

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

FORM 10-Q

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

For the quarterly period ended March 31, 2020

or

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

For the transition period from _____ to _____

Commission file number 1-4347

ROGERS CORPORATION

(Exact Name of Registrant as Specified in its Charter)

Massachusetts

(State or Other Jurisdiction of
Incorporation or Organization)

06-0513860

(I. R. S. Employer Identification No.)

2225 W. Chandler Blvd., Chandler, Arizona 85224-6155

(Address of Principal Executive Offices) (Zip Code)

Registrant's telephone number, including area code: **(480) 917-6000**

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value \$1.00 per share	ROG	New York Stock Exchange

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

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, 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	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Smaller reporting company	<input type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

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

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

The number of shares outstanding of the registrant's capital stock as of April 24, 2020 was 18,662,086.

ROGERS CORPORATION
FORM 10-Q

March 31, 2020

TABLE OF CONTENTS

Part I – Financial Information

<u>Item 1.</u>	<u>Condensed Consolidated Financial Statements (Unaudited):</u>	
	<u>Condensed Consolidated Statements of Operations</u>	<u>3</u>
	<u>Condensed Consolidated Statements of Comprehensive Income (Loss)</u>	<u>4</u>
	<u>Condensed Consolidated Statements of Financial Position</u>	<u>5</u>
	<u>Condensed Consolidated Statements of Cash Flows</u>	<u>6</u>
	<u>Condensed Consolidated Statements of Shareholders' Equity</u>	<u>7</u>
	<u>Notes to Condensed Consolidated Financial Statements</u>	<u>8</u>
<u>Item 2.</u>	<u>Management's Discussion and Analysis of Results of Operations and Financial Position</u>	<u>22</u>
<u>Item 3.</u>	<u>Quantitative and Qualitative Disclosures About Market Risk</u>	<u>31</u>
<u>Item 4.</u>	<u>Controls and Procedures</u>	<u>31</u>

Part II – Other Information

<u>Item 1.</u>	<u>Legal Proceedings</u>	<u>32</u>
<u>Item 1A.</u>	<u>Risk Factors</u>	<u>32</u>
<u>Item 6.</u>	<u>Exhibits</u>	<u>32</u>
	<u>Signatures</u>	<u>33</u>

Forward-Looking Statements

This Quarterly Report on Form 10-Q contains “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. Refer to “Forward-Looking Statements” in Item 2, Management’s Discussion and Analysis of Results of Operations and Financial Position for additional information.

Part I – Financial Information

Item 1. Financial Statements

ROGERS CORPORATION

CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS

(Unaudited)

(Dollars and shares in thousands, except per share amounts)

	Three Months Ended	
	March 31, 2020	March 31, 2019
Net sales	\$ 198,810	\$ 239,798
Cost of sales	133,180	154,404
Gross margin	65,630	85,394
Selling, general and administrative expenses	40,330	43,252
Research and development expenses	7,805	7,609
Restructuring and impairment charges	—	822
Other operating expense, net	20	911
Operating income	17,475	32,800
Equity income in unconsolidated joint ventures	1,218	837
Other (expense) income, net	(786)	1,404
Interest expense, net	(1,207)	(1,938)
Income before income tax expense	16,700	33,103
Income tax expense	3,441	4,704
Net income	\$ 13,259	\$ 28,399
Basic earnings per share	\$ 0.71	\$ 1.53
Diluted earnings per share	\$ 0.71	\$ 1.52
Shares used in computing:		
Basic earnings per share	18,669	18,557
Diluted earnings per share	18,691	18,692

The accompanying notes are an integral part of the condensed consolidated financial statements.

ROGERS CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

(Unaudited)

(Dollars in thousands)

	Three Months Ended	
	March 31, 2020	March 31, 2019
Net income	\$ 13,259	\$ 28,399
Foreign currency translation adjustment	(6,894)	(4,257)
Pension and other postretirement benefits:		
Amortization of loss, net of tax (Note 4)	66	156
Derivative instrument designated as cash flow hedge:		
Change in unrealized loss before reclassifications, net of tax (Note 4)	(1,249)	(394)
Unrealized gain reclassified into earnings, net of tax (Note 4)	(67)	(94)
Other comprehensive loss	(8,144)	(4,589)
Comprehensive income	\$ 5,115	\$ 23,810

The accompanying notes are an integral part of the condensed consolidated financial statements.

ROGERS CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

(Unaudited)

(Dollars and shares in thousands, except par value)

	<u>March 31, 2020</u>	<u>December 31, 2019</u>
Assets		
Current assets		
Cash and cash equivalents	\$ 308,277	\$ 166,849
Accounts receivable, less allowance for doubtful accounts of \$1,726 and \$1,691	144,202	122,285
Contract assets	20,178	22,455
Inventories	127,517	132,859
Prepaid income taxes	4,063	4,524
Asbestos-related insurance receivables, current portion	4,292	4,292
Other current assets	12,764	10,838
Total current assets	<u>621,293</u>	464,102
Property, plant and equipment, net of accumulated depreciation of \$355,595 and \$341,119	260,922	260,246
Investments in unconsolidated joint ventures	15,743	16,461
Deferred income taxes	18,328	17,117
Goodwill	260,870	262,930
Other intangible assets, net of amortization	155,004	158,947
Pension assets	12,954	12,790
Asbestos-related insurance receivables, non-current portion	74,024	74,024
Other long-term assets	7,278	6,564
Total assets	<u>\$ 1,426,416</u>	<u>\$ 1,273,181</u>
Liabilities and Shareholders' Equity		
Current liabilities		
Accounts payable	\$ 39,707	\$ 33,019
Accrued employee benefits and compensation	26,464	29,678
Accrued income taxes payable	6,626	10,649
Asbestos-related liabilities, current portion	5,007	5,007
Other accrued liabilities	19,535	21,872
Total current liabilities	<u>97,339</u>	100,225
Borrowings under revolving credit facility	273,000	123,000
Pension and other postretirement benefits liabilities	1,596	1,567
Asbestos-related liabilities, non-current portion	80,767	80,873
Non-current income tax	11,320	10,423
Deferred income taxes	9,115	9,220
Other long-term liabilities	15,470	13,973
Commitments and contingencies (Note 10 and Note 12)		
Shareholders' equity		
Capital stock - \$1 par value; 50,000 authorized shares; 18,662 and 18,577 shares issued and outstanding	18,662	18,577
Additional paid-in capital	137,235	138,526
Retained earnings	836,961	823,702
Accumulated other comprehensive loss	(55,049)	(46,905)
Total shareholders' equity	<u>937,809</u>	933,900
Total liabilities and shareholders' equity	<u>\$ 1,426,416</u>	<u>\$ 1,273,181</u>

The accompanying notes are an integral part of the condensed consolidated financial statements.

