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

FORM 10-Q

☑ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934.**
For the quarterly period ended March 31, 2021

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: 000-26966

ADVANCED ENERGY INDUSTRIES, INC.

(Exact name of registrant as specified in its charter)

Delaware	**84-0846841**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
1595 Wynkoop Street, Suite 800, Denver, Colorado	**80202**
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code: (970) 407-6626

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $0.001 par value	**AEIS**	**NASDAQ Global Select Market**

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 (§232.405 of this chapter) 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, a 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 ☐ 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 ☑

As of May 3, 2021, there were 38,415,537 shares of the registrant's Common Stock, par value $0.001 per share, outstanding.

ADVANCED ENERGY INDUSTRIES, INC.
FORM 10-Q
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PART I FINANCIAL INFORMATION

ITEM 1. UNAUDITED CONSOLIDATED FINANCIAL STATEMENTS

ADVANCED ENERGY INDUSTRIES, INC.
Unaudited Consolidated Balance Sheets
(In thousands, except per share amounts)

	March 31, 2021	December 31, 2020
ASSETS		
Current assets:		
Cash and cash equivalents	$ 509,910	$ 480,368
Marketable securities	2,854	2,654
Accounts and other receivable, net	236,916	235,178
Inventories	247,567	221,346
Income taxes receivable	5,321	4,804
Other current assets	37,514	35,899
Total current assets	1,040,082	980,249
Property and equipment, net	112,842	114,731
Operating lease right-of-use assets	100,924	103,858
Deposits and other assets	17,740	19,101
Goodwill	207,994	209,983
Intangible assets, net	169,389	168,939
Deferred income tax assets	50,280	50,801
TOTAL ASSETS	$ 1,699,251	$ 1,647,662
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 162,616	$ 125,224
Income taxes payable	15,586	11,850
Accrued payroll and employee benefits	44,611	63,487
Other accrued expenses	57,943	49,565
Customer deposits and other	13,271	12,179
Current portion of long-term debt	17,500	17,500
Current portion of operating lease liabilities	15,346	16,592
Total current liabilities	326,873	296,397
Long-term debt	300,297	304,546
Operating lease liabilities	94,184	95,993
Pension benefits	78,982	80,447
Deferred income tax liabilities	9,672	10,088
Uncertain tax positions	12,993	12,839
Long-term deferred revenue	7,123	7,352
Other long-term liabilities	22,852	24,660
Total liabilities	852,976	832,322
Commitments and contingencies (Note 17)		
Stockholders' equity:		
Preferred stock, $0.001 par value, 1,000 shares authorized, none issued and outstanding	—	—
Common stock, $0.001 par value, 70,000 shares authorized; 38,386 and 38,293 issued and outstanding at March 31, 2021 and December 31, 2020, respectively	38	38
Additional paid-in capital	106,065	105,009
Accumulated other comprehensive loss	(7,573)	(2,605)
Retained earnings	747,111	712,297
Advanced Energy stockholders' equity	845,641	814,739
Noncontrolling interest	634	601
Total stockholders' equity	846,275	815,340
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	$ 1,699,251	$ 1,647,662

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

ADVANCED ENERGY INDUSTRIES, INC.
Unaudited Consolidated Statements of Operations
(In thousands, except per share amounts)

	Three Months Ended March 31,	
	2021	2020
Sales, net	$ 351,620	$ 315,456
Cost of sales	214,117	203,225
Gross profit	137,503	112,231
Operating expenses:		
Research and development	40,168	34,770
Selling, general, and administrative	46,731	45,991
Amortization of intangible assets	5,384	5,006
Restructuring expense	1,038	656
Total operating expenses	93,321	86,423
Operating income	44,182	25,808
Other income (expense), net	(507)	(3,510)
Income from continuing operations, before income taxes	43,675	22,298
Provision for income taxes	5,284	3,900
Income from continuing operations	38,391	18,398
Income (loss) from discontinued operations, net of income taxes	310	(320)
Net income	$ 38,701	$ 18,078
Income from continuing operations attributable to noncontrolling interest	33	15
Net income attributable to Advanced Energy Industries, Inc.	$ 38,668	$ 18,063
Basic weighted-average common shares outstanding	38,328	38,358
Diluted weighted-average common shares outstanding	38,583	38,570
Earnings per share:		
Continuing operations:		
Basic earnings per share	$ 1.00	$ 0.48
Diluted earnings per share	$ 0.99	$ 0.48
Discontinued operations:		
Basic earnings (loss) per share	$ 0.01	$ (0.01)
Diluted earnings (loss) per share	$ 0.01	$ (0.01)
Net income:		
Basic earnings per share	$ 1.01	$ 0.47
Diluted earnings per share	$ 1.00	$ 0.47

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

ADVANCED ENERGY INDUSTRIES, INC.
Unaudited Consolidated Statements of Comprehensive Income
(In thousands)

	Three Months Ended March 31, 2021	Three Months Ended March 31, 2020
Net income	$ 38,701	$ 18,078
Other comprehensive income (loss), net of income taxes		
Foreign currency translation	(6,941)	(3,061)
Change in fair value of cash flow hedges	2,009	—
Minimum benefit retirement liability	(36)	154
Comprehensive income	$ 33,733	$ 15,171
Comprehensive income attributable to noncontrolling interest	33	15
Comprehensive income attributable to Advanced Energy Industries, Inc.	$ 33,700	$ 15,156

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

ADVANCED ENERGY INDUSTRIES, INC.
Unaudited Consolidated Statements of Stockholders' Equity
(In thousands)

	Advanced Energy Industries, Inc. Stockholders' Equity						
	Common Stock						
	Shares	Amount	Additional Paid-in Capital	Accumulated Other Comprehensive Income	Retained Earnings	Non-controlling Interest	Total Stockholders' Equity
Balances, December 31, 2019	38,358	$ 38	$ 104,849	$ (5,897)	$ 577,724	$ 546	$ 677,260
Adoption of new accounting standards	—	—	—	—	(102)	—	(102)
Stock issued from equity plans	64	—	(2,171)	—	—	—	(2,171)
Stock-based compensation	—	—	3,048	—	—	—	3,048
Stock buyback	(170)	—	(7,248)	—	—	—	(7,248)
Other comprehensive income (loss)	—	—	—	(2,907)	—	—	(2,907)
Net income	—	—	—	—	18,063	15	18,078
Balances, March 31, 2020	38,252	$ 38	$ 98,478	$ (8,804)	$ 595,685	$ 561	$ 685,958
Balances, December 31, 2020	38,293	$ 38	$ 105,009	$ (2,605)	$ 712,297	$ 601	$ 815,340
Stock issued from equity plans	93	—	(4,645)	—	—	—	(4,645)
Stock-based compensation	—	—	5,701	—	—	—	5,701
Dividend payments	—	—	—	—	(3,854)	—	(3,854)
Other comprehensive income (loss)	—	—	—	(4,968)	—	—	(4,968)
Net income	—	—	—	—	38,668	33	38,701
Balances, March 31, 2021	38,386	$ 38	$ 106,065	$ (7,573)	$ 747,111	$ 634	$ 846,275

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

ADVANCED ENERGY INDUSTRIES, INC.
Unaudited Consolidated Statements of Cash Flows
(In thousands)

	Three Months Ended March 31, 2021	Three Months Ended March 31, 2020
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net income	$ 38,701	$ 18,078
Income (loss) from discontinued operations, net of income taxes	310	(320)
Income from continuing operations, net of income taxes	38,391	18,398
Adjustments to reconcile net income to net cash from operating activities:		
Depreciation and amortization	12,721	11,616
Stock-based compensation expense	5,701	3,048
Provision (benefit) for deferred income taxes	(5)	(1,265)
Discount on notes receivable	—	721
Net loss on disposal of assets	275	173
Changes in operating assets and liabilities, net of assets acquired:		
Accounts and other receivable, net	(4,984)	32,084
Inventories	(27,503)	(6,726)
Other assets	(1,406)	(14,688)
Accounts payable	40,483	(5,351)
Other liabilities and accrued expenses	(12,534)	(9,989)
Income taxes	3,125	919
Net cash from operating activities from continuing operations	54,264	28,940
Net cash from operating activities from discontinued operations	(185)	(418)
Net cash from operating activities	54,079	28,522
CASH FLOWS FROM INVESTING ACTIVITIES:		
Proceeds from sale of marketable securities	—	10
Issuance of notes receivable	—	(1,000)
Proceeds from sale of property and equipment	6	—
Purchases of property and equipment	(8,817)	(6,134)
Acquisitions, net of cash acquired	(3,604)	—
Net cash from investing activities from continuing operations	(12,415)	(7,124)
Net cash from investing activities from discontinued operations	—	—
Net cash from investing activities	(12,415)	(7,124)
CASH FLOWS FROM FINANCING ACTIVITIES:		
Payments on long-term borrowings	(4,375)	(4,375)
Dividend payments	(3,854)	—
Purchase and retirement of common stock	—	(7,248)
Net payments related to stock-based award activities	(4,214)	(2,171)
Net cash from financing activities from continuing operations	(12,443)	(13,794)
Net cash from financing activities from discontinued operations	—	—
Net cash from financing activities	(12,443)	(13,794)
EFFECT OF CURRENCY TRANSLATION ON CASH	321	(1,505)
NET CHANGE IN CASH AND CASH EQUIVALENTS	29,542	6,099
CASH AND CASH EQUIVALENTS, beginning of period	480,368	346,441
CASH AND CASH EQUIVALENTS, end of period	509,910	352,540
Less cash and cash equivalents from discontinued operations	—	—
CASH AND CASH EQUIVALENTS FROM CONTINUING OPERATIONS, end of period	$ 509,910	$ 352,540
SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION:		
Cash paid for interest	$ 979	$ 2,240
Cash paid for income taxes	$ 1,873	$ 4,545
Cash received for refunds of income taxes	$ 109	$ 121

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

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO UNAUDITED CONSOLIDATED FINANCIAL STATEMENTS
(In thousands, except per share data)

NOTE 1. DESCRIPTION OF BUSINESS AND BASIS OF PRESENTATION

Advanced Energy Industries, Inc., a Delaware corporation, and its wholly-owned subsidiaries ("we," "us," "our," "Advanced Energy," or the "Company") design, manufacture, sell, and support precision power products that transform, refine, and modify the raw electrical power from the utility and convert it into various types of highly-controllable usable power that is predictable, repeatable, and customizable. Our power solutions enable innovation in complex semiconductor and thin film plasma processes such as dry etch, strip, chemical and physical deposition, high and low voltage applications such as process control, analytical instrumentation, medical equipment, and in temperature-critical thermal applications such as material and chemical processing.

We also supply related instrumentation products for advanced temperature measurement and control, electrostatic instrumentation products for test and measurement applications, and gas sensing and monitoring solutions for several industrial markets. Our network of service support centers facilitates local repair and field service in key regions, provides upgrades and refurbishment services, and sells used equipment to businesses that use our products.

In September 2019, we acquired the Artesyn Embedded Power business ("Artesyn"), which added new power products and technologies used in networking and computing, data center including hyperscale, and industrial and medical applications. As of December 31, 2015, we discontinued our engineering, production, and sales of our inverter product line. As such, all inverter product revenues, costs, assets, and liabilities are reported in Discontinued Operations for all periods presented herein, and we currently report as a single unit. Ongoing inverter repair and service operations are reported as part of our continuing operations.

In the opinion of management, the accompanying unaudited consolidated financial statements contain all adjustments, consisting of normal, recurring adjustments, necessary to present fairly the financial position of the Company as of March 31, 2021, and the results of our operations and cash flows for the three months ended March 31, 2021 and 2020.

The unaudited consolidated financial statements included herein have been prepared pursuant to the rules and regulations of the Securities and Exchange Commission ("SEC"). Certain information and footnote disclosures normally included in financial statements prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP") have been omitted pursuant to such rules and regulations. These unaudited consolidated financial statements should be read in conjunction with the audited consolidated financial statements and notes thereto contained in our Annual Report on Form 10-K for the year ended December 31, 2020 and other financial information filed with the SEC.

Use of Estimates in the Preparation of the Consolidated Financial Statements

The preparation of our consolidated financial statements in conformity with U.S. GAAP requires us to make estimates, assumptions, and judgments that affect the reported amounts of assets and liabilities, the disclosure of contingent liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the reporting period. The significant estimates, assumptions, and judgments include, but are not limited to:

- allowances for expected credit loss;
- excess and obsolete inventory;
- warranty reserves;
- pension obligations;
- right-of-use assets and related operating lease liabilities;
- acquisitions and asset valuations;
- asset lives;
- depreciation and amortization;
- recoverability of assets and potential impairment;
- deferred revenue;
- stock options, performance based stock, and restricted stock grants; and
- taxes and other provisions;

We believe our significant estimates, assumptions, and judgments are reasonable based on the information available at the time they are made. Actual results may differ from these estimates, making it possible that a change in these estimates could occur in the near term.

Critical Accounting Policies

Our accounting policies are described in Note 1 to our audited consolidated financial statements in our Annual Report on Form 10-K for the year ended December 31, 2020.

New Accounting Standards

From time to time, the Financial Accounting Standards Board ("FASB") or other standards setting bodies issue new accounting pronouncements. Updates to the FASB Accounting Standards Codification ("ASC") are communicated through issuance of an Accounting Standards Update ("ASU"). Unless otherwise discussed, we believe that the impact of recently issued guidance, whether adopted or to be adopted in the future, will not have a material impact on the consolidated financial statements upon adoption.

New Accounting Standards Adopted

In August 2018, the FASB issued ASU 2018-14, *"Compensation—Retirement Benefits—Defined Benefit Plans—General (Subtopic 715-20)"* ("ASU 2018-14"). ASU 2018-14 eliminates requirements for certain disclosures and requires additional disclosures under defined benefit pension plans and other post-retirement plans. ASU 2018-14 was effective for us on January 1, 2021. The impact of adoption was not material to our consolidated financial statements.

New Accounting Standards Issued But Not Yet Adopted

In March 2020, the FASB issued ASU 2020-04, *"Reference Rate Reform (Topic 848): Facilitation of the Effects of Reference Rate Reform on Financial Reporting"* ("ASU 2020-04"). ASU 2020-04 provides optional expedients and exceptions for applying GAAP to contract modifications and hedging relationships, subject to meeting certain criteria, that reference LIBOR or another rate that is expected to be discontinued. ASU 2020-04 will be in effect through December 31, 2022. We are currently assessing the potential impact of ASU 2020-04 on our consolidated financial statements.

NOTE 2. ACQUISITIONS

Intangible Assets Acquired

In January 2021, we acquired certain intangible assets related to the manufacturing of fiber optic sensing equipment for $3.6 million in cash and an additional $2.9 million expected to be paid within one year of the closing date. These intangible assets have an estimated useful life of five years. See *Note 12. Intangible Assets* for details.

Versatile Power, Inc.

On December 31, 2020, we acquired 100% of the issued and outstanding shares of Versatile Power, Inc., which is based in Campbell, California. This acquisition added radio frequency ("RF") and programmable power supplies for medical and industrial applications to our product portfolio and further expands our presence in the medical market by adding proven technologies, deep customer relationships, expertise in medical design, and a medical-certified manufacturing center.

(in thousands except per share data)

The components of the fair value of the total consideration transferred were as follows:

Cash paid for acquisition	$	4,594
Holdback		950
Contingent consideration		1,500
Total fair value of consideration transferred		7,044
Less cash acquired		(245)
Total purchase price	$	6,799

We are still evaluating the fair value for the assets acquired and liabilities assumed. Accordingly, the purchase price allocation presented below is preliminary.

