BROOKS AUTOMATION INC
Form 10-Q
May 02, 2018
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UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-Q

(Mark One)

Quarterly Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

For the quarterly period ended: March 31, 2018

OR

Transition Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

For the transition period from _____ to _____

Commission File Number 000-25434

BROOKS AUTOMATION, INC.

(Exact name of registrant as specified in its charter)

Delaware	04-3040660
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

15 Elizabeth Drive

Chelmsford, Massachusetts

(Address of principal executive offices)

01824

(Zip Code)

Registrant's telephone number, including area code: (978) 262-2400

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

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes No

Indicate by check mark 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	(Do not check if a smaller reporting company)	Smaller reporting company
Emerging growth company		

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

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

Indicate the number of shares outstanding of each of the issuer's classes of common stock, as of the latest practicable date, April 26, 2018: common stock, $0.01 par value and 70,539,856 shares outstanding.

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PART I. FINANCIAL INFORMATION

Item 1. Consolidated Financial Statements

BROOKS AUTOMATION, INC.

CONSOLIDATED BALANCE SHEETS

(unaudited)

(In thousands, except share and per share data)

	March 31, 2018	September 30, 2017
Assets		
Current assets		
Cash and cash equivalents	$ 194,016	$ 101,622
Marketable securities	40,655	28
Accounts receivable, net	141,501	120,828
Inventories	126,594	106,395
Prepaid expenses and other current assets	26,803	23,138
Total current assets	529,569	352,011
Property, plant and equipment, net	60,700	58,462
Long-term marketable securities	10,508	2,642
Long-term deferred tax assets	47,572	1,692
Goodwill	275,228	233,638
Intangible assets, net	102,182	83,520
Equity method investment	35,134	28,593
Other assets	5,648	6,070
Total assets	$ 1,066,541	$ 766,628
Liabilities and Stockholders' Equity		
Current liabilities		
Current portion of long term debt	$ 2,000	$ —
Accounts payable	65,110	49,100
Deferred revenue	22,067	24,292
Accrued warranty and retrofit costs	8,289	8,054
Accrued compensation and benefits	23,105	27,065
Accrued restructuring costs	416	1,708
Accrued income taxes payable	8,713	11,417
Accrued expenses and other current liabilities	28,716	25,142
Total current liabilities	158,416	146,778
Long-term debt	194,870	—
Long-term tax reserves	1,428	1,687
Long-term deferred tax liabilities	6,308	3,748
Long-term pension liabilities	2,081	1,979
Other long-term liabilities	5,605	4,792
Total liabilities	368,708	158,984
Commitments and contingencies (Note 16)		

Stockholders' Equity		
Preferred stock, $0.01 par value - 1,000,000 shares authorized, no shares issued or outstanding	—	—
Common stock, $0.01 par value - 125,000,000 shares authorized, 84,001,725 shares issued and 70,539,856 shares outstanding at March 31, 2018, 83,294,848 shares issued and 69,832,979 shares outstanding at September 30, 2017	840	833
Additional paid-in capital	1,886,435	1,874,918
Accumulated other comprehensive income	24,497	15,213
Treasury stock, at cost- 13,461,869 shares	(200,956)	(200,956)
Accumulated deficit	(1,012,983)	(1,082,364)
Total stockholders' equity	697,833	607,644
Total liabilities and stockholders' equity	$ 1,066,541	$ 766,628

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

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BROOKS AUTOMATION, INC.

CONSOLIDATED STATEMENTS OF OPERATIONS

(unaudited)

(In thousands, except per share data)

	Three Months Ended March 31,		Six Months Ended March 31,	
	2018	2017	2018	2017
Revenue				
Products	$ 160,491	$ 132,613	$ 302,675	$ 254,727
Services	46,769	36,720	93,913	74,561
Total revenue	207,260	169,333	396,588	329,288
Cost of revenue				
Products	94,358	82,023	178,534	157,701
Services	28,673	22,786	58,610	50,120
Total cost of revenue	123,031	104,809	237,144	207,821
Gross profit	84,229	64,524	159,444	121,467
Operating expenses				
Research and development	13,125	11,345	26,324	22,190
Selling, general and administrative	47,236	37,518	88,412	69,479
Restructuring charges	49	860	49	1,835
Total operating expenses	60,410	49,723	114,785	93,504
Operating income	23,819	14,801	44,659	27,963
Interest income	356	227	504	294
Interest expense	(2,196)	(97)	(4,377)	(193)
Gain on settlement of equity method investment	—	—	—	1,847
Other expenses, net	(261)	(283)	(1,912)	(534)
Income before income taxes and earnings of equity method investments	21,718	14,648	38,874	29,377
Income tax (benefit) provision	(43,880)	3,420	(41,030)	6,220
Income before equity in earnings of equity method investments	65,598	11,228	79,904	23,157
Equity in earnings of equity method investments	1,422	2,777	3,602	4,719
Net income	$ 67,020	$ 14,005	$ 83,506	$ 27,876
Basic net income per share	$ 0.95	$ 0.20	$ 1.19	$ 0.40
Diluted net income per share	0.95	0.20	1.18	0.40
Dividend declared per share	0.10	0.10	0.20	0.20
Weighted average shares used in computing net income per share:				
Basic	70,220	69,600	70,340	69,388
Diluted	70,613	70,149	70,908	70,073

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

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BROOKS AUTOMATION, INC.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(unaudited)

(In thousands)

	Three Months Ended March 31,		Six Months Ended March 31,	
	2018	2017	2018	2017
Net income	$ 67,020	$ 14,005	$ 83,506	$ 27,876
Other comprehensive income (loss), net of tax:				
Cumulative foreign currency translation adjustments	5,154	5,347	9,287	(4,756)
Unrealized gains (losses) on marketable securities, net of tax effects of $0 during each of the three and six months ended March 31, 2018, and $0 during each of the three and six months ended March 31, 2017	—	9	—	(2)
Actuarial gains (losses), net of tax effects of $0 and ($2) during the three and six months ended March 31, 2018, $3 and $5 during the three and six months ended March 31, 2017	6	(16)	(3)	(6)
Total other comprehensive income (loss), net of tax	5,160	5,340	9,284	(4,764)
Comprehensive income	$ 72,180	$ 19,345	$ 92,790	$ 23,112

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

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BROOKS AUTOMATION, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS

(unaudited)

(In thousands)

	Six Months Ended March 31,	
	2018	2017
Cash flows from operating activities		
Net income	$ 83,506	$ 27,876
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and amortization	17,634	13,730
Gain on settlement of equity method investment	—	(1,847)
Stock-based compensation	10,129	6,884
Amortization of premium on marketable securities and deferred financing costs	217	28
Earnings of equity method investments	(3,602)	(4,719)
Loss recovery on insurance claim	(1,103)	—
Deferred income tax benefit	(49,156)	334
Other gains on disposals of assets	—	(117)
Changes in operating assets and liabilities, net of acquisitions:		
Accounts receivable	(16,949)	(9,672)
Inventories	(16,233)	(7,341)
Prepaid expenses and other current assets	(17,248)	(2,256)
Accounts payable	14,899	10,072
Deferred revenue	(2,783)	14,425
Accrued warranty and retrofit costs	(16)	792
Accrued compensation and tax withholdings	(4,151)	(1,799)
Accrued restructuring costs	(1,336)	(3,799)
Accrued expenses and other current liabilities	9,619	707
Net cash provided by operating activities	23,427	43,298
Cash flows from investing activities		
Purchases of property, plant and equipment	(5,675)	(5,153)
Purchases of marketable securities	(49,560)	—
Sales and maturities of marketable securities	100	—
Acquisitions, net of cash acquired	(64,988)	(5,346)
Purchases of other investments	—	(170)
Proceeds from sales of property, plant and equipment	200	—
Net cash used in investing activities	(119,923)	(10,669)
Cash flows from financing activities		
Proceeds from term loan	197,554	—
Proceeds from issuance of common stock	1,395	960
Payment of deferred financing costs	(318)	(27)
Repayment of term loan	(500)	—

Common stock dividends paid	(14,125)	(13,945)
Net cash provided by (used in) financing activities	184,006	(13,012)
Effects of exchange rate changes on cash and cash equivalents	4,884	(764)
Net increase in cash and cash equivalents	92,394	18,853
Cash and cash equivalents, beginning of period	101,622	85,086
Cash and cash equivalents, end of period	$ 194,016	$ 103,939
Supplemental disclosure of non-cash investing and financing activities:		
Purchases of property, plant and equipment included in accounts payable	$ 716	$ 543
Fair value of non-cash consideration for the acquisition of Cool Lab, LLC	—	10,348

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

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BROOKS AUTOMATION, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (unaudited)

1. Basis of Presentation

The unaudited consolidated financial statements of Brooks Automation, Inc. and its subsidiaries (“Brooks”, or the “Company”) included herein have been prepared in accordance with accounting principles generally accepted in the United States ("GAAP"). All intercompany accounts and transactions have been eliminated in consolidation. In the opinion of management, all material adjustments, which are of a normal and recurring nature and necessary for a fair statement of the financial position and results of operations and cash flows for the periods presented, have been reflected in the accompanying unaudited consolidated financial statements. The results of operations for the interim periods are not necessarily indicative of the results of operations to be expected for the full fiscal year.

Certain information and footnote disclosures normally included in the Company’s annual consolidated financial statements have been condensed or omitted and, accordingly, the accompanying financial information should be read in conjunction with the audited consolidated financial statements and notes thereto contained in the Company’s Annual Report on Form 10 K filed with the United States Securities and Exchange Commission (the “SEC”) for the fiscal year ended September 30, 2017 (the "2017 Annual Report on Form 10 K"). The accompanying Consolidated Balance Sheet as of September 30, 2017 was derived from the audited annual consolidated financial statements as of the period then ended.

2. Summary of Significant Accounting Policies

Use of Estimates

The preparation of unaudited consolidated financial statements in conformity with GAAP requires management to make certain estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the unaudited consolidated financial statements and the reported amounts of revenue and expenses during the reporting period. Significant estimates are associated with accounts receivable, inventories, goodwill, intangible assets other than goodwill, long-lived assets, derivative financial instruments, deferred income taxes, warranty obligations, revenue recognized using the percentage of completion method, pension obligations and stock-based compensation expense. The Company bases its estimates on historical experience and various other assumptions, including in certain circumstances, future projections that management believes to be reasonable under the circumstances. Although the Company regularly assesses these estimates, actual results could differ from those estimates. Changes in estimates are recorded in the period in which they occur and become known.

Foreign Currency Translation

Certain transactions of the Company and its subsidiaries are denominated in currencies other than their functional currency.

Foreign currency exchange losses generated from the settlement and remeasurement of these transactions are recognized in earnings and presented within “Other expenses, net” in the Company’s unaudited Consolidated Statements of Operations. Net foreign currency transaction and remeasurement losses totaled $0.5 million and $0.4 million, respectively, during the three months ended March 31, 2018 and 2017 and $2.5 million and $1.0 million, respectively, during the six months ended March 31, 2018 and 2017.

Derivative Instruments

The Company has transactions and balances denominated in currencies other than the U.S. dollar. Most of these transactions or balances are denominated in Euros, British Pounds and a variety of Asian currencies. The Company enters into foreign exchange contracts to reduce its exposure to currency fluctuations. The forward contract arrangements that the Company enters into typically mature in three months or less. These transactions do not qualify for hedge accounting. Net gains and losses related to these contracts are recorded as a component of "Other expenses, net"

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in the accompanying unaudited Consolidated Statements of Operations and are as follows for the three and six months ended March 31, 2018 and 2017 (in thousands):

	Three Months Ended March 31,		Six Months Ended March 31,	
	2018	2017	2018	2017
Realized gains (losses) on derivatives not designated as hedging instruments	$ (4,548)	$ 406	$ (6,221)	$ (597)

The fair values of the forward contracts are recorded in the Company’s accompanying unaudited Consolidated Balance Sheets as "Prepaid expenses and other current assets" and "Accrued expenses and other current liabilities". Foreign exchange contract assets and liabilities are measured and reported at fair value based on observable market inputs and classified within Level 2 of the fair value hierarchy due to a lack of an active market for these contracts.

Fair Value Measurements

The Company measures at fair value certain financial assets and liabilities, including cash equivalants and available for sale securities. FASB Accounring Standards Codification (“the ASC”) 820, Fair Value Measurement and Disclosures, establishes a fair value hierarchy that requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. The following levels of inputs may be used to measure fair value:

Level 1 Inputs: Quoted prices in active markets for identical assets or liabilities as of the reporting date. Active markets are those in which transactions for the asset and liability occur in sufficient frequency and volume to provide pricing information on an ongoing basis.

Level 2 Inputs: Observable inputs other than prices included in Level 1, including quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3 Inputs: Unobservable inputs that are significant to the fair value of the assets or liabilities and reflect an entity’s own assumptions in pricing assets or liabilities since they are supported by little or no market activity.

As of March 31, 2018, the Company had no assets or liabilities measured and recorded at fair value on a recurring basis using Level 3 inputs.

Recently Issued Accounting Pronouncements

In March 2018, the FASB issued ASU No. 2018-02, Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income, an amendment of the FASB Accounting Standards Codification. This ASU gives entities the option to reclassify tax effects stranded in accumulated other comprehensive income as a result of tax reform to retained earnings. The entities have the option to apply the guidance retrospectively or in the period of adoption. The guidance requires entities to make new disclosures, regardless of whether they elect to reclassify tax effects. The guidance is effective for fiscal years beginning after December 15 2018, and interim periods within those fiscal years. Early adoption in any period is permitted. The Company expects to adopt the guidance during the first quarter of fiscal year 2020 and is evaluating the effect that ASU 2018-02 will have on our consolidated financial statements and related disclosures.