ROGERS CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS

(Unaudited)

(Dollars in thousands)

	Three Months Ended	
	March 31, 2020	March 31, 2019
Operating Activities:		
Net income	\$ 13,259	\$ 28,399
Adjustments to reconcile net income to cash provided by operating activities:		
Depreciation and amortization	10,926	12,984
Equity compensation expense	3,127	2,476
Deferred income taxes	(851)	(2,505)
Equity in undistributed income of unconsolidated joint ventures	(1,218)	(837)
Dividends received from unconsolidated joint ventures	1,785	1,741
Pension and other postretirement benefits	(50)	(174)
Loss on sale or disposal of property, plant and equipment	20	273
Provision (benefit) for doubtful accounts	128	(158)
Changes in assets and liabilities:		
Accounts receivable	(22,981)	(16,948)
Contract assets	2,276	(4,588)
Inventories	4,095	(1,550)
Pension and postretirement benefit contributions	(64)	(6)
Other current assets	(1,558)	(2,605)
Accounts payable and other accrued expenses	(733)	(327)
Other, net	472	885
Net cash provided by operating activities	<u>8,633</u>	<u>17,060</u>
Investing Activities:		
Capital expenditures	(11,160)	(12,647)
Proceeds from the sale of property, plant and equipment, net	—	7
Return of capital from unconsolidated joint ventures	—	2,625
Net cash used in investing activities	<u>(11,160)</u>	<u>(10,015)</u>
Financing Activities:		
Proceeds from borrowings under revolving credit facility	150,000	—
Repayment of debt principal and finance lease obligations	(96)	(5,098)
Payments of taxes related to net share settlement of equity awards	(4,997)	(7,140)
Proceeds from the exercise of stock options, net	—	285
Proceeds from issuance of shares to employee stock purchase plan	664	587
Net cash provided by (used in) financing activities	<u>145,571</u>	<u>(11,366)</u>
Effect of exchange rate fluctuations on cash	<u>(1,616)</u>	<u>(1,343)</u>
Net increase (decrease) in cash and cash equivalents	141,428	(5,664)
Cash and cash equivalents at beginning of period	166,849	167,738
Cash and cash equivalents at end of period	<u>\$ 308,277</u>	<u>\$ 162,074</u>
Supplemental Disclosures:		
Accrued capital additions	\$ 2,525	\$ 2,068
Cash paid during the year for:		
Interest, net of amounts capitalized	\$ 1,386	\$ 2,161
Income taxes	\$ 13,218	\$ 2,014

The accompanying notes are an integral part of the condensed consolidated financial statements.

ROGERS CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY

(Unaudited)

(Dollars and shares in thousands)

	Three Months Ended	
	March 31, 2020	March 31, 2019
Capital Stock		
Balance, beginning of period	\$ 18,577	\$ 18,395
Shares issued for vested restricted stock units, net of shares withheld for taxes	79	133
Stock options exercised	—	8
Shares issued for employee stock purchase plan	6	7
Shares issued to directors	—	3
Balance, end of period	<u>18,662</u>	<u>18,546</u>
Additional Paid-In Capital		
Balance, beginning of period	138,526	132,360
Shares issued for vested restricted stock units, net of shares withheld for taxes	(5,076)	(7,273)
Stock options exercised	—	277
Shares issued for employee stock purchase plan	658	580
Shares issued to directors	—	(3)
Equity compensation expense	3,127	2,476
Balance, end of period	<u>137,235</u>	<u>128,417</u>
Retained Earnings		
Balance, beginning of period	823,702	776,403
Net income	13,259	28,399
Cumulative-effect adjustment for lease accounting	—	(20)
Balance, end of period	<u>836,961</u>	<u>804,782</u>
Accumulated Other Comprehensive Loss		
Balance, beginning of period	(46,905)	(78,834)
Other comprehensive loss	(8,144)	(4,589)
Balance, end of period	<u>(55,049)</u>	<u>(83,423)</u>
Total Shareholders' Equity	<u>\$ 937,809</u>	<u>\$ 868,322</u>

The accompanying notes are an integral part of the condensed consolidated financial statements.

ROGERS CORPORATION
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

Note 1 – Basis of Presentation

As used herein, the terms “Company,” “Rogers,” “we,” “us,” “our” and similar terms mean Rogers Corporation and its consolidated subsidiaries, unless the context indicates otherwise.

The accompanying unaudited condensed consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States (GAAP) for interim financial information. Accordingly, these statements do not include all of the information and footnotes required by GAAP for complete financial statements. In our opinion, the accompanying condensed consolidated financial statements include all normal recurring adjustments necessary for their fair presentation in accordance with GAAP. All significant intercompany balances and transactions have been eliminated.

Interim results are not necessarily indicative of results for a full year. For further information regarding our accounting policies, refer to the audited consolidated financial statements and footnotes thereto included in our Annual Report on Form 10-K for the year ended December 31, 2019.

We assessed certain accounting matters that generally require consideration of forecasted financial information in context with the information reasonably available to us and the unknown future impacts COVID-19 as of March 31, 2020 and through the date of this report. The accounting matters assessed included, but were not limited to, our allowance for doubtful accounts, equity compensation, the carrying value of our goodwill, other intangible assets as well as other long-lived assets, financial assets, valuation allowances for tax assets and revenue recognition. While there was not a material impact to our consolidated financial statements as of and for the three months ended March 31, 2020, resulting from our assessments, our future assessment of our current expectations at that time of the magnitude and duration of COVID-19, as well as other factors, could result in material impacts to our consolidated financial statements in future reporting periods.