		Preliminary Fair Value March 31, 2021
Current assets and liabilities, net	$	1,013
Property and equipment		35
Operating lease right-of-use assets		463
Intangible assets		4,000
Goodwill		1,751
Total assets acquired		7,262
Operating lease liability		463
Total liabilities assumed		463
Total fair value of net assets acquired	$	6,799

NOTE 3. REVENUE

Revenue Recognition

We recognize revenue when we have satisfied our performance obligations which typically occurs when control of the products or services has been transferred to our customers. The transaction price is based upon the standalone selling price. In most transactions, we have no obligations to our customers after the date products are shipped, other than pursuant to warranty obligations. Shipping and handling fees billed to customers, if any, are recognized as revenue. The related shipping and handling costs are recognized in cost of sales. Support services include warranty and non-warranty repair services, upgrades, and refurbishments on the products we sell. Repairs that are covered under our standard warranty do not generate revenue.

Nature of goods and services

Products

Advanced Energy provides highly engineered, mission-critical, precision power conversion, measurement, and control solutions to our global customers. We design, manufacture, sell and support precision power products that transform electrical power into various usable forms. Our power conversion products refine, modify, and control the raw electrical power from a utility and convert it into power that is predictable, repeatable, and customizable. Our products enable thin film manufacturing processes such as plasma enhanced chemical and physical deposition and etch for various semiconductor and industrial products, industrial thermal applications for material and chemical processes, and specialty power for critical industrial technology applications. We also supply thermal instrumentation products for advanced temperature measurement and control in these markets. As a result of the Artesyn acquisition, we now sell precision power conversion products into the Telecom and Networking, Data Center Computing (including hyperscale), and Industrial and Medical markets.

(in thousands except per share data)

Our products are designed to enable new process technologies, improve productivity, and lower the cost of ownership for our customers. We also provide repair and maintenance services for all our products. We principally serve original equipment manufacturers ("OEM") and end customers in the semiconductor, flat panel display, high voltage, solar panel, Telecom and Networking, Data Center Computing, Industrial and Medical markets. Our advanced power products are used in diverse markets, applications, and processes including the manufacture of capital equipment for semiconductor device manufacturing, thin film applications for thin film renewables and architectural glass, and for other thin film applications including flat panel displays, and industrial coatings. Our embedded power products are used in a wide range of applications, such as 5G, data center (including hyperscale) and other industrial and medical applications.

Services

Our services group offers warranty and after-market repair services in the regions in which we operate, providing us with preventive maintenance opportunities. Our customers continue to pursue low cost of ownership of their capital equipment and are increasingly sensitive to the costs of system downtime. They expect that suppliers offer comprehensive local repair service and customer support. To meet these market requirements, we maintain a worldwide support organization in ten countries, including the United States ("U.S."), the People's Republic of China ("PRC"), Japan, Korea, Taiwan, Germany, Ireland, Singapore, Israel, and Great Britain. Support services include warranty and non-warranty repair services, upgrades, and refurbishments on the products we sell.

As part of our ongoing service business, we satisfy our service obligations under preventative maintenance contracts and extended warranties which had previously been offered on our discontinued inverter products. Any up-front fees received for extended warranties or maintenance plans are deferred. Revenue under these arrangements is recognized ratably over the underlying terms as we do not have historical information which would allow us to project the estimated service usage pattern at this time.

The following table summarizes deferred revenue, which relates to extended warranties and service contracts. We expect to recognize this revenue ratably through the year 2031.

	March 31, 2021	December 31, 2020
Deferred revenue	$ 8,340	$ 8,671

Disaggregation of Revenue

The following tables present additional information regarding our revenue:

	Three Months Ended March 31, 2021	Three Months Ended March 31, 2020
Semiconductor Equipment	$ 180,716	$ 133,625
Industrial and Medical	78,415	61,979
Data Center Computing	59,154	86,183
Telecom and Networking	33,335	33,669
Total	$ 351,620	$ 315,456

	Three Months Ended March 31, 2021	Three Months Ended March 31, 2020
Product	$ 318,879	$ 289,361
Services	32,741	26,095
Total	$ 351,620	$ 315,456

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO UNAUDITED CONSOLIDATED FINANCIAL STATEMENTS — (Continued)
(in thousands except per share data)

	Three Months Ended March 31, 2021	Three Months Ended March 31, 2020
United States	$ 131,598	$ 116,697
North America (excluding United States)	26,247	47,634
Asia	149,591	110,975
Europe	40,422	39,136
Other	3,762	1,014
Total	$ 351,620	$ 315,456

	Three Months Ended March 31, 2021	Three Months Ended March 31, 2020
Product and service revenue recognized at point in time	$ 351,393	$ 315,281
Extended warranty and service contracts recognized over time	227	175
Total	$ 351,620	$ 315,456

NOTE 4. INCOME TAXES

The following table summarizes tax expense and the effective tax rate for our income from continuing operations:

	Three Months Ended March 31, 2021	Three Months Ended March 31, 2020
Income from continuing operations, before income taxes	$ 43,675	$ 22,298
Provision for income taxes	$ 5,284	$ 3,900
Effective tax rate	12.1 %	17.5 %

The Company’s effective tax rates differ from the U.S. federal statutory rate of 21% for the three months ended March 31, 2021 and 2020, respectively, primarily due to the benefit of earnings in foreign jurisdictions which are subject to lower tax rates, partially offset by net U.S. tax on foreign operations and withholding taxes. The effective tax rate for the first three months of 2021 was lower than the same period in 2020 primarily due to the mix of discrete events between the two periods.

NOTE 5. EARNINGS PER SHARE

Basic earnings per share ("EPS") is computed by dividing income available to common stockholders by the weighted-average number of common shares outstanding during the period. The computation of our diluted EPS is similar to the computation of our basic EPS except that the denominator is increased to include the number of additional common shares that would have been outstanding (using the if-converted and treasury stock methods), if our outstanding stock options and restricted stock units had been converted to common shares, and if such assumed conversion is dilutive.

The following is a reconciliation of the weighted-average shares outstanding used in the calculation of basic and diluted earnings per share:

	Three Months Ended March 31,	
	2021	2020
Income from continuing operations	$ 38,391	$ 18,398
Income from continuing operations attributable to noncontrolling interest	33	15
Income from continuing operations attributable to Advanced Energy Industries, Inc.	$ 38,358	$ 18,383
Basic weighted-average common shares outstanding	38,328	38,358
Assumed exercise of dilutive stock options and restricted stock units	255	212
Diluted weighted-average common shares outstanding	38,583	38,570
Continuing operations:		
Basic earnings per share	$ 1.00	$ 0.48
Diluted earnings per share	$ 0.99	$ 0.48

The following stock options and restricted units were excluded in the computation of diluted earnings per share because they were anti-dilutive:

	Three Months Ended March 31,	
	2021	2020
Restricted stock units	31	—

Share Repurchase

To execute the repurchase of shares of our common stock, the Company periodically enters into stock repurchase agreements. The following table summarizes these repurchases:

	Three Months Ended March 31,	
(in thousands, except per share amounts)	2021	2020
Amount paid to repurchase shares	$ —	$ 7,248
Number of shares repurchased	—	170
Average repurchase price per share	$ —	$ 42.59
Remaining authorized by Board of Directors for future repurchases as of period end	$ 38,369	$ 42,751

There were no shares repurchased from related parties. All shares repurchased were recognized as a reduction to Additional paid-in capital. Repurchased shares were retired and assumed the status of authorized and unissued shares.

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO UNAUDITED CONSOLIDATED FINANCIAL STATEMENTS — (Continued)
(in thousands except per share data)

NOTE 6. FAIR VALUE MEASUREMENTS

The following tables present information about the Company's assets and liabilities measured at fair value on a recurring basis.

		March 31, 2021			
Description	**Balance Sheet Classification**	**Level 1**	**Level 2**	**Level 3**	**Total Fair Value**
Assets:					
Certificates of deposit	Marketable securities	$ —	$ 2,854	$ —	$ 2,854
Foreign currency forward contracts	Other current assets	—	21	—	21
Total assets measured at fair value on a recurring basis		$ —	$ 2,875	$ —	$ 2,875
Liabilities:					
Contingent consideration	Other current liabilities	$ —	$ —	$ 2,125	$ 2,125
Contingent consideration	Other long-term liabilities	—	—	2,911	2,911
Interest rate swaps	Other long-term liabilities	—	169	—	169
Total liabilities measured at fair value on a recurring basis		$ —	$ 169	$ 5,036	$ 5,205

		December 31, 2020			
Description	**Balance Sheet Classification**	**Level 1**	**Level 2**	**Level 3**	**Total Fair Value**
Assets:					
Certificates of deposit	Marketable securities	$ —	$ 2,654	$ —	$ 2,654
Total assets measured at fair value on a recurring basis		$ —	$ 2,654	$ —	$ 2,654
Liabilities:					
Contingent consideration	Other current liabilities	$ —	$ —	$ 2,009	$ 2,009
Contingent consideration	Other long-term liabilities	—	—	2,940	2,940
Interest rate swaps	Other long-term liabilities	—	2,811	—	2,811
Total liabilities measured at fair value on a recurring basis		$ —	$ 2,811	$ 4,949	$ 7,760

The fair value of foreign currency forward contracts is based on the movement in the forward rates of foreign currency cash flows in which the hedging instrument is denominated. We determine the fair value of interest rate swaps by estimating the net present value of the expected cash flows based on market rates and associated yield curves, adjusted for non-performance credit risk, as applicable. See *Note 7. Derivative Financial Instruments* for additional information. The fair value of contingent consideration is determined by estimating the net present value of the expected cash flows based on the probability of expected payment.

For all periods presented, there were no transfers into or out of Level 3.

(in thousands except per share data)

NOTE 7. DERIVATIVE FINANCIAL INSTRUMENTS

We are impacted by changes in foreign currency exchange rates. We may manage these risks through the use of derivative financial instruments, primarily forward contracts with banks. These forward contracts manage the exchange rate risk associated with assets and liabilities denominated in nonfunctional currencies. These derivative instruments are typically executed for one-month periods and not designated as hedges; however, they do economically offset the fluctuations of our assets and liabilities due to foreign exchange rate changes.

The following table summarizes the notional amount of outstanding foreign currency forward contracts:

	March 31, 2021	December 31, 2020
Foreign currency forward contracts	$ 35,280	$ —

Gains and losses related to foreign currency exchange contracts were offset by corresponding gains and losses on the revaluation of the underlying assets and liabilities. Both are included as a component of Other income (expense), net in our Unaudited Consolidated Statements of Operations.

In April 2020, the Company executed interest rate swap contracts with independent financial institutions to partially reduce the variability of cash flows in LIBOR indexed debt interest payments on our Term Loan Facility (under the Company's existing Credit Agreement dated as of September 10, 2019). These transactions are accounted for as cash flow hedging instruments.

The interest rate swap contracts fixed 85% of the outstanding principal balance on our term loan to a total interest rate of 1.271%. This is comprised of 0.521% average fixed rate per annum in exchange for a variable interest rate based on one-month USD-LIBOR-BBA plus the credit spread in the Company's existing Credit Agreement, which is 75 basis points at current leverage ratios.

The following table summarizes the notional amount of qualified hedging instruments:

	March 31, 2021	December 31, 2020
Interest rate swap contracts	$ 268,844	$ 273,219

At March 31, 2021, Accumulated other comprehensive loss on the Unaudited Consolidated Balance Sheets includes $0.1 million, net of tax, related to changes in fair value on the interest rate swap contracts.

See *Note 6. Fair Value Measurements* for information regarding fair value of derivative instruments.

As a result of the use of derivative financial instruments, the Company is exposed to the risk that counterparties to derivative contracts may fail to meet their contractual obligations. The Company manages counterparty credit risk in derivative contracts by reviewing counterparty creditworthiness on a regular basis and limiting exposure to any single counterparty.

(in thousands except per share data)

NOTE 8. ACCOUNTS AND OTHER RECEIVABLE, NET

Accounts and other receivable are recorded at net realizable value. Components of accounts and other receivable, net of reserves, were as follows:

	March 31, 2021	December 31, 2020
Amounts billed, net	$ 209,956	$ 213,560
Unbilled receivables	26,960	21,618
Total receivables, net	$ 236,916	$ 235,178

Amounts billed, net consist of amounts that have been invoiced to our customers in accordance with terms and conditions and are shown net of an allowance for credit losses. These receivables are all short-term in nature and do not include any financing components.

Unbilled receivables consist of amounts where we have satisfied our contractual obligations related to inventory stocking contracts with customers. Such amounts typically become billable to the customer upon their consumption of the inventory managed under the stocking contracts. We anticipate that substantially all unbilled receivables will be invoiced and collected over the next twelve months. These contracts do not include any financing components.

The following table summarizes the changes in expected credit losses:

December 31, 2020	$ 7,602
Additions	-
Deductions - write-offs, net of recoveries	(487)
Foreign currency translation	(16)
March 31, 2021	$ 7,099

NOTE 9. INVENTORIES

Our inventories are valued at the lower of cost or net realizable value and computed on a first-in, first-out ("FIFO") basis. Components of inventories were as follows:

	March 31, 2021	December 31, 2020
Parts and raw materials	$ 164,316	$ 141,337
Work in process	18,900	13,702
Finished goods	64,351	66,307
Total	$ 247,567	$ 221,346

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO UNAUDITED CONSOLIDATED FINANCIAL STATEMENTS — (Continued)
(in thousands except per share data)

NOTE 10. PROPERTY AND EQUIPMENT, NET

Property and equipment, net is comprised of the following:

	March 31, 2021	December 31, 2020
Buildings and land	$ 2,187	$ 1,776
Machinery and equipment	115,496	115,404
Computer and communication equipment	27,472	26,623
Furniture and fixtures	4,384	4,352
Vehicles	261	262
Leasehold improvements	42,331	42,984
Construction in process	5,747	3,693
	197,878	195,094
Less: Accumulated depreciation	(85,036)	(80,363)
Property and equipment, net	$ 112,842	$ 114,731

The following table summarizes depreciation expense. All depreciation expense is recorded in income from continuing operations:

	Three Months Ended March 31,	
	2021	2020
Depreciation expense	$ 7,337	$ 6,610

NOTE 11. GOODWILL

The following table summarizes the changes in goodwill:

December 31, 2020	$ 209,983
Measurement period adjustments to purchase price allocation	2
Foreign currency translation	(1,991)
March 31, 2021	$ 207,994

NOTE 12. INTANGIBLE ASSETS

Intangible assets consisted of the following:

	March 31, 2021		
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Technology	$ 90,669	$ (27,386)	$ 63,283
Customer relationships	113,426	(28,264)	85,162
Trademarks and other	26,991	(6,047)	20,944
Total	$ 231,086	$ (61,697)	$ 169,389

	December 31, 2020		
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Technology	$ 85,075	$ (24,999)	$ 60,076
Customer relationships	114,171	(26,880)	87,291
Trademarks and other	27,021	(5,449)	21,572
Total	$ 226,267	$ (57,328)	$ 168,939

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO UNAUDITED CONSOLIDATED FINANCIAL STATEMENTS — (Continued)
(in thousands except per share data)

Amortization expense related to intangible assets is as follows:

	Three Months Ended March 31, 2021	Three Months Ended March 31, 2020
Amortization expense	$ 5,384	$ 5,006

Estimated amortization expense related to intangibles is as follows:

Year Ending December 31,	
2021 (remaining)	$ 16,263
2022	21,430
2023	21,411
2024	18,526
2025	14,039
Thereafter	77,720
Total	$ 169,389

NOTE 13. RESTRUCTURING COSTS

During 2018, we committed to a restructuring plan to optimize our manufacturing footprint and to improve our operating efficiencies and synergies related to our recent acquisitions. For the three months ended March 31, 2021, we incurred severance costs primarily related to the transition and exit of our facility in Shenzhen, PRC and actions associated with synergies related to the Artesyn acquisition. The table below summarizes the restructuring charges:

	Three Months Ended March 31, 2021	Three Months Ended March 31, 2020
Severance and related charges	$ 404	$ 152
Facility relocation and closure charges	634	504
Total restructuring charges	$ 1,038	$ 656

	Cumulative Cost Through March 31, 2021
Severance and related charges	$ 17,317
Facility relocation and closure charges	6,164
Total restructuring charges	$ 23,481

Our restructuring liabilities are included in Other accrued expenses in our Unaudited Consolidated Balance Sheets. Changes in our restructuring liabilities were as follows:

	Balance at December 31, 2020	Cost Incurred and Charged to Expense	Cost Paid or Otherwise Settled	Effect of Changes in Exchange Rates	Balance at March 31, 2021
Total restructuring liabilities	$ 10,641	$ 1,038	$ (512)	$ —	$ 11,167

The accrued restructuring liabilities related primarily to severance and related charges.

