk of industrial action or work stoppage at the expiration of an agreement if contract negotiations break down, which may disrupt manufacturing and impact results of operations.

Dependence on certain equipment may cause an interruption in our production if such equipment is out of operation for an extended period of time, which would result in lower sales and profitability.

Our subsidiaries' principal business relies on certain unique equipment such as an electric arc furnace and a spin cast work roll machine. Although a comprehensive critical spare inventory of key components for this equipment is maintained, if any such unique equipment is out of operation for an extended period, it may result in a significant reduction in our sales and earnings.

The ultimate liability of our subsidiaries for claims alleging personal injury from exposure to asbestos-containing components historically used in certain products of our subsidiaries could have a material adverse effect on our consolidated financial condition or liquidity in the future.

Our subsidiaries, and in some cases, we, are defendants in numerous claims alleging personal injury from exposure to asbestos-containing components historically used in certain products of our subsidiaries. Through year-end 2017, our insurance has covered a substantial majority of our settlement and defense costs. We believe that the estimated costs net of anticipated insurance recoveries of our pending and future asbestos legal proceedings for the next ten years should not have a material adverse effect on our consolidated financial condition or liquidity. However, there can be no assurance that our subsidiaries or we will not be subject to significant additional claims in the future or that our subsidiaries' ultimate liability with respect to asbestos claims will not present significantly greater and longer lasting financial exposure than provided in our consolidated financial statements. The ultimate net liability with respect to such pending and any unasserted claims is subject to various uncertainties, including the following:

- the number of claims that are brought in the future;
- the costs of defending and settling these claims;
- insolvencies among our insurance carriers and the risk of future insolvencies;
- the possibility that adverse jury verdicts could require damage payments in amounts greater than the amounts for which we have historically settled claims;
- possible changes in the litigation environment or federal and state law governing the compensation of asbestos claimants; and
- the risk that the bankruptcies of other asbestos defendants may increase our costs.

Because of the uncertainties related to such claims, it is possible that the ultimate liability could have a material adverse effect on our consolidated financial condition or liquidity in the future.

The loss of any of our key management or our inability to attract or retain qualified personnel may prevent us from our implementing our business strategy.

Our success is dependent on the management, experience and leadership skills of our senior management team and key employees. The loss of any of these individuals or an inability to attract, retain and maintain additional personnel with similar industry experience could prevent us from implementing our business strategy. We cannot assure you that we will be able to retain our existing senior management and key personnel or to attract additional qualified personnel when needed.

Potential attacks on information technology infrastructure and other cyber-based business disruptions could have a material adverse effect on our financial condition and results of operations.

We depend on integrated information technology ("IT") systems to conduct our business. IT systems failures, including risks associated with upgrading our systems or in successfully integrating IT and other systems in connection with the integration of businesses we acquire, network disruptions and breaches of data security could disrupt our operations by impeding our processing of transactions, our ability to protect customer or company information and our financial reporting. Our computer systems, including our back-up systems, could be damaged or interrupted by power outages, computer and telecommunications failures, computer viruses, internal or external security breaches, events such as fires, earthquakes, floods, tornadoes and hurricanes, and/or errors by our employees. Cyber-based risks, in particular, are evolving and include both attacks to our IT infrastructure and attacks to the IT infrastructure of third parties in attempts to gain unauthorized access to our confidential or other proprietary information, or information relating to our employees, customers and other third parties. Although we have taken steps to address these concerns, there can be no assurance that a system failure or data security breach will not have a material adverse effect on our financial condition and results of operations.

We could be exposed to substantial liabilities resulting from non-compliance with domestic and international environmental laws and regulations.

We and our subsidiaries are subject to various domestic and international environmental laws and regulations that govern the discharge of pollutants and disposal of wastes and which may require that we and our subsidiaries investigate and remediate the effects of the release or disposal of materials at sites associated with past and present operations. We and our subsidiaries could incur substantial cleanup costs, fines and civil or criminal sanctions, third party property damage or personal injury claims as a result of violations or liabilities under these laws or non-compliance with environmental permits required at our facilities.

A change in the existing regulatory environment could negatively affect our operations and financial performance.