Note 2 – Fair Value Measurements

The accounting guidance for fair value measurements establishes a three-tier fair value hierarchy, which prioritizes the inputs used in measuring fair value:

- Level 1 – Quoted prices in active markets for identical assets or liabilities.
- Level 2 – Inputs other than Level 1 that are observable, either directly or indirectly, such as 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 – Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

From time to time we enter into various instruments that require fair value measurement, including foreign currency contracts, copper derivative contracts and interest rate swaps. Derivative instruments measured at fair value on a recurring basis, categorized by the level of inputs used in the valuation, were as follows:

Derivative Instruments at Fair Value as of March 31, 2020				
<i>(Dollars in thousands)</i>	Level 1	Level 2	Level 3	Total ⁽¹⁾
Foreign currency contracts	\$ —	\$ (120)	\$ —	\$ (120)
Copper derivative contracts	\$ —	\$ 341	\$ —	\$ 341
Interest rate swap contract	\$ —	\$ (2,944)	\$ —	\$ (2,944)

Derivative Instruments at Fair Value as of December 31, 2019				
<i>(Dollars in thousands)</i>	Level 1	Level 2	Level 3	Total ⁽¹⁾
Foreign currency contracts	\$ —	\$ (6)	\$ —	\$ (6)
Copper derivative contracts	\$ —	\$ 1,147	\$ —	\$ 1,147
Interest rate swap contract	\$ —	\$ (1,254)	\$ —	\$ (1,254)

⁽¹⁾ All balances were recorded in the “Other current assets” or “Other accrued liabilities” line items in the condensed consolidated statements of financial position, except the 2020 and 2019 interest rate swap balance, which was recorded in the “Other long-term liabilities” line item.

For additional information on derivative contracts, refer to “Note 3 – Hedging Transactions and Derivative Financial Instruments.”

Note 3 – Hedging Transactions and Derivative Financial Instruments

We are exposed to certain risks related to our ongoing business operations. The primary risks being managed through our use of derivative instruments are foreign currency exchange rate risk, commodity pricing risk (primarily related to copper) and interest rate risk. We do not use derivative instruments for trading or speculative purposes. The valuation of derivative contracts used to manage each of these risks is described below:

- *Foreign Currency* – The fair value of any foreign currency option derivative is based upon valuation models applied to current market information such as strike price, spot rate, maturity date and volatility, and by reference to market values resulting from an over-the-counter market or obtaining market data for similar instruments with similar characteristics.
- *Commodity* – The fair value of copper derivatives is computed using a combination of intrinsic and time value valuation models, which are collectively a function of five primary variables: price of the underlying instrument, time to expiration, strike price, interest rate and volatility. The intrinsic valuation model reflects the difference between the strike price of the underlying copper derivative instrument and the current prevailing copper prices in an over-the-counter market at period end. The time value valuation model incorporates changes in the price of the underlying copper derivative instrument, the time value of money, the underlying copper derivative instrument’s strike price and the remaining time to the underlying copper derivative instrument’s expiration date from the period end date.
- *Interest Rates* – The fair value of interest rate swap instruments is derived by comparing the present value of the interest rate forward curve against the present value of the swap rate, relative to the notional amount of the swap. The net value represents the estimated amount we would receive or pay to terminate the agreements. Settlement amounts for an “in the money” swap would be adjusted down to compensate the counterparties for cost of funds, and the adjustment is directly related to the counterparties’ credit ratings.

The guidance for the accounting and disclosure of derivatives and hedging transactions requires companies to recognize all of their derivative instruments as either assets or liabilities at fair value in the condensed consolidated statements of financial position. The accounting for changes in the fair value (i.e., gains or losses) of a derivative instrument depends on whether it has been designated and qualifies for hedge accounting treatment as defined under the applicable accounting guidance. For derivative instruments that are designated and qualify for hedge accounting treatment as cash flow hedges (i.e., hedging the exposure to variability in expected future cash flows that is attributable to a particular risk), the effective portion of the gain or loss on the derivative instrument is reported as a component of other comprehensive income (loss) in the condensed consolidated statements of comprehensive income (loss). This gain or loss is reclassified into earnings in the same line item of the condensed consolidated statements of operations associated with the forecasted transaction and in the same period or periods during which the hedged transaction affects earnings. As of March 31, 2020 and 2019, only our interest rate swap qualified for hedge accounting treatment as a cash flow hedge, and the hedge was highly effective.

Foreign Currency

During the three months ended March 31, 2020, we entered into U.S. dollar, euro, Korean won, and Japanese yen forward contracts. We entered into these foreign currency forward contracts to mitigate certain global transactional exposures. These contracts do not qualify for hedge accounting treatment. As a result, any fair value adjustments required on these contracts are recorded in “Other (expense) income, net” in our condensed consolidated statements of operations in the period in which the adjustment occurred.

As of March 31, 2020, the notional values of the remaining foreign currency forward contracts were as follows:

Notional Values of Foreign Currency Derivatives

USD/CNH	\$	20,439,416
EUR/USD	€	13,510,979
KRW/USD	₩	9,669,600,000
JPY/EUR	¥	360,000,000

Commodity

As of March 31, 2020, we had 30 outstanding contracts to hedge exposure related to the purchase of copper in our Power Electronics Solutions (PES) and Advanced Connectivity Solutions (ACS) operating segments. These contracts are held with financial institutions and are intended to offset rising copper prices and do not qualify for hedge accounting treatment. As a result, any fair value adjustments required on these contracts are recorded in “Other (expense) income, net” in our condensed consolidated statements of operations in the period in which the adjustment occurred.

As of March 31, 2020, the volume of our copper contracts outstanding was as follows:

Volume of Copper Derivatives

April 2020 - June 2020	202 metric tons per month
July 2020 - September 2020	201 metric tons per month
October 2020 - December 2020	201 metric tons per month
January 2021 - March 2021	256 metric tons per month
April 2021 - June 2021	256 metric tons per month

Interest Rates

In March 2017, we entered into an interest rate swap to hedge the variable interest rate on \$75.0 million of our \$450.0 million revolving credit facility. This transaction has been designated as a cash flow hedge and qualifies for hedge accounting treatment. For additional information regarding our revolving credit facility, refer to “Note 9 – Debt.”