(in thousands except per share data)

NOTE 14. WARRANTIES

Provisions of our sales agreements include customary product warranties, generally ranging from 12 months to 24 months after shipment. The estimated cost of our warranty obligation is recorded when revenue is recognized and is based upon our historical experience by product and configuration.

Our estimated warranty obligation is included in Other accrued expenses in our Unaudited Consolidated Balance Sheets. Changes in our product warranty obligation were as follows:

	Three Months Ended March 31,	
	2021	2020
Balances at beginning of period	$ 4,780	$ 6,413
Increases to accruals	780	758
Warranty expenditures	(1,051)	(856)
Effect of changes in exchange rates	(5)	—
Balances at end of period	$ 4,504	$ 6,315

NOTE 15. LEASES

The Company leases manufacturing and office space under non-cancelable operating leases. Some of these leases contain provisions for landlord funded leasehold improvements which are recorded as a reduction to right-of-use ("ROU") assets and the related operating lease liabilities. For leases containing an option to renew, we regularly evaluate the renewal options and when they are reasonably certain of exercise, we include the renewal period in our lease terms, along with the ROU assets and operating lease liabilities. In many cases, we have lease terms that are less than one year and therefore, we have elected the practical expedient to exclude these short-term leases from our ROU assets and operating lease liabilities. New leases are negotiated and executed to meet business objectives on an on-going basis.

Our leases do not provide an implicit rate. Accordingly, we use our incremental borrowing rate based on the information available at the lease commencement date in determining the present value of the lease payments. We have a centrally managed treasury function; therefore, we apply a portfolio approach for determining the incremental borrowing rate applicable to the lease term.

Components of operating lease cost were as follows:

	Three Months Ended March 31,	
	2021	2020
Operating lease cost	$ 5,921	$ 4,834
Short-term and variable lease cost	842	1,308
Total operating lease cost	$ 6,763	$ 6,142

(in thousands except per share data)

Maturities of our operating lease liabilities at March 31, 2021 are as follows:

Year Ending December 31,	
2021 (remaining)	$ 15,482
2022	16,723
2023	13,503
2024	12,120
2025	10,664
Thereafter	74,413
Total lease payments	142,905
Less: Interest	(33,375)
Present value of lease liabilities	$ 109,530

Other information related to leases, including supplemental cash flow information, consists of:

	Three Months Ended March 31,	
	2021	2020
Weighted average remaining lease term (in years)	10.6	9.7
Weighted average discount rate	4.6 %	4.3 %
Cash paid for operating leases	$ 5,958	$ 5,574
Right-of-use assets obtained in exchange for operating lease liabilities	$ 2,192	$ 22,208

NOTE 16. STOCK-BASED COMPENSATION

On May 4, 2017, the stockholders approved the Company’s 2017 Omnibus Incentive Plan ("the 2017 Plan"), and all shares that were then available for issuance under the 2008 Omnibus Incentive Plan are now available for issuance under the 2017 Plan. The 2017 Plan and 2008 Plan provide for the grant of stock options, stock appreciation rights, restricted stock, stock units (including deferred stock units), unrestricted stock, and dividend equivalent rights. Any of the awards issued may be issued as performance-based awards to align stock compensation awards to the attainment of annual or long-term performance goals. As of March 31, 2021, there were 2.0 million shares available for grant under the 2017 Plan.

Restricted stock units ("RSU’s") are generally granted with a grant date fair value equal to the market price of our stock on the date of grant and with generally a three or four-year vesting schedule or performance-based vesting as determined at the time of grant.

Stock option awards are generally granted with an exercise price equal to the market price of our stock on the date of grant and with either a three or four-year vesting schedule or performance-based vesting as determined at the time of grant. Stock option awards generally have a term of 10 years.

We recognize stock-based compensation expense based on the fair value of the awards issued and the functional area of the employee receiving the award. Stock-based compensation was as follows:

	Three Months Ended March 31,	
	2021	2020
Stock-based compensation expense	$ 5,701	$ 3,048

(in thousands except per share data)

Changes in our RSUs were as follows:

	Three Months Ended March 31, 2021	
	Number of RSUs	Weighted-Average Grant Date Fair Value
RSUs outstanding at beginning of period	608	$ 58.15
RSUs granted	227	$ 93.93
RSUs vested	(125)	$ 58.18
RSUs forfeited	(110)	$ 65.70
RSUs outstanding at end of period	600	$ 70.37

Changes in our stock options were as follows:

	Three Months Ended March 31, 2021	
	Number of Options	Weighted-Average Exercise Price per Share
Options outstanding at beginning of period	147	$ 23.63
Options exercised	(13)	$ 20.52
Options expired	—	$
Options outstanding at end of period	134	$ 23.92

NOTE 17. COMMITMENTS AND CONTINGENCIES

We are involved in disputes and legal actions arising in the normal course of our business. While we currently believe that the amount of any ultimate loss would not be material to our financial position, the outcome of these actions is inherently difficult to predict. In the event of an adverse outcome, the ultimate loss could have a material adverse effect on our financial position or reported results of operations. An unfavorable decision in patent litigation also could require material changes in production processes and products or result in our inability to ship products or components found to have violated third-party patent rights. We accrue loss contingencies in connection with our commitments and contingencies, including litigation, when it is probable that a loss has occurred, and the amount of the loss can be reasonably estimated. The Company is not currently party to any legal action that the Company believes would reasonably have a material adverse impact on its business, financial condition, results of operations or cash flows.

(in thousands except per share data)

NOTE 18. SIGNIFICANT CUSTOMER INFORMATION

The following table summarizes sales, and percentages of sales, by customers that individually accounted for 10% or more of our sales:

	Three Months Ended March 31,			
	2021		2020	
Applied Materials, Inc.	$ 67,788	19.3 %	$ 50,981	16.2 %
Lam Research	*	* %	32,996	10.5 %

The following table summarizes the accounts receivable balances, and percentages of the total accounts receivable, for customers that individually accounted for 10% or more of accounts receivable:

	March 31, 2021		December 31, 2020	
Applied Materials, Inc.	$ 40,357	17.0 %	$ 33,402	14.2 %
Nidec Motor Corporation	*	* %	24,344	10.4 %

* Customer's balance was less than 10% of total.

Our sales to Applied Materials, Inc. and Lam Research include precision power products used in semiconductor processing and solar and flat panel display. Our sales to Nidec Motor Corporation are primarily embedded power products used in industrial motor drives. No other customer accounted for 10% or more of our sales or accounts receivable balances during these periods.

NOTE 19. CREDIT FACILITY

In September 2019, in connection with the Artesyn Acquisition Agreement, the Company entered into a credit agreement ("Credit Agreement") that provided aggregate financing of $500.0 million, consisting of a $350.0 million senior unsecured term loan facility (the "Term Loan Facility") and a $150.0 million senior unsecured revolving facility the ("Revolving Facility" and together with the Term Loan Facility, the "Credit Facility"). Both the Term Loan Facility and Revolving Facility mature on September 10, 2024.

The following table summarizes borrowings under our Credit Facility and the associated interest rate.

	March 31, 2021		
	Balance	Interest Rate	Unused Line Fee
Term Loan Facility subject to a fixed interest rate	$ 268,844	1.271%	-
Term Loan Facility subject to a variable interest rate	50,531	0.910%	-
Revolving Facility subject to a variable rate	—	0.910%	0.10%
Total borrowings under the Credit Agreement	$ 319,375		

For more information on the interest rate swap that fixes the interest rate for a portion of our Term Loan Facility, see *Note 7. Derivative Financial Instruments*. The Term Loan Facility and Revolving Facility bear interest, at the option of the Company, at a rate based on a reserve adjusted "Eurodollar Rate" or "Base Rate," as defined in the Credit Agreement, plus an applicable margin.

For all periods presented, we were in compliance with the Credit Agreement covenants and had $150.0 million available to withdraw on the Revolving Facility.

We classify the Credit Facility in Level 2 of the fair value hierarchy. The fair value of outstanding debt approximates the carrying value of $317.8 million as of March 31, 2021.

ADVANCED ENERGY INDUSTRIES, INC.
NOTES TO UNAUDITED CONSOLIDATED FINANCIAL STATEMENTS — (Continued)
(in thousands except per share data)

The debt obligation on our Unaudited Consolidated Balance Sheets consists of the following:

	March 31, 2021	December 31, 2020
Term Loan Facility	$ 319,375	$ 323,750
Less: debt issuance costs	(1,578)	(1,704)
Total debt	317,797	322,046
Less current portion of long-term debt	(17,500)	(17,500)
Total long-term debt	$ 300,297	$ 304,546

Contractual maturities of the Company's debt obligations, excluding amortization of debt issuance costs, as of March 31, 2021 are as follows:

Year Ending December 31,	
2021 (remaining)	$ 13,125
2022	17,500
2023	17,500
2024	271,250
Total	$ 319,375

Interest expense and unused line of credit fees were recorded in Other income (expense), net in our Unaudited Consolidated Statements of Operations as follows:

	Three Months Ended March 31,	
	2021	2020
Interest expense	$ 985	$ 2,099
Amortization of debt issuance costs	126	133
Unused line of credit fees and other	37	38
Total interest expense	$ 1,148	$ 2,270

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

This management discussion and analysis should be read in conjunction with our Annual Report on Form 10-K for the year ended December 31, 2020, which was filed with the SEC on February 24, 2021.

Special Note on Forward-Looking Statements

The following discussion contains, in addition to historical information, forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Statements in this report that are not historical information are forward-looking statements. For example, statements relating to our beliefs, expectations and plans are forward-looking statements, as are statements that certain actions, conditions or circumstances will continue. The inclusion of words such as "anticipate," "expect," "estimate," "can," "may," "might," "continue," "enables," "plan," "intend," "should," "could," "would," "likely," "potential," or "believe," as well as statements that events or circumstances "will" occur or continue, indicate forward-looking statements. Forward-looking statements involve risks and uncertainties, which are difficult to predict and many of which are beyond our control. Therefore, actual results could differ materially and adversely from those expressed in any forward-looking statements. Neither we nor any other person assumes responsibility for the accuracy and completeness of such forward-looking statements and readers are cautioned not to place undue reliance on forward-looking statements.

For additional information regarding factors that may affect our actual financial condition, results of operations and accuracy of our forward-looking statements, see the information under the caption "Risk Factors" in Part II, Item 1A of this Quarterly Report on Form 10-Q and, in Part I, Item 1A in our Annual Report on Form 10-K for the year ended December 31, 2020. We undertake no obligation to revise or update any forward-looking statements for any reason.

BUSINESS AND MARKET OVERVIEW

Advanced Energy provides highly engineered, mission-critical, precision power conversion, measurement, and control solutions to our global customers. We design, manufacture, sell and support precision power products that transform, refine, and modify the raw electrical power from the utility and convert it into various types of highly-controllable, usable power that is predictable, repeatable, and customizable. Our power solutions enable innovation in complex semiconductor and thin film plasma processes such as dry etch, strip, chemical and physical deposition, high and low voltage applications such as process control, data center computing, networking, telecommunication, analytical instrumentation, medical equipment, industrial technology and temperature-critical thermal applications such as material and chemical processing. We also supply related instrumentation products for advanced temperature measurement and control, electrostatic instrumentation products for test and measurement applications, and gas sensing and monitoring solutions for multiple industrial markets. Our network of global service support centers provides a recurring revenue opportunity as we offer repair services, conversions, upgrades, refurbishments, and used equipment to companies using our products.

Our products are primarily sold into the Semiconductor Equipment, Industrial and Medical, Data Center Computing, and Telecom and Networking markets. Our recently launched PowerInsight software product uses data analytics and advanced algorithms to provide our customers with actionable information, such as predictive failure, preventive maintenance, and process performance. Advanced Energy is organized on a global, functional basis and operates in a single segment structure for power electronics conversion products. We sell our products into four markets or applications and provide revenue data by market to enable tracking of market trends.

During the first three months of 2020 we saw the spread of COVID-19 which grew into a global pandemic. Our focus on providing a healthy and safe working environment for our employees led to intermittent shutdowns of our manufacturing facilities to implement new health and safety protocols and additional investments to comply with government guidelines. During the first and second quarter of 2020, there were periods when some of our manufacturing facilities were not operating or were operating at reduced capacity due to government mandates to restrict travel, maintain social distancing and implement health and safety procedures. Additionally, ongoing restrictions related to COVID and disruptions in an already challenged global supply chain limited the availability of materials, parts and subcomponents needed for production during the first three months of 2021, which impacted our ability to ship product to meet customer demand.

During the first quarter of 2021, customer demand was mixed across our served markets. Demand remained strong for products serving Semiconductor and Industrial and Medical applications, while demand from Data Center Computing and Telecom and Networking applications remained below the peak levels seen in prior quarters. Although our manufacturing facilities operated at or near full capacity during the quarter, the limited availability of parts and components affected our ability to produce quantities sufficient to meet demand, especially in Industrial and Medical and Data Center Computing applications.

Although COVID-19 has impacted our revenues and manufacturing efficiency over the past year, COVID-19 has not materially impacted our liquidity, our ability to access capital, our ability to comply with our debt covenants or the fair value of our assets. Additionally, we believe the accommodations we have made to our work environment, including employees utilizing work-from-home arrangements where necessary, will not impact our ability to maintain effective internal controls over financial reporting.

Looking forward, we expect in the short term, that our ability to procure component parts to meet our customers' needs will be challenged by a tightening global supply chain caused in part by the pandemic-driven rise in consumer demand for tech goods, increased demand for automotive and other products using electronic components, logistics-related disruptions in shipping, and capacity limitations at some suppliers due to COVID-19 and other factors.

These supply chain constraints have led to longer lead times in procuring materials and subcomponents and, in some cases, higher costs, which may continue to have an adverse effect on our future operations and our financial results (including, but not limited to, revenue, gross profit, net profit, and cash generation). For additional discussion on the potential impacts of COVID-19 to the future operations of our business, please see the information under the caption "Risk Factors" in Part II, in Item 1A of this Quarterly Report on Form 10-Q and Part I, Item 1A in our Annual Report on Form 10-K for the year ended December 31, 2020.

Recent Acquisitions

On December 31, 2020, we acquired 100% of the issued and outstanding shares of Versatile Power, Inc., which is based in Campbell, California. This acquisition added radio frequency ("RF") and programmable power supplies for medical and industrial applications to our product portfolio and further expands our presence in the medical market by adding proven technologies, deep customer relationships, expertise in medical design, and a medical-certified manufacturing center. For additional information, see *Note 2. Acquisitions* in Part I, Item 1 "Unaudited Consolidated Financial Statements."

In January 2021, we acquired certain intangible assets related to the manufacturing of fiber optic sensing equipment for $3.6 million in cash and $2.9 million in future consideration upon the completion of transition activities. For additional information, see *Note 12. Intangible Assets* in in Part I, Item 1 "Unaudited Consolidated Financial Statements."