In February 2016, the FASB issued new accounting guidance for reporting lease transactions. In accordance with the provisions of the newly issued guidance, a lessee should recognize at the inception of the arrangement a right-of-use asset and a corresponding lease liability initially measured at the present value of lease payments over the lease term. For finance leases, interest on a lease liability should be recognized separately from the amortization of the right-of-use asset, while for operating leases, total lease costs are recorded on a straight-line basis over the lease term. For leases with a term of twelve months or less, a lessee is permitted to make an accounting policy election by class of underlying assets

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to forgo a recognition of right-of-use assets and corresponding lease liabilities and record a lease expense on a straight-line basis. Entities should determine at the inception of the arrangement whether a contract represents a lease or contains a lease which is defined as a right to control the use of identified property for a period of time in exchange for consideration. Additionally, entities should separate the lease components from the non-lease components and allocate the contract consideration on a relative standalone price basis in accordance with provisions of ASC Topic 606, Revenue from Contracts with Customers. The guidance is effective for fiscal years, and interim periods within those years, beginning after December 15, 2018 and should be adopted via a modified retrospective approach with certain optional practical expedients that entities may elect to apply. The Company expects to adopt the guidance during the first quarter of fiscal year 2020 and is currently evaluating the impact of this guidance on its financial position and results of operations.

In June 2016, the FASB issued new accounting guidance for reporting credit losses. The new guidance introduces a new "expected loss" impairment model that applies to most financial assets measured at amortized cost and certain other instruments, including trade and other receivables, loans, held-to-maturity debt securities and other financial assets. Entities are required to estimate expected credit losses over the life of financial assets and record an allowance against the assets' amortized cost basis to present them at the amount expected to be collected. Additionally, the guidance amends the impairment model for available for sale debt securities and requires entities to determine whether all or a portion of the unrealized loss on such debt security is a credit loss. The guidance is effective for fiscal years, and interim periods within those years, beginning after December 15, 2019. Early adoption of the newly issued guidance is permitted for fiscal years, and interim periods within those years, beginning after December 15, 2018. The standard should be applied as a cumulative-effect adjustment to retained earnings as of the beginning of the first reporting period in which the guidance is effective. The Company expects to adopt the guidance during the first quarter of fiscal year 2021 and is currently evaluating the impact of this guidance on its financial position and results of operations.

In May 2014, the FASB issued new accounting guidance for reporting revenue recognition. The guidance provides for the recognition of revenue when promised goods or services are transferred to customers in an amount that reflects the consideration that is expected to be received for those goods or services. The Company expects to adopt the guidance during the first quarter of fiscal year 2019. The Company has initiated the evaluation of the potential impact of adopting the new guidance on its financial position and results of operations, but has not yet completed such assessment or determined the transition method that will be used to adopt the new guidance. The Company has established an implementation team to analyze its current portfolio of customer contracts and determine the impact of adopting the guidance. The implementation team is also responsible for evaluating and designing the necessary changes to the Company's business processes, policies, systems and controls to support recognition and disclosure under the new guidance. The Company has established a project plan and substantially completed its preliminary contract assessment. The results of this assessment are currently being analyzed to determine the final impact of adoption on the Company's operations, consolidated financial statements, and related disclosures. The Company is currently in the process of completing this assessment and quantifying the implications of the new guidance adoption. Based on the preliminary assessment, the Company anticipates that the new guidance will impact the timing of revenue recognition for a portion of its life science revenue which is currently accounted for under the percentage of completion method. The Company may be required to recognize revenue for a portion of these arrangements at the point in time it satisfies performance obligations by transferring control over promised deliverables to customers in accordance with the contractual terms of each arrangement. Additionally, revenue generated from the sale of perpetual or term licenses may be required to be recognized at the point in time control is transferred to customers upon license delivery.

Other

For further information with regard to the Company’s Significant Accounting Policies, please refer to Note 2 "Summary of Significant Accounting Policies" to the Company’s consolidated financial statements included in the 2017 Annual Report on Form 10 K.

3. Marketable Securities

The Company invests in marketable securities that are classified as available-for-sale and records them at fair value in the Company’s unaudited Consolidated Balance Sheets. Marketable securities reported as current assets represent

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investments that mature within one year from the balance sheet date. Long-term marketable securities represent investments with maturity dates greater than one year from the balance sheet date. The securities are valued using matrix pricing and benchmarking and classified within Level 2 of the fair value hierarchy because they are not actively traded. Matrix pricing is a mathematical technique used to value securities by relying on the securities' relationship to other benchmark quoted prices.

The following is a summary of the amortized cost and the fair value, including accrued interest receivable, as well as unrealized holding gains (losses) on the short-term and long-term marketable securities as of March 31, 2018 and September 30, 2017 (in thousands):

	Amortized Cost	Gross Unrealized Losses	Gross Unrealized Gains	Fair Value
March 31, 2018 :				
U.S. Treasury securities and obligations of U.S. government agencies	$ 31,870	$ (56)	$ —	$ 31,814
Bank certificates of deposits	6,158	—	2	6,160
Corporate securities	6,426	(17)	—	6,409
Municipal securities	6,761	(10)	—	6,751
Other debt securities	29	—	—	29
	$ 51,244	$ (83)	$ 2	$ 51,163
September 30, 2017 :				
Corporate securities	$ 2,642	$ —	$ —	$ 2,642
Other debt securities	28	—	—	28
	$ 2,670	$ —	$ —	$ 2,670

The fair values of the marketable securities by contractual maturities at March 31, 2018 are presented below (in thousands):

	Fair Value
Due in one year or less	$ 40,655
Due after one year through five years	7,785
Due after five year through ten years	—
Due after ten years	2,723
Total marketable securities	$ 51,163

Expected maturities could differ from contractual maturities because the security issuers may have the right to prepay obligations without prepayment penalties.

The Company reviews the marketable securities for impairment at each reporting period to determine if any of the securities have experienced an other-than-temporary decline in fair value. The Company considers factors, such as the length of time and extent to which the market value has been less than the cost, the financial condition and near-term prospects of the issuer, the Company's intent to sell, or whether it is more likely than not it will be required to sell the investment before recovery of its amortized cost basis. If the Company believes that an other-than-temporary decline in fair value has occurred, it writes down the investment to its fair value and recognizes the credit loss in earnings and

the non-credit loss in accumulated other comprehensive income or loss. As of March 31, 2018, the aggregate fair value of the marketable securities in an unrealized loss position was $39.7 million and was comprised of U.S. Treasury securities and obligations of U.S. government agencies, U.S. corporate securities, municipal securities and bank certificates of deposits. There were no marketable securities in an unrealized loss position as of September 30, 2017.

Cash equivalents of $51.2 million and less than $0.1 million, respectively, at March 31, 2018 and September 30, 2017 consist of money market funds and are classified within Level 1 of fair value hierarchy because they are valued using quoted market prices in active markets. Cash equivalents of $0.5 million and less than $0.1 million, respectively at

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March 31, 2018 and September 30, 2017 consist primarily of bank certificates of deposits with original maturities of less than 90 days and are classified within Level 2 of the fair value hierarchy because they are not actively traded.

4. Acquisitions

Acquisitions Completed in Fiscal Year 2018

Acquisition of 4titude Limited

On October 5, 2017, the Company acquired all of the outstanding capital stock of 4titude Limited ("4titude"), a U.K.-based manufacturer of scientific consumables for biological sample materials used in a variety of genomic and DNA analytical applications. The acquisition of 4titude will expand the Company's existing offerings of consumables and instruments within the Brooks Life Sciences segment. The aggregate purchase price of $65.1 million, net of cash acquired, consisted primarily of a cash payment of $64.8 million subject to working capital adjustments and the assumption of the seller's liabilities of $0.4 million.

The Company used a market participant approach to record the assets acquired and liabilities assumed in the 4titude acquisition. The purchase price allocation is based on a preliminary valuation and is subject to further adjustments within the measurement period as additional information becomes available related to the fair value of such assets acquired and liabilities assumed. The Company will refine such fair value estimates as new information becomes available during the measurement period. Any adjustments to the purchase price allocation will be made as soon as practicable but no later than one year from the acquisition date.

The preliminary amounts recorded were as follows (in thousands):

	Fair Value of Assets and Liabilities
Accounts receivable (approximates contractual value)	$ 1,581
Inventories	2,667
Prepaid expenses and other current assets	140
Property, plant and equipment	1,555
Intangible assets	27,212
Goodwill	38,185
Accounts payable	(286)
Accrued liabilities	(845)
Deferred tax liabilities	(5,090)
Total purchase price, net of cash acquired	$ 65,119

Fair values of intangible assets acquired consisted of customer relationships of $21.4 million, completed technology of $5.2 million, backlog of $0.4 million and trademarks of $0.2 million. The Company used the income approach in accordance with the excess-earnings method to estimate the fair values of customer relationships, backlog and trademarks equal to the present value of the after-tax cash flows attributable to each intangible asset. The Company used the income approach in accordance with the relief-from-royalty method to estimate the fair value of the completed technology which is equal to the present value of the after-tax royalty savings attributable to owning that

intangible asset. The weighted average amortization periods for intangible assets acquired are 13 years for completed technology, 10 years for customer relationship intangible assets, 1 year for backlog and 1 year for trademarks. The intangible assets acquired are amortized over the total weighted average period of 10.4 years using methods that approximate the pattern in which the economic benefits are expected to be realized.

At the closing of the acquisition of 4titude, a cash payment of $0.4 million was placed into escrow which was ascribed to the purchase price. The escrow was related to potential working capital adjustments and the sellers' satisfaction of general representations and warranties. The escrow balance was $0.2 million as of March 31, 2018.

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Goodwill represents the excess of the consideration paid over the fair value of the net assets acquired and has been assigned to the Brooks Life Sciences segment. Goodwill is primarily the result of expected synergies from combining the operations of 4titude with the Company's operations and is not deductible for tax purposes.

The operating results of 4titude have been reflected in the results of operations for the Brooks Life Sciences segment from the date of the acquisition, which included approximately six months of activity during the first two quarter of fiscal year 2018. During the three months ended March 31, 2018, revenue and net loss from 4titude recognized in the Company's results of operations were $4.3 million and less than $0.1 million, respectively. During the six months ended March 31, 2018, revenue and net loss from 4titude recognized in the Company's results of operations were $7.8 million and $1.2 million, respectively. During the six months ended March 31, 2018, the net loss included non-recurring charges of $1.2 million related to the step-up in value of the acquired inventories. During the three and six months ended March 31, 2018, the net loss included recurring charges of $1.0 million and $2.1 million, respectively, related to amortization expense of acquired intangible assets.

During the three and six months ended March 31, 2018, the Company incurred $0.5 million and $1.0 million, respectively, in non-recurring transaction costs with respect to the 4titude acquisition which were recorded in "Selling, general and administrative" expenses within the accompanying unaudited Consolidated Statements of Operations.

The Company did not present a pro forma information summary for its consolidated results of operations for the three and six months ended March 31, 2018 and 2017 as if the acquisition of 4titude occurred on October 1, 2016 because such results were immaterial.

Acquisitions Completed in Fiscal Year 2017

Acquisition of Pacific Bio-Material Management, Inc. and Novare, LLC

On July 5, 2017, the Company entered into an asset purchase agreement with Pacific Bio-Material Management, Inc. ("PBMMI") and Novare, LLC, a wholly owned subsidiary of PBMMI (collectively, the "sellers"), pursuant to which the Company acquired substantially all of the assets and liabilities of the sellers' business related to providing storage, transportation, management, and cold chain logistics of biological materials. The Company paid to the sellers cash consideration of $34.3 million, net of cash acquired and subject to working capital adjustments. As of December 31, 2017, the purchase price allocation is based on a preliminary valuation and subject to further adjustments when the Company obtains additional information during the measurement period.

At the closing of the acquisition of PBMMI, a cash payment of $3.3 million was placed into escrow which was ascribed to the purchase price. The escrow balance of $3.3 million included $2.9 million related to satisfaction of the sellers' indemnification obligations with respect to their representations and warranties and other indemnities, as well as $0.4 million payable to the former owner of Novare as a compensation for a sale of his ownership interest. This escrow arrangement is administered by the Company on behalf of the sellers. As of March 31, 2018, the escrow balance related to satisfaction of the sellers' indemnification obligations was $2.7 million, and the Novare escrow balance had been released.

The operating results of PBMMI have been reflected in the results of operations for the Brooks Life Sciences segment from the date of the acquisition. During the three months ended March 31, 2018, revenue and net loss from PBMMI recognized in the Company's results of operations were $2.5 million and less than $0.1 million, respectively. During the six months ended March 31, 2018, revenue and net loss from PBMMI recognized in the Company's results of operations were $4.8 million and $0.1 million, respectively. During the three and six months ended March 31, 2018, the net loss included recurring charges of $0.4 million and $0.8 million, respectively, related to amortization expense of acquired intangible assets. Please refer to Note 3, "Acquisitions" to the Company's consolidated financial

statements included in the 2017 Annual Report on Form 10-K for further information on PBMMI acquisition.

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Acquisition of Cool Lab, LLC

On November 28, 2016, the Company acquired 100% of the equity of Cool Lab, LLC ("Cool Lab") from BioCision, LLC ("BioCision"). The Company held a 20% equity ownership interest in BioCision prior to the acquisition. The Company used a market participant approach to record the assets acquired and liabilities assumed in the Cool Lab acquisition. The purchase price allocation were finalized as of March 31, 2018. Please refer to Note 3, “Acquisitions” to the Company’s consolidated financial statements included in the 2017 Annual Report on Form 10-K for further information on this transaction.

The Company recorded a liability of $0.7 million in the purchase price allocation that represented a preacquisition contingency incurred on the acquisition date. The obligation is related to a rebate that is due to a particular customer if the annual product sales volume metrics exceed threshold amounts under the provisions of the contract assumed by the Company. Fair value of such liability was determined based on a probability weighted discounted cash flow model. The carrying amount of the liability was $0.8 million and $0.7 million, respectively, at March 31, 2018 and September 30, 2017.

The operating results of Cool Lab have been reflected in the results of operations for the Brooks Life Sciences segment from the date of the acquisition, which included approximately one month of activity during the first quarter of fiscal year 2017. During the three months ended March 31, 2018, revenue and net loss from Cool Lab recognized in the Company’s results of operations were $0.6 million and $0.2 million, respectively. During the six months ended March 31, 2018, revenue and net loss from Cool Lab recognized in the Company’s results of operations were $1.6 million and $0.2 million, respectively. During the three and six months ended March 31, 2018, the net loss included recurring charges of $0.4 million and $0.8 million, respectively, related to amortization expense of acquired intangible assets.