Effects on Financial Statements

The impacts from our derivative instruments on the statement of operations and statements of comprehensive income (loss) were as follows:

<i>(Dollars in thousands)</i>	Financial Statement Line Item	Three Months Ended	
		March 31, 2020	March 31, 2019
Foreign Currency Contracts			
Contracts not designated as hedging instruments	Other (expense) income, net	\$ (528)	\$ (711)
Copper Derivative Contracts			
Contracts not designated as hedging instruments	Other (expense) income, net	\$ (1,135)	\$ 310
Interest Rate Swap			
Contract designated as hedging instrument	Other comprehensive loss	\$ (1,690)	\$ (632)

We estimate approximately \$1.4 million of pre-tax net losses currently reported in accumulated other comprehensive loss in the condensed consolidated statements of financial position will be reclassified into the condensed consolidated statements of operations within the next 12 months.

Note 4 – Accumulated Other Comprehensive Loss

The changes in accumulated other comprehensive loss by component were as follows:

<i>(Dollars and accompanying footnotes in thousands)</i>	Foreign Currency Translation Adjustments	Pension and Other Postretirement Benefits ⁽¹⁾	Derivative Instrument Designated as Cash Flow Hedge ⁽²⁾	Total
Balance as of December 31, 2019	\$ (35,478)	\$ (10,455)	\$ (972)	\$ (46,905)
Other comprehensive loss before reclassifications	(6,894)	—	(1,249)	(8,143)
Amounts reclassified from accumulated other comprehensive loss	—	66	(67)	(1)
Net current-period other comprehensive income (loss)	(6,894)	66	(1,316)	(8,144)
Balance as of March 31, 2020	\$ (42,372)	\$ (10,389)	\$ (2,288)	\$ (55,049)
Balance as of December 31, 2018	\$ (30,488)	\$ (48,700)	\$ 354	\$ (78,834)
Other comprehensive loss before reclassifications	(4,257)	—	(394)	(4,651)
Amounts reclassified from accumulated other comprehensive loss	—	156	(94)	62
Net current-period other comprehensive income (loss)	(4,257)	156	(488)	(4,589)
Balance as of March 31, 2019	\$ (34,745)	\$ (48,544)	\$ (134)	\$ (83,423)

⁽¹⁾ Net of taxes of \$2,349 and \$2,368 as of March 31, 2020 and December 31, 2019, respectively. Net of taxes of \$9,938 and \$9,984 as of March 31, 2019 and December 31, 2018, respectively.

⁽²⁾ Net of taxes of \$656 and \$282 as of March 31, 2020 and December 31, 2019, respectively. Net of taxes of \$37 and \$(106) as of March 31, 2019 and December 31, 2018, respectively.

Note 5 – Inventories

Inventories, which are valued at the lower of cost or net realizable value, consisted of the following:

<i>(Dollars in thousands)</i>	March 31, 2020	December 31, 2019
Raw materials	\$ 62,004	\$ 61,338
Work-in-process	29,999	30,043
Finished goods	35,514	41,478
Total inventories	\$ 127,517	\$ 132,859

Note 6 – Goodwill and Other Intangible Assets

Goodwill

The changes in the net carrying amount of goodwill by operating segment were as follows:

<i>(Dollars in thousands)</i>	Advanced Connectivity Solutions	Elastomeric Material Solutions	Power Electronics Solutions	Other	Total
December 31, 2019	\$ 51,694	\$ 142,030	\$ 66,982	\$ 2,224	\$ 262,930
Foreign currency translation adjustment	—	(788)	(1,272)	—	\$ (2,060)
March 31, 2020	\$ 51,694	\$ 141,242	\$ 65,710	\$ 2,224	\$ 260,870

Other Intangible Assets

The gross and net carrying amounts, as well as the accumulated amortization of other intangible assets were as follows:

	March 31, 2020			December 31, 2019		
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
<i>(Dollars in thousands)</i>						
Customer relationships	\$ 148,844	\$ 40,546	\$ 108,298	\$ 149,317	\$ 39,018	\$ 110,299
Technology	80,368	46,168	34,200	80,938	45,190	35,748
Trademarks and trade names	11,958	4,555	7,403	11,994	4,361	7,633
Covenants not to compete	1,340	585	755	1,340	505	835
Total definite-lived other intangible assets	242,510	91,854	150,656	243,589	89,074	154,515
Indefinite-lived other intangible asset	4,348	—	4,348	4,432	—	4,432
Total other intangible assets	\$ 246,858	\$ 91,854	\$ 155,004	\$ 248,021	\$ 89,074	\$ 158,947

In the table above, gross carrying amounts and accumulated amortization may differ from prior periods due to foreign exchange rate fluctuations.

Amortization expense was \$3.7 million and \$4.4 million, for the three months ended March 31, 2020 and 2019, respectively. The estimated future amortization expense is \$10.9 million for the remainder of 2020 and \$13.8 million, \$13.3 million, \$12.7 million and \$11.4 million for 2021, 2022, 2023 and 2024, respectively.

The weighted average amortization period as of March 31, 2020, by definite-lived other intangible asset class, was as follows:

Definite-Lived Other Intangible Asset Class	Weighted Average Remaining Amortization Period
Customer relationships	7.2 years
Technology	4.1 years
Trademarks and trade names	4.8 years
Covenants not to compete	1.5 years
Total definite-lived other intangible assets	6.3 years

Note 7 – Earnings Per Share

Basic earnings per share is based on the weighted average number of common shares outstanding. Diluted earnings per share is based on the weighted average number of common shares outstanding and all dilutive potential common shares outstanding.

The following table sets forth the computation of basic and diluted earnings per share:

	Three Months Ended	
	March 31, 2020	March 31, 2019
<i>(Dollars and shares in thousands, except per share amounts)</i>		
Numerator:		
Net income	\$ 13,259	\$ 28,399
Denominator:		
Weighted-average shares outstanding - basic	18,669	18,557
Effect of dilutive shares	22	135
Weighted-average shares outstanding - diluted	18,691	18,692
Basic earnings per share	\$ 0.71	\$ 1.53
Diluted earnings per share	\$ 0.71	\$ 1.52

Dilutive shares are calculated using the treasury stock method and primarily include unvested restricted stock units. Anti-dilutive shares are excluded from the calculation of diluted shares and diluted earnings per share. For the three months ended March 31, 2020 and 2019, 127,106 shares and 23,081 shares were excluded, respectively.