Semiconductor Equipment Market

Growth in the Semiconductor Equipment market is driven by growing integrated circuits content across many industries, increased demand for processing and storage in advanced applications such as artificial intelligence or autonomous vehicles, the rapid adoption of advanced mobile connectivity solutions such as 5G and enhancing existing and enabling new wireless applications. To address the long-term growing demand for semiconductor devices, the industry continues to invest in production capacities for advanced logic devices at the 7nm technology node and beyond, the latest memory devices including 3D-NAND, DRAM, and new emerging memories such as MRAM, and back-end test and advanced wafer-level packaging. The industry's transition to advanced technology nodes in logic and DRAM and to increased layers in 3D memory devices is requiring an increased number of etch and deposition process tools and higher content of our advanced power solutions per tool. As etching and deposition processes become more challenging due to increasing aspect ratios in advanced 3D devices, more advanced radio frequency ("RF") and direct current ("DC") technologies are needed. We are meeting these challenges by providing a broader range of more complex RF and DC power solutions. Beyond etch and deposition processes, the growing complexity at the advanced nodes also drive a higher number of other processes across the fab, including inspection, metrology, thermal, ion implantation, and semiconductor test, where Advanced Energy is actively participating as a critical technology provider. In addition, our global support services group offers comprehensive local repair service, upgrade, and retrofit offerings to extend the useable life of our customers' capital equipment for additional technology generations. The acquisition of Artesyn in September 2019 expanded Advanced Energy's reach within the Semiconductor Equipment market by adding a broad range of low voltage applications as well as back-end test and assembly equipment makers.

In the first half of 2019, the semiconductor industry went through a period of weakening equipment investment as a result of slowing growth in end market demand for semiconductor devices, ongoing digestion of equipment capacity, and consumption of existing inventory. Demand for semiconductor equipment has continued to grow through the first quarter of 2021 driven by foundry logic and certain memory investments and has surpassed prior peak levels. In addition, increased demand for semiconductor devices for a wide range of applications as global economies begin to recover is expected to drive investment throughout the remainder of 2021. However, due to the limited visibility and uncertainty arising from COVID-19 and its impact on the global economy and supply chain, geopolitical uncertainty, overall levels of current investment by our customers, and the cyclical nature of the market it is difficult to determine the extent or duration to which the increased demand for semiconductor equipment will continue.

Industrial and Medical Markets

Customers in the Industrial and Medical market incorporate our advanced power, embedded power, and measurement products into a wide variety of equipment used in applications such as advanced material fabrication, medical devices, analytical instrumentation, test and measurement equipment, robotics, motor drives and connected light-emitting diodes.

OEM customers design equipment utilizing our process power technologies in a variety of industrial applications including glass coating, glass manufacturing, flat panel displays, photovoltaics solar cell manufacturing, and similar thin film manufacturing, including data storage and decorative, hard and optical coatings. These applications employ similar technologies to those used in the Semiconductor Equipment market to deposit films on non-semiconductor substrates. Our strategy around these applications is to leverage our thin film deposition technologies into an expanded set of new materials and applications in adjacent markets.

Advanced Energy serves the Industrial and Medical market with mission-critical power components that deliver high reliability, precise, low noise or differentiated power to the equipment they serve. Examples of products sold into the Industrial and Medical market includes high voltage products for analytical instrumentation, medical equipment, low voltage power supplies used in applications for medical devices, test and measurement, medical lasers, scientific instrumentation and industrial equipment, and power control modules and thermal instrumentation products for material fabrication, processing, and treatment. Our gas monitoring products serve multiple applications in the energy market, air quality monitoring and automobile emission monitoring and testing. Our strategy in the Industrial and Medical market is to grow and expand our addressable market both organically through our global distribution channels and through acquisitions of products and technologies that are complimentary and adjacent to our core power conversion applications.

Revenue for Industrial and Medical products improved in the second half of 2020 after lower revenues in the first half of 2020 primarily due to recessionary macroeconomic conditions, and production and supply chain delays related to COVID-19 that pushed shipments into the third and fourth quarter of 2020. Additionally, we saw modest improvement in industrial markets as global economic growth resumed and our customers were able to increase capacity after governmental restrictions were relaxed during the second half of 2020. Demand for medical products during 2020 was driven by critical care applications, offset by lower investment related to discretionary procedures. More recently, critical applications have saturated while other demand is only beginning to improve. In the first quarter of 2021, overall customer demand remained near the elevated levels from the fourth quarter of 2020, but supply chain constraints limited the Company's ability to ship product at the level of customer demand. We expect this condition to extend into the second quarter of 2021.

Data Center Computing Markets

Following the acquisition of Artesyn in September 2019, Advanced Energy entered the Data Center Computing market with industry-leading products and low-voltage power conversion technologies. We sell to many data center server and storage manufacturers, as well as cloud service providers and their partners. Driven by the growing adoption of cloud computing, market demand for server and storage equipment has shifted from enterprise on-premise computing to the data center. Nevertheless, with a growing presence at both cloud service providers and industry-leading data center server and storage vendors, we believe Advanced Energy is well positioned to continue to capitalize on the ongoing shift towards cloud computing. In late 2019 and through 2020, demand for our embedded power products in the Data Center Computing market increased significantly driven by share gains and a capacity ramp at hyperscale customers. In addition, we believe as a consequence of COVID-19, hyperscale demand has risen in the near term given the increased need for cloud and network applications in the current environment. Demand for hyperscale products declined sequentially during the latter half of 2020, as a result of market digestion at our existing customers following a ramp of investment earlier in the year. This digestion period continued into the first quarter of 2021 but is expected to improve as we move through the remainder of 2021.

Telecom and Networking Markets

The acquisition of Artesyn in September 2019 provided Advanced Energy with a portfolio of products and technologies that are used across the Telecom and Networking market. Our customers include many leading vendors of wireless infrastructure equipment, telecommunication equipment and computer networking. The wireless telecom market continues to evolve with more advanced mobile standards. 5G wireless technology promises to drive substantial growth opportunities for the telecom industry as it enables new advanced applications such as autonomous vehicles and virtual/augmented reality. Telecom service providers have started to invest in 5G, and this trend is expected to drive demand of our products into the Telecom and Networking market. In datacom, demand is driven by networking investments by telecom service providers and enterprises upgrading of their network, as well as cloud data center networking investments for increased bandwidth. Demand in late 2019 and the first half of 2020 was lower as geopolitical issues and consolidation of wireless telecom providers drove slower global investment in cellular and network infrastructure. Revenue increased sequentially in the third and fourth quarters primarily as a result of modest improvement in market conditions and improved manufacturing capacity amid COVID-19. In the first quarter of 2021, revenue declined as a result of both declining investment in legacy LTE infrastructure and our internal decision to optimize our portfolio toward higher margin applications.

Results of Continuing Operations

The analysis presented below is organized to provide the information we believe will be helpful for understanding our historical performance and relevant trends going forward. This discussion should be read in conjunction with our "Unaudited Consolidated Financial Statements" in Part I, Item 1 of this report, including the notes thereto. Also included in the following analysis are measures that are not in accordance with U.S. GAAP. A reconciliation of the non-GAAP measures to U.S. GAAP is provided below.

The following tables set forth certain data, and the percentage of sales each item reflects, derived from our Unaudited Consolidated Statements of Operations (in thousands):

	Three Months Ended March 31, 2021	Three Months Ended March 31, 2020
Sales	$ 351,620	$ 315,456
Gross profit	137,503	112,231
Operating expenses	93,321	86,423
Operating income from continuing operations	44,182	25,808
Other income (expense), net	(507)	(3,510)
Income from continuing operations before income taxes	43,675	22,298
Provision for income taxes	5,284	3,900
Income from continuing operations, net of income taxes	$ 38,391	$ 18,398

	Three Months Ended March 31, 2021	Three Months Ended March 31, 2020
Sales	100.0 %	100.0 %
Gross profit	39.1	35.6
Operating expenses	26.5	27.4
Operating income from continuing operations	12.6	8.2
Other income (expense), net	(0.1)	(1.1)
Income from continuing operations before income taxes	12.4	7.1
Provision for income taxes	1.5	1.2
Income from continuing operations, net of income taxes	10.9 %	5.8 %

SALES, NET

The following tables summarize net sales and percentages of net sales, by market (in thousands):

	Three Months Ended March 31,		Change 2021 v. 2020	
	2021	2020	Dollar	Percent
Semiconductor Equipment	$ 180,716	$ 133,625	$ 47,091	35.2 %
Industrial and Medical	78,415	61,979	16,436	26.5
Data Center Computing	59,154	86,183	(27,029)	(31.4)
Telecom and Networking	33,335	33,669	(334)	(1.0)
Total	$ 351,620	$ 315,456	$ 36,164	11.5 %

	Three Months Ended March 31, 2021	Three Months Ended March 31, 2020
Semiconductor Equipment	51.4 %	42.4 %
Industrial and Medical	22.3	19.6
Data Center Computing	16.8	27.3
Telecom and Networking	9.5	10.7
Total	100.0 %	100.0 %

Total Sales

Sales increased $36.2 million, or 11.5%, to $351.6 million for the three months ended March 31, 2021 as compared to the same period in 2020 primarily due to increased demand in the Semiconductor Equipment and Industrial and Medical markets offset by lower sales from Data Center Computing products due to market digestion after a year of strong investment.

Sales in the Semiconductor Equipment market increased $47.1 million, or 35.2%, for the three months ended March 31, 2021 as compared to the same period in 2020 when semiconductor equipment volume was recovering from the cyclical downturn in 2019. The increase in sales during 2021 is primarily due to an overall increase in demand for semiconductor equipment used in deposition and etch applications, increasing power content in semiconductor manufacturing tools, and market share gains in RF match and remote plasma sources.

Sales in the Industrial and Medical market increased $16.4 million, or 26.5%, for the three months ended March 31, 2021 as compared to the same period in 2020. Our customers in this market are primarily global and regional original equipment and device manufacturers. The increase in sales was primarily due to improving macroeconomic conditions and the continued recovery from the COVID-19 pandemic within general industrial markets.

Sales in the Data Center Computing market decreased ($27.0) million, or (31.4)%, for the three months ended March 31, 2021 as compared to the same period in 2020. The decrease in Data Center Computing market sales is primarily due to digestion of products at our primary customers, compared to a strong ramp of revenue as a result of market share gains a year ago.

Sales in the Telecom and Networking market decreased ($0.3) million, or (1.0)%, for the three months ended March 31, 2021 as compared to the same period in 2020. The flat sales were due to in part to our decision to optimize our product portfolio towards higher margin applications and to the pace of 5G investment by network operators outside of China. Over time, we expect that 5G infrastructure investments and upgrades to enterprise networks should drive growth in this market.

Backlog

Our backlog was $405.7 million at March 31, 2021 as compared to $290.7 million at December 31, 2020, reflecting strong demand for our products as our markets and macro economies recover. In addition, many customers have placed demand into future quarters to accommodate the constraints in the supply chain for certain components.

GROSS PROFIT

For the three months ended March 31, 2021, gross profit increased $25.3 million to $137.5 million, or 39.1% of sales. For the three months ended March 31, 2020, gross profit was $112.2 million, or 35.6% of sales, and included $5.2 million in additional costs related to the increase in fair market value of Artesyn acquired inventory. The remaining increase in gross profit as a percent of revenue is largely related the sales mix and increased volume, partially offset by higher freight costs and productivity inefficiencies as we transition our Shenzhen, PRC manufacturing into Penang, Malaysia.

OPERATING EXPENSES

Operating expenses increased $6.9 million to $93.3 million, or 26.5% of sales, for the three months ended March 31, 2021 from $86.4 million, or 27.4% of sales, for the same period in 2020. The increase in operating expenses is primarily due to increased investment in research and development, IT infrastructure and common tools, and stock compensation costs, partially offset by decreased compensation principally associated with synergy activities.

The following tables summarize our operating expenses (in thousands) and as a percentage of sales for the periods indicated:

	Three Months Ended March 31,			
	2021		2020	
Research and development	$ 40,168	11.4 %	$ 34,770	11.0 %
Selling, general, and administrative	46,731	13.3	45,991	14.6
Amortization of intangible assets	5,384	1.5	5,006	1.6
Restructuring charges	1,038	0.3	656	0.2
Total operating expenses	$ 93,321	26.5 %	$ 86,423	27.4 %

Research and Development

We perform research and development ("R&D") of products to develop new or emerging applications, technological advances to provide higher performance, lower cost, or other attributes that we may expect to advance our customers' products. We believe that continued development of technological applications, as well as enhancements to existing products and related software to support customer requirements, are critical for us to compete in the markets we serve. Accordingly, we devote significant personnel and financial resources to the development of new products and the enhancement of existing products, and we expect these investments to continue.

Research and development expenses increased $5.4 million for the three months ended March 31, 2021 compared to the same period in 2020. The increase in research and development expense is related to increased headcount and associated costs, outside technical services, and material costs as we invested in new programs to maintain and increase our technological leadership and provide solutions to our customers' evolving needs.

Selling, General and Administrative

Our selling expenses support domestic and international sales and marketing activities that include personnel, trade shows, advertising, third-party sales representative commissions, and other selling and marketing activities. Our general and administrative expenses support our worldwide corporate, legal, tax, financial, governance, administrative, information systems, and human resource functions in addition to our general management, including acquisition-related activities.

Selling, general and administrative ("SG&A") expenses increased $0.7 million for the three months ended March 31, 2021 compared to the same period in 2020. The increase in SG&A costs were related to increased stock compensation due primarily to timing of expense in the first quarter from the accelerated recognition of compensation related to our change in CEO, partially offset by decreased compensation costs principally associated with synergy activities.

Amortization of Intangibles

Amortization expense increased $0.4 million to $5.4 million during the three months ended March 31, 2021 compared to the same period in 2020. The increase during the three months ended March 31, 2021 is primarily driven by incremental amortization of new intangible assets. Refer to *Note 12. Intangible Assets.*

Restructuring

Restructuring charges relate to previously announced management plans to optimize our manufacturing footprint to lower cost regions, improvements in operating efficiencies, and synergies related to acquisitions. For the three months ended March 31, 2021, restructuring charges primarily related to severance costs for the transition and exit of our facility in Shenzhen, PRC. Refer to *Note 13. Restructuring Costs.*

OTHER INCOME (EXPENSE), NET

Other income (expense), net consists primarily of interest income and expense, foreign exchange gains and losses, gains and losses on sales of fixed assets, and other miscellaneous items. For the three months ended March 31, 2021, other income (expense), net was ($0.5) million compared to other income (expense), net of ($3.5) million for the same period in 2020. The change between periods is primarily due to decreased interest expense related to our September 2019 term note resulting from our interest rate swap agreement executed in April 2020 and scheduled principal reductions, reduced interest income resulting from lower interest rates, and recorded discount from a facility draw by Bold Renewables Holdings, LLC in the prior period.

PROVISION FOR INCOME TAXES

Our effective tax rates differ from the U.S. federal statutory rate of 21% for the three months ended March 31, 2021 and 2020, respectively, primarily due to the benefit of earnings in foreign jurisdictions which are subject to lower tax rates, partially offset by net U.S. tax on foreign operations and withholding taxes. The effective tax rate for the first three months of 2021 was lower than the same period in 2020 primarily due to the mix of discrete events between the two periods.

Our future effective income tax rate depends on various factors, such as changes in tax laws, regulations, accounting principles, or interpretations thereof, and the geographic composition of our pre-tax income. We carefully monitor these factors and adjust our effective income tax rate accordingly.