5. Goodwill and Intangible Assets

Goodwill represents the excess of net book value over the estimated fair value of net tangible and identifiable intangible assets of a reporting unit. Goodwill is tested for impairment annually or more often if impairment indicators are present at the reporting unit level. The Company elected April 1 as its annual goodwill impairment assessment date and performs additional impairment tests if triggering events occur. If events occur or circumstances change that would more likely than not reduce fair values of the reporting units below their carrying values, goodwill will be evaluated for impairment between annual tests. No triggering events indicating goodwill impairment occurred during the six months ended March 31, 2018. Please refer to Note 6, "Goodwill and Intangible Assets" to the Company's consolidated financial statements included in the 2017 Annual Report on Form 10-K for further information on the goodwill impairment testing performed during fiscal year 2017.

The components of the Company’s goodwill by operating segment at March 31, 2018 and September 30, 2017 are as follows (in thousands):

	Brooks Semiconductor Solutions Group	Brooks Life Sciences	Other	Total
Gross goodwill, at September 30, 2017	$ 655,762	$ 166,820	$ 26,014	$ 848,596
Accumulated goodwill impairments	(588,944)	—	(26,014)	(614,958)

Goodwill, net of accumulated impairments, at September 30, 2017	66,818	166,820	—	233,638
Acquisitions and adjustments	72	41,518	—	41,590
Gross goodwill, at March 31, 2018	655,834	208,338	26,014	890,186
Accumulated goodwill impairments	(588,944)	—	(26,014)	(614,958)
Goodwill, net of accumulated impairments, at March 31, 2018	$ 66,890	$ 208,338	$ —	$ 275,228

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During the six months ended March 31, 2018, the Company recorded a goodwill increase of $41.6 million primarily related to the acquisition of 4titude which represented the excess of the consideration transferred over the fair value of the net assets acquired. Please refer to the Note 4 "Acquisitions" for further information on this transaction.

The components of the Company's identifiable intangible assets as of March 31, 2018 and September 30, 2017 are as follows (in thousands):

	March 31, 2018			September 30, 2017		
	Cost	Accumulated Amortization	Net Book Value	Cost	Accumulated Amortization	Net Book Value
Patents	$ 9,028	$ 7,883	$ 1,145	$ 9,028	$ 7,729	$ 1,299
Completed technology	67,510	56,686	10,824	61,662	54,777	6,885
Trademarks and trade names	9,417	5,522	3,895	9,244	4,969	4,275
Customer relationships	154,844	68,526	86,318	130,655	59,594	71,061
	$ 240,799	$ 138,617	$ 102,182	$ 210,589	$ 127,069	$ 83,520

Amortization expense for intangible assets was $11.1 million and $8.4 million, respectively, during the six months ended March 31, 2018 and 2017.

Estimated future amortization expense for the intangible assets for the remainder of fiscal year 2018 and the subsequent four fiscal years is as follows (in thousands):

Fiscal year ended September 30,	
2018	$ 11,045
2019	20,853
2020	19,009
2021	13,248
2022	10,553
Thereafter	27,474
	$ 102,182

6. Equity Method Investments

The Company accounts for certain of its investments using the equity method of accounting and records its proportionate share of the investee's earnings in its results of operations with a corresponding increase in the carrying value of the investment.

ULVAC Cryogenics, Inc.

The Company and ULVAC Corporation of Chigasaki, Japan each own a 50% stake in the joint venture, ULVAC Cryogenics, Inc ("UCI"). UCI manufactures and sells cryogenic vacuum pumps, principally to ULVAC Corporation.

The carrying value of the investment in UCI was $35.1 million and $28.6 million, respectively, at March 31, 2018 and September 30, 2017. During the three months ended March 31, 2018 and 2017, the Company recorded income of $1.4 million and $2.8 million, respectively, representing its proportionate share of UCI's earnings. During the six months ended March 31, 2018 and 2017, the Company recorded income of $3.6 million and $5.2 million, respectively, representing its proportionate share of UCI's earnings. Management fee payments received by the Company from UCI were $0.3 million and $0.2 million during the three months ended March 31, 2018 and 2017. Management fee payments received by the Company from UCI were $0.5 million during each of the six months ended March 31, 2018 and 2017.

7. Line of Credit

The Company maintains a revolving line of credit with Wells Fargo Bank, N.A. and JPMorgan Chase Bank, N.A that provides for revolving credit financing of up to $75.0 million, subject to borrowing base availability, as defined in

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the line of credit agreement. The line of credit matures on October 4, 2022 and expires no less than 90 days prior to the term loan expiration. The proceeds from the line of credit are available for permitted acquisitions and general corporate purposes.

On October 4, 2017, the Company entered into a $200.0 million Senior Secured Term Loan Facility (the “term loan”) with Morgan Stanley Senior Funding, Inc., JPMorgan Chase Bank, N.A. and Wells Fargo Securities, LLC (collectively, the “lenders”). Coincident with the entry into the term loan agreement, the Company amended certain terms and conditions of the credit agreement and entered into an arrangement with Wells Fargo Bank, N.A. and JPMorgan Chase Bank, N.A. Based on the amended terms of the credit agreement, the line of credit continues to provide for revolving credit financing of up to $75.0 million, subject to borrowing base availability. Borrowing base availability under the amended line of credit excludes collateral related to fixed assets and is redetermined periodically based on certain percentage of certain eligible U.S. assets, including accounts receivable and inventory. The sublimits for letters of credit were reduced to $7.5 million under the amended terms of the credit agreement. All outstanding borrowings under the credit agreement are guaranteed by the Company and BioStorage Technologies, Inc., its wholly-owned subsidiary (“guarantor”), and subordinated to the obligations under the term loan which are secured by a first priority lien on substantially all of the assets of the Company and the guarantor, other than accounts receivable and inventory. Please refer to Note 8, “Debt”, for further information on the term loan transaction.

There were no amounts outstanding under the line of credit as of March 31, 2018 and September 30, 2017. The Company records commitment fees and other costs directly associated with obtaining line of credit financing as deferred financing costs which are presented within "Other assets" in the accompanying unaudited Consolidated Balance Sheets. At March 31, 2018 and September 30, 2017, deferred financing costs were $0.6 million and $0.5 million, respectively. Such costs are amortized over the term of the related financing arrangement and are included in “Interest expense” in the accompanying unaudited Consolidated Statements of Operations. The line of credit contains certain customary representations and warranties, a financial covenant, affirmative and negative covenants, as well as events of default. The Company was in compliance with the line of credit covenants as of March 31, 2018 and September 30, 2017.

8. Debt

On October 4, 2017, the Company entered into a $200.0 million term loan with the lenders. The term loan was issued at $197.6 million, or 98.8% of its par value, resulting in a discount of $2.4 million, or 1.2%, which represented loan origination fees paid at the closing. The Company incurred additional deferred financing costs of $0.4 million during the six months ended March 31, 2018. The loan proceeds are to be used for general corporate purposes, including acquisitions. The loan principal amount may be increased by an aggregate amount equal to $75.0 million plus any voluntary repayments of the term loans plus any additional amount such that the secured leverage ratio of the Company is less than 3.00 to 1.00.

Under the terms of the term loan agreement, the Company may elect for the loan to bear an interest rate as Eurodollar Borrowings or as Alternate Base Rate, or ABR Borrowings. Interest applicable to Eurodollar Borrowings is based on the Adjusted LIBO Rate plus applicable margin of 2.50%. The Adjusted LIBO Rate is the rate appearing on Bloomberg screen LIBOR01 which gets reset at the beginning of each selected interest period based on the LIBOR rate then in effect. Interest applicable to ABR Borrowings is based on the Alternate Base Rate plus applicable margin of 1.50%. Alternate Base Rate is determined based on the highest of: (a) the federal funds effective rate plus 0.50%, (b) prime rate plus 1.00%, or (c) one-month LIBOR rate plus 1.00%.

The Company’s obligations under the term loan are also guaranteed by BioStorage Technologies, Inc. as the guarantor, subject to the terms and conditions of the term loan agreement. The Company and the guarantor granted the lenders a perfected first priority security interest in substantially all of the assets of the Company and the guarantor to secure the repayment of the term loan.

The term loan matures and becomes fully payable on October 4, 2024. The principal is payable in installments equal to 0.25% of the initial principal amount of the term loans on March 31st, June 30th, September 30th and December 31st of each year, commencing on March 31,2018, with any remaining amount of principal becoming due and payable on the maturity date. All accrued and unpaid interest on Borrowings shall be due on the last day of each interest period elected

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by the Company for such Borrowings, except for interest periods of more than three months in which case all accrued and unpaid interest shall be due and payable every three months.

Subject to certain conditions stated in the term loan agreement, the Company may redeem the term loan at any time at its option without a significant premium or penalty, except for a repricing transaction, as defined in the term loan agreement. The Company would be required to redeem the term loan at the principal amount then outstanding upon occurrence of certain events, including (i) net proceeds received from the sale or other disposition of the Company's or guarantor' assets, subject to certain limitations, (ii) casualty and condemnation proceeds received by the Company or the guarantor, subject to certain exceptions, (iii) net proceeds received by the Company or the guarantor from the issuance of debt or disqualified capital stock after October 4, 2017. Commencing on December 31, 2018, the Company will be required to make principal payments equal to the excess cash flow amount, as defined in the term loan agreement. Such prepayments are equal to 50% of the preceding year excess cash flow amount reduced by voluntary prepayments of the term loan, subject to certain limitations.

The Company records commitment fees and other costs directly associated with obtaining term loan financing as deferred financing costs which are presented as a reduction of the term loan principal balance in the accompanying unaudited Consolidated Balance Sheets. Such costs are accreted over the term of the loan using the effective interest rate method and are included in "Interest expense" in the accompanying unaudited Consolidated Statements of Operations. At March 31, 2018, deferred financing costs were $2.6 million.

During the six months ended March 31, 2018, the weighted average stated interest rate paid on the term loan was 4%. During the six months ended March 31, 2018, the Company incurred aggregate interest expense of $4.2 million in connection with the term loan borrowings, which included $0.2 million of deferred financing costs amortization.

The term loan agreement contains certain customary representations and warranties, covenants and events of default. If any of the events of default occur and are not waived or cured within applicable grace periods, any unpaid amounts under the term loan agreement will bear an annual interest rate at 2.00% above the rate otherwise applicable under the terms and conditions of such agreement. The term loan agreement does not contain financial maintenance covenants. As of March 31, 2018, the Company was in compliance with all covenants and conditions under the term loan agreement.

The following are the future minimum principal payment obligations under the term loan as of March 31, 2018:

	Amount
Fiscal year ended September 30,	
2018	$ 1,000
2019	2,000
2020	2,000
2021	2,000
2022	2,000
Thereafter	190,500
Total outstanding principal balance	199,500
Unamortized deferred financing costs	(2,630)
	196,870
Term loan, current portion	2,000
Term loan, long-term portion	$ 194,870

As of March 31, 2018, estimated fair value of the term loan outstanding principal balance approximates its carrying value. The fair value was determined based on observable market inputs and classified within Level 2 of fair value hierarchy due to a lack of an active market for this term loan or a similar loan instrument.

9. Income Taxes

The Company recorded an income tax benefit of $43.9 million and $41.0 million, respectively, during the three and six months ended March 31, 2018. The tax benefit recorded during each period was primarily driven by a discrete

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benefit due to the reversal of a valuation allowance against U.S. net deferred tax assets during the three months ended March 31, 2018 in the amount of $46.2 million. The tax benefit for the six months ended March 31, 2018 included $0.7 million of tax benefits related to the re-measurement of net U.S. deferred tax liabilities to account for the reduced 21 percent statutory federal income tax rate. This benefit for the three and six months ended March 31, 2018 was partially offset by the tax provisions related to foreign income.

The Company recorded an income tax provision of $3.4 million and $6.2 million, respectively, during the three and six months ended March 31, 2017. The provision recorded during each period was primarily driven by foreign income. Tax provision during the six months ended March 31, 2017 was partially offset by $0.7 million of tax benefits related to the reduction of reserves for unrecognized tax benefits resulting from the expiration of statutes of limitations.

The Company evaluates the realizability of its deferred tax assets by tax-paying component and assesses the need for a valuation allowance on a quarterly basis, considering the weight of both positive and negative evidence in making the assessment. The Company evaluates the profitability of each tax-paying component on a historic cumulative basis and forward looking basis, tax-planning strategies and the length of credit and loss carryforward periods, among other factors, in the course of performing this analysis. As of March 31, 2018, the Company has concluded that it is more likely than not that a substantial portion of its U.S. deferred tax assets will be realized, with the exception of certain state tax carryforwards. The Company considered strong positive evidence of historical cumulative profitability and projected future taxable income. In the quarter ended March 31, 2018 the Company reached a significant level of cumulative profitability in the U.S. coupled with an improved future outlook of U.S. earnings in both segments.

During the first quarter of fiscal year 2018, the Company adopted the Accounting Standard Update (“ASU”) 2016-09, Compensation-Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting. Upon adoption of ASU 2016-09, the Company amends the accounting for employee share-based payment transactions to recognize tax effects resulting from the settlement of stock-based awards as income tax expense or benefit in the income statement in the reporting period in which they occur. Adoption of this ASU required recognition of a cumulative effect adjustment to retained earnings in connection with the establishment of a deferred tax asset for any prior year net excess tax benefits or tax deficiencies not previously recorded. This adjustment resulted in a $4.0 million increase to retained earnings and deferred tax asset for net prior year excess tax benefits, with a corresponding decrease to retained earnings for the establishment of valuation allowance against the deferred tax asset. This increase to the valuation allowance was subsequently part of the valuation allowance reversal during the second quarter of fiscal year 2018.

During the first quarter of fiscal year 2018, the Tax Cuts and Jobs Act (“Tax Reform”) was enacted in the U.S., making significant tax law changes affecting the Company. The SEC has issued Staff Accounting Bulletin 118 (“SAB 118”), which has provided guidance for companies that have not completed the accounting for the income tax effects of Tax Reform. Under SAB 118, a company may report provisional amounts based on reasonable estimates where the accounting is incomplete. These amounts are subject to adjustments during a measurement period of up to one year beginning in the reporting period of the enactment date.