Note 8 – Capital Stock and Equity Compensation

Equity Compensation

Performance-Based Restricted Stock Units

As of March 31, 2020, we had performance-based restricted stock units from 2020, 2019, and 2018 outstanding. These awards generally cliff vest at the end of a three-year measurement period. However, employees whose employment terminates during

the measurement period due to death, disability, or, in certain cases, retirement may receive a pro-rata payout based on the number of days they were employed during the measurement period. Participants are eligible to be awarded shares ranging from 0% to 200% of the original award amount, based on certain defined performance measures.

The outstanding awards have one measurement criterion: the three-year total shareholder return (TSR) on our capital stock as compared to that of a specified group of peer companies. The TSR measurement criterion of the awards is considered a market condition. As such, the fair value of this measurement criterion was determined on the grant date using a Monte Carlo simulation valuation model. We recognize compensation expense on all of these awards on a straight-line basis over the vesting period with no changes for final projected payout of the awards. We account for forfeitures as they occur.

The following table sets forth the assumptions used in the Monte Carlo calculation for each material award granted in 2020 and 2019:

	February 12, 2020	June 3, 2019	February 7, 2019
Expected volatility	41.0%	39.7%	36.7%
Expected term (in years)	2.9	2.6	2.9
Risk-free interest rate	1.41%	1.78%	2.43%

Expected volatility – In determining expected volatility, we have considered a number of factors, including historical volatility.

Expected term – We use the vesting period of the award to determine the expected term assumption for the Monte Carlo simulation valuation model.

Risk-free interest rate – We use an implied “spot rate” yield on U.S. Treasury Constant Maturity rates as of the grant date for our assumption of the risk-free interest rate.

Expected dividend yield – We do not currently pay dividends on our capital stock; therefore, a dividend yield of 0% was used in the Monte Carlo simulation valuation model.

A summary of activity of the outstanding performance-based restricted stock units for the three months ended March 31, 2020 is presented below:

	Performance-Based Restricted Stock Units
Awards outstanding as of December 31, 2019	106,943
Awards granted	87,244
Stock issued	(75,486)
Awards forfeited	(774)
Awards outstanding as of March 31, 2020	117,927

We recognized \$1.5 million and \$0.9 million of compensation expense for performance-based restricted stock units for the three months ended March 31, 2020 and 2019, respectively.

Time-Based Restricted Stock Units

As of March 31, 2020, we had time-based restricted stock unit awards from 2020, 2019, 2018 and 2017 outstanding. The outstanding awards all ratably vest on the first, second and third anniversaries of the original grant date. However, employees whose employment terminates during the measurement period due to death, disability, or, in certain cases, retirement may receive a pro-rata payout based on the number of days they were employed subsequent to the last grant anniversary date. Each time-based restricted stock unit represents a right to receive one share of Rogers’ capital stock at the end of the vesting period. The fair value of the award is determined by the market value of the underlying stock price at the grant date. We recognize compensation expense on all of these awards on a straight-line basis over the vesting period. We account for forfeitures as they occur.

A summary of activity of the outstanding time-based restricted stock units for the three months ended March 31, 2020 is presented below:

	Time-Based Restricted Stock Units
Awards outstanding as of December 31, 2019	101,685
Awards granted	57,387
Stock issued	(46,220)
Awards forfeited	(1,147)
Awards outstanding as of March 31, 2020	111,705

We recognized \$1.5 million of compensation expense for time-based restricted stock units for each of the three-month periods ended March 31, 2020 and 2019, respectively.

Deferred Stock Units

We grant deferred stock units to non-management directors. These awards are fully vested on the date of grant and the related shares are generally issued on the 13-month anniversary of the grant date unless the individual elects to defer the receipt of those shares. Each deferred stock unit results in the issuance of one share of Rogers' capital stock. The grant of deferred stock units is typically done annually during the second quarter of each year. The fair value of the award is determined by the market value of the underlying stock price at the grant date.

A summary of activity of the outstanding deferred stock units for the three months ended March 31, 2020 is presented below:

	Deferred Stock Units
Awards outstanding as of December 31, 2019	7,150
Awards granted	—
Stock issued	—
Awards outstanding as of March 31, 2020	7,150

We recognized no compensation expense related to deferred stock units for each of the three-month periods ended March 31, 2020 and 2019, respectively.

Note 9 – Debt

In February 2017, we entered into a secured five-year credit agreement with JPMorgan Chase Bank, N.A., as administrative agent, and the lenders party thereto (the Third Amended Credit Agreement), which increased the principal amount of our revolving credit facility to up to \$450.0 million borrowing capacity, with sublimits for multicurrency borrowings, letters of credit and swing-line notes, and provided an additional \$175.0 million accordion feature. Borrowings may be used to finance working capital needs, for letters of credit and for general corporate purposes in the ordinary course of business, including the financing of permitted acquisitions (as defined in the Third Amended Credit Agreement).

All obligations under the Third Amended Credit Agreement are guaranteed by each of our existing and future material domestic subsidiaries, as defined in the Third Amended Credit Agreement (the Guarantors). The obligations are also secured by a Third Amended and Restated Pledge and Security Agreement, dated as of February 17, 2017, entered into by us and the Guarantors which grants to the administrative agent, for the benefit of the lenders, a security interest, subject to certain exceptions, in substantially all of the non-real estate assets of the Guarantors. These assets include, but are not limited to, receivables, equipment, intellectual property, inventory, and stock in certain subsidiaries. All revolving loans are due on the maturity date, February 17, 2022.