Non-GAAP Results

Management uses non-GAAP operating income and non-GAAP EPS to evaluate business performance without the impacts of certain non-cash charges and other charges which are not part of our usual operations. We use these non-GAAP measures to assess performance against business objectives, make business decisions, including developing budgets and forecasting future periods. In addition, management's incentive plans include these non-GAAP measures as criteria for achievements. These non-GAAP measures are not in accordance with U.S. GAAP and may differ from non-GAAP methods of accounting and reporting used by other companies. However, we believe these non-GAAP measures provide additional information that enables readers to evaluate our business from the perspective of management. The presentation of this additional information should not be considered a substitute for results prepared in accordance with U.S. GAAP.

The non-GAAP results presented below exclude the impact of non-cash related charges, such as stock-based compensation and amortization of intangible assets. In addition, they exclude discontinued operations and other non-recurring items such as acquisition-related costs and restructuring expenses, as they are not indicative of future performance. The tax effect of our non-GAAP adjustments represents the anticipated annual tax rate applied to each non-GAAP adjustment after consideration of their respective book and tax treatments and effect of adoption of the Tax Cuts and Jobs Act.

Reconciliation of Non-GAAP measure - operating expenses and operating income from continuing operations, excluding certain items (in thousands)	**Three Months Ended March 31,**	
	2021	**2020**
Gross profit from continuing operations, as reported	$ 137,503	$ 112,231
Adjustments to gross profit:		
Stock-based compensation	350	222
Facility expansion, relocation costs and other	1,838	1,543
Acquisition-related costs	8	5,141
Non-GAAP gross profit	$ 139,699	$ 119,137
Non-GAAP gross margin	39.7%	37.8%
Operating expenses from continuing operations, as reported	$ 93,321	$ 86,423
Adjustments:		
Amortization of intangible assets	(5,384)	(5,006)
Stock-based compensation	(5,351)	(2,826)
Acquisition-related costs	(2,028)	(2,836)
Facility expansion, relocation costs and other	(51)	(385)
Restructuring charges	(1,038)	(656)
Non-GAAP operating expenses	79,469	74,714
Non-GAAP operating income	$ 60,230	$ 44,423
Non-GAAP operating margin	17.1%	14.1%

Reconciliation of Non-GAAP measure - income from continuing operations, excluding certain items (in thousands)	Three Months Ended March 31, 2021	2020
Income from continuing operations, less non-controlling interest, net of income taxes	$ 38,358	$ 18,383
Adjustments:		
Amortization of intangible assets	5,384	5,006
Acquisition-related costs	2,036	7,977
Facility expansion, relocation costs and other	1,889	1,928
Restructuring charges	1,038	656
Unrealized foreign currency (gain) loss	(2,202)	—
Acquisition-related and other costs included in Other income (expense), net	87	—
Tax effect of non-GAAP adjustments	(1,284)	(1,370)
Non-GAAP income, net of income taxes, excluding stock-based compensation	45,306	32,580
Stock-based compensation, net of taxes	4,362	2,363
Non-GAAP income, net of income taxes	$ 49,668	$ 34,943
Non-GAAP diluted earnings per share	$ 1.29	$ 0.91

Impact of Inflation

In recent years, inflation has not had a significant impact on our operations. However, we continuously monitor operating price increases, particularly in connection with the supply of component parts used in our manufacturing process. To the extent permitted by competition, we pass increased costs on to our customers by increasing sales prices over time. From time to time, we may also reduce prices to customers to decrease sales prices due to reductions in the cost structure of our products from cost improvement initiatives and decreases in component part prices**.**

Liquidity and Capital Resources

LIQUIDITY

We believe that adequate liquidity and cash generation is important to the execution of our strategic initiatives. Our ability to fund our operations, acquisitions, capital expenditures, and product development efforts may depend on our ability to generate cash from operating activities which is subject to future operating performance, as well as general economic, financial, competitive, legislative, regulatory, and other conditions, some of which may be beyond our control. Our primary sources of liquidity are our available cash, investments, and cash generated from current operations.

At March 31, 2021, we had $512.8 million in cash, cash equivalents, and marketable securities. We believe that our current cash levels and our cash flows from future operations will be adequate to meet anticipated working capital needs, anticipated levels of capital expenditures, and contractual obligations for the next twelve months.

Credit Facility

In connection with the Artesyn acquisition in 2019, the Company entered into a credit agreement (the "Credit Agreement") that provided aggregate financing of $500.0 million, consisting of a $350.0 million senior unsecured term loan facility (the "Term Loan Facility") and a $150.0 million senior unsecured revolving facility (the "Revolving Facility"). Both the Term Loan Facility and the Revolving Facility mature on September 10, 2024. At March 31, 2021, we had $150.0 million in available funding under the Revolving Facility. The Term Loan Facility requires quarterly repayments of $4.4 million, plus accrued interest, with the remaining balance due in September 2024. For more information on the Credit Facility, see *Note 19. Credit Facility* and *Note 7. Derivative Financial Instruments* in Part I, Item 1 "Unaudited Consolidated Financial Statements."

Stock Repurchase

To execute the repurchase of shares of common stock, the Company periodically enters into stock repurchase agreements. The following table summarizes these repurchases:

(in thousands, except per share amounts)	Three Months Ended March 31, 2021	2020
Amount paid to repurchase shares	$ —	$ 7,248
Number of shares repurchased	—	170
Average repurchase price per share	$ —	$ 42.59
Remaining authorized by Board of Directors for future repurchases as of period end	$ 38,369	$ 42,751

We believe our current cash levels, available borrowing capacity under the Revolving Facility, as well as expected cash generation from future operations, will be adequate to meet our working capital requirements, debt repayment and capital expenditures, contractual obligations, share repurchase programs, and additional acquisitions on long-term and short-term basis. We may, however, depending upon the number or size of additional acquisitions, seek additional financing from time to time.

Dividends

In December 2020, the Board of Directors ("the Board") of the Company approved a cash dividend program under which we intend to pay a quarterly cash dividend of $0.10 per share of capital stock. In March 2021, we paid the first quarterly cash dividend since our inception as a public company. Future dividend payments are subject to the Board's approval.

CASH FLOWS

A summary of our cash provided by and used in operating, investing, and financing activities is as follows (in thousands):

	Three Months Ended March 31, 2021	2020
Net cash from operating activities from continuing operations	$ 54,264	$ 28,940
Net cash from operating activities from discontinued operations	(185)	(418)
Net cash from operating activities	54,079	28,522
Net cash from investing activities from continuing operations	(12,415)	(7,124)
Net cash from financing activities from continuing operations	(12,443)	(13,794)
Effect of currency translation on cash	321	(1,505)
Increase in cash and cash equivalents	29,542	6,099
Cash and cash equivalents, beginning of period	480,368	346,441
Cash and cash equivalents, end of period	$ 509,910	$ 352,540

2021 CASH FLOWS COMPARED TO 2020

Net cash from operating activities

Net cash from operating activities from continuing operations for the three months ended March 31, 2021 was $54.3 million, as compared to $28.9 million for the same period in 2020. The increase of $25.4 million in net cash flows from operating activities, as compared to the same period in 2020, is due to increased profitability as a result of increased sales.

Net cash from investing activities

Net cash from investing activities for the three months ended March 31, 2021 was ($12.4) million and predominantly related to investment in capacity and facilities as we continue to integrate certain locations. In addition, during the three months ended March 31, 2021, we paid ($3.6) million to acquire intangible assets. Net cash from investing activities for the three months ended March 31, 2020 was ($7.1) million and primarily related to investment in facilities and capacity.

Net cash from financing activities

Net cash from financing activities for the three months ended March 31, 2021 was ($12.4) million and included ($4.4) million for repayment of long-term debt, ($4.2) million net payments related to stock-based award activities and ($3.9) million for the payment of dividends. Net cash from financing activities for the three months ended March 31, 2020 was ($13.8) million and included ($7.2) million related to repurchases of our common stock, ($4.4) million for repayment of long-term debt, and ($2.2) million net payments related to stock-based award activities.

Effect of currency translation on cash

During the three months ended March 31, 2021, currency translation had a favorable impact primarily due to a stronger U.S. dollar. See "Foreign Currency Exchange Rate Risk" in Part I, Item 3 of this Form 10-Q for more information**.**

Critical Accounting Policies and Estimates

The preparation of financial statements and related disclosures in conformity with U.S. GAAP requires us to make judgments, assumptions and estimates that affect the amounts reported in the consolidated financial statements and accompanying notes. *Note 1. Operation and Summary of Significant Accounting Policies and Estimates* to the consolidated financial statements in our Annual Report on Form 10-K for the year ended December 31, 2020 describes the significant accounting policies and methods used in the preparation of our consolidated financial statements. Our critical accounting estimates, discussed in the "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Part II, Item 7 of our Annual Report on Form 10-K for the year ended December 31, 2020, include estimates for allowances for doubtful accounts, determining useful lives for depreciation and amortization, the valuation of assets and liabilities acquired in business combinations, assessing the need for impairment charges for identifiable intangible assets and goodwill, establishing warranty reserves, accounting for income taxes, and assessing excess and obsolete inventories. Such accounting policies and estimates require significant judgments and assumptions to be used in the preparation of the consolidated financial statements and actual results could differ materially from the amounts reported based on variability in factors affecting these estimates.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Market Risk and Risk Management

In the normal course of business, we have exposures to foreign exchange rate risk related to our foreign operations and foreign currency transactions and interest rate risk from our investments and credit facility.

See the "Risk Factors" set forth in Part I, Item 1A of our Annual Report on Form 10-K and Part II, Item 1A of this Form 10-Q for more information about the market risks to which we are exposed. There have been no material changes in our exposure to market risk from December 31, 2020

Foreign Currency Exchange Rate Risk

We are impacted by changes in foreign currency exchange rates through sales and purchasing transactions when we sell products and purchase materials in currencies different from the currency in which product and manufacturing costs were incurred.

Our reported financial results of operations, including the reported value of our assets and liabilities, are also impacted by changes in foreign currency exchange rates. Assets and liabilities of substantially all our subsidiaries outside the U.S. are translated at period end rates of exchange for each reporting period. Operating results and cash flow statements are translated at weighted-average rates of exchange during each reporting period. Although these translation changes have no immediate cash impact, the translation changes may impact future borrowing capacity, and overall value of our net assets.

The functional currencies of our worldwide facilities primarily include the USD, EUR, KRW, TWD, ILS, GBP, and CNY. Our purchasing and sales activities are primarily denominated in the USD, JPY, EUR, and CNY.

Currency exchange rates vary daily and often one currency strengthens against the USD while another currency weakens. Because of the complex interrelationship of the worldwide supply chains and distribution channels, it is difficult to quantify the impact of a change in one or more particular exchange rates.

As currencies fluctuate against each other we are exposed to foreign currency exchange rate risk on sales, purchasing transactions, and labor. Exchange rate fluctuations could require us to increase prices to foreign customers, which could result in lower net sales by us to such customers. Alternatively, if we do not adjust the prices for our products in response to unfavorable currency fluctuations, our results of operations could be adversely impacted. Changes in the relative buying power of our customers may impact sales volumes either positively or negatively.

Acquisitions are a large component of our capital deployment strategy. A significant number of acquisition target opportunities are located outside the U.S. and their value may be denominated in foreign currency. Changes in exchange rates therefore may have a material impact on their valuation in USD and may impact our view of their attractiveness.

The change in key currency rates were as follows:

		Three Months Ended March 31,	
From	**To**	**2021**	**2020**
Canadian Dollar (CAD)	USD	1.2 %	(5.8)%
Swiss Franc (CHF)	USD	(6.4)%	3.4 %
Chinese Yuan (CNY)	USD	(0.4)%	(5.3)%
Danish Krone (DKK)	USD	(4.3)%	(2.0)%
Euro (EUR)	USD	(4.4)%	(1.9)%
Pound Sterling (GBP)	USD	0.9 %	(5.0)%
Israeli New Shekel (ILS)	USD	(3.7)%	2.2 %
India Rupee (INR)	USD	(0.4)%	(7.2)%
Japanese Yen (JPY)	USD	(6.8)%	2.5 %
South Korean Won (KRW)	USD	(3.3)%	(6.8)%
Philippines Peso (PHP)	USD	(1.1)%	— %
Singapore Dollar (SGD)	USD	(1.8)%	(4.8)%
New Taiwan Dollar (TWD)	USD	(1.4)%	2.0 %

From time to time, we may enter into foreign currency exchange rate contracts to hedge against changes in foreign currency exchange rates on assets and liabilities expected to be settled at a future date, including foreign currency, which may be required for a potential foreign acquisition. Market risk arises from the potential adverse effects on the value of derivative instruments that result from a change in foreign currency exchange rates. We may enter into foreign currency forward contracts to manage the exchange rate risk associated with intercompany debt denominated in nonfunctional currencies. We minimize our market risk applicable to foreign currency exchange rate contracts by establishing and monitoring parameters that limit the types and degree of our derivative contract instruments. We enter into derivative contract instruments for risk management purposes only. We do not enter into or issue derivatives for trading or speculative purposes.

Interest Rate Risk

Our market risk exposure relates to changes in interest rates in our investment portfolio. We generally place our investments with high-credit quality issuers. By policy, we are averse to principal loss and seek to protect and preserve our invested funds by limiting default risk, market risk, and reinvestment risk.

As of March 31, 2021, our investments consisted primarily of certificates of deposit with maturity of less than one year. As a measurement of the sensitivity of our portfolio and if our investment portfolio balances remain constant, a hypothetical decrease of 100 basis points (1%) in interest rates would decrease annual pre-tax earnings by a nominal amount.

The following table summarizes borrowings (in thousands) under our Credit Facility and the associated interest rate.

	March 31, 2021		
	Balance	Interest Rate	Unused Line Fee
Term Loan Facility subject to a fixed interest rate	$ 268,844	1.271%	-
Term Loan Facility subject to a variable interest rate	50,531	0.910%	-
Revolving Facility subject to a variable rate	—	0.910%	0.10%
Total borrowings under the Credit Agreement	$ 319,375		

For more information on the Term Loan Facility see *Note 19. Credit Facility* in Part I, Item 1 "Unaudited Consolidated Financial Statements." For more information on the interest rate swap that fixes the interest rate for a portion of our Term Loan Facility, see *Note 7. Derivative Financial Instruments* in Part I, Item 1 "Unaudited Consolidated Financial Statements." The Term Loan Facility and Revolving Facility bear interest, at the option of the Company, at a rate based on a reserve adjusted "Eurodollar Rate" or "Base Rate," as defined in the Credit Agreement, plus an applicable margin.

Our interest payments are impacted by interest rate fluctuations. With respect the portion of our Credit Facility that is subject a variable interest rate, a hypothetical increase of 100 basis points (1%) in interest rates would increase our commitments by an immaterial amount. A change in interest rates does not have an impact upon our future earnings and cash flow for fixed rate debt. However, increases in interest rates could impact our ability to refinance existing maturities and acquire additional debt on favorable terms.

ITEM 4. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

We have established disclosure controls and procedures, which are designed to ensure that information required to be disclosed in reports filed or submitted under the Securities Exchange Act of 1934 ("Act") is recorded, processed, summarized, and reported, within the time periods specified in the Securities and Exchange Commission’s rules and forms. These disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed in the reports that we file or submit under the Act is accumulated and communicated to management, including our Principal Executive Officer (Stephen D. Kelley, President and Chief Executive Officer) and Principal Financial Officer (Paul Oldham, Chief Financial Officer), as appropriate, to allow timely decisions regarding required disclosures.

As of the end of the period covered by this report, we conducted an evaluation, with the participation of management, including our Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of the disclosure controls and procedures pursuant to the Exchange Act Rule 13a-15(b). Based upon this evaluation, the Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of March 31, 2021. The conclusions of the Chief Executive Officer and Chief Financial Officer from this evaluation were communicated to the Audit Committee. We intend to continue to review and document our disclosure controls and procedures, including our internal controls and procedures for financial reporting, and may from time to time make changes aimed at enhancing their effectiveness and to ensure that our systems evolve with our business.