We are subject to a wide variety of complex domestic and foreign laws, rules and regulations, and legal compliance risks, including, without limitation, securities laws, employment and pension-related laws, competition laws, export controls and sanctions laws, data privacy and security laws, and laws governing improper business practices. We are affected by new laws and regulations, and changes to existing laws and regulations, including interpretations by courts and regulators. These laws, regulations and policies, and changes thereto, may result in restrictions or limitations to our current operational practices and processes and product/service offerings which could negatively impact our current cost structure, revenue streams, cash flows, and overall financial position.

Additionally, we are subject to tax laws and regulations in the United States and multiple foreign jurisdictions. We are affected by changes in tax laws and regulations, as well as changes in related interpretations and other tax guidance. In the ordinary course of our business, we are subject to examinations and investigations by various tax authorities. In addition to existing examinations and investigations, there could be further examinations and investigations in the future, and existing examinations and investigations could be expanded.

On December 22, 2017, the U.S. federal government enacted the Tax Cuts and Jobs Act (the “Tax Reform”), to become effective as of January 1, 2018, which, among other things, lowered the U.S. corporate statutory income tax rate from 35% to 21%, implemented a modified territorial tax system and imposed a one-time tax on deemed repatriated earnings of foreign subsidiaries. The Tax Reform contains numerous complex provisions impacting U.S. multinational companies, and we continue to review and assess the legislative language and its potential impact on us. The full extent of the impact remains uncertain at this time, and our current interpretations of, and assumptions regarding, the Tax Reform are subject to additional regulatory or administrative developments, including any regulations or other guidance promulgated by the U.S. Internal Revenue Service. As a result, the Tax Reform, including any regulations or other guidance promulgated by the U.S. Internal Revenue Service, and other tax laws could have significant effects on us, some of which may be adverse and could materially and adversely impact our financial condition, results of operations and cash flows.

In 2018, President Trump announced he would impose tariffs of 25% on steel imports and 10% on aluminum imports. As consumers of steel and aluminum in some of our Air & Liquid Processing segment products, our costs could be significantly impacted if the tariffs are imposed, potentially reducing our margins and risking loss of market share to foreign competitors not subject to similar tariffs. In addition, in the ordinary course of business, one of our U.S. subsidiaries purchases intercompany steel produced by another subsidiary located in Canada, which also exports steel to customers in the U.S. Canada is temporarily exempted from the proposed tariffs. If this exemption is not made permanent, we could lose margin and/or market share for the related business. Uncertainties regarding the scope of the proposed tariffs could also pose potential risk to the cost of certain intercompany value-added intermediary product transfers. Accordingly, our financial condition, results of operations and cash flows could be significantly affected.

New trade restrictions and regulatory burdens associated with “Brexit” could adversely impact our operations and financial performance.

On June 23, 2016, voters in the United Kingdom approved a referendum to exit from the European Union (“E.U.”), commonly known as “Brexit.” As the United Kingdom and the E.U. continue negotiations to determine their new relationship, greater restrictions and regulatory burdens may be put upon trade between the United Kingdom and the E.U. This may have an adverse effect on our operations and financial performance.

We may face limitations in availability of capital to fund our growth strategy.

We are parties to a Revolving Credit and Security Agreement (the “Credit Agreement”), a senior secured asset-based revolving credit facility collateralized by a first priority perfected security interest in substantially all of our assets. The Credit Agreement provides for initial borrowings not to exceed $100 million, with an option to increase the credit facility by an additional $50 million at our request and with the approval of the banks, but restricts us from incurring additional indebtedness outside of the Credit Agreement. The Credit Agreement is subject to various affirmative and negative covenants and contains various sub-limits, including those based on type of collateral and borrowings by geographic region. If the financial covenants become difficult to meet or if our borrowing needs increase beyond the prescribed limits, our results of operations and liquidity may be materially adversely affected. In addition, our access to public debt markets may be limited based on our size, credit profile and not being a well-known seasoned issuer.

ITEM 1B. UNRESOLVED STAFF COMMENTS

The Corporation has no unresolved staff comments.