Borrowings under the Third Amended Credit Agreement can be made as alternate base rate loans or euro-currency loans. Alternate base rate loans bear interest at a base reference rate plus a spread of 37.5 to 75.0 basis points, depending on our leverage ratio. The base reference rate is the greatest of (a) the prime rate in effect on such day, (b) the Federal Reserve Bank of New York (NYFRB) rate in effect on such day plus ½ of 1% and (c) the adjusted LIBOR for a one month interest period in dollars on such day (or if such day is not a business day, the immediately preceding business day) plus 1%. Euro-currency loans bear interest based on adjusted LIBOR plus a spread of 137.5 to 175.0 basis points, depending on our leverage ratio. Based on our leverage ratio as of March 31, 2020, the spread was 162.5 basis points.

In addition to interest payable on the principal amount of indebtedness outstanding from time to time under the Third Amended Credit Agreement, we are required to pay a quarterly fee of 20 to 30 basis points (based upon our leverage ratio) of the unused amount of the lenders' commitments under the Third Amended Credit Agreement.

The Third Amended Credit Agreement contains customary representations, warranties, covenants, mandatory prepayments and events of default under which our payment obligations may be accelerated. If an event of default occurs, the lenders may,

among other things, terminate their commitments and declare all outstanding borrowings to be immediately due and payable together with accrued interest and fees. The financial covenants include requirements to maintain (1) a leverage ratio of no more than 3.25 to 1.00, subject to an election to increase the maximum leverage ratio to 3.50 to 1.00 for three fiscal quarters in connection with a permitted acquisition, and (2) an interest coverage ratio of no less than 3.00 to 1.00.

The Third Amended Credit Agreement generally permits us to pay cash dividends to our shareholders, provided that (i) no default or event of default has occurred and is continuing or would result from the dividend payment and (ii) our leverage ratio does not exceed 2.75 to 1.00. If our leverage ratio exceeds 2.75 to 1.00, we may nonetheless make up to \$20.0 million in restricted payments, including cash dividends, during the fiscal year, provided that no default or event of default has occurred and is continuing or would result from the payments. Our leverage ratio did not exceed 2.75 to 1.00 as of March 31, 2020.

In March 2017, we entered into an interest rate swap to hedge the variable interest rate on \$75.0 million of our \$450.0 million revolving credit facility.

We borrowed \$150.0 million under our revolving credit facility as a precautionary measure in order to increase our cash position and preserve financial flexibility given current uncertainty in the global markets resulting from the novel coronavirus (COVID-19) pandemic, during the three months ended March 31, 2020. We are not required to make any quarterly principal payments under the Third Amended Credit Agreement. We made no discretionary principal payments on our revolving credit facility during the three months ended March 31, 2020 and we made \$5.0 million of discretionary principal payments during the three months ended March 31, 2019. We had \$273.0 million in outstanding borrowings under our revolving credit facility as of March 31, 2020.

We incurred interest expense on our outstanding debt, net of the impacts of our interest rate swap, of \$1.2 million and \$2.1 million for the three months ended March 31, 2020 and 2019, respectively. We incurred immaterial unused commitment fees for the three months ended March 31, 2020 and 2019.

We had \$1.0 million and \$1.2 million of outstanding line of credit issuance costs as of March 31, 2020 and December 31, 2019, respectively, which will be amortized over the life of the Third Amended Credit Agreement. We recognized an immaterial amount of amortization expense for the three months ended March 31, 2020 and 2019, related to these deferred costs.

Note 10 - Leases

We have a finance lease obligation related to our manufacturing facility in Eschenbach, Germany. Under the terms of the lease agreement, we have an option to purchase the property upon the expiration of the lease in 2021 at a price which is the greater of (i) the then-current market value or (ii) the residual book value of the land including the buildings and installations thereon. Our finance lease obligation related to this facility was \$4.4 million and \$4.5 million as of March 31, 2020 and December 31, 2019, respectively. The finance lease right-of-use asset balance for this facility was \$6.1 million and \$6.3 million as of March 31, 2020 and December 31, 2019, respectively. Accumulated amortization related to this finance lease right-of-use asset was \$3.8 million and \$3.8 million as of March 31, 2020 and December 31, 2019, respectively. The aggregate of all other finance lease obligations, finance lease right-of-use assets and related accumulated amortization, were immaterial as of March 31, 2020 and December 31, 2019.

Amortization expense related to our finance lease right-of-use assets, which is primarily included in the “Cost of sales” line item of the condensed consolidated statements of operations, was immaterial for each of the three-month periods ended March 31, 2020 and 2019. Interest expense related to our finance lease obligations, which is included in the “Interest expense, net” line item of the condensed consolidated statements of operations, was immaterial for each of the three-month periods ended March 31, 2020 and 2019. Payments made on the principal portion of our finance lease obligations were immaterial for each of the three-month periods ended March 31, 2020 and 2019.

We have operating leases primarily related to building space and vehicles. Renewal options are included in the lease term to the extent we are reasonably certain to exercise the option. The exercise of lease renewal options is at our sole discretion. We account for lease components separately from non-lease components. The incremental borrowing rate represents our ability to borrow on a collateralized basis over a similar lease term.

Our expenses and payments for operating leases were as follows:

	Three Months Ended	
	March 31, 2020	March 31, 2019
<i>(Dollars in thousands)</i>		
Operating leases expense	\$ 728	\$ 718
Short-term leases expense	\$ 123	\$ 39
Payments on operating lease obligations	\$ 746	\$ 764

Our assets and liabilities balances related to finance and operating leases reflected in the condensed consolidated statements of financial position were as follows:

<i>(Dollars in thousands)</i>	Location in Statements of Financial Position	March 31, 2020	December 31, 2019
Finance lease right-of-use assets	Property, plant and equipment, net	\$ 6,079	\$ 6,280
Operating lease right-of-use assets	Other long-term assets	\$ 5,072	\$ 4,656
Finance lease obligations, current portion	Other accrued liabilities	\$ 396	\$ 400
Finance lease obligations, non-current portion	Other long-term liabilities	\$ 3,963	\$ 4,140
Total finance lease obligations		\$ 4,359	\$ 4,540
Operating lease obligations, current portion	Other accrued liabilities	\$ 2,401	\$ 2,343
Operating lease obligations, non-current portion	Other long-term liabilities	\$ 2,693	\$ 2,334
Total operating lease obligations		\$ 5,094	\$ 4,677