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting that occurred during the quarter covered by this Form 10-Q that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

We are involved in disputes and legal actions arising in the normal course of our business. Since December 31, 2020, there have been no material developments in legal proceedings in which we are involved. For a description of previously reported legal proceedings refer to Part I, Item 3, "Legal Proceedings" of our Annual Report on Form 10-K for the year ended December 31, 2020.

ITEM 1A. RISK FACTORS

Our business, financial condition, operating results, and cash flows can be impacted by a number of factors, including, but not limited to, those set forth below, any of which could cause our results to be adversely impacted and could result in a decline in the value or loss of an investment in our common stock. Other factors may also exist that we cannot anticipate or that we currently do not consider to be material based on information that is currently available. These risks and uncertainties have the potential to materially affect our business, financial condition, results of operations, cash flows and future results. Such risks and uncertainties may also impact the accuracy of forward-looking statements included in this report and other reports we file with the Securities and Exchange Commission.

COVID-19, natural disasters, and related risks

COVID-19 could further materially adversely affect our business, workforce, supply chain, results of operations, financial condition and/or cash flows.

The ongoing impact of COVID-19 and related foreign and domestic government actions restricting travel, commerce and gathering has adversely affected our manufacturing locations. COVID-19 has also resulted in economic recessions and high unemployment in many countries which could negatively impact future customer purchases of our products. If COVID-19 continues to spread and restrictions remain in place or are reinstituted, we may continue to see adverse impact on our ability (a) to manufacture, test, service and ship our products, (b) to get required materials and sub-assemblies to build and service our products and (c) to staff labor and management for manufacturing, research and development, supply chain, service, and administrative operations. Further, we may continue to experience adverse impact with our global supply chain partners and transportation service providers which may result in increased costs, material shortages and the inability to fully meet our customers' demand. For example, in the first quarter of 2021 the combination of increased demand for semiconductor and other select components and the ongoing impact of COVID-19 has affected global electronics markets and impacted our ability to ship to our full demand levels. It is not known how long or significant this shortage will be, but it may continue to impact our results. In addition, much of our workforce continues to work remotely. While we have been successful in transitioning to this remote environment, the long-term impact on productivity and innovation is not yet clear. As a result, COVID-19 could adversely impact our near-term and long-term revenues, earnings and cash flow and could require further expenditures. This situation continues to evolve, and other impacts may arise that we are not aware of currently. We have an active rapid response team to mitigate risks we are aware of currently and as they arise.

Our results of operations could be affected by natural disasters and other events in the locations in which we or our customers or suppliers operate.

We have manufacturing and other operations in locations subject to natural occurrences such as severe weather and geological events including earthquakes or tsunamis that could disrupt operations. In addition, our suppliers and customers also have operations in such locations. A natural disaster, fire, explosion, or other event that results in a prolonged disruption to our operations, or the operations of our customers or suppliers, may materially adversely affect our business, results of operations, or financial condition.

Industry-related risks

The industries in which we compete are subject to volatile and unpredictable cycles.

As a supplier to the global semiconductor equipment, telecom, networking, data center computing, industrial, and medical industries, we are subject to business cycles, the timing, length, and volatility of which can be difficult to predict. Certain of these industries historically have been cyclical due to sudden changes in customers' manufacturing capacity requirements and spending, which depend in part on capacity utilization, demand for customers' products, inventory levels relative to demand, and access to affordable capital. These changes have affected the timing and amounts of customers' purchases and investments in technology, and continue to affect our orders, net sales, operating expenses, and net income. We may not be able to respond adequately or quickly to the declines in demand by reducing our costs. We may be required to record significant reserves for excess and obsolete inventory as demand for our products changes.

To meet rapidly changing demand in each of the industries we serve, we must effectively manage our resources and production capacity. During periods of decreasing demand for our products, we must be able to appropriately align our cost structure with prevailing market conditions, effectively manage our supply chain, and motivate and retain key employees. During periods of increasing demand, we must have enough manufacturing capacity and inventory to fulfill customer orders, effectively manage our supply chain, and attract, retain, and motivate enough qualified individuals. If we are not able to timely and appropriately adapt to changes in our business environment or to accurately assess where we are positioned within a business cycle, our business, financial condition, or results of operations may be materially and adversely affected. For example, following record levels of demand in the first half of 2018, the Semiconductor Equipment market experienced a decline, and, as a result, Advanced Energy's revenue from the Semiconductor Equipment market declined 24.5% during 2019, as compared to 2018. Although the Semiconductor Equipment market improved during the fourth quarter of 2019 and throughout 2020, it is unclear how long this recovery will last. In addition, the market may be characterized in the future with more "mini-ramps" rather than sustained growth periods as experienced during 2015-2017 given market dynamics, inventory levels, and geopolitical changes. In addition, our Data Center Computing and Telecom and Networking markets are characterized by large program investments, which can cause variations in quarterly or annual revenues. For example, during 2020 our growth in Data Center Computing and Telecom and Networking has been driven by share gains at specific customer accounts. Towards the end of 2020, we began to experience a period of digestion by our major customers resulting in lower demand. We expect this digestion to continue into the first half of 2021 and overall business levels may not continue to be realized at these levels each quarter.

We must achieve design wins to retain our existing customers and to obtain new customers, although design wins achieved do not necessarily result in substantial sales.

Driven by continuing technology migration and changing customers demand, the markets we serve are constantly changing in terms of advancement in applications, core technology and competitive pressures. New products we design for capital equipment manufacturers typically have a lifespan of five to ten years. Increasingly, we are required to accelerate our investment in research and development to meet time-to-market, performance and technology adoption cycle needs of our customers simply to compete for design wins. Given such up-front investments we make to develop, evaluate, and qualify products in the design win process, our success and future growth depend on our products being designed into our customers new generations of equipment as they develop new technologies and applications. We must work with these manufacturers early in their design cycles to modify, enhance and upgrade our products or design new products that meet the requirements of their new systems. The design win process is highly competitive, and we may win or lose new design wins for our existing customers or new customers next generations of equipment. If existing or new customers do not choose us during the design win process, our market share will be reduced, the potential revenues related to the lifespan of our customers' products, which can be five to ten years, will not be realized, and our business, financial condition and results of operations would be materially and adversely impacted.

Business model, acquisitions, and capital structure related risks

Despite the continued evolution of our manufacturing footprint our product lines are manufactured at only a few sites and our sites are not generally interchangeable.

Our power products for the semiconductor industry are manufactured in Shenzhen, PRC and Penang, Malaysia. Our high voltage products are manufactured in Ronkonkoma and Lockport, New York, Littlehampton, United Kingdom and Shenzhen, PRC. Our thermal instrumentation products are manufactured in Vancouver, Washington, Littlehampton, United Kingdom and Frankfurt, Germany. Our pyrometry solutions are manufactured in Ballerup, Denmark, Frankfurt, Germany, Magdeburg, Germany and Vancouver, Washington. Our telecom, networking, data center computing, and medical products are manufactured in Zhongshan, PRC, Rosario, Philippines and Santa Rosa, Philippines. Most facilities are under operating lease and interruptions in operations could be caused by early termination of existing leases by landlords or failure by landlords to renew existing leases upon expiration, including the possibility that suitable operating locations may not be available in proximity to existing facilities which could result in labor or supply chain risks. Each facility manufactures different products, and therefore, is not interchangeable. Natural, uncontrollable occurrences or other operational issues at any of our manufacturing facilities could significantly reduce or disrupt our productivity at such site and could prevent us from meeting our customers' requirements in a timely manner, or at all.

Additionally, we have a plan to relocate our Shenzhen, PRC manufacturing facility by December 2021. As a result, we are investing in a dual manufacturing facility in Penang, Malaysia capable of manufacturing our semiconductor and other products. We believe this investment will help to mitigate our exposure to regional risks, improve our business continuity profile and lower costs over time. We opened this facility in 2020; however, it may take additional time to realize the facility's full production capacity given the impact of COVID-19.

Our long-term success and results of operations depend on our ability to successfully integrate Artesyn's business and operations and realize the anticipated benefits from the acquisition.

In September 2019, we acquired Artesyn, and we are continuing to combine Artesyn's business with our business. The acquisition of Artesyn has significantly increased our embedded power product offerings, increased our exposure to the Industrial and Medical, Data Center Computing, and Telecom and Networking markets, and significantly increased the number of employees and facilities.

To realize the anticipated benefits of the acquisition, we must continue to combine our businesses in an efficient and effective manner and realize our synergy and cost-savings targets. Integrating Artesyn's business and operations with ours requires significant management attention, effort, and expenditures, and we may not be able to achieve the longer-term integration goals in an effective, complete, timely or cost-efficient manner.

Potential risks related to the successful integration of Artesyn's business include our ability to:

- maintain and improve Artesyn's financial and operating results while integrating and optimizing our combined sales, marketing, manufacturing, and corporate administrative organizations;
- optimize our combined worldwide manufacturing footprint while utilizing Artesyn's vertically integrated manufacturing model for a broader set of Company products;
- successfully eliminate fixed costs previously absorbed by other businesses prior to the transaction;
- recognize and capitalize on anticipated product sales and technology enhancement opportunities presented by our combined businesses;
- integrate our information technology systems to mitigate cyber-security risks and enable the management and operation of the combined business.

If we are unable to successfully or timely integrate the operations of Artesyn's business into our business over the long-term, we may be unable to realize the long-term revenue growth, synergies, cost-savings, and other anticipated benefits resulting from the acquisition and our business could be adversely affected. Additionally, we have and may continue to incur transaction-related costs, including legal, regulatory, and other costs associated with implementing integration plans, including facilities and systems consolidation costs and employment-related costs. Artesyn's business and operations may not achieve the anticipated revenues and operating results. Any of the foregoing risks could materially harm our business, financial condition, and results of operations.

Our debt obligations and the restrictive covenants in the agreements governing our debt could limit our ability to operate our business or pursue our business strategies, could adversely affect our business, financial condition, results of operations, and cash flows, and could significantly reduce stockholder benefits from a change of control event.

Our debt obligations could make us more vulnerable to general adverse economic and industry conditions and could limit our flexibility in planning for, or reacting to, changes in our business and the industries in which we operate, thereby placing us at a disadvantage to our competitors that have less indebtedness.

Our debt obligations impose financial covenants on us and our subsidiaries that require us to maintain a certain leverage ratio. The financial covenants place certain restrictions on our business that may affect our ability to execute our business strategy successfully or take other actions that we believe would be in the best interests of our Company. These include limitations or restrictions, among other things, on our ability and the ability of our subsidiaries to:

- incur additional indebtedness;
- pay dividends or make distributions on our capital stock or certain other restricted payments or investments;
- make domestic and foreign investments and extend credit;
- engage in transactions with affiliates;
- transfer and sell assets;
- effect a consolidation or merger or sell, transfer, lease, or otherwise dispose of all or substantially all our assets; and
- create liens on our assets to secure debt.

Our debt obligations contain certain customary events of default. Any breach of the covenants or other event of default could cause a default on our debt obligations, which could restrict our ability to borrow under our revolving credit facility. If there were an event of default under certain provisions of our debt arrangements that was not cured or waived, the holders of the defaulted debt may be able to cause all amounts outstanding with respect to the debt instrument, plus any required settlement costs, to be due and payable immediately. Our assets and cash flow may not be sufficient to fully repay borrowings under our outstanding debt instruments if accelerated upon an event of default. If we are unable to repay, refinance, or restructure our indebtedness as required, or amend the covenants contained in these agreements, the lenders can exercise all rights and remedies available under our Credit Agreement or applicable laws or equity.

Our orders of raw materials, parts, components, and subassemblies are based on demand forecasts.

We place orders with many of our suppliers based on our customers' quarterly forecasts and our annual forecasts. These forecasts are based on our customers' and our expectations as to demand for our products. As the quarter and the year progress, such demand can change rapidly or we may realize that our customers' expectations were overly optimistic or pessimistic, especially when industry or general economic conditions change. Orders with our suppliers cannot always be amended in response. In addition, to assure availability of certain components or to obtain priority pricing, we have entered into contracts with some of our suppliers that require us to purchase a specified number of components and subassemblies each quarter, even if we are not able to use such components or subassemblies. Moreover, we have obligations to some of our customers to hold a minimum amount of finished goods in inventory, to fulfill just in time orders, regardless of whether the customers expect to place such orders. We currently have firm purchase commitments and agreements with various suppliers to ensure the availability of components. If demand for our products does not continue at current levels, we might not be able to use all the components that we are required to purchase under these commitments and agreements, and our reserves for excess and obsolete inventory may increase, which could have a material adverse effect on our results of operations. If demand for our products exceeds our customers' and our forecasts, we may not be able to timely obtain enough raw materials, parts, components, or subassemblies, on favorable terms or at all, to fulfill the excess demand. For example, entering 2021 there is global shortage of certain electronics and semiconductor parts given the emerging higher global demand for tech goods and the impact of COVID-19 and other disruptions on the global supply chain. If we are not able to obtain parts in a reasonable timeframe and at a reasonable cost our business may be adversely impacted.

Activities necessary to integrate acquisitions may result in costs more than current expectations or be less successful than anticipated.

We have completed acquisitions in the past and we may acquire other businesses in the future. The success of such transactions will depend on, among other things, our ability to integrate assets and personnel acquired in these transactions and to apply our internal controls process to these acquired businesses. The integration of acquisitions may require significant attention from our management, and the diversion of management's attention and resources could have a material adverse effect on our ability to manage our business. Furthermore, we may not realize the degree or timing of benefits we anticipated when we first entered the acquisition transaction. If actual integration costs are higher than amounts originally anticipated, if we are unable to integrate the assets and personnel acquired in an acquisition as anticipated, or if we are unable to fully benefit from anticipated synergies, our business, financial condition, results of operations, and cash flows could be materially adversely affected.

We transitioned a significant amount of our supply base to Asian suppliers.

We transitioned the purchasing of a substantial portion of components for our products to Asian suppliers to lower our materials costs and shipping expenses. These components might require us to incur higher than anticipated testing or repair costs, which would have an adverse effect on our operating results. Customers who have strict and extensive qualification requirements might not accept our products if these lower-cost components do not meet their requirements. A delay or refusal by our customers to accept such products, as well as an inability of our suppliers to meet our purchasing requirements, might require us to purchase higher-priced components from our existing suppliers or might cause us to lose sales to these customers, either of which could lead to decreased revenue and gross margins and have an adverse effect on our results of operations.

We generally have no long-term contracts with our customers requiring them to purchase any specified quantities from us.

Our sales are primarily made on a purchase order basis, and we generally have no long-term purchase commitments from our customers, which is typical in the industries we serve. As a result, we are limited in our ability to predict the level of future sales or commitments from our current customers, which may diminish our ability to allocate labor, materials, and equipment in the manufacturing process effectively. In addition, we may purchase inventory in anticipation of sales that do not materialize, resulting in excess and obsolete inventory write-offs.

If we are unable to adjust our business strategy successfully for some of our product lines to reflect the increasing price sensitivity on the part of our customers, our business and financial condition could be harmed.

Our business strategy for many of our product lines has been focused on product performance and technology innovation to provide enhanced efficiencies and productivity. Our customers continually exert pressure on us to reduce our prices and extend payment terms and we may be required to enter into long term reduced pricing agreements with our largest customers to remain competitive. In addition, we compete in markets in which customers may include dual or multi-sourcing of power. We believe some of our Asian competitors benefit from local governmental funding incentives and purchasing preferences from end-user customers in their respective countries. If competition against any of our product lines should come to focus solely on price rather than on product performance and technology innovation, we will need to adjust our business strategy, product offerings and product costs accordingly, and if we are unable to do so, our business, financial condition, and results of operations could be materially and adversely affected.