ITEM 2. PROPERTIES

The location and general character of the principal locations in each segment, all of which are owned unless otherwise noted, are listed below. In addition, we have sales offices in the following countries: Brazil, China, Egypt, France, Germany, Singapore, Slovenia, Sweden, Turkey and Taiwan. See Note 5 (Property, Plant and Equipment) and Note 8 (Borrowing Arrangements) of this Annual Report on Form 10-K for disclosure of properties held as collateral.

Company and Location	Principal Use	Approximate Square Footage	Type of Construction
FORGED AND CAST ENGINEERED PRODUCTS SEGMENT			
Union Electric Steel Corporation			
Route 18 Burgettstown, PA 15021	Manufacturing facilities	296,800 on 55 acres	Metal and steel
726 Bell Avenue Carnegie, PA 15106	Manufacturing facilities and offices	165,900 on 8.7 acres	Metal and steel
U.S. Highway 30 Valparaiso, IN 46383	Manufacturing facilities	88,000 on 20 acres	Metal and steel
1712 Greengarden Road Erie, PA 16501	Manufacturing facilities	40,000*	Metal and steel
Union Electric Steel UK Limited			
Coulthards Lane		274,000 on 10 acres	

Gateshead, England	Manufacturing facilities and offices		Steel framed, metal and brick
Åkers Sweden AB Bruksallén 12SE-647 51 Åkers Styckebruk, Sweden	Manufacturing facilities and offices	394,000 on 162 acres	Steel framed, metal and brick
Åkers Valji Ravne d.o.o. Koroška c. 14 SI-2390 Ravne na Koroškem, Slovenia	Manufacturing facilities and offices	106,000 on 2.1 acres	Brick
Akers National Roll Company 400 Railroad Avenue Avonmore, PA 15618	Manufacturing facilities and offices	140,000 on 29.5 acres	Metal and steel
Vertical Seal Company 162 Chapman Road Pleasantville, PA 16341	Manufacturing facilities and offices	52,000 on 57 acres	Metal, steel and concrete
Shanxi Åkers TISCO Roll Co. Ltd.			

Company and Location	Principal Use	Approximate Square Footage	Type of Construction
No. 2 Jian Cao Ping Taiyuan, Shanxi, China	Manufacturing facilities and offices	338,000 on 14.6 acres	Metal, steel and brick
Alloys Unlimited and Processing, LLC 3760 Oakwood Avenue Austintown, Ohio 44515	Manufacturing facilities and offices	69,800*	Steel framed and cement block
ASW Steel Inc. 42 Centre Street Welland, ON, Canada L3B 5N9	Manufacturing facilities and offices	813,500 on 76 acres	Metal and steel
AIR AND LIQUID PROCESSING SEGMENT			
Air & Liquid Systems Corporation Aerofin Division 4621 Murray Place Lynchburg, VA 24506	Manufacturing facilities and offices	146,000 on 15.3 acres	Brick, concrete and steel
Buffalo Air Handling Division Zane Snead Drive Amherst, VA 24531	Manufacturing facilities and offices	89,000 on 19.5 acres	Metal and steel
Buffalo Pumps Division 874 Oliver Street N. Tonawanda, NY 14120	Manufacturing facilities and offices	94,000 on 9 acres	Metal, brick and cement block

*Facility is leased.

The Corporation leases office space from Union Electric Steel Corporation. The Corporation subleases a portion of its office space to Air & Liquid Systems Corporation for use as its headquarters. All of the owned facilities are adequate and suitable for their respective purposes.

The Forged and Cast Engineered Products segment’s facilities operated within 65% to 75% of their normal capacity during 2017. The facilities of the Air and Liquid Processing segment operated within 60% to 70% of their normal capacity. Normal capacity is defined as capacity under approximately normal conditions with allowances made for unavoidable interruptions, such as lost time for repairs, maintenance, breakdowns, set-up, failure, supply delays, labor shortages and absences, Sundays, holidays, vacation, inventory taking. The number of work shifts is also taken into consideration.