Net Future Minimum Lease Payments

The following table includes future minimum lease payments under finance and operating leases together with the present value of the net future minimum lease payments as of March 31, 2020:

<i>(Dollars in thousands)</i>	Finance		Operating	
	Leases	Leases Signed	Less: Leases Not Yet Commenced	Leases
2020	\$ 394	\$ 2,013	\$ —	\$ 2,013
2021	4,121	1,867	—	1,867
2022	—	968	—	968
2023	—	390	—	390
2024	—	185	—	185
Thereafter	—	5	—	5
Total lease payments	4,515	5,428	—	5,428
Less: Interest	(156)	(334)	—	(334)
Present Value of Net Future Minimum Lease Payments	\$ 4,359	\$ 5,094	\$ —	\$ 5,094

The following table includes information regarding the lease term and discount rates utilized in the calculation of the present value of net future minimum lease payments:

	Finance Leases	Operating Leases
Weighted Average Remaining Lease Term	1.3 years	2.6 years
Weighted Average Discount Rate	3.00%	5.13%

Note 11 – Pension Benefits and Other Postretirement Benefits

Pension and Other Postretirement Benefit Plans

As of March 31, 2020, we had two qualified noncontributory defined benefit pension plans, the Rogers Corporation Employees' Pension Plan (the Union Plan) and the Rogers Corporation Defined Benefit Pension Plan (following its merger with the Hourly Employees Pension Plan of Arlon LLC, Microwave Material and Silicone Technologies Divisions, Bear, Delaware (collectively, the Merged Plan)), which were frozen and had ceased accruing benefits. The Merged Plan was terminated and substantially settled in late 2019, with remaining settlement efforts expected to be completed in the second quarter of 2020. There are no plans to terminate the Union Plan.

Additionally, we sponsor other postretirement benefit plans, including multiple fully insured or self-funded medical plans and life insurance plans for certain retirees. The measurement date for all plans is December 31st for each respective plan year.

Pension Plan Termination & Settlement

During the second quarter of 2019, following receipt of a determination letter from the Internal Revenue Service (IRS), we amended the Merged Plan to (a) terminate the Merged Plan (subject to discretionary approval by our Chief Executive Officer) and (b) add a lump sum distribution option in connection with the termination of the Merged Plan, if approved. We subsequently provided participants of the Merged Plan an option to elect either a lump sum distribution or an annuity.

On October 17, 2019, our Chief Executive Officer approved the termination of the Merged Plan. A group annuity contract was purchased with an insurance company for all participants who did not elect a lump sum distribution, for \$123.5 million, with a cash settlement date of October 24, 2019. The insurance company became responsible for administering and paying pension benefit payments effective January 1, 2020.

The lump sum distributions of \$38.9 million were paid out prior to December 31, 2019. The Merged Plan paid an additional \$1.3 million of monthly pension benefit payments subsequent to the annuity purchase date during the transition period ending December 31, 2019. As of March 31, 2020, the Merged Plan had sufficient assets to satisfy all transaction obligations and had \$9.0 million of net assets remaining.

In addition, we recorded a total non-cash pre-tax settlement charge in connection with the termination of the Merged Plan of \$53.2 million during the fourth quarter of 2019. This settlement charge included the immediate recognition into expense of the related unrecognized losses within “Accumulated other comprehensive loss” on the consolidated statements of financial position as of the plan termination date. The settlement charge was recognized in “Pension settlement charges” in the consolidated statements of operations. We expect to incur an additional non-cash pre-tax settlement charge in connection with the remaining settlement efforts of the Merged Plan of approximately \$0.7 million during the second quarter of 2020.

Components of Net Periodic Benefit (Credit) Cost

The components of net periodic benefit (credit) cost were as follows:

	Pension Benefits		Other Postretirement Benefits	
	Three Months Ended		Three Months Ended	
	March 31,		March 31,	
<i>(Dollars in thousands)</i>	2020	2019	2020	2019
Service cost	\$ —	\$ —	\$ 17	\$ 18
Interest cost	231	1,784	10	15
Expected return of plan assets	(393)	(2,192)	—	—
Amortization of prior service credit	—	—	(28)	(253)
Amortization of net loss	114	454	—	—
Net periodic benefit (credit) cost	\$ (48)	\$ 46	\$ (1)	\$ (220)

Employer Contributions

There were no required contributions to our qualified defined benefit pension plan for the three-month periods ended March 31, 2020 and 2019, and we are not required to make additional contributions to these plans for the remainder of 2020. No voluntary contributions were made to our qualified defined benefit pension plans for either of the three-month periods ended March 31, 2020 and 2019.

As there is no funding requirement for the other postretirement benefit plans, we funded these benefit payments as incurred, which were immaterial for each of the three-month periods ended March 31, 2020 and 2019, using cash from operations.

Note 12 – Commitments and Contingencies

We are currently engaged in the following material environmental and legal proceedings:

Voluntary Corrective Action Program

Our location in Rogers, Connecticut is part of the Connecticut Voluntary Corrective Action Program (VCAP). As part of this program, we partnered with the Connecticut Department of Energy and Environmental Protection (CT DEEP) to determine the corrective actions to be taken at the site related to contamination issues. We evaluated this matter and completed internal due diligence work related to the site in the fourth quarter of 2015. Remediation activities on the site are ongoing and are recorded as reductions to the accrual as they are incurred. We incurred \$1.7 million of aggregate remediation costs through March 31, 2020, and the accrual for future remediation efforts is \$1.0 million.

Asbestos

Overview

We, like many other industrial companies, have been named as a defendant in a number of lawsuits filed in courts across the country by persons alleging personal injury from exposure to products containing asbestos. We have never mined, milled, manufactured or marketed asbestos; rather, we made and provided to industrial users a limited number of products that contained encapsulated asbestos, but we stopped manufacturing these products in the late 1980s. Most of the claims filed against us involve numerous defendants, sometimes as many as several hundred.