A significant portion of our sales and accounts receivable are concentrated among a few customers.

The following table summarizes the percentage of total sales derived from our ten largest customers:

	Three Months Ended March 31,	Years Ended December 31,	
	2021	2020	2019
Ten largest customers	56.5 %	58.0 %	57.3 %

The following table summarizes sales to and percentage of total sales from Applied Materials, Inc. and Lam Research Corp., our two largest customers (in thousands):

	Three Months Ended March 31,		Years Ended December 31,			
	2021		2020		2019	
Applied Materials, Inc.	$ 67,788	19.3 %	$ 248,350	17.5 %	$ 164,724	20.9 %
Lam Research	*	* %	141,778	10.0 %	88,251	11.2 %

The following table summarizes the accounts receivable balances, and percentages of the total accounts receivable, for customers that individually accounted for 10% or more of accounts receivable (in thousands):

	March 31, 2021		December 31, 2020	
Applied Materials, Inc.	$ 40,357	17.0 %	$ 33,402	14.2 %
Nidec Motor Corporation	*	* %	24,344	10.4 %

* Customer’s balance was less than 10% of total.

A significant decline in sales from large customers, or the Company’s inability to collect on these sales, could materially and adversely impact our business, results of operations and financial condition.

The loss of any of our key personnel could significantly harm our results of operations and competitive position.

Our success depends to a significant degree upon the continuing contributions of our key management, technical, marketing, and sales employees. We may not be successful in retaining our key employees or attracting or retaining additional skilled personnel as required. Failure to retain or attract key personnel could significantly harm our results of operations and competitive position. Our success in hiring and retaining employees depends on a variety of factors, including the attractiveness of our compensation and benefit programs, global economic or political and industry conditions, our organizational structure, our reputation, culture and working environment, competition for talent and the availability of qualified employees, the availability of career development opportunities, and our ability to offer a challenging and rewarding work environment. We must develop our personnel to provide succession plans capable of maintaining continuity during the inevitable unpredictability of personnel retention. While we have plans for key management succession and long-term compensation plans designed to retain our senior employees, if our succession plans do not operate effectively, our business could be adversely affected.

The market price of our common stock has fluctuated and may continue to fluctuate for reasons over which we have no control.

The stock market has from time to time experienced, and is likely to continue to experience, extreme price and volume fluctuations. Prices of securities of technology companies have been especially volatile and have often fluctuated for reasons that are unrelated to their operating performance. In the past, companies that have experienced volatility in the market price of their stock have been the subject of securities class action litigation. If we were the subject of securities class action litigation, it could result in substantial costs and a diversion of management’s attention and resources.

Our operating results are subject to fluctuations, and if we fail to meet the expectations of securities analysts or investors, our share price may decrease significantly.

Our annual and quarterly results may vary significantly depending on various factors, many of which are beyond our control. Because our operating expenses are based on anticipated revenue levels, our sales cycle for development work is relatively long, and a high percentage of our expenses are fixed for the short term, a small variation in the timing of recognition of revenue can cause significant variations in operating results from period to period. If our earnings do not meet the expectations of securities analysts or investors, the price of our stock could decline.

Commercial and financial related risks

We are highly dependent on our intellectual property.

Our success depends significantly on our proprietary technology. We attempt to protect our intellectual property rights through patents and non-disclosure agreements; however, we might not be able to protect our technology, and customers or competitors might be able to develop similar technology independently. In addition, the laws of some foreign countries might not afford our intellectual property the same protections as do the laws of the United States. Our intellectual property is not protected by patents in several countries in which we do business, and we have limited patent protection in other countries, including the PRC Generally, our efforts to obtain international patents have been concentrated in the European Union and certain industrialized countries in Asia, including Korea, Japan, and Taiwan. If we are unable to protect our intellectual property successfully, our business, financial condition, and results of operations could be materially and adversely affected.

The PRC commercial law is relatively undeveloped compared to the commercial law in the United States. Limited protection of intellectual property is available under PRC law. Consequently, manufacturing our products in the PRC may subject us to an increased risk that unauthorized parties may attempt to copy our products or otherwise obtain or use our intellectual property.

Our operations in the People's Republic of China (PRC) and the Asia Pacific region are subject to significant political and economic uncertainties over which we have little or no control and we may be unable to alter our business practice in time to avoid reductions in revenues.

A significant portion of our operations outside the United States are located in the PRC, which exposes us to risks, such as exchange controls and currency restrictions, changes in local economic conditions, changes in customs regulations and tariffs, changes in tax policies, changes in PRC laws and regulations, possible expropriation or other PRC government actions, and unsettled political conditions including potential changes in U.S. policy regarding overseas manufacturing. At various times during recent years, the U.S. and PRC have had significant disagreements over geopolitical, trade and economic issues. Controversies may arise in the future between these two countries. Any escalating political controversies between the U.S. and PRC, whether or not directly related to our business, could have a material adverse effect on our operations, business, results of operations, and financial condition. See "We are exposed to risks associated with worldwide financial markets and the global economy" risk factor below.

Additionally, there is inherent risk, based on the complex relationships among PRC, Hong Kong, Taiwan, and the United States, that political, diplomatic, and national security influences might lead to trade, technology, or capital disputes, and/or disruptions, in particular those affecting the semiconductor industry. This would adversely affect our business with PRC, Hong Kong, and/or Taiwan and perhaps the entire Asia Pacific region or global economy.

Actions by the Chinese government extending its territorial claims, such as the recent passage of the national security law in Hong Kong and the planned establishment of an Air Defense Identification Zone over the South China Sea, raises the fear of conflict that could result in international reprisal. Actions by the U.S. government on trade policy against the PRC and companies like Huawei Technologies Co., Ltd. have also escalated tensions. Lastly, the recent U.S. and PRC consulate closures and the continuing Hong Kong political unrest is creating more uncertainty. Should the PRC take any actions against Taiwan, we could see additional risks to diplomatic and trade relations in the region. Given our expanded presence in the PRC and Hong Kong, the Company's business results, operations and financial condition could be adversely affected by these developments and other changes to political, diplomatic, and social conditions.

Moreover, PRC's policies towards, and treatment of, U.S. companies operating in PRC and Hong Kong could change quickly resulting in an adverse impact on the Company.

We are subject to risks inherent in international operations.

Given the global nature of our business, we have both domestic and international concentrations of cash and investments. The value of our cash, cash equivalents, and marketable securities can be negatively affected by liquidity, credit deterioration, financial results, economic risk, political risk, sovereign risk, or other factors.

Sales to our customers outside the United States were approximately 68.7% and 59.2% of our total sales for the year ended December 31, 2020 and 2019, respectively. Our acquisitions have increased our presence in international locations. Our success producing goods internationally and competing in international markets is subject to our ability to manage various risks and difficulties, including, but not limited to:

- our ability to effectively manage our employees at remote locations who are operating in different business environments from the United States;
- our ability to develop and maintain relationships with suppliers and other local businesses;
- compliance with product safety requirements and standards that are different from those of the United States;
- variations and changes in laws applicable to our operations in different jurisdictions, including enforceability of intellectual property and contract rights;
- trade restrictions, political instability, disruptions in financial markets, and deterioration of economic conditions;
- customs regulations and the import and export of goods (including customs audits in various countries that occur from time to time);
- the ability to provide enough levels of technical support in different locations;
- our ability to obtain business licenses that may be needed in international locations to support expanded operations;
- timely collecting accounts receivable from foreign customers including significant balances in accounts receivable from foreign customers;
- changes in tariffs, taxes, and foreign currency exchange rates; and

Our profitability and ability to implement our business strategies, maintain market share and compete successfully in international markets will be compromised if we are unable to manage these and other international risks successfully.

We are exposed to risks associated with worldwide financial markets and the global economy.

Our business depends on the expansion of manufacturing capacity in our end markets and the installation base for the products we sell. In the past, severe tightening of credit markets, turmoil in the financial markets, and a weakening global economy have contributed to slowdowns in the industries in which we operate and has negatively impacted the global demand for our products. Some of our key markets depend largely on consumer spending. Economic uncertainty exacerbates negative trends in consumer spending and may cause our customers to push out, cancel, or refrain from placing orders.

Difficulties or increased costs in obtaining capital and uncertain market conditions may also lead to a reduction of our sales and greater instances of nonpayment. These conditions may similarly affect our key suppliers, which could affect their ability to deliver parts and result in delays for our products. Further, these conditions and uncertainty about future economic conditions including inflation, interest rates, availability of capital markets, consumer spending rates, energy availability and costs and the effects of government initiatives to manage economic conditions could make it challenging for us to forecast our operating results and evaluate the risks that may affect our business, financial condition, and results of operations.

Globalization of sales increases risk of compliance with policy.

We operate in an increasingly complex sales environment around the world which places greater importance on our global control environment and imposes additional oversight risk. Such increased complexity could adversely affect our operating results by increasing compliance costs in the near-term and by increasing the impact of control failures in the event of non-compliance.

Our legacy inverter products may suffer higher than anticipated litigation, damage, or warranty claims.

Our legacy inverter products (of which we discontinued the manufacture, engineering, and sale in December 2015 and which are reflected as Discontinued Operations in this filing) contain components that may contain errors or defects and were sold with original product warranties ranging from one to ten years with an option to purchase additional warranty coverage for up to 20 years. If any of our products are defective or fail because of their design, we might be required to repair, redesign, or recall those products or to pay damages (including liquidated damages) or warranty claims, and we could suffer significant harm to our reputation. We are experiencing increasing claims from customers and suppliers and increasing litigation related to the legacy inverter product line. We review such claims and vigorously defend against such lawsuits in the ordinary course of our business. We cannot assure that any such claims or litigation brought against us will not have a material adverse effect on our business or financial statements. Our involvement in such litigation could result in significant expense to us and divert the efforts of our technical and management personnel. We also accrue a warranty reserve for estimated costs to provide warranty services including the cost of technical support, product repairs, and product replacement for units that cannot be repaired. Our estimate of costs to fulfill our warranty obligations is based on historical experience and expectation of future conditions. To the extent we experience increased warranty claim activity or increased costs associated with servicing those claims, our warranty accrual will increase, resulting in additional expenses in the line "Income (loss) from discontinued operations, net of income taxes" on our Consolidated Statement of Operations in future periods. We plan to continue supporting inverter customers with service maintenance and repair operations. This includes performing service to fulfill obligations under existing service maintenance contracts. There is no certainty that these can be performed profitably and could be adversely affected by higher than anticipated product failure rates, loss of critical service technician skills, an inability to obtain service parts, customer demands and disputes and cost of repair parts, among other factors. See *Note 4. Disposed and Discontinued Operations* in Part II, Item 8 "Financial Statements and Supplementary Data" contained in our Annual Report on Form 10-K for the year ended December 31, 2020.

Our products may suffer from defects or errors leading to damage or warranty claims.

Our products use complex system designs and components that may contain errors or defects, particularly when we incorporate new technology into our products or release new versions. If any of our products are defective or fail because of their design, we might be required to repair, redesign, or recall those products, pay damages (including liquidated damages) or warranty claims, and we could suffer significant harm to our reputation. We accrue a warranty reserve for estimated costs to provide warranty services including the cost of technical support, product repairs, and product replacement for units that cannot be repaired. Our estimate of costs to fulfill our warranty obligations is based on historical experience and expectation of future conditions. To the extent we experience increased warranty claim activity or increased costs associated with servicing those claims, our warranty accrual will increase, resulting in decreased gross profit. In recent years, we have experienced increased warranty costs for our legacy inverter product lines, which is reflected in "Income (loss) from discontinued operations, net of income taxes." See *Note 4. Disposed and Discontinued Operations* in Part II, Item 8 "Financial Statements and Supplementary Data" contained in our Annual Report on Form 10-K for the year ended December 31, 2020.

Unfavorable currency exchange rate fluctuations may lead to lower operating margins, or may cause us to raise prices, which could result in reduced sales.

Currency exchange rate fluctuations could have an adverse effect on our sales and results of operations, and we could experience losses with respect to forward exchange contracts into which we may enter. Unfavorable currency fluctuations could require us to increase prices to foreign customers, which could result in lower net sales by us to such customers. Alternatively, if we do not adjust the prices for our products in response to unfavorable currency fluctuations, our results of operations could be materially and adversely affected. In addition, we have large, long term liabilities such as local lease and pension liabilities in Europe and Asia creating more significant exposure to fluctuations in the value of the Euro, Philippine Peso, and Chinese Yuan. The Company does not attempt to hedge these exposures given the long-term nature of the underlying liabilities and the non-cash nature of the foreign exchange gain or loss.

The PRC government is continually pressured by its trading partners to allow its currency to float in a manner like other major currencies. Any change in the value of the Chinese yuan could significantly increase the labor and other costs incurred in the operation of our Shenzhen and Zhongshan facilities and the cost of raw materials, parts, components, and subassemblies that we source in the PRC, which could materially and adversely affect our results of operations.

The United Kingdom's exit from the European Union and related actions could adversely affect us.

On June 23, 2016, the United Kingdom ("UK") held a referendum in which voters approved an exit from the European Union ("EU"). On January 23, 2020, the UK left the EU, which is commonly referred to as "Brexit," and was in a transitionary period through December 31, 2020. As of January 1, 2021, EU Trade Agreements no longer apply to the UK. The UK has taken steps to reproduce the effects of trading agreements that previously applied through the provisional application of new trade agreements not yet ratified and has introduced the UK Global Tariff. These changes result in increased regulatory complexities on imports and exports between the UK and EU countries and may adversely affect our sales, operations, and financial results. Our operations in the UK may be adversely affected by significant fluctuations in the UK exchange rates and increased administrative costs and tariffs on the importation of parts for manufacturing and repair services. Moreover, the imposition of any import restrictions and duties levied on our UK products as imported for EU customers may make our products more expensive for such customers and less competitive from a pricing perspective.

Difficulties with our enterprise resource planning ("ERP") system and other parts of our global information technology system could harm our business and results of operation.

Like many multinational corporations, we maintain a global information technology system, including software products licensed from third parties. The acquisition of Artesyn added additional information systems that are initially different from current systems. Any system, network or Internet failures, misuse by system users, the hacking into or disruption caused by unauthorized access or loss of license rights could disrupt our ability to timely and accurately manufacture and ship products or to report our financial information in compliance with the timelines mandated by the SEC. Any such failure, misuse, hacking, disruptions, or loss would likely cause a diversion of management's attention from the underlying business and could harm our operations. In addition, a significant failure of our global information technology system could adversely affect our ability to complete an evaluation of our internal controls and attestation activities pursuant to Section 404 of the Sarbanes-Oxley Act of 2002.

If our network security measures are breached and unauthorized access is obtained to a customer's data or our data or our information technology systems, we may incur significant legal and financial exposure and liabilities.

As part of our day-to-day business, we store our data and certain data about our customers in our global information technology system. Unauthorized access to our data, including any regarding our customers, could expose us to a risk of loss of this information, loss of business, litigation, and possible liability. These security measures may be breached by intentional misconduct by computer hackers, because of third-party action, employee error, malfeasance or otherwise. Additionally, third parties may attempt to fraudulently induce employees or customers into disclosing sensitive information such as usernames, passwords, or other information in order to gain access to our customers' data or our data, including our intellectual property and other confidential business information, or our information technology systems. Because the techniques used to obtain unauthorized access, or to sabotage systems, change frequently and generally are not recognized until launched against a target, we may be unable to anticipate these techniques or to implement adequate preventative measures. Any security breach could result in a loss of confidence by our customers, damage our reputation, disrupt our business, lead to legal liability, and negatively impact our future sales.

We have been, and in the future may again be, involved in litigation. Litigation is costly and could result in further restrictions on our ability to conduct business or make use of market relationships we have developed, or an inability to prevent others from using our technology.