ITEM 3. LEGAL PROCEEDINGS

LITIGATION

The Corporation and its subsidiaries are involved in various claims and lawsuits incidental to their businesses and are also subject to asbestos litigation as described below. In February 2017, the Corporation, its indirect subsidiary Akers National Roll Company, as well as the Akers National Roll Company Health & Welfare Benefits Plan were named as defendants in a class action complaint filed in the United States District Court for the Western District of Pennsylvania, where the plaintiffs (currently retired former employees of Akers National Roll Company and the United Steel, Paper and Forestry, Rubber, Manufacturing, Energy, Allied Industrial, and Service Workers International Union, AFL-CIO) alleged that the defendants breached collective bargaining agreements and violated the benefit plan by modifying medical benefits of the plaintiffs and similarly situated retirees. The defendants moved to dismiss the case, and plaintiffs petitioned the court to compel arbitration. On June 13, 2017, the District Court compelled arbitration and denied the defendants’ motion to dismiss as moot. Defendants appealed this decision to the Third Circuit Court of Appeals on June 21, 2017. Defendants also filed a motion to stay arbitration pending the resolution of the appeal, and that motion was granted on September 5, 2017. The Third Circuit Court of Appeals will next consider whether the District Court erred in compelling arbitration. While no assurance can be given as to the ultimate outcome of this matter, we believe that the final resolution of this action will not have a material adverse effect on our results of operations, financial position, liquidity or capital resources.

Asbestos Litigation

Claims have been asserted alleging personal injury from exposure to asbestos-containing components historically used in some products manufactured by predecessors of Air & Liquid Systems Corporation ("Asbestos Liability"). Air & Liquid Systems Corporation ("Air & Liquid"), and in some cases the Corporation, are defendants (among a number of defendants, often in excess of 50) in cases filed in various state and federal courts.

Asbestos Claims

The following table reflects approximate information about the claims for Asbestos Liability against Air & Liquid and the Corporation for the two years ended December 31, 2017, and 2016.

(dollars in thousands)	2017	2016
Total claims pending at the beginning of the period	6,618	6,212
New claims served	1,365	1,452
Claims dismissed	(718)	(782)
Claims settled	(358)	(264)
Total claims pending at the end of the period [(1)]	6,907	6,618
Gross settlement and defense costs (in 000's)	$21,431	$17,960
Average gross settlement and defense costs per claim resolved (in 000's)	$19.92	$17.17

(1) Included as "open claims" are approximately 479 and 444 claims in 2017 and 2016, respectively, classified in various jurisdictions as "inactive" or transferred to a state or federal judicial panel on multi-district litigation, commonly referred to as the MDL.

A substantial majority of the settlement and defense costs reflected in the above table was reported and paid by insurers. Because claims are often filed and can be settled or dismissed in large groups, the amount and timing of settlements, as well as the number of open claims, can fluctuate significantly from period to period.

Asbestos Insurance

The Corporation and Air & Liquid are parties to a series of settlement agreements ("Settlement Agreements") with insurers that have coverage obligations for Asbestos Liability (the "Settling Insurers"). Under the Settlement Agreements, the Settling Insurers accept financial responsibility, subject to the terms and conditions of the respective agreements, including overall coverage limits, for pending and future claims for Asbestos Liability. The Settlement Agreements encompass the substantial majority of insurance policies that provide coverage for claims for Asbestos Liability.

The Settlement Agreements include acknowledgements that Howden North America, Inc. ("Howden") is entitled to coverage under policies covering Asbestos Liability for claims arising out of the historical products manufactured or distributed by Buffalo Forge, a former subsidiary of the Corporation (the "Products"). The Settlement Agreements do not provide for any prioritization on access to the applicable policies or any sublimits of liability as to Howden or the Corporation and Air & Liquid, and, accordingly, Howden may access the coverage afforded by the Settling Insurers for any covered claim arising out of a Product. In general, access by Howden to the coverage afforded by the Settling Insurers for the Products will erode coverage under the Settlement Agreements available to the Corporation and Air &

Liquid for Asbestos Liability.