Upon the enactment of Tax Reform, the Company is subject to a toll charge in the U.S. on its previously untaxed accumulated foreign earnings. The toll charge is treated as an inclusion of the Company’s accumulated foreign earnings in U.S. taxable income during the tax year ended September 30, 2018. Any taxes due associated with the toll charge will be payable over an eight year period. The Company has estimated that its accumulated foreign earnings are $120.0 million which is a provisional amount subject to the measurement period described in Staff Accounting Bulletin 118. There are still incomplete components related to the accumulated foreign earnings calculations for older tax years that require additional time to complete the calculations. The Company also has a history of foreign mergers and acquisitions and proper determination of the impact on the accumulated earnings is complex. The Company has

estimated a $5.2 million toll charge associated with the taxable foreign earnings, net of foreign tax credits associated with the earnings subject to the toll tax. The Company did not record any provision for currently estimated tax associated with the toll charge as sufficient previously un-benefited tax attributes with valuation allowances existed to offset the resulting tax during the quarter of enactment of the tax law, however, the toll charge reduced the impact of the valuation allowance reversal.

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As a result of Tax Reform, the Company calculated its U.S. tax provision for the three and six months ended March 31, 2018 using a blended U.S. statutory tax rate of 24.5% which is a prorated allocation of the 35% rate which was in effect prior to Tax Reform through December 31, 2017 and the 21% rate which will be in effect for the remainder of the fiscal year. The Company recorded a discrete benefit of $0.7 million in the six months ended March 31, 2018 due to the impact of the U.S. rate change on its net U.S. deferred tax liabilities.

As of March 31, 2018, the Company maintains its indefinite reinvestment assertion on foreign earnings. The Company is continuing to evaluated the impact of Tax Reform on its reinvestment plans, as the accounting for Tax Reform is completed during the measurement period described in SAB 118. While the toll charge is a forced deemed repatriation of foreign earnings and an inclusion in U.S. federal taxable income, there are still additional costs of repatriating the foreign earnings such as foreign withholding taxes and state taxes.

The Company is subject to U.S. federal income tax and various state, local and international income taxes in various jurisdictions. The amount of income taxes paid is subject to the Company's interpretation of applicable tax laws in the jurisdictions in which it files tax returns. In the normal course of business, the Company is subject to income tax audits in various global jurisdictions in which it operates. The years subject to examination vary for the U.S. and international jurisdictions, with the earliest tax year being 2011. Based on the outcome of these examinations or the expiration of statutes of limitations for specific jurisdictions, it is reasonably possible that the related unrecognized tax benefits could change from those recorded in the Company's unaudited Consolidated Balance Sheets. The Company currently anticipates that it is reasonably possible that the unrecognized tax benefits will be reduced by approximately $0.2 million within the next twelve months.

10. Other Balance Sheet Information

The following is a summary of accounts receivable at March 31, 2018 and September 30, 2017 (in thousands):

	March 31, 2018	September 30, 2017
Accounts receivable	$ 142,819	$ 122,868
Less allowance for doubtful accounts	(1,266)	(1,959)
Less allowance for sales returns	(52)	(81)
Accounts receivable, net	$ 141,501	$ 120,828

The following is a summary of inventories at March 31, 2018 and September 30, 2017 (in thousands):

	March 31, 2018	September 30, 2017
Inventories		
Raw materials and purchased parts	$ 79,633	$ 73,819
Work-in-process	17,503	10,548
Finished goods	29,458	22,028
Total inventories	$ 126,594	$ 106,395

Reserves for excess and obsolete inventory were $21.5 million and $23.5 million, respectively, at March 31, 2018 and September 30, 2017.

At March 31, 2018 and September 30, 2017, the Company had cumulative capitalized direct costs of $5.0 million and $4.7 million, respectively, associated with the development of software for its internal use which are included within "Property, plant and equipment, net" in the accompanying unaudited Consolidated Balance Sheets. During the six months ended March 31, 2018, the Company capitalized direct costs of $0.3 million associated with development of software for its internal use.

The Company establishes reserves for estimated costs of product warranties based on historical information. Product warranty reserves are recorded at the time product revenue is recognized, and retrofit accruals are recorded at the time

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retrofit programs are established. The Company's warranty obligation is affected by product failure rates, utilization levels, material usage, service delivery costs incurred in correcting a product failure and supplier warranties on parts delivered to the Company.

The following is a summary of product warranty and retrofit activity on a gross basis for the three and six months ended March 31, 2018 and 2017 (in thousands):

Activity -Three Months Ended March 31, 2018			
Balance December 31, 2017	Accruals	Costs Incurred	Balance March 31, 2018
$ 8,218	$ 2,073	$ (2,002)	$ 8,289

Activity -Three Months Ended March 31, 2017			
Balance December 31, 2016	Accruals	Costs Incurred	Balance March 31, 2017
$ 6,217	$ 2,709	$ (1,853)	$ 7,073

Activity -Six Months Ended March 31, 2018			
Balance September 30, 2017	Accruals	Costs Incurred	Balance March 31, 2018
$ 8,054	$ 4,409	$ (4,174)	$ 8,289

Activity -Six Months Ended March 31, 2017			
Balance September 30, 2016	Accruals	Costs Incurred	Balance March 31, 2017
$ 6,324	$ 5,216	$ (4,467)	$ 7,073

11. Stock-Based Compensation

The Company may issue to eligible employees restricted stock units and restricted stock awards (collectively "restricted stock units") and stock options which vest upon the satisfaction of a performance condition and/or a service condition. In addition, the Company issues shares to participating employees pursuant to an employee stock purchase plan and restricted stock units subject to one-year cliff vesting to its directors in accordance with its director compensation program.

The following table reflects stock-based compensation expense recorded during the three and six months ended March 31, 2018 and 2017 (in thousands):

	Three Months Ended March 31,		Six Months Ended March 31,	
	2018	2017	2018	2017
Restricted stock	$ 5,097	$ 4,225	$ 9,699	$ 6,590
Employee stock purchase plan	223	161	430	294
Total stock-based compensation expense	$ 5,320	$ 4,386	$ 10,129	$ 6,884

The fair value of restricted stock units is determined based on the number of shares granted and the closing price of the Company’s common stock quoted on the Nasdaq Stock Market on the date of grant. The Company recognizes stock-based compensation expense on a straight-line basis, net of estimated forfeitures, over the requisite service period. Additionally, the Company assesses the likelihood of achieving the performance goals against previously established performance targets in accordance with the Company’s long-term equity incentive plan for stock-based awards that vest upon or after the satisfaction of these goals.

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During the first quarter of fiscal year 2018, the Company adopted the Accounting Standard Update (“ASU”) 2016-09, “Compensation-Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting.” Upon adoption of ASU 2016-09, the Company made an accounting policy election to continue accounting for forfeitures by applying an estimated forfeiture rate. The adoption of ASU 2016-09 did not have an impact on the stock compensation expense amount recognized during the three and six months ended March 31, 2018 and accumulated deficit at March 31, 2018.

The Company grants restricted stock units that vest over a required service period and/or achievement of certain operating performance goals. Restricted stock units granted with performance goals may also have a required service period following the achievement of all or a portion of the goals. The following table reflects restricted stock units granted during the six months ended March 31, 2018 and 2017:

	Total Units	Time-Based Units	Stock Grants	Performance-Based Units
Six months ended March 31, 2018	507,556	192,291	34,926	280,339
Six months ended March 31, 2017	1,008,111	377,213	42,560	588,338

Time-Based Grants

Restricted stock units granted with a required service period typically have three year vesting schedules in which one-third of awards vest at the first anniversary of the grant date, one-third vest at the second anniversary of the grant date and one-third vest at the third anniversary of the grant date, subject to the award holders meeting service requirements.

Stock Grants

During the six months ended March 31, 2018 and 2017, the Company granted 34,926 and 42,560 units, respectively, to the members of the Company's Board of Directors, including 26,539 and 28,065 units, respectively, that were compensation-related. Compensation-related units granted during the six months ended March 31, 2018 and 2017 are subject to a one-year vesting period starting from the grant date. The units granted during the six months ended March 31, 2018 will vest on the date which is one day before the Company's 2019 Annual Meeting of Stockholders. The units granted during the six months ended March 31, 2017 vested on January 30, 2018, which was one day before the Company's 2018 Annual Meeting of Stockholders. Certain members of the Board of Directors previously elected to defer receiving their annual awards of restricted shares of the Company stock and quarterly dividends until a future date. During the six months ended March 31, 2018 and 2017, the Company granted 7,130 and 13,065 units, respectively, related to such deferred annual restricted share awards, as well as 1,257 and 1,430 units, respectively, related to deferred quarterly dividends. Annual restricted share awards granted during the six months ended March 31, 2018 and 2017 are subject to a one-year vesting period starting from the grant date. The units will vest on the date which is one day before the Company's Annual Meeting of Stockholders, but certain holders have elected to defer the receipt of the Company shares until they attain a certain age or cease to provide services to the Company in their capacity as Board members. The amount of units granted during the six months ended March 31, 2018 and 2017 related to deferred quarterly dividends was equal to the value of cash dividends that would be paid on the number of total deferred shares based on the closing price of the Company’s stock on the dividend record date. Such units vested upon their issuance, but the settlement was deferred by certain holders for the same conditions, as described above.

Performance-Based Grants

Performance-based restricted stock units are earned based on the achievement of performance criteria established by the Human Resources and Compensation Committee of the Board of Directors. The criteria for performance-based awards are weighted and have threshold, target and maximum performance goals.

Performance-based awards granted in fiscal year 2017 allow participants to earn 100% of a targeted number of restricted stock units if the Company's performance meets its target for each applicable financial metric, and up to a maximum of 200% of the restricted stock units target if the Company's performance for such metrics meets the

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maximum threshold. Performance below the minimum threshold for each financial metric results in award forfeitures. Performance goals will be measured over a three year period at the end of fiscal year 2020 to determine the number of units earned by recipients who continue to meet a service requirement. Units held by recipients who fail to meet the continued service requirement are forfeited. Earned units for recipients who continue to meet the service requirements vest on the date the Company's Board of Directors determines the number of units earned, which will be approximately the third anniversary of the grant date.

Performance-based awards granted in fiscal year 2016 also include provisions that allow participants to earn threshold, target and maximum awards ranging from 0% of the award for performance below the minimum threshold, 100% of the award for performance at target, and up to a maximum of 200% of the award if the Company achieves the maximum performance goals.

Restricted Stock Unit Activity

The following table summarizes restricted stock unit activity for the six months ended March 31, 2018:

	Shares	Weighted Average Grant-Date Fair Value
Outstanding at September 30, 2017	2,474,011	$ 12.34
Granted	507,556	33.61
Vested	(629,840)	13.16
Forfeited	(38,520)	16.25
Outstanding at March 31, 2018	2,313,207	$ 16.89

The weighted average grant date fair value of restricted stock units granted during the three months ended March 31, 2018 and 2017 was $25.41 and $20.76, respectively. The weighted average grant date fair value of restricted stock units granted during the six months ended March 31, 2018 and 2017 was $33.61 and $14.32, respectively. The fair value of restricted stock units vested during the three months ended March 31, 2018 and 2017 was $0.1 million and $0.6 million, respectively. The fair value of restricted stock units vested during the six months ended March 31, 2018 and 2017 was $19.1 million and $11.9 million, respectively. During the six months ended March 31, 2018 and 2017, the Company remitted $6.3 million and $3.8 million, respectively, for withholding taxes on vested restricted stock units, of which $0.1 million was paid by the Company during the six months ended March 31, 2017. There were no taxes on vested restricted stock units paid by the Company during the six months ended March 31, 2018. During the six months ended March 31, 2018 and 2017, the Company received $6.3 million and $3.7 million, respectively, in cash proceeds from employees to satisfy their tax obligations as a result of share issuances.

As of March 31, 2018, the unrecognized compensation cost related to restricted stock units that are expected to vest is $30.1 million and will be recognized over an estimated weighted average service period of approximately 1.8 years.

Employee Stock Purchase Plan

The Company maintains an Employee Stock Purchase Plan that allows its employees to purchase shares of common stock at a price equal to 85% of the fair market value of the Company's stock at the beginning or the end of the semi-annual period, whichever is lower. There were 66,785 and 90,681 shares, respectively, purchased by employees under the employee stock purchase plan during the six months ended March 31, 2018 and 2017.

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12. Earnings per Share

The calculations of basic and diluted net income per share and basic and diluted weighted average shares outstanding are as follows for the three and six months ended March 31, 2018 and 2017 (in thousands, except per share data):

	Three Months Ended March 31,		Six Months Ended March 31,	
	2018	2017	2018	2017
Net income	$ 67,020	$ 14,005	$ 83,506	$ 27,876
Weighted average common shares outstanding used in computing basic earnings per share	70,220	69,600	70,340	69,388
Dilutive common stock options and restricted stock units	393	549	568	685
Weighted average common shares outstanding used in computing diluted earnings per share	70,613	70,149	70,908	70,073
Basic net income per share	$ 0.95	$ 0.20	$ 1.19	$ 0.40
Diluted net income per share	$ 0.95	$ 0.20	$ 1.18	$ 0.40

During the three and six months ended March 31, 2018, antidilutive restricted stock units of 190,517 and 190,266, respectively, were excluded from the computation of diluted earnings per share based on the treasury stock method. Restricted stock units of 144,808 and 56,230, respectively, during the three and six months ended March 31, 2017 were excluded from the computation of diluted earnings per share based on the treasury stock method.

13. Restructuring Charges

The restructuring charges recorded by the Company during the three and six months ended March 31, 2018 were nominal. During the three months ended March 31, 2017, the Company recorded restructuring charges of $0.9 million related to severance. Such charges were comprised of: (i) $1.2 million of costs attributable to the Brooks Semiconductor Solutions Group segment related to the integration of Contact Co., Ltd. after its acquisition by the Company, and (ii) $0.1 million of costs attributable to the Brooks Life Sciences segment related to streamlining the segment's management structure, integrating acquisitions and improving profitability. These costs were partially offset by severance cost reductions of $0.5 million as a result of a change in the restructuring liability of an estimate related to the company-wide restructuring action initiated prior to fiscal year 2017. During the six months ended March 31, 2017, the Company recorded restructuring charges of $1.8 million related to severance. Such charges were comprised of: (i) $1.4 million of costs attributable to the Brooks Semiconductor Solutions Group segment as described above, (ii) $0.2 million of costs attributable to the Brooks Life Sciences segment as described above, and (iii) $0.2 million of costs related to the company-wide restructuring action.