Litigation may be necessary to enforce our commercial or property rights, to defend ourselves against claimed violations of such rights of others, or to protect our interests in regulatory, tax, customs, commercial, and other disputes, or similar matters. We have been experiencing increased litigation related to our legacy inverter product line. Litigation often requires a substantial amount of our management's time and attention, as well as financial and other resources, including:

- substantial costs in the form of legal fees, fines, and royalty payments;
- restrictions on our ability to sell certain products or in certain markets;
- an inability to prevent others from using technology we have developed; and
- a need to redesign products or seek alternative marketing strategies.

Any of these events could have a significant adverse effect on our business, financial condition, and results of operations.

Return on investments or interest rate declines on plan investments could result in additional unfunded pension obligations for our pension plan.

We currently have unfunded obligations to our pension plans. The extent of future contributions to the pension plan depends heavily on market factors such as the discount rate used to calculate our future obligations and the actual return on plan assets which enable future payments. We estimate future contributions to the plan using assumptions with respect to these and other items. Changes to those assumptions could have a significant effect on future contributions. Additionally, a material deterioration in the funded status of the plan could increase pension expenses and reduce our profitability. See *Note 17. Employee Retirement Plans and Postretirement Benefits* in Part II, Item 8 "Financial Statements and Supplementary Data" contained in our Annual Report on Form 10-K for the year ended December 31, 2020.

Our intangible assets may become impaired.

The following table summarizes our goodwill and intangible assets (in thousands):

	March 31, 2021
Goodwill	$ 207,994
Intangible assets, net	169,389
Total	$ 377,383

We periodically review the estimated useful lives of our identifiable intangible assets, taking into consideration any events or circumstances that might result in either a diminished fair value, or for intangible assets, a revised useful life. The events and circumstances include significant changes in the business climate, legal factors, operating performance indicators, and competition. Any impairment or revised useful life could have a material and adverse effect on our financial position and results of operations and could harm the trading price of our common stock.

International trade, tax, and regulatory related risks

Significant developments stemming from recent U.S. government actions and proposals concerning tariffs and other economic proposals could have a material adverse effect on us.

U.S. government actions are imposing greater restrictions and economic disincentives on international trade. It has initiated the imposition of additional tariffs on certain foreign goods, including steel and aluminum, semiconductor manufacturing equipment and spare parts thereof and has also announced the imposition of import license requirements on aluminum articles. The government has amended and expanded export regulations regarding sales to companies on the U.S. Entity List. These changes prevent sales of foreign produced direct product of the U.S. that is manufactured using controlled U.S.-origin equipment, technology, and software located outside the United States to companies on the U.S. Entity List. Additionally, the U.S. Department of Defense continues to issue lists of companies it has determined to be owned or controlled by China's People's Liberation Army on which sanctions could be levied by executive order, and the Department of Commerce has published their "first tranche" of designated military end users from China and Russia for whom export licenses are now required.

Furthermore, the government has determined that the Special Administrative Region of Hong Kong is no longer sufficiently autonomous to justify being treated as separate from China and has eliminated certain license exceptions for the export of controlled goods to Hong Kong and has removed Hong Kong as a separate shipping destination under the Export Administration Regulations ("EAR").

In response to U.S. Government actions, China passed the Export Control Law of the People's Republic of China, effective December 1, 2020. The Export Control Law provides the Chinese government with the framework to ban exports of strategic materials and advanced technologies to specific foreign entities on its Control List and also provides a counterweight to the U.S. government's restrictions through provisions for retaliatory action and extraterritorial jurisdiction.

Changes in U.S. trade policy could result in one or more U.S. trading partners adopting responsive trade policy making it more difficult or costly for us to export our products to those countries. As indicated above, these measures could also result in increased costs for goods imported into the U.S. This in turn could require us to increase prices to our customers which may reduce demand, or, if we are unable to increase prices, result in lowering our margin on goods and services sold. To the extent that trade tariffs and other restrictions imposed by the U.S. increase the price of semiconductor equipment and related parts imported into the U.S., the cost of our materials may be adversely affected and the demand from customers for products and services may be diminished, which could adversely affect our revenues and profitability.

The adoption and expansion of trade restrictions, the occurrence of a trade war, or other governmental action related to tariffs or trade agreements or policies has the potential to adversely impact demand for our products, our costs, our customers, our suppliers, and the U.S. economy, which in turn could adversely impact our business, financial condition, and results of operations.

Changes in U.S. social, political, regulatory, and economic conditions or in laws and policies governing foreign trade, manufacturing, development and investment in the territories and countries where we currently develop and sell products, and any negative sentiments towards the United States as a result of such changes, could adversely affect our business. In addition, negative sentiments towards the United States among non-U.S. customers and among non-U.S. employees or prospective employees could adversely affect sales or hiring and retention, respectively.

Increased governmental action on income tax regulations could negatively impact our business.

International governments have heightened their review and scrutiny of multinational businesses like ours which could increase our compliance costs and future tax liability to those governments. As governments continue to look for ways to increase their revenue streams, they could increase audits of companies to accelerate the recovery of monies perceived as owed to them under current or past regulations. Such an increase in audit activity could have a negative impact on companies which operate internationally, as we do.

Changes in tax laws, tax rates, or mix of earnings in tax jurisdictions in which we do business, could impact our future tax liabilities and related corporate profitability.

We are subject to income taxes in the U.S. (federal and state) and numerous foreign jurisdictions. Tax laws, regulations, and administrative practices in various jurisdictions by their nature are complex and may be subject to significant change due to economic, political, and other conditions, and significant judgment is required in evaluating and estimating our provision and accruals for these taxes. There are many transactions that occur during the ordinary course of business for which the ultimate tax determination is uncertain. Our effective tax rates could be adversely affected by earnings being lower than anticipated in jurisdictions where we have lower statutory rates and earnings higher than anticipated in jurisdictions where we have higher statutory rates, losses incurred in jurisdictions for which we are not able to realize the related tax benefit, changes in foreign currency exchange rates, entry into new businesses and geographies and changes to our existing businesses, acquisitions (including integrations) and investments, changes in our deferred tax assets and liabilities and their valuation, and changes in the relevant tax, accounting, and other laws, regulations, administrative practices, principles, and interpretations, including fundamental changes to the tax laws applicable to corporate multinationals. The U.S., many countries in the European Union, and several other countries are actively considering changes in this regard.

Changes in our provision for income taxes or adverse outcomes resulting from examination of our income tax returns could adversely affect our results.

Our provision for income taxes is subject to volatility and could be adversely affected by earnings being lower than anticipated in countries that have lower tax rates and higher than anticipated in countries that have higher tax rates; by changes in the valuation of our deferred tax assets and liabilities; by changes, regulations, and interpretations of foreign-derived intangible income ("FDII"), global intangible low-tax income ("GILTI") and base erosion and anti-abuse tax laws ("BEAT"); by expiration of or lapses in tax incentives; by transfer pricing adjustments, including the effect of acquisitions on our legal structure; by tax effects of nondeductible compensation; by tax costs related to intercompany realignments; by changes in accounting principles; or by changes in tax laws and regulations, treaties, or interpretations thereof, including changes to the taxation of earnings of our foreign subsidiaries, the deductibility of expenses attributable to foreign income, and the foreign tax credit rules. Significant judgment is required to determine the recognition and measurement attribute prescribed in the accounting guidance for uncertainty in income taxes. The Organization for Economic Co-operation and Development ("OECD"), an international association comprised of 36 countries, including the United States, has made changes to numerous long-standing tax principles. There can be no assurance that these changes, once adopted by countries, will not have an adverse impact on our provision for income taxes. Further, because of certain of our ongoing employment and capital investment actions and commitments, our income in certain countries is subject to reduced tax rates. Our failure to meet these commitments could adversely impact our provision for income taxes. In addition, we are subject of regular examination of our income tax returns by tax authorities. We regularly assess the likelihood of adverse outcomes resulting from these examinations to determine the adequacy of our provision for income taxes. There can be no assurance that the outcomes from these continuous examinations will not have an adverse effect on our operating results and financial condition.

Our business is subject to complex and evolving U.S. and international laws and regulations regarding privacy and data protection. Many of these laws and regulations are subject to change and uncertain interpretation and could result in claims, changes to our business practices, penalties, increased cost of operations, or declines in user growth or engagement, or otherwise harm our business.

Regulatory authorities around the world have implemented or are considering several legislative and regulatory proposals concerning data protection, including measures to ensure that encryption of users’ data does not hinder law enforcement agencies’ access to that data. In addition, the interpretation and application of consumer and data protection laws in the U.S., Europe and elsewhere are often uncertain and in flux. It is possible that these laws may be interpreted and applied in a manner that is inconsistent with our data practices. These legislative and regulatory proposals, if adopted, and such interpretations could, in addition to the possibility of fines, result in an order requiring that we change our data practices, which could have an adverse effect on our business and results of operations. Complying with these various laws could cause us to incur substantial costs or require us to change our business practices in a manner adverse to our business.

We are subject to numerous governmental regulations.

We are subject to federal, state, local and foreign regulations, including environmental regulations and regulations relating to the design and operation of our products and control systems and regulations governing the import, export and customs duties related to our products. We might incur significant costs as we seek to ensure that our products meet safety and emissions standards, many of which vary across the states and countries in which our products are used. In the past, we have invested significant resources to redesign our products to comply with these directives. In addition, with our acquisition of Versatile Power, Inc., we expanded our presence in the medical market to include more highly regulated applications and added its medical-certified manufacturing center to our operating footprint. We may encounter increased costs to maintain compliance with the quality systems and other regulations and requirements that apply to the acquired business. Compliance with future regulations, directives, and standards could require us to modify or redesign some products, make capital expenditures, or incur substantial costs. Also, we may incur significant costs in complying with the numerous imports, exports, and customs regulations as we seek to sell our products internationally. If we do not comply with current or future regulations, directives, and standards:

- we could be subject to fines and penalties;
- our production or shipments could be suspended; and
- we could be prohibited from offering particular products in specified markets.

If we were unable to comply with current or future regulations, directives and standards, our business, financial condition, and results of operations could be materially and adversely affected.

Financial reform legislation will result in new laws and regulations that may increase our costs of operations.

The Dodd-Frank Wall Street Reform and Consumer Protection Act (the "Dodd-Frank Act") requires various federal agencies to adopt a broad range of implementing rules and regulations, and to prepare numerous studies and reports for Congress. On August 22, 2012, under the Dodd-Frank Act, the SEC adopted requirements for companies that use certain minerals and metals, known as conflict minerals, in their products, whether or not these products are manufactured by third parties. These requirements require companies to perform due diligence, disclose and report whether such minerals originate from the Democratic Republic of Congo and adjoining countries. We must perform sufficient due diligence to determine whether such minerals are used in the manufacture of our products. Regarding our acquisition of Artesyn, we will need to complete due diligence on the minerals used in the manufacture of those products and include our due diligence results in our next conflict minerals report. In addition, we incur costs to comply with the disclosure requirements, including costs related to determining the source of any of the relevant minerals and metals used in our products. Since our supply chain is complex, we may not be able to sufficiently verify the origins for these minerals and metals used in our products through the due diligence procedures that we implement, which may harm our reputation. In such event, we may also face difficulties in satisfying customers who require that all the components of our products are certified as conflict mineral free.

General Risk Factors

Our failure to maintain appropriate environmental, social, and governance ("ESG") practices and disclosures could result in reputational harm, a loss of customer and investor confidence, and adverse business and financial results.

Governments, investors, customers, and employees are enhancing their focus on ESG practices and disclosures, and expectations in this area are rapidly evolving and increasing. While we monitor the various and evolving standards and associated reporting requirements, failure to adequately maintain appropriate ESG practices that meet diverse stakeholder expectations may result in the loss of business, diluted market valuation, an inability to attract customers, and an inability to attract and retain top talent.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

To execute the repurchase of shares of our common stock, the Company periodically enters into stock repurchase agreements. The following table summarizes these repurchases:

	Three Months Ended March 31,	
(in thousands, except per share amounts)	**2021**	**2020**
Amount paid to repurchase shares	$ —	$ 7,248
Number of shares repurchased	—	170
Average repurchase price per share	$ —	$ 42.59
Remaining authorized by Board of Directors for future repurchases as of period end	$ 38,369	$ 42,751

ITEM 6. EXHIBITS

The exhibits listed in the following index are filed as part of this Quarterly Report on Form 10-Q.

Exhibit Number	Description	Incorporated by Reference Form	File No.	Exhibit	Filing Date
10.1	Form of Long-Term Incentive Plan	8-K	000-26966	10.1	Feb. 4, 2021
10.2	Transition and Retirement Agreement dated February 8, 2021	8-K	000-26966	10.1	Feb. 10, 2021
10.3	Offer Letter dated February 8, 2021	8-K	000-26966	10.2	Feb. 10, 2021
31.1	Certification of the Chief Executive Officer Pursuant to Rule 13a-14(a) under the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.				Filed herewith
31.2	Certification of the Chief Financial Officer Pursuant to Rule 13a-14(a) under the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.				Filed herewith
32.1	Certification of the Chief Executive Officer Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.				Filed herewith
32.2	Certification of the Chief Financial Officer Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.				Filed herewith
101.INS	XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.				Filed herewith
101.SCH	XBRL Taxonomy Extension Schema Document.				Filed herewith
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document.				Filed herewith
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document.				Filed herewith
101.LAB	XBRL Taxonomy Extension Label Linkbase Document.				Filed herewith
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document.				Filed herewith
104	Cover Page Interactive Data File – formatted in Inline XBRL and contained in Exhibit 101.				Filed herewith

SIGNATURES

Pursuant to the requirements 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.

ADVANCED ENERGY INDUSTRIES, INC.

Dated: May 5, 2021

/s/ Paul Oldham
Paul Oldham
Chief Financial Officer and Executive Vice President

EXHIBIT 31.1

I, Stephen D. Kelley, certify that:

1. I have reviewed this quarterly report on Form 10-Q for the period ended March 31, 2021 of Advanced Energy Industries, 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 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: May 5, 2021

/s/ Stephen D. Kelley
Stephen D. Kelley
Chief Executive Officer

EXHIBIT 31.2

I, Paul Oldham, certify that:

1. I have reviewed this quarterly report on Form 10-Q for the period ended March 31, 2021 of Advanced Energy Industries, 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 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: May 5, 2021

/s/ Paul Oldham

Paul Oldham
Chief Financial Officer & Executive Vice President

EXHIBIT 32.1

Certification of the Chief Executive Officer
Pursuant to 18 U.S.C. Section 1350,
as Adopted Pursuant to Section 906
of the Sarbanes-Oxley Act of 2002

I hereby certify, pursuant to 18 U.S.C. Section 1350, that the accompanying Quarterly Report on Form 10-Q for the period ended March 31, 2021, of Advanced Energy Industries, Inc., fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that information contained in the Quarterly Report on Form 10-Q fairly presents, in all material respects, the financial condition and results of operations of Advanced Energy Industries, Inc.

Date: May 5, 2021

/s/ Stephen D. Kelley
Stephen D. Kelley
Chief Executive Officer

A signed original of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.

EXHIBIT 32.2

Certification of the Chief Financial Officer
Pursuant to 18 U.S.C. Section 1350,
as Adopted Pursuant to Section 906
of the Sarbanes-Oxley Act of 2002

I hereby certify, pursuant to 18 U.S.C. Section 1350, that the accompanying Quarterly Report on Form 10-Q for the period ended March 31, 2021, of Advanced Energy Industries, Inc., fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that information contained in the Quarterly Report on Form 10-Q fairly presents, in all material respects, the financial condition and results of operations of Advanced Energy Industries, Inc.

Date: May 5, 2021

/s/ Paul Oldham
Paul Oldham
Chief Financial Officer & Executive Vice President

A signed original of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.