Asbestos Valuations

In 2006, the Corporation retained Hamilton, Rabinovitz & Associates, Inc. (“HR&A”), a nationally recognized expert in the valuation of asbestos liabilities, to assist the Corporation in estimating the potential liability for pending and unasserted future claims for Asbestos Liability. Based on this analysis, the Corporation recorded a reserve for Asbestos Liability claims pending or projected to be asserted through 2013 as of December 31, 2006. HR&A’s analysis has been periodically updated since that time. Most recently, the HR&A analysis was updated in 2016, and additional reserves were established by the Corporation as of December 31, 2016, for Asbestos Liability claims pending or projected to be asserted through 2026. The methodology used by HR&A in its projection in 2016 of the operating subsidiaries’ liability for pending and unasserted potential future claims for Asbestos Liability, which is substantially the same as the methodology employed by HR&A in prior estimates, relied upon and included the following factors:

- HR&A’s interpretation of a widely accepted forecast of the population likely to have been exposed to asbestos;
- epidemiological studies estimating the number of people likely to develop asbestos-related diseases;

- HR&A's analysis of the number of people likely to file an asbestos-related injury claim against the subsidiaries and the Corporation based on such epidemiological data and relevant claims history from January 1, 2014, to September 9, 2016;
- an analysis of pending cases, by type of injury claimed and jurisdiction where the claim is filed;
- an analysis of claims resolution history from January 1, 2014, to September 9, 2016, to determine the average settlement value of claims, by type of injury claimed and jurisdiction of filing; and
- an adjustment for inflation in the future average settlement value of claims, at an annual inflation rate based on the Congressional Budget Office's ten year forecast of inflation.

Using this information, HR&A estimated in 2016 the number of future claims for Asbestos Liability that would be filed through the year 2026, as well as the settlement or indemnity costs that would be incurred to resolve both pending and future unasserted claims through 2026. This methodology has been accepted by numerous courts.

In conjunction with developing the aggregate liability estimate referenced above, the Corporation also developed an estimate of probable insurance recoveries for its Asbestos Liabilities. In developing the estimate, the Corporation considered HR&A's projection for settlement or indemnity costs for Asbestos Liability and management's projection of associated defense costs (based on the current defense to indemnity cost ratio), as well as a number of additional factors. These additional factors included the Settlement Agreements then in effect, policy exclusions, policy limits, policy provisions regarding coverage for defense costs, attachment points, prior impairment of policies and gaps in the coverage, policy exhaustions, insolvencies among certain of the insurance carriers, and the nature of the underlying claims for Asbestos Liability asserted against the subsidiaries and the Corporation as reflected in the Corporation's asbestos claims database, as well as estimated erosion of insurance limits on account of claims against Howden arising out of the Products. In addition to consulting with the Corporation's outside legal counsel on these insurance matters, the Corporation consulted with a nationally recognized insurance consulting firm it retained to assist the Corporation with certain policy allocation matters that also are among the several factors considered by the Corporation when analyzing potential recoveries from relevant historical insurance for Asbestos Liabilities. Based upon all of the factors considered by the Corporation, and taking into account the Corporation's analysis of publicly available information regarding the credit-worthiness of various insurers, the Corporation estimated the probable insurance recoveries for Asbestos Liability and defense costs through 2026. Although the Corporation believes that the assumptions employed in the insurance valuation were reasonable and previously consulted with its outside legal counsel and insurance consultant regarding those assumptions, there are other assumptions that could have been employed that would have resulted in materially lower insurance recovery projections.

Based on the analyses described above, the Corporation's reserve at December 31, 2016, for the total costs, including defense costs, for Asbestos Liability claims pending or projected to be asserted through 2026, was $171 million of which approximately 70% was attributable to settlement costs for unasserted claims projected to be filed through 2026 and future defense costs. The reserve at December 31, 2017, was $150 million. While it is reasonably possible that the Corporation will incur additional charges for Asbestos Liability and defense costs in excess of the amounts currently reserved, the Corporation believes that there is too much uncertainty to provide for reasonable estimation of the number of future claims, the nature of such claims and the cost to resolve them beyond 2026. Accordingly, no reserve has been recorded for any costs that may be incurred after 2026.

The Corporation's receivable at December 31, 2016, for insurance recoveries attributable to the claims for which the Corporation's Asbestos Liability reserve has been established, including the portion of incurred defense costs covered by the Settlement Agreements in effect through December 31, 2016, and the probable payments and reimbursements relating to the estimated indemnity and defense costs for pending and unasserted future Asbestos Liability claims, was $116 million ($100 million at December 31, 2017).