The following is a summary of activity related to the Company’s restructuring charges for the three and six months ended March 31, 2018 and 2017 (in thousands):

	Activity -Three Months Ended March 31, 2018	
	Balance	Balance

	December 31, 2017	Expenses	Payments	March 31, 2018
Total restructuring liabilities related to workforce termination benefits	$ 1,127	$ 49	$ (760)	$ 416

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	Activity -Three Months Ended March 31, 2017			
	Balance December 31, 2016	Expenses	Payments	Balance March 31, 2017
Total restructuring liabilities related to workforce termination benefits	$ 3,227	$ 860	$ (2,043)	$ 2,044

	Activity -Six Months Ended March 31, 2018			
	Balance September 30, 2017	Expenses	Payments	Balance March 31, 2018
Total restructuring liabilities related to workforce termination benefits	$ 1,708	$ 49	$ (1,341)	$ 416

	Activity -Six Months Ended March 31, 2017			
	Balance September 30, 2016	Expenses	Payments	Balance March 31, 2017
Total restructuring liabilities	$ 5,939	$ 1,835	$ (5,730)	$ 2,044

As of March 31, 2018, accrued restructuring costs of $0.4 million were primarily attributable to the restructuring actions within the Brooks Semiconductor Solutions Group segment. Accrued restructuring costs are expected to be paid within the next twelve months. Please refer to Note 15, “Restructuring and Other Charges” to the Company’s consolidated financial statements included in the 2017 Annual Report on Form 10-K for further information on the restructuring actions discussed above.

14. Segment Information

Operating segments are defined as components of an enterprise that engage in business activities for which discrete financial information is available and regularly reviewed by the chief operating decision maker in deciding how to

allocate resources and assess performance. The Company’s Chief Executive Officer is the Company’s chief operating decision maker. The Company reports its financial results for two operating and reportable segments which consist of Brooks Semiconductor Solutions Group segment and Brooks Life Sciences segment. Please refer to Note 18, "Segment and Geographic Information" to the Company’s consolidated financial statements included in the 2017 Annual Report on Form 10 K for further information on the operating segments’ description and accounting policies.

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The following is the summary of the financial information for the Company's operating and reportable segments for the three and six months ended March 31, 2018 and 2017 and balances as of March 31, 2018 and 2017 (in thousands):

	Brooks Semiconductor Solutions Group	Brooks Life Sciences	Total
Three Months Ended March 31, 2018:			
Revenue			
Products	$ 137,025	$ 23,466	$ 160,491
Services	21,696	25,073	46,769
Segment revenue	$ 158,721	$ 48,539	$ 207,260
Gross profit	$ 65,299	$ 18,930	$ 84,229
Segment operating income	30,836	2,683	33,519
Depreciation expense	1,133	2,039	3,172
Three Months Ended March 31, 2017:			
Revenue			
Products	$ 115,634	$ 16,979	$ 132,613
Services	19,031	17,689	36,720
Segment revenue	$ 134,665	$ 34,668	$ 169,333
Gross profit	$ 51,325	$ 13,199	$ 64,524
Segment operating income	20,003	1,290	21,293
Depreciation expense	1,319	1,045	2,364
Six Months Ended March 31, 2018:			
Revenue			
Products	$ 257,228	$ 45,447	$ 302,675
Services	43,379	50,534	93,913
Segment revenue	$ 300,607	$ 95,981	$ 396,588
Gross profit	$ 124,752	$ 34,692	$ 159,444
Segment operating income	57,198	2,543	59,741
Depreciation expense	2,282	3,588	5,870
Six Months Ended March 31, 2017:			
Revenue			
Products	$ 225,029	$ 29,698	$ 254,727
Services	36,252	38,309	74,561
Segment revenue	$ 261,281	$ 68,007	$ 329,288
Gross profit	$ 96,794	$ 24,673	$ 121,467
Segment operating income	37,374	1,402	38,776
Depreciation expense	2,595	2,135	4,730
Assets:			
March 31, 2018	$ 353,654	$ 385,025	$ 738,679
September 30, 2017	325,408	306,666	632,074

The following is a reconciliation of the Company's operating and reportable segments' operating income and segment assets to the corresponding amounts presented in the accompanying unaudited Consolidated Statements of

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Operations for the three and six months ended March 31, 2018 and 2017 and Consolidated Balance Sheets as of March 31, 2018 and September 30, 2017 (in thousands):

	Three Months Ended March 31,		Six Months Ended March 31,	
	2018	2017	2018	2017
Segment operating income	$ 33,519	$ 21,293	$ 59,741	$ 38,776
Amortization of acquired intangible assets	4,629	3,294	9,218	6,358
Restructuring charges	49	860	49	1,835
Other unallocated corporate expenses	5,022	2,338	5,815	2,620
Total operating income	$ 23,819	$ 14,801	$ 44,659	$ 27,963

	March 31, 2018	September 30, 2017
Segment assets	$ 738,679	$ 632,074
Cash, cash equivalents and marketable securities	245,179	104,292
Deferred tax assets	47,572	1,692
Equity method investments	35,111	28,570
Total assets	$ 1,066,541	$ 766,628

15. Significant Customers

The Company had one customer that accounted for 10% or more of its consolidated revenue, at 12% and 10%, respectively, during the three months ended March 31, 2018 and 2017. The Company had one customer that accounted for 10% or more of its consolidated revenue, at 12% and 11%, respectively, during the six months ended March 31, 2018 and 2017. As of March 31, 2018 and September 30, 2017, the Company had no customers that accounted for 10% or more of the Company’s total receivables.

For purposes of determining the percentage of revenue generated from any of the Company’s original equipment manufacturer (the "OEM") customers, the Company does not include revenue from products sold to contract manufacturer customers who in turn sell to the OEMs. If the Company included revenue from products sold to contract manufacturer customers supporting the Company’s OEM customers, the percentage of the Company’s total revenue derived from certain OEM customers would be higher.

16. Commitments and Contingencies

Letters of Credit

At March 31, 2018 and September 30, 2017, the Company had approximately $2.6 million and $3.5 million, respectively, of letters of credit outstanding related primarily to customer advances and other performance obligations. These arrangements guarantee the refund of advance payments received from our customers in the event that the

product is not delivered or warranty obligations are not fulfilled in accordance with the contract terms. These obligations could be called by the beneficiaries at any time before the expiration date of the particular letter of credit if the Company fails to meet certain contractual requirements. None of these obligations were called during the six months ended March 31, 2018 and the fiscal year ended September 30, 2017, and the Company currently does not anticipate any of these obligations to be called in the near future.

Purchase Commitments

The Company has non-cancellable contracts and purchase orders for inventory of $163.7 million and $122.0 million, respectively, at March 31, 2018 and September 30, 2017.

The Company is subject to various legal proceedings, both asserted and unasserted, that arise in the ordinary course of business. The Company cannot predict the ultimate outcome of such legal proceedings or in certain instances provide

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reasonable ranges of potential losses. However, as of the date of this report, the Company believes that none of these claims will have a material adverse effect on its consolidated financial position or results of operations. In the event of unexpected subsequent developments and given the inherent unpredictability of these legal proceedings, there can be no assurance that the Company's assessment of any claim will reflect the ultimate outcome, and an adverse outcome in certain matters could, from time to time, have a material adverse effect on the Company's consolidated financial position or results of operations in particular quarterly or annual periods.

17. Subsequent Events

Acquisitions

On April 6, 2018, the Company acquired approximately 93% of the outstanding capital stock of Tec-Sem Group AG ("Tec-Sem"), a Switzerland-based manufacturer of semiconductor fab automation equipment with a focus on reticle management. The total cash payment made by the Company was $11.3 million, net of cash acquired, and is subject to working capital adjustments. The remaining 7% non-controlling interest will be acquired by the Company in due course upon completion of subsequent procedural steps. The acquisition is expected to expand the Company's existing contamination control solutions business within the Brooks Semiconductor Solutions Group segment. The Company will report the results of operations for Tec-Sem in the Brooks Semiconductor Solutions Group segment starting from the acquisition date. The Company has not presented a purchase price allocation related to fair values of assets acquired and liabilities assumed, nor pro-forma information summary for its consolidated results of operations for the fiscal year ended September 30, 2017 and 2016 as if the acquisition occurred on October 1, 2015 because the initial accounting for the acquisition was incomplete on the financial statements issuance date.

On April 18, 2018, the Company acquired BioSpeciMan Corporation, a Canadian provider of storage services for biological sample materials. The total cash payment made by the Company was $4.8 million, net of cash acquired and is subject to working capital adjustments. The acquisition is expected to expand customer relationships and geographic reach within the Company's growing sample management storage services business. The Company will report the results of operations for BioSpeciMan in the Brooks Life Science segment starting from the acquisition date. The Company has not presented a purchase price allocation related to fair values of assets acquired and liabilities assumed, nor pro-forma information summary for its consolidated results of operations for the fiscal year ended September 30, 2017 and 2016 as if the acquisition occurred on October 1, 2015 because the initial accounting for the acquisition was incomplete on the financial statements issuance date.

Dividend

On April 30, 2018, the Company's Board of Directors declared a cash dividend of $0.10 per share payable on June 22, 2018 to common stockholders of record as of June 1, 2018. Dividends are declared at the discretion of the Company's Board of Directors and depend on the Company's actual cash flows from operations, its financial condition and capital requirements and any other factors the Company's Board of Directors may consider relevant. Future dividend declarations, as well as the record and payment dates for such dividends, will be determined by the Company's Board of Directors on a quarterly basis.

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Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations

The Management's Discussion and Analysis of Financial Condition and Results of Operations, or MD&A, describes principal factors affecting the results of our operations, financial condition and liquidity, as well as our critical accounting policies and estimates that require significant judgment and thus have the most significant potential impact on our unaudited consolidated financial statements included elsewhere in this Quarterly Report on Form 10-Q. Our MD&A is organized as follows:

- Overview. This section provides a general description of our business and operating segments, as well as a brief discussion and overall analysis of our business and financial performance, including key developments affecting the Company during the three and six months ended March 31, 2018 and 2017.
- Critical Accounting Policies and Estimates. This section discusses accounting policies and estimates that require us to exercise subjective or complex judgments in their application. We believe these accounting policies and estimates are important to understanding the assumptions and judgments incorporated in our reported financial results.
- Results of Operations. This section provides an analysis of our financial results for the three and six months ended March 31, 2018 compared to the three and six months ended March 31, 2017.
- Liquidity and Capital Resources. This section provides an analysis of our liquidity and changes in cash flows, as well as a discussion of available borrowings and contractual commitments.

You should read the MD&A in conjunction with our unaudited consolidated financial statements and related notes beginning on page 3 of this Quarterly Report on Form 10-Q. In addition to historical information, the MD&A contains forward-looking statements that involve risks and uncertainties. You should read "Information Related to Forward-Looking Statements" included below for a discussion of important factors that could cause our actual results to differ materially from our expectations.

Information Related to Forward-Looking Statements

This Quarterly Report on Form 10 Q contains statements that are, or may be considered to be, forward-looking statements within the meaning of The Private Securities Litigation Reform Act of 1995, as amended, Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. All statements that are not historical facts, including statements about our beliefs or expectations, are forward-looking statements. These statements may be identified by such forward-looking terminology as "expect," "estimate," "intend," "believe," "anticipate," "may," "will," "should," "could," "continue," "likely" or similar statements or variations of such terms Forward-looking statements include, but are not limited to, statements that relate to our future revenue, margins, costs, earnings, profitability, product development, demand, acceptance and market share, competitiveness, market opportunities and performance, levels of research and development, the success of our marketing, sales and service efforts, outsourced activities, operating expenses, anticipated manufacturing, customer and technical requirements, the ongoing viability of the solutions that we offer and our customers' success, tax expenses, our management's plans and objectives for our current and future operations and business focus, our adoption of the newly issued accounting guidance, the levels of customer spending, general economic conditions, the sufficiency of financial resources to support future operations, capital expenditures and future acquisitions, divestitures and other strategic transactions. Such statements are based on current expectations and involve risks, uncertainties and other factors which may cause the actual results, our performance or our achievements to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements. Such factors include the Risk Factors which are set forth in our Annual Report on Form 10 K for the fiscal year ended September 30, 2017 and which are incorporated herein by reference. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date hereof and are based on information currently and reasonably known to us. We do not undertake any obligation to release revisions to these forward-looking statements, which may be made to reflect events or circumstances that occur after the date of this Quarterly Report on Form 10 Q or to reflect the occurrence or effect of

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anticipated or unanticipated events. Precautionary statements made herein should be read as being applicable to all related forward-looking statements wherever they appear in this Quarterly Report on Form 10 Q. Any additional precautionary statements made in our 2017 Annual Report on Form 10 K should be read as being applicable to all related forward-looking statements whenever they appear in this Quarterly Report on Form 10 Q.

Unless the context indicates otherwise, references in this Quarterly Report on Form 10 Q to "we", "us", "our" and "the Company" refer to Brooks Automation, Inc. and its subsidiaries.

OVERVIEW

We are a leading global provider of automation and cryogenic solutions for multiple applications and markets. We primarily serve the semiconductor capital equipment market and sample management market for life sciences. Our leadership position and global support structure in each of these markets makes us a valued business partner to the some of the world’s largest semiconductor capital equipment and device makers, as well as pharmaceutical and life science research institutions in the world. Our offerings are also applied to industrial capital equipment and other adjacent technology markets.

In the semiconductor capital equipment market, equipment productivity and availability are critical factors for our customers who typically operate equipment under demanding temperature and/or pressure environments. Our automation and cryogenics capabilities are demonstrated in our various robotic automation and cryogenic vacuum pump offerings, both of which are used by semiconductor manufacturers in the processing of silicon wafers into integrated circuits. Although the demand for semiconductors and semiconductor manufacturing equipment is cyclical, resulting in periodic expansions and contractions of this market, we expect the semiconductor equipment market to remain one of our principal markets as we continue making investments to maintain and grow our semiconductor product and service offerings. We invest in research and development initiatives within the Brooks Semiconductor Solutions Group segment to maintain continued leadership positions in the markets we serve. A majority of our research and development spending advances our current product lines and drives innovations for new product offerings. Subsequent to March 31, 2018, we acquired 93% of the outstanding capital stock of Tec-Sem Group AG, a Switzerland-based provider of semiconductor fab automation equipment with a focus on reticle management. The remaining 7% non-controlling interest will be acquired by the Company in due course upon completion of subsequent procedural steps. We made a total cash payment of $11.3 million, net of cash acquired and subject to working capital adjustments. The acquisition is expected to enhance our contamination controls solutions offerings.