The following table summarizes activity relating to insurance recoveries for each of the years ended December 31, 2017, and 2016.

(dollars in thousands)	2017	2016
Insurance receivable – asbestos, beginning of the year	$115,945	$125,423
Settlement and defense costs paid by insurance carriers [1]	(15,603)	(23,138)
Changes in estimated coverage	0	13,660
Insurance receivable – asbestos, end of the year	$100,342	$115,945

(1) Settlement and defense costs paid by insurance carriers for 2016 includes a lump sum cash settlement with an insurance carrier of $9,808.

11

The insurance receivable recorded by the Corporation does not assume any recovery from insolvent carriers and a substantial majority of the insurance recoveries deemed probable is from insurance companies rated A – (excellent) or better by A.M. Best Corporation. There can be no assurance, however, that there will not be further insolvencies among the relevant insurance carriers, or that the assumed percentage recoveries for certain carriers will prove correct. The difference between insurance recoveries and projected costs is not due to exhaustion of all insurance coverage for Asbestos Liability. The Corporation and the subsidiaries have substantial additional insurance coverage which the Corporation expects to be available for Asbestos Liability claims and defense costs that the subsidiaries and it may incur after 2026. However, this insurance coverage also can be expected to have gaps creating significant shortfalls of insurance recoveries against claims expense, which could be material in future years.

The amounts recorded by the Corporation for Asbestos Liabilities and insurance receivables rely on assumptions that are based on currently known facts and strategy. The Corporation’s actual expenses or insurance recoveries could be significantly higher or lower than those recorded if assumptions used in the Corporation’s or HR&A’s calculations vary significantly from actual results. Key variables in these assumptions are identified above and include the number and type of new claims to be filed each year, the average cost of disposing of each such new claim, average annual defense costs, compliance by relevant parties with the terms of the Settlement Agreements, the resolution of remaining coverage issues with insurance carriers, and the solvency risk with respect to the relevant insurance carriers. Other factors that may affect the Corporation’s Asbestos Liability and ability to recover under its insurance policies include uncertainties surrounding the litigation process from jurisdiction to jurisdiction and from case to case, reforms that may be made by state and federal courts, and the passage of state or federal tort reform legislation.

The Corporation intends to evaluate its estimated Asbestos Liability and related insurance receivables as well as the underlying assumptions on a regular basis to determine whether any adjustments to the estimates are required. Due to the uncertainties surrounding asbestos litigation and insurance, these regular reviews may result in the Corporation incurring future charges; however, the Corporation is currently unable to estimate such future charges. Adjustments, if any, to the Corporation’s estimate of its recorded Asbestos Liability and/or insurance receivables could be material to operating results for the periods in which the adjustments to the liability or receivable are recorded, and to the Corporation’s liquidity and consolidated financial position.

ENVIRONMENTAL

The Corporation is currently performing certain remedial actions in connection with the sale of real estate previously owned and periodically incurs costs to maintain compliance with environmental laws and regulations. Appropriate reserves have been established.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

– PART II –

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

The shares of common stock of Ampco-Pittsburgh Corporation are traded on the New York Stock Exchange (symbol AP). The Corporation paid cash dividends on common shares in every year since 1965. In June 2017, the Corporation announced that it would suspend quarterly cash dividends, beginning with the second quarter of 2017.

	2017 Per Share Common Stock Price			2016 Per Share Common Stock Price		
			Dividends			Dividends
Quarter	High	Low	Declared	High	Low	Declared
First	$16.80	$13.20	$ 0.09	$14.68	$8.88	$ 0.09
Second	17.05	12.40	0.00	19.22	10.38	0.00
Third	18.15	12.70	0.00	13.65	9.34	0.18
Fourth	18.40	12.20	0.00	18.25	10.22	0.09
Year	18.40	12.20	0.09	19.22	8.88	0.36

The number of registered shareholders at December 31, 2017, and 2016, equaled 385 and 392, respectively.

STOCK PERFORMANCE GRAPH

Comparison of Five Year Cumulative Total Return*

Standard & Poors 500 Index, NYSE Composite and Morningstar's Steel Industry

Performance Results through December 2017

Assumes $100 invested at the close of trading on the last trading day preceding January 1, 2012 in Ampco-Pittsburgh Corporation common stock, Standard & Poors 500 Index, NYSE Composite Index and Morningstar's Steel Industry group.

*Cumulative total return assumes reinvestment of dividends.

In the above graph, the Corporation has used Morningstar's Steel Industry group for its peer comparison. The diversity of products produced by subsidiaries of the Corporation makes it difficult to match to any one product-based peer group. Although not totally comparable, the Steel Industry group was chosen because the largest percentage of the Corporation's sales is to the global steel industry. Historical stock price performance shown on the above graph is not necessarily indicative of future price performance.

ITEM 6. SELECTED FINANCIAL DATA

Our selected financial data includes the results of operations of Åkers AB and certain of its affiliates from March 3, 2016, and ASW Steel Inc. from November 1, 2016, their respective dates of acquisition, and their financial position beginning as of December 31, 2016. Accordingly, our selected data for 2017 and 2016 is not fully comparable to earlier years and may not be indicative of our future results of operations or financial position. The information set forth below should be read in conjunction with Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations" and Item 8, "Financial Statements and Supplementary Data" and notes thereto.

	Year Ended December 31,				
(dollars, except per share amounts, and shares outstanding in thousands)	2017	2016	2015	2014	2013
Net sales	$432,401	$331,866	$238,480	$272,858	$281,050
Net (loss) income attributable to Ampco-Pittsburgh[(1)]	(12,089)	(79,820)	1,373	(1,187)	12,437
Total assets	565,599	565,889	506,156	536,409	502,673
Long-term obligations	46,818	25,389	0	0	0
Ampco-Pittsburgh shareholders' equity	158,941	147,918	211,423	205,148	234,995
Net (loss) income per common share attributable to Ampco-Pittsburgh:					
Basic[(1)]	(0.98)	(6.68)	0.13	(0.11)	1.20
Diluted	(0.98)	(6.68)	0.13	(0.11)	1.20
Per common share:					
Cash dividends declared	0.09	0.36	0.72	0.72	0.72
Ampco-Pittsburgh shareholders' equity	12.86	12.05	20.25	19.68	22.65
Market price at year end	12.40	16.75	10.26	19.25	19.45
Weighted average common shares outstanding	12,330	11,951	10,435	10,405	10,358
Number of registered shareholders	385	392	373	400	423
Number of employees	1,943	1,915	1,027	1,076	1,109

(1) Net (loss) income attributable to Ampco-Pittsburgh and net (loss) income per common share (basic) attributable to Ampco-Pittsburgh includes:

2016 – After-tax charges of $26,676 or $2.23 per common share principally for the write-off of goodwill in the Forged and Cast Engineered Products reporting unit deemed to be impaired (see Note 2 to Consolidated Financial Statements), $30,405 or $2.54 per common share to recognize a valuation allowance against certain deferred income tax assets (see Note 15 to Consolidated Financial Statements), and $4,565 or $0.38 per common share for estimated costs of asbestos-related litigation through 2026, net of estimated insurance recoveries (see Note 19 to Consolidated Financial Statements), and a settlement with an insurance carrier for an amount in excess of the receivable estimated.

2015 – After-tax asbestos-related proceeds of $9,316 or $0.89 per common share received from two insurance carriers in rehabilitation.

2014 – An after-tax charge of $2,916 or $0.28 per common share for estimated costs of asbestos-related litigation through 2024, net of estimated insurance recoveries.

2013 – An after-tax credit of $10,621 or $1.03 per common share for estimated additional insurance recoveries expected to be available to satisfy the Asbestos Liability through 2022, resulting from settlement agreements reached with various insurance carriers, offset by an after-tax charge of $4,165 or $0.40 per common share to recognize an other-than-temporary impairment of our investment in a forged roll joint venture company for a net increase to net income of $6,456 or $0.63 per common share.

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATION

(in thousands, except per share amounts)

EXECUTIVE OVERVIEW

Ampco-Pittsburgh Corporation and its subsidiaries (the "Corporation") manufacture and sell highly engineered, high-performance specialty metal products and customized equipment utilized by industry throughout the world. We operate in two business segments – the Forged and Cast Engineered Products segment and the Air and Liquid Processing segment.