In the life sciences sample management market, we utilize our core competencies and capabilities in automation and cryogenics to provide comprehensive bio-sample management solutions to a broad range of end markets within the life sciences industry. Our offerings include automated ultra-cold storage freezers, consumable sample storage containers, instruments which assist in the workflow of sample management, and both complete on-site and off-site full sample management services. We expect the life sciences sample management market to remain one of our principal markets for our product and service offerings and provide favorable opportunities for the growth of our overall business. Over the past several years, we have acquired and developed essential capabilities required to strategically address the sample management needs across multiple end markets within the life sciences industry. In October 2017, we acquired all of the outstanding capital stock of 4titude Limited, or 4titude, a U.K.-based manufacturer of scientific consumables for biological sample materials used in a variety of genomic and DNA analytical applications, for a total purchase price of $65.1 million, net of cash acquired. The acquisition will expand our existing offerings of consumables and instruments within the Brooks Life Sciences segment. Please refer to Note 4, “Acquisitions” in the Notes to the unaudited consolidated financial statements included in Item 1 "Consolidated Financial Statements" of this Quarterly Report on Form 10 Q for further information on this transaction. Since entering the life sciences industry, we have also strengthened and broadened our product portfolio and market reach by investing in internal product development. During fiscal years 2017 and 2016, more than 23% of our cumulative

research and development spending was focused on innovating and advancing solutions in the life sciences sample management market. In fiscal year 2016, we commercialized the internally developed Biostore III Cryo, an automated system which incorporates sample retrieval, archiving, monitoring, tracking, inventory control, and related enterprise systems connectivity with the industry's leading cryogenic sample storage freezers. In fiscal year 2017, we launched BioStudies, a bioinformatics sample intelligence software platform that enables customers to manage their global samples. We expect to continue investing in

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research and development and making strategic acquisitions and other investments with the objective of expanding our offerings in the life sciences sample management market. On April 24, 2018, the Company acquired BioSpeciMan Corporation, a Canadian provider of storage services for biological sample materials. The total cash payment made by the Company was $4.8 million, net of cash acquired and is subject to working capital adjustments. The acquisition is expected to expand customer relationships and geographic reach within our growing sample management storage services business.

Business and Financial Performance

Three Months Ended March 31, 2018 Compared to Three Months Ended March 31, 2017

Results of Operations- Revenue for the three months ended March 31, 2018 increased to $207.3 million, or by 22%, as compared to the corresponding period of the prior fiscal year. Gross margin was 40.6% for the second quarter of fiscal year 2018 as compared to 38.1% for the second quarter of fiscal year 2017, which resulted in an increase in gross profit of $19.7 million. Operating expenses were $60.4 million during the second quarter of fiscal year 2018 as compared to $49.7 million during the second quarter of fiscal year 2017, an increase of $10.7 million. Operating income was $23.8 million during the second quarter of fiscal year 2018 as compared to $14.8 million for the corresponding period of the prior fiscal year. Revenue growth and gross margin improvement drove higher gross profits of $19.7 million, partially offset by an increase in operating expenses. Net income was $67.0 million for the three months ended March 31, 2018 as compared to $14.0 million for the corresponding period of the prior fiscal year. The increase of $53.0 million was primarily attributable to the decrease in income taxes of $47.3 million driven by the substantial release of the tax valuation allowance of $46.2 million and an increase in operating income of $9.0 million, as noted above. These increases were partially offset by higher non-operating expenses of $1.9 million compared to the corresponding period of the prior fiscal year, primarily related to interest expense on the term loan and lower net income from equity method investments of $1.4 million.

Six Months Ended March 31, 2018 Compared to Six Months Ended March 31, 2017

Results of Operations- Revenue for the six months ended March 31, 2018 increased to $396.6 million, or by 20%, as compared to the corresponding period of the prior fiscal year. Gross margin was 40.2% for the six months ended March 31, 2018 as compared to 36.9% for the six months ended March 31, 2017, which resulted in an increase in gross profit of $38.0 million. Operating expenses were $114.8 million during the six months ended March 31, 2018 as compared to $93.5 million during the six months ended March 31 2017, an increase of $21.3 million. Operating income was $44.7 million during the six months ended March 31, 2018 as compared to $28.0 million for the corresponding period of the prior fiscal year. Revenue growth and gross margin improvement drove higher gross profits of $38.0 million, partially offset by an increase in operating expenses. Net income was $83.5 million for the six months ended March 31, 2018 as compared to $27.9 million for the corresponding period of the prior fiscal year. The increase of $55.6 million was primarily attributable to the decrease in income taxes of $47.3 million driven by the substantial release of the tax valuation allowance of $46.2 million and an increase in operating income of $16.7 million, as noted above. These increases were partially offset by higher non-operating expenses of $7.2 million compared to the corresponding period of the prior fiscal year, primarily related to increased interest expense of $4.2 million mainly due to the term loan, higher foreign exchanges losses of $1.5 million and the impact of a $1.8 million gain recorded on the settlement of our investment in Biocision during the six months ended March 31, 2017. In addition, income from equity method investments decreased during the six months ended March 31, 2018 by $1.1 million compared to the six months ended March 31, 2017.

March 31, 2018 Compared to September 30, 2017

Cash Flows and Liquidity- Cash, cash equivalents and marketable securities were $245.2 million at March 31, 2018 as compared to $104.3 million at September 30, 2017. The increase in cash and cash equivalents and marketable securities of $140.9 million was primarily attributable to cash inflows related to proceeds from the term loan of $197.6 million and cash inflows of $23.4 million generated from our operating activities, partially offset by cash outflows related to acquisition payments of $65.0 million, dividend payments of $14.1 million made to our shareholders during the first half of fiscal year 2018, as well as capital expenditures of $5.7 million. Cash inflows of $23.4 million generated

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from operating activities during the six months ended March 31, 2018 were comprised primarily of earnings of $57.6 million, including net income of $83.5 million and the impact of non-cash related charges of $25.9 million, partially offset by uses of cash of $34.2 million related to the changes in our operating assets and liabilities, net of acquisitions. Please refer to "Liquidity and Capital Resources" section below for a detailed discussion of our liquidity and changes in cash flows for the six months ended March 31, 2018 compared to the six months ended March 31, 2017.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

Our unaudited consolidated financial statements are prepared in accordance with Generally Accepted Accounting Principles, or GAAP. The preparation of the interim consolidated financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenue and expenses, and related disclosure of contingent assets and liabilities. We evaluate our estimates on an ongoing basis, including those related to revenue, bad debts, inventories, long-lived assets, derivative instruments, goodwill, intangible assets other than goodwill, income taxes, warranty obligations, pensions and stock-based compensation. We base our estimates on historical experience and various other assumptions that are believed to be reasonable under the circumstances. We evaluate current and anticipated worldwide economic conditions, both in general and specifically in relation to the semiconductor and life science industries, that serve as a basis for making judgments about the carrying values of assets and liabilities that are not readily determinable based on information from other sources. Actual results may differ from these estimates under different assumptions or conditions that could have a material impact on our financial condition and results of operations.

For further information with regard to our significant accounting policies and estimates, please refer to Note 2, "Summary of Significant Accounting Policies" in the Notes to the unaudited consolidated financial statements included in Item 1 "Consolidated Financial Statements" of this Quarterly Report on Form 10 Q and in the Notes to our audited consolidated financial statements included in Part II, Item 8 “Financial Statements and Supplementary Data” in our 2017 Annual Report on Form 10 K.

Recently Issued Accounting Pronouncements

For a summary of recently issued accounting pronouncements applicable to our unaudited consolidated financial statements, please refer to Note 2, "Summary of Significant Accounting Policies" in the Notes to the unaudited consolidated financial statements included in Item 1 "Consolidated Financial Statements" of this Quarterly Report on Form 10 Q.

RESULTS OF OPERATIONS

Three and Six Months Ended March 31, 2018 Compared to Three and Six Months Ended March 31, 2017

Revenue

We reported revenue of $207.3 million for the three months ended March 31, 2018, compared to $169.3 million for the corresponding period of the prior fiscal year, an increase of $37.9 million, or 22%. We reported revenue of $396.6 million for the six months ended March 31, 2018, compared to $329.3 million for the corresponding period of the prior fiscal year, an increase of $67.3 million, or 20%. We reported revenue growth in the Brooks Semiconductor Solutions Group segment and the Brooks Life Sciences segment for both periods. The impact of changes in foreign currency exchange rates favorably affected revenue by $2.6 million and $5.0 million, respectively, during the three and six months ended March 31, 2018 when compared to the corresponding periods of the prior fiscal year.

Our Brooks Semiconductor Solutions Group segment reported revenue of $158.7 million for the three months ended March 31, 2018 compared to $134.7 million for the corresponding period of the prior fiscal year, an increase of $24.1 million, or 18%. For the six months ended March 31, 2018, our Brooks Semiconductor Solutions Group segment reported revenue of $300.6 million compared to $261.3 million for the corresponding period of the prior fiscal year, an increase of $39.3 million, or 15%. The increase in both periods reflects increases in sales of robotic automation products, cryogenic pump products and services and related spare parts, partially offset by a decline in sales of contamination

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controls systems. These increases in revenue include the favorable impact of changes in foreign currency exchange rates of $1.4 million and $3.3 million, respectively, during the three and six months ended March 31, 2018. The semiconductor markets are cyclical, and often fluctuate significantly from quarter to quarter. Demand for our Brooks Semiconductor Solution Group products is affected by these cycles.

Our Brooks Life Sciences segment reported revenue of $48.5 million for the three months ended March 31, 2018 compared to $34.7 million for the corresponding period of the prior fiscal year. The increase of $13.9 million, or 40%, was from internal growth of $6.9 million, principally in sample storage services, automated storage systems, service and maintenance and software. Additionally, the acquisitions of 4titude, Pacific Bio-Material Management, Inc. and Novare, LLC or PBMMI and the web-based software platform acquired from RURO, Inc., or FreezerPro contributed incremental revenue of $7.0 million. Our Brooks Life Sciences segment reported revenue of $96.0 million for the six months ended March 31, 2018 compared to $68.0 million for the corresponding period of the prior fiscal year. The increase of $28.0 million, or 41%, was primarily from internal growth of $15.1 million, principally in sample storage services, automated storage systems, consumables and instruments and software. Additionally, the acquisitions of 4titude, PBMMI and FreezerPro, contributed incremental revenue of $12.9 million. Brooks' Life Sciences internal revenue growth was favorably affected by foreign currency exchange rates which increased revenue by $1.2 million and $1.7 million, respectively, during the three and six months ended March 31, 2018, as compared to the corresponding periods of the prior fiscal year.

Revenue generated outside the United States amounted to $123.8 million, or 60% of total revenue, for the three months ended March 31, 2018 compared to $119.6 million, or 71% of total revenue, for the corresponding period of the prior fiscal year. Revenue generated outside the United States amounted to $240.9 million, or 61% of total revenue, for the six months ended March 31, 2018 compared to $226.4 million, or 69% of total revenue, for the corresponding period of the prior fiscal year. We have one customer within the Brooks Semiconductor Solutions Group segment that accounted for approximately 12% and 10% of our consolidated revenue for the three months ended March 31, 2018 and 2017, respectively. We have one customer within the Brooks Semiconductor Solutions Group segment that accounted for approximately 12% and 11% of our consolidated revenue for the six months ended March 31, 2018 and 2017, respectively.

Gross Margin

We reported gross margins of 40.6% for the three months ended March 31, 2018 compared to 38.1% for the corresponding period of the prior fiscal year. Gross margin increased in the Brooks Semiconductor Solutions Group segment by 3.0 percentage points and in the Brooks Life Sciences segment by 0.9 percentage points. We reported gross margins of 40.2% for the six months ended March 31, 2018 compared to 36.9% for the corresponding period of the prior fiscal year. Gross margin increased in the Brooks Semiconductor Solutions Group segment by 4.5 percentage points and decreased by 0.1 points in the Brooks Life Sciences segment, as compared to the prior period. Cost of revenue for the three and six months ended March 31, 2018 included $1.0 million and $1.9 million, respectively, of charges for amortization related to completed technology as compared to $1.1 million and $2.1 million, respectively, incurred during the corresponding periods of the prior fiscal year. Cost of revenue for the six months ended March 31, 2018 also included $1.2 million of charges related to the sale of inventories obtained in acquisitions to which a step-up in value was applied in purchase accounting. There were no such charges during the three months ended March 31, 2018. The three and six months ended March 31, 2017 included $0.4 million and $0.5 million, respectively of such charges. Excluding the purchasing accounting impact and the amortization of completed technology, margins expanded 2.2 percentage points and 3.3 percentage points, respectively, during the three and six months ended March 31, 2018 as compared to the corresponding periods of the prior fiscal year.

Our Brooks Semiconductor Solutions Group segment reported gross margins of 41.1% for the three months ended March 31, 2018 as compared to 38.1% for the corresponding period of the prior fiscal year. The increase is driven by a

favorable mix, volume leverage of fixed costs and lower warranty expense. Our Brooks Semiconductor Solutions Group segment reported gross margins of 41.5% for the six months ended March 31, 2018 as compared to 37.0% for the corresponding period of the prior fiscal year. The increase is driven by a favorable mix, volume leverage and lower costs related to materials. Cost of revenue for the three and six months ended March 31, 2018 included $0.6 million and $1.1 million, respectively, of charges for amortization related to completed technology as compared to $0.6 million and $1.3

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million, respectively, incurred during the corresponding periods of the prior fiscal year. The three and six months ended March 31, 2017 each included $0.1 million of charges related to the sale of inventories obtained in acquisitions to which a step-up in value was applied in purchase accounting. There were no such charges during the three and six months March 31, 2018. Excluding the purchase accounting impact and the amortization of completed technology, margins expanded 2.8 percentage points and 4.3 percentage points, respectively, during the three and six months ended March 31, 2018 as compared to the corresponding periods of the prior fiscal year.