Forged and Cast Engineered Products

The Forged and Cast Engineered Products segment historically consisted of Union Electric Steel Corporation ("Union Electric Steel" or "UES") and Union Electric Steel UK Limited ("UES-UK"). In March 2016, UES acquired the stock of Åkers AB and certain of its affiliated companies, including Åkers AB's 60% equity interest in a Chinese joint venture company (collectively, "Åkers"). Åkers has been a leader in the production of forged and cast rolls since 1806. Collectively doing business as Union Electric Åkers, this portion of the segment produces forged hardened steel rolls used mainly for cold rolling by producers of steel, aluminum and other metals and cast rolls for hot and cold strip mills, medium/heavy section mills and plate mills in a variety of iron and steel qualities.

The segment also produces ingot and open-die forged products ("forged engineered products") which are used in the oil and gas industry and the aluminum and plastic extrusion industries. In July 2015, UES acquired the assets of Alloys Unlimited & Processing, Inc. ("AUP") and, in November 2016, the stock of ASW Steel Inc. ("ASW"). AUP is a supplier of specialty tool, alloy, and carbon steel round bar and is located in the United States. ASW is a specialty steel producer based in Canada. Both acquisitions support our diversification efforts in the open-die forging market.

The segment has operations in the United States, England, Sweden, Slovenia, Canada and an equity interest in three joint venture companies in China. Collectively, the segment primarily competes with European, Asian and North and South American companies in both domestic and foreign markets and distributes a significant portion of its products through sales offices located throughout the world. The consolidated financial statements of the Corporation include the results of operations of the acquired companies from their respective dates of acquisition.

The Forged and Cast Engineered Products segment had been operating at levels significantly below capacity and, in April 2017, we temporarily idled a portion of one of our cast rolls plants. While it is anticipated that market conditions in the United States, Europe and other world regions will remain difficult, protectionist acts (tariffs) and reduced output from China appear to be benefitting our two largest markets – North America and Europe. Additionally, many of our customers have announced improved financial results which should lead to additional demand and better pricing. Backlog for mill rolls has increased roughly 39% from year end 2016 to year end 2017. With respect to the oil and gas market, activity remains strong as oil and gas prices remain elevated. Backlog for forged engineered products at December 31, 2017, has nearly tripled from the prior year.

Air and Liquid Processing

The Air and Liquid Processing segment includes Aerofin, Buffalo Air Handling and Buffalo Pumps, all divisions of Air & Liquid Systems Corporation ("Air & Liquid"), a wholly owned subsidiary of the Corporation. Aerofin produces custom-engineered finned tube heat exchange coils and related heat transfer products for a variety of industries including OEM/commercial, nuclear power generation and industrial manufacturing. Buffalo Air Handling produces large custom-designed air handling systems for institutional (e.g., hospital, university), pharmaceutical and general industrial building markets. Buffalo Pumps manufactures centrifugal pumps for the fossil-fuel power generation, marine defense and industrial refrigeration industries. The segment has operations in Virginia and New York with headquarters in Carnegie, Pennsylvania. The segment distributes a significant portion of its products through a common independent group of sales offices located throughout the United States and Canada.

For the Air and Liquid Processing segment, business activity in the specialty centrifugal pump industry has been negatively impacted by a decline in activity in the fossil-fueled power generation market, partially offset by increased activity in the marine defense market. For the heat exchanger business, there are early signs of growth in the OEM/commercial, nuclear power generation and industrial markets. Additionally, demand for custom air handling systems continues to improve although competitive pricing pressures remain. The focus for this segment is to grow revenues, increase margins, strengthen engineering and manufacturing capabilities, and continuing to improve the sales distribution network.

CONSOLIDATED RESULTS OF OPERATIONS OVERVIEW

The Corporation

	2017		2016		2015	
Net Sales:						
Forged and Cast Engineered Products	$344,529	80 %	$247,652	75%	$152,267	64%
Air and Liquid Processing	87,872	20 %	84,214	25%	86,213	36%
Consolidated	$432,401	100%				