Our Brooks Life Sciences segment reported gross margins of 39.0% for the three months ended March 31, 2018 as compared to 38.1% for the corresponding period of the prior fiscal year. The increase was a result of volume leverage of fixed costs, the impact of higher margins of recent acquisitions, and favorable margins on consumables and instruments, partially offset by adverse mix. Our Brooks Life Sciences segment reported gross margins of 36.1% for the six months ended March 31, 2018 as compared to 36.3% for the corresponding period of the prior fiscal year. Margins were helped by volume leverage of fixed costs and the impact of higher margins of recent acquisitions, offset by higher costs related to materials and adverse product mix. Cost of revenue for the three and six months ended March 31, 2018 included $0.4 million and $0.8 million, respectively, of charges for amortization related to completed technology as compared to $0.4 million and $0.8 million, respectively, incurred during the corresponding periods of the prior fiscal year. Cost of revenue for the six months ended March 31, 2018 also included $1.2 million of charges related to the sale of inventories obtained in acquisitions to which a step-up in value was applied in purchase accounting. There were no such charges during the three months March 31, 2018. The three and six months ended March 31, 2017 each included $0.3 million of such charges. Excluding the purchasing accounting impact and the amortization of completed technology, margins decreased 0.2 percentage points for the three months ended March 31, 2018 and expanded 0.2 percentage points for the six months ended March 31, 2018, as compared to the corresponding periods of the prior fiscal year.

Research and Development

Research and development expenses were $13.1 million and $26.3 million, respectively, during the three and six months ended March 31, 2018 as compared to $11.3 million and $22.2 million, respectively, during the corresponding periods of the prior fiscal year. The increase of $1.8 million during the second quarter of fiscal year 2018 as compared to the second quarter of fiscal year 2017 reflects higher costs of $1.0 million within the Brooks Semiconductor Solutions Group segment and $0.8 million within the Brooks Life Sciences segment. The increase of $4.1 million during the first half of fiscal year 2018 as compared to the first half of fiscal year 2017 reflects higher costs of $2.3 million within the Brooks Semiconductor Solutions Group segment and $1.8 million within the Brooks Life Sciences segment. Higher research and development expenses during the three and six months ended March 31, 2018 as compared to the three and six months ended March 31, 2017 were primarily attributable to higher employee-related costs and project spending to support new product development and the growth of our business.

Selling, General and Administrative

Selling, general and administrative expenses were $47.2 million and $88.4 million, respectively, during the three and six months ended March 31, 2018 as compared to $37.5 million and $69.5 million, respectively, during the corresponding periods of the prior fiscal year. The increases of $9.7 million and $18.9 million during three and six months ended March 31, 2018 as compared to the corresponding periods of the prior fiscal year were primarily attributable to: (i) higher employee-related costs driven by increased incentive bonuses and higher salaries resulting from hiring additional personnel to support the growth of our business, (ii) higher stock-based compensation expense driven mostly by higher estimates of the expected payout related to the achievement of performance goals for our performance-based awards, (iii) higher operating expenses related to the acquisitions of PBMMI and 4titude, (iv) higher merger-related costs which included costs related to merger, acquisitions and divesture assessments, as well as, costs to execute such transactions and (v) higher professional services costs . The three and six months ended March

31, 2018 also included loss recovery from an insurance claim which partially offset the increases in both periods.

Amortization expense related primarily to customer relationships was $4.6 million and $9.2 million, respectively, during the three and six months ended March 31, 2018 as compared to $3.3 million and $6.4 million, respectively, during the corresponding periods of the prior fiscal year. Merger-related costs were $2.7 million and $3.3 million,

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respectively, during the three and six months ended March 31, 2018 as compared to $0.9 million and $1.2 million, respectively, during the corresponding periods of the prior fiscal year.

Restructuring Charges

Restructuring charges recorded during the three and six months ended March 31, 2018 were nominal. During the three and six months ended March 31, 2017, we recorded restructuring charges of $0.9 million which were related to severance and comprised of: (i) $0.7 million of costs related to the Company-wide restructuring action, (ii) $0.2 million of costs attributable to the Brooks Semiconductor Solutions Group segment related to the integration of Contact Co., Ltd. which we acquired in fiscal year 2015, and (iii) $0.1 million of costs attributable to the Brooks Life Sciences segment related to streamlining the segment's management structure, integrating acquisitions and improving profitability. Please refer to Note 15, “Restructuring and Other Charges” to our consolidated financial statements and “Restructuring Charges” to our consolidated financial statements included under Item 8, “Financial Statements and Supplementary Data” included in our 2017 Annual Report on Form 10-K for further information on these restructuring actions.

Non-Operating Income (Expenses)

Gain on settlement of equity method investment- During the six months ended March 31, 2017, we recognized a gain of $1.8 million on the settlement of the equity method investment in BioCision which was included as a part of the non-cash consideration for an acquisition of Cool Lab in November 2016. Please refer to Note 3, “Acquisitions” to our consolidated financial statements included in our 2017 Annual Report on Form 10-K for further information on this transaction.

Interest expense- During the three and six months ended March 31, 2018, we recorded interest expense of $2.2 million and $4.4 million, respectively, which was primarily related to the term loan originated on October 4, 2017. Please refer to the “Liquidity and Capital Resources” section below for further information on the term loan.

Other expenses, net. During each of the three month periods ended March 31, 2018 and 2017, we recorded other expenses, net, of $0.3 million. During the six months ended March 31, 2018 and 2017 we recorded other expenses, net of $1.9 million and $0.5 million, respectively. The increase of $1.4 million was primarily attributable to an increase in foreign currency exchange losses during the six months ended March 31, 2018 of $1.5 million. Please refer to Item 3. “Quantitative and Qualitative Disclosures About Market Risk – Currency Rate Exposure” in this Quarterly Report on Form 10-Q for additional information about these currency exchange losses.

Income Tax Provision

We recorded an income tax benefit of $43.9 million and $41.0 million, respectively, during the three and six months ended March 31, 2018. The tax benefit recorded during each period was primarily driven by a discrete benefit due to the reversal of a valuation allowance against U.S. net deferred tax assets during the three months ended March 31, 2018 in the amount of $46.2 million. The tax benefit for the six months ended March 31, 2018 included $0.7 million of tax benefits related to the re-measurement of net U.S. deferred tax liabilities to account for the reduced 21 percent statutory federal income tax rate. This benefit for the three and six months ended March 31, 2018 was partially offset by the tax provisions related to foreign income.

We recorded an income tax provision of $3.4 million and $6.2 million, respectively, during the three and six months ended March 31, 2017. The provision recorded during each period was primarily driven by foreign income. Tax provision during the six months ended March 31, 2017 was partially offset by $0.7 million of tax benefits related to the reduction of reserves for unrecognized tax benefits resulting from the expiration of statutes of limitations.

We evaluate the realizability of our deferred tax assets by tax-paying component and assess the need for a valuation allowance on a quarterly basis, considering the weight of both positive and negative evidence in making the assessment. We evaluate the profitability of each tax-paying component on a historic cumulative basis and forward looking basis, tax-planning strategies and the length of credit and loss carryforward periods, among other factors, in the course of

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performing this analysis. As of March 31, 2018, we have concluded that it is more likely than not that a substantial portion of our U.S. deferred tax assets will be realized with the exception of certain state tax carryforwards. We considered strong positive evidence of historical cumulative profitability and projected future taxable income. In the quarter ended March 31, 2018, we reached a significant level of cumulative profitability in the U.S. coupled with an improved future outlook of U.S. earnings in both segments.

During the first quarter of fiscal year 2018, the Tax Cuts and Jobs Act ("Tax Reform") was enacted in the U.S., making significant tax law changes affecting the Company. The SEC has issued Staff Accounting Bulletin 118 ("SAB 118"), which has provided guidance for companies that have not completed the accounting for the income tax effects of Tax Reform. Under SAB 118, a company may report provisional amounts based on reasonable estimates where the accounting is incomplete. These amounts are subject to adjustments during a measurement period of up to one year beginning in the reporting period of the enactment date.

Upon the enactment of Tax Reform, we are subject to a toll charge in the U.S. on previously untaxed accumulated foreign earnings. The toll charge is treated as an inclusion of the company's accumulated foreign earnings in U.S. taxable income during the tax year ended September 30, 2018. Any taxes due associated with the toll charge will be payable over an eight year period. We have estimated that our accumulated foreign earnings are $120.0 million which is a provisional amount subject to the measurement period described in Staff Accounting Bulletin 118. There are still incomplete components related to the accumulated foreign earnings calculations for older tax years that require additional time to complete the calculations. We also have a history of foreign mergers and acquisitions and proper determination of the impact on the accumulated earnings is complex. We have estimated a $5.2 million toll charge associated with the taxable foreign earnings, net of foreign tax credits associated with the earnings subject to the toll charge. We did not record any provision for currently estimated tax associated with the toll charge as sufficient previously un-benefited tax attributes with valuation allowances existed to offset the resulting tax during the quarter of enactment of the tax law, however, the toll charge has reduced the impact of the valuation allowance reversal.

Equity in Earnings of Equity Method Investments

During the three and six months ended March 31, 2018, we recorded income of $1.4 million and $3.6 million, respectively, from our equity method investments as compared to $2.8 million and $4.7 million, respectively, during the corresponding periods of the prior fiscal year. The decrease of $1.4 million and $1.1 million, respectively during the three and six months ended March 31, 2018 compared to the same periods in the prior fiscal year was primarily attributable to lower income generated from ULVAC Cryogenics, Inc., or UCI, during both the second quarter and first six months of fiscal year 2018 as compared to the corresponding period of the prior fiscal year.

During the six months ended March 31, 2017, we incurred losses of $0.5 million from our investment in BioCision which was settled during the first quarter of fiscal year 2017 as a part of the non-cash consideration for the acquisition of Cool Lab in November 2016. We have traditionally recorded the income and losses related to the equity method investment in BioCision one quarter in arrears. During the six months ended March 31, 2017, we recorded two additional months of activity in the carrying value of the investment as a result of its settlement. We deemed the amount of $0.2 million related to two additional months of activity to be insignificant. Please refer to Note 3, "Acquisitions" to our consolidated financial statements and "Equity in Earnings of Equity Method Investments" section of Item 7, "Management Discussion and Analysis of Financial Condition and Results of Operations" included in our 2017 Annual Report on Form 10-K for further information on this transaction.

LIQUIDITY AND CAPITAL RESOURCES

A considerable portion of our revenue is dependent on the demand for semiconductor capital equipment which historically has experienced periodic downturns. We believe that we have adequate resources to fund our currently

planned working capital and capital expenditure requirements, as well as to service debt and pay interest for the next twelve months. The cyclical nature of our served markets and uncertainty in the current global economic environment make it difficult for us to predict longer-term liquidity requirements with sufficient certainty. We may be unable to obtain any required additional financing on terms favorable to us, if at all. If adequate funds are not available to us on acceptable terms or otherwise, we may be unable to successfully develop or enhance products and services, respond to

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competitive pressure or take advantage of acquisition opportunities, any of which could have a material adverse effect on our business, financial condition and operating results.

Our cash balances are held in numerous locations throughout the world, with substantial majority of those amounts located in the United States. As of March 31, 2018, we had cash, cash equivalents and marketable securities of $245.2 million, of which $96.8 million was held outside of the United States. If these funds are needed for U.S. operations, we would be required to accrue withholding tax liabilities to repatriate these funds. As a result of recent changes in U.S. tax legislation, any repatriation in the future would not result in U.S. federal income tax. Our intent is to permanently reinvest these funds outside of the United States and our current operating plans do not demonstrate a need to repatriate these funds for our U.S. operations. At March 31, 2018 and September 30, 2017, we had marketable securities of $51.2 million and $2.7 million, respectively, which were held in the United States. Our marketable securities are generally readily convertible to cash without an adverse impact. We believe that our current cash balance, marketable securities portfolio, access to the revolving line of credit, as well as to debt and capital markets along with cash flows from operations will satisfy working capital, financing activities, debt service and capital expenditure requirements for the next twelve months.

On October 4, 2017, we entered into a $200.0 million Senior Secured Term Loan Facility, or the term loan, with Morgan Stanley Senior Funding, Inc., JPMorgan Chase Bank, N.A. and Wells Fargo Securities, LLC, or collectively, the lenders. The term loan was issued at $197.6 million, or 98.8% of its par value, resulting in a discount of $2.4 million, or 1.2%, which represented loan origination fees paid at the closing. We incurred additional deferred financing costs of $0.4 million during the six months ended March 31, 2018. At March 31, 2018, the outstanding term loan principal balance was $199.5 million, net of unamortized deferred financing costs of $2.6 million. The loan proceeds will be used for acquisitions and general corporate purposes. As of March 31, 2018, we had approximately $47.0 million available for borrowing under the line of credit. There were no amounts outstanding pursuant to the line of credit as of March 31, 2018 and September 30, 2017. The amount of funds available for borrowing under the line of credit arrangement may fluctuate each period based on our borrowing base availability. Please refer to the “Capital Resources” section below for further information on the term loan and the line of credit.

Overview of Cash Flows and Liquidity

Our cash, cash equivalents and marketable securities as of March 31, 2018 and September 30, 2017 consist of the following (in thousands):

	March 31, 2018	September 30, 2017
Cash and cash equivalents	$ 194,016	$ 101,622
Short-term marketable securities	40,655	28
Long-term marketable securities	10,508	2,642
	$ 245,179	$ 104,292

Six Months Ended March 31, 2018 Compared to Six Months Ended March 31, 2017

Overview

Cash and cash equivalents and marketable securities were $245.2 million at March 31, 2018 as compared to $104.3 million at September 30, 2017. The increase in cash and cash equivalents and marketable securities of $140.9 million was primarily attributable to cash inflows of $197.6 million related to proceeds from the term loan and cash inflows of $23.4 million generated from our operating activities, partially offset by cash outflows related to acquisitions of $65.0

million, dividend payments of $14.1 million made to our shareholders during the first half of fiscal year 2018, as well as capital expenditures of $5.7 million.

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Operating Activities

Cash flows from operating activities can fluctuate significantly from period to period as earnings, working capital needs and the timing of payments for income taxes, restructuring activities and other operating charges impact reported cash flows.

Cash flows provided by operating activities were $23.4 million during the six months ended March 31, 2018, comprised primarily of earnings of $57.6 million, including net income of $83.5 million and the impact of non-cash related charges of $25.9 million. Partially offsetting these items were the uses of cash of $34.2 million related to the changes in our operating assets and liabilities. The changes in operating assets and liabilities that resulted in a use of cash consisted primarily of an increase in accounts receivable as a result of higher revenue, an increase in inventory levels to support the growth of our business and a decrease in accrued compensation and tax withholdings as a result of year-end cash incentive bonus payments. These uses of cash were partially offset by sources of cash related primarily to increases in accounts payable.

Cash flows provided by operating activities were $43.3 million during the six months ended March 31, 2017 and comprised primarily of earnings of $42.2 million, including net income of $14.0 million and the impact of non-cash related charges of $14.3 million. Partially offsetting these items were sources of cash of $1.1 million related to the changes in our operating assets and liabilities. The changes in operating assets and liabilities that resulted in a use of cash consisted primarily of an increase in accounts receivable as a result of higher revenue, an increase in inventory levels to support the growth of our business and a decrease in accrued compensation and tax withholdings as a result of year-end cash incentive bonus payments. These uses of cash were partially offset by sources of cash related primarily to increases in accounts payable.

Investing Activities

Cash flows from investing activities consist primarily of cash used for acquisitions, capital expenditures and purchases of marketable securities, as well as cash proceeds generated from sales and maturities of marketable securities.

Cash used in investing activities was $119.8 million during the six months ended March 31, 2018 as compared to $10.7 million during the corresponding period of the prior fiscal year. Cash used in investing activities of $119.8 million during the first half of fiscal year 2018 included cash payments of $65.0 million for acquisitions, $49.6 million for the purchases of marketable securities and $5.7 million of capital expenditures.

Cash used in investing activities of $10.7 million during the six months ended March 31, 2017 included a cash payment of $5.3 million for the acquisition of CoolLab and $5.2 million of capital expenditures.

Capital expenditures are made primarily for increasing capacity, replacing equipment, supporting new product development and improving information technology infrastructure. Capital expenditures were $5.7 million during the first half of fiscal year 2018 as compared to $5.2 million during the corresponding period of the prior fiscal year.

Financing Activities

Cash provided by financing activities was $184.0 million during the six months ended March 31, 2018 as compared to cash of $13.0 million used in financing activities during the corresponding period of the prior fiscal year. Cash provided by financing activities during the first half of fiscal year 2018 included cash inflows of $197.6 million related to proceeds from the term loan originated in October 2017, partially offset by cash dividend payments of $14.1 million and $0.5 million related to principal payments on the term loan.

Cash used in financing activities was $13.0 million during the first half of fiscal year 2017 and related primarily to cash dividend payments.

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Capital Resources

Senior Secured Term Loan Facility

On October 4, 2017, we entered into the $200.0 million term loan with the lenders. The term loan was issued at $197.6 million, or 98.8% of its par value, resulting in a discount of $2.4 million, or 1.2%, which represented loan origination fees paid at the closing. We incurred additional deferred financing costs of $0.4 million during the six months ended March 31, 2018. The loan proceeds are used for acquisitions and general corporate purposes. Please refer to Note 8, "Debt" in the Notes to the unaudited consolidated financial statements included in Item 1 "Consolidated Financial Statements" on this Form 10-Q for further information on the terms and conditions of the term loan.

At March 31, 2018, the outstanding term loan principal balance was $199.5 million, excluding unamortized deferred financing costs of $2.6 million. The term loan matures and becomes fully payable on October 4, 2024. Installment principal payments equal to 0.25% of the initial principal amount of the term loan are payable on the last day of each quarter, with any remaining principal amount becoming due and payable on the maturity date. During the six months ended March 31, 2018, we made principal payments of $0.5 million under the term loan. Subject to certain conditions stated in the term loan agreement, we may redeem the term loan at any time at our option without a significant premium or penalty, except for a repricing transaction, as defined in the term loan agreement. We would also be required to redeem the term loan at the principal amount then outstanding upon occurrence of certain events, as set forth in the term loan agreement. Please refer to Note 8, "Debt" in the Notes to the unaudited consolidated financial statements included in Item 1 "Consolidated Financial Statements" on this Form 10-Q for further information on future minimum principal payment obligations under the term loan as of March 31, 2018.

Borrowings under the term loan bear variable interest rates, at our option, based on either LIBOR, the federal funds effective rate, as well as the prime rate plus an applicable percentage. As a result, we may experience exposure to interest rate risk due to the potential volatility associated with the variable interest rates on the term loan. If rates increase, we may be subject to higher costs of servicing the loan which could reduce our profitability and cash flows. During the six months ended March 31, 2018, the weighted average stated interest rate on the term loan was 4% which remained in effect until April 4, 2018. During the six months ended March 31, 2018, we incurred cash interest expense of $4.0 million on the term loan. Our debt service requirements are expected to be funded through our existing sources of liquidity and operating cash flows.

The term loan agreement contains certain customary representations and warranties, covenants and events of default. As of March 31, 2018, we were in compliance with all covenants and conditions under the term loan agreement.

Line of Credit Facility

We maintain a revolving line of credit with Wells Fargo Bank, N.A. and JPMorgan Chase Bank, N.A that provides for revolving credit financing of up to $75.0 million, subject to borrowing base availability, as defined in the line of credit agreement. The line of credit matures on October 4, 2022. The proceeds from the line of credit are available for permitted acquisitions and general corporate purposes. Please refer to Note 7, "Line of Credit" in the Notes to the unaudited consolidated financial statements included in Item 1 "Consolidated Financial Statements" on this Form 10-Q for further information on the terms and conditions of the line of credit.

As of March 31, 2018, we had approximately $47.0 million available for borrowing under the line of credit. There were no amounts outstanding pursuant to the line of credit as of March 31, 2018 and September 30, 2017. The amount of funds available for borrowing under the line of credit arrangement may fluctuate each period based on our borrowing base availability. The line of credit contains certain customary representations and warranties, a financial

covenant, affirmative and negative covenants, as well as events of default. We were in compliance with the line of credit covenants as of March 31, 2018 and September 30, 2017. We believe we will be able to generate sufficient cash in the United States and foreign jurisdictions to fund future operating costs. We secured the revolving line of credit as an additional assurance for maintaining liquidity in the United States during potentially severe downturns of the cyclical semiconductor market, as well as for strategic investments and acquisitions.

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Shelf Registration Statement

On July 27, 2016, we filed a registration statement on Form S-3 with the SEC to sell securities, including common stock, preferred stock, warrants, debt securities, depository shares, purchase contracts and purchase units in amounts to be determined at the time of an offering. Any such offering, if it does occur, may happen in one or more transactions. The specific terms of any securities to be sold will be described in supplemental filings with the SEC. This registration statement will expire on July 27, 2019.

Dividends

On April 30, 2018, our Board of Directors approved a cash dividend of $0.10 per share of our common stock. The total dividend of approximately $7.0 million will be paid on June 22, 2018 to shareholders of record at the close of business on June 1, 2018. Dividends are declared at the discretion of our Board of Directors and depend on actual cash flow from operations, our financial condition, debt service and capital requirements, as well as any other factors our Board of Directors may consider relevant. We intend to pay quarterly cash dividends in the future; however, the amount and timing of these dividends may be impacted by the cyclical nature of certain markets we serve. We may reduce, delay or cancel a quarterly cash dividend based on the severity of a cyclical downturn.

Share Repurchase Program

On September 29, 2015, our Board of Directors approved a share repurchase program for up to $50.0 million worth of our common stock. The timing and amount of any shares repurchased will be based on market and business conditions, legal requirements and other factors and may be commenced or suspended at any time at our discretion. There were no shares repurchased under this program during the six months ended March 31, 2018.

Contractual Obligations and Requirements

Our inventory purchase commitments were $163.7 million and $122.0 million, respectively, at March 31, 2018 and September 30, 2017. Except as disclosed below regarding letters of credit, there have been no material changes to our contractual obligations set forth under the heading “Management’s Discussion and Analysis of Financial Condition and Results of Operations - Liquidity and Capital Resources” in our 2017 Annual Report on Form 10 K.

At March 31, 2018, we had approximately $2.6 million of letters of credit outstanding related primarily to customer advances and other performance obligations. These arrangements guarantee the refund of advance payments received from our customers in the event that the product is not delivered or warranty obligations are not fulfilled in accordance with the contract terms. These obligations could be called by the beneficiaries at any time before the expiration date of the particular letter of credit if we fail to meet certain contractual requirements. None of these obligations were called during the six months ended March 31, 2018, and we currently do not anticipate any of these obligations to be called in the near future.

Off-Balance Sheet Arrangements

As of March 31, 2018, we did not have any off-balance sheet arrangements, as defined in Item 303(a)(4)(ii) of SEC Regulation S-K.

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Item 3. Quantitative and Qualitative Disclosures About Market Risk

We are exposed to a variety of market risks, including fluctuations in foreign currency exchange rates and changes in interest rates affecting interest payments on our term loan and investment return on our cash, cash equivalents and marketable securities.

Interest Rate Exposure

Our term loan bears variable interest rates which subjects us to interest rate risk. Our primary interest rate risk exposure results from changes in the short-term LIBOR rate, the federal funds effective rate and the prime rate. As of March 31, 2018, the weighted average stated interest rate on the term loan was 4%. At March 31, 2018, the outstanding term loan principal balance was $199.5 million, excluding unamortized deferred financing costs of $2.6 million. During the six months ended March 31, 2018, we incurred interest expense of $2.0 million on the term loan. A hypothetical 100 basis point change in interest rates would result in a $0.5 million change in interest expense incurred during the six months ended March 31, 2018.

Our cash and cash equivalents consist principally of money market securities that are short-term in nature. Our short-term and long-term investments consist mostly of highly rated corporate debt securities, U.S. Treasury securities, and obligations of U.S. Government Agencies and other municipalities. At March 31, 2018, $39.7 million of marketable securities were in net unrealized loss positions which were included in "Accumulated Other Comprehensive Income" in the unaudited Consolidated Balance Sheets included elsewhere in this Quarterly Report on Form 10 Q. A hypothetical 100 basis point change in interest rates would result in $0.3 million increase in interest income earned during the six months ended March 31, 2018.

Currency Rate Exposure

We have transactions and balances denominated in currencies other than the U.S. dollar. Most of these transactions or balances are denominated in Euros, British Pounds and a variety of Asian currencies. Sales in currencies other than the U.S. dollar were approximately 29% and 38% of our total sales, respectively, during the six months ended March 31, 2018 and 2017. These sales were made primarily by our foreign subsidiaries, which have cost structures that substantially align with the currency of sale.

In the normal course of our business, we have liquid assets denominated in non-functional currencies which include cash, short-term advances between our legal entities and accounts receivable which are subject to foreign currency exposure. Such balances were approximately $150.5 million and $51.6 million, respectively, at March 31, 2018 and September 30, 2017, and related to the Euro, British Pound and a variety of Asian currencies. We mitigate the impact of potential currency translation losses on these short-term intercompany advances by the timely settlement of each transaction, generally within 30 days. We also utilize forward contracts to mitigate our exposures to currency movement. We incurred foreign currency losses of $2.5 million and $1.0 million, respectively, during the six months ended March 31, 2018 and 2017, which related to the currency fluctuation on these balances between the time the transaction occurred and the ultimate settlement of the transaction. A hypothetical 10% change in foreign exchange rates at March 31, 2018 and 2017 would result in an approximate change of $2.1 million and $0.5 million, respectively, in our net income during the six months ended March 31, 2018 and 2017.

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Item 4. Controls and Procedures

Evaluation of Disclosure Controls and Procedures. As of the end of the period covered by this report, and pursuant to Rules 13a 15(e) and 15d 15(e) under the Securities Exchange Act of 1934, the Company's management, including our chief executive officer and chief financial officer, has concluded that our disclosure controls and procedures are effective.

Change in Internal Controls. There were no changes in our internal control over financial reporting that occurred during our most recent fiscal quarter that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

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PART II. OTHER INFORMATION

Item 1. Legal Proceedings

We are subject to various legal proceedings, both asserted and unasserted, that arise in the ordinary course of business. We cannot predict the ultimate outcome of such legal proceedings or in certain instances provide reasonable ranges of potential losses. However, as of the date of this Quarterly Report on Form 10 Q, we believe that none of these claims will have a material adverse effect on our consolidated financial condition or results of operations. In the event of unexpected subsequent developments and given the inherent unpredictability of these legal proceedings, there can be no assurance that our assessment of any claim will reflect the ultimate outcome and an adverse outcome in certain matters could, from time-to-time, have a material adverse effect on our consolidated financial condition or results of operations in particular quarterly or annual periods.

Item 1A. Risk Factors

You should carefully review and consider the information regarding certain factors that could materially affect our business, consolidated financial condition or results of operations set forth under Item 1A. Risk Factors in our 2017 Annual Report on Form 10 K. There have been no material changes from the risk factors disclosed in our 2017 Annual Report on Form 10 K. We may disclose changes to risk factors or additional factors from time to time in our future filings with the SEC.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

Share Repurchase Program

On September 29, 2015, our Board of Directors approved a share repurchase program for up to $50 million worth of our common stock. The timing and amount of any shares repurchased are based on market and business conditions, legal requirements and other factors and may be commenced or suspended at any time at our discretion. There were no shares repurchased under this program during the six months ended March 31, 2018.

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Item 6. Exhibits

The following exhibits are included herein:

Exhibit No.	Description
31.01	Certification of the Company's Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.02	Certification of the Company's Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32	Certification of the Company's Chief Executive Officer and Chief Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101	The following material from the Company's Quarterly Report on Form 10 Q, for the quarter ended March 31, 2018, formatted in XBRL (eXtensible Business Reporting Language): (i) the unaudited Consolidated Balance Sheets; (ii) the unaudited Consolidated Statements of Operations; (iii) the unaudited Consolidated Statements of Comprehensive Income; (iv) the unaudited Consolidated Statements of Cash Flows; and (v) the Notes to the unaudited Consolidated Financial Statements.

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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.

BROOKS AUTOMATION, INC.

Date: May 2, 2018 /s/ Lindon G. Robertson
Lindon G. Robertson
Executive Vice President and Chief Financial Officer
(Principal Financial Officer)

Date: May 2, 2018 /s/ David Pietrantoni
David Pietrantoni
Vice President-Finance and Corporate Controller
(Principal Accounting Officer)