The following table summarizes the change in number of asbestos claims outstanding for the three months ended March 31, 2020:

	Asbestos Claims
Claims outstanding as of January 1, 2020	592
New claims filed	20
Pending claims concluded ⁽¹⁾	(38)
Claims outstanding as of March 31, 2020	574

⁽¹⁾ For the three months ended March 31, 2020, 34 claims were dismissed and 4 claims were settled. Settlements totaled approximately \$1.6 million for the three months ended March 31, 2020.

Impact on Financial Statements

We recognize a liability for asbestos-related contingencies that are probable of occurrence and reasonably estimable. In connection with the recognition of liabilities for asbestos-related matters, we record asbestos-related insurance receivables that are deemed probable.

The liability projection period covers all current and future indemnity and defense costs through 2064, which represents the expected end of our asbestos liability exposure with no further ongoing claims expected beyond that date. This conclusion was based on our history and experience with the claims data, the diminished volatility and consistency of observable claims data, the period of time that has elapsed since we stopped manufacturing products that contained encapsulated asbestos and an expected downward trend in claims due to the average age of our claimants, which is approaching the average life expectancy.

To date, the indemnity and defense costs of our asbestos-related product liability litigation have been substantially covered by insurance. Although we have exhausted coverage under some of our insurance policies, we believe that we have applicable primary, excess and/or umbrella coverage for claims arising with respect to most of the years during which we manufactured and marketed asbestos-containing products. In addition, we have entered into a cost sharing agreement with most of our primary, excess and umbrella insurance carriers to facilitate the ongoing administration and payment of claims covered by the carriers. The cost sharing agreement may be terminated by any party, but will continue until a party elects to terminate it. As of the filing date for this report, the agreement has not been terminated, and no carrier had informed us it intended to terminate the agreement. We expect to continue to exhaust individual primary, excess and umbrella coverages over time, and there is no assurance that such exhaustion will not accelerate due to additional claims, damages and settlements or that coverage will be available as expected. We are responsible for uninsured indemnity and defense costs, and we incurred an immaterial amount of expenses for the three months ended March 31, 2020 and 2019, respectively, related to such costs.

The amounts recorded for the asbestos-related liability and the related insurance receivables are based on facts known at the time and a number of assumptions. However, projecting future events, such as the number of new claims to be filed each year, the average cost of disposing of such claims, the length of time it takes to dispose of such claims, coverage issues among insurers and the continuing solvency of various insurance companies, as well as the numerous uncertainties surrounding asbestos litigation in the United States, could cause the actual liability and insurance recoveries for us to be higher or lower than those projected or recorded.

Changes recorded in the estimated liability and estimated insurance recovery based on projections of asbestos litigation and corresponding insurance coverage, result in the recognition of expense or income.

Our projected asbestos-related liabilities and insurance receivables were as follows:

<i>(Dollars in thousands)</i>	March 31, 2020	December 31, 2019
Asbestos-related liabilities	\$ 85,774	\$ 85,880
Asbestos-related insurance receivables	\$ 78,316	\$ 78,316

General

In addition to the above issues, the nature and scope of our business brings us in regular contact with the general public and a variety of businesses and government agencies. Such activities inherently subject us to the possibility of litigation, including environmental and product liability matters that are defended and handled in the ordinary course of business. We have established accruals for matters for which management considers a loss to be probable and reasonably estimable. It is the opinion of management that facts known at the present time do not indicate that such litigation will have a material adverse impact on our results of operations, financial position or cash flows.

Note 13 – Income Taxes

Our effective income tax rate was 20.6% and 14.2% for the three months ended March 31, 2020 and 2019, respectively. The increase from the first quarter of 2019 was primarily due to the decrease in current quarter reversals of reserves for uncertain tax

positions and the decrease in excess tax deductions on stock-based compensation, partially offset by the beneficial impact of changes in valuation allowance against deferred tax assets associated with carried over research and development credits.

The total amount of unrecognized tax benefits as of March 31, 2020 was \$11.0 million, of which \$10.6 million would affect our effective tax rate if recognized.

We recognize interest and penalties related to unrecognized tax benefits through income tax expense. As of March 31, 2020, we had \$0.9 million accrued for the payment of interest.

We are subject to taxation in the U.S. and various state and foreign jurisdictions. With few exceptions, we are no longer subject to examinations by tax authorities for years prior to 2015.

Note 14 – Operating Segment Information

Our reporting structure is comprised of the following strategic operating segments: ACS, Elastomeric Material Solutions (EMS) and PES. The remaining operations, which represent our non-core businesses, are reported in the Other operating segment. We believe this structure aligns our external reporting presentation with how we currently manage and view our business internally.

Our ACS operating segment designs, develops, manufactures and sells circuit materials and solutions enabling high-performance and high-reliability connectivity for applications in wireless infrastructure (e.g., power amplifiers, antennas and small cells), automotive (e.g., ADAS, telematics and thermal solutions), aerospace and defense (e.g. antenna systems, communication systems and phased array radar systems), connected devices (e.g., mobile internet devices and thermal solutions) and wired infrastructure (e.g., computing and IP infrastructure) markets.

Our EMS operating segment designs, develops, manufactures and sells engineered material solutions for a wide variety of applications and markets. These include polyurethane and silicone materials used in cushioning, gasketing and sealing, and vibration management applications for general industrial, portable electronics, automotive, electric and hybrid electric vehicles (EV/HEV), mass transit, aerospace and defense, footwear and impact mitigation and printing markets; customized silicones used in flex heater and semiconductor thermal applications for general industrial, portable electronics, automotive, EV/HEV, mass transit, aerospace and defense and medical markets; polytetrafluoroethylene and ultra-high molecular weight polyethylene materials used in wire and cable protection, electrical insulation, conduction and shielding, hose and belt protection, vibration management, cushioning, gasketing and sealing, and venting applications for general industrial, automotive, EV/HEV and aerospace and defense markets.

Our PES operating segment designs, develops, manufactures and sells ceramic substrate materials, busbars and cooling solutions for a variety of applications in EV/HEV, mass transit, clean energy (i.e. variable frequency drives, renewable energy), general industrial, aerospace and defense and wired infrastructure markets. We sell our ceramic substrate materials and cooling solutions under the curamik® trade name and our busbars under the ROLINX® trade name.

Our Other operating segment consists of elastomer components for applications in general industrial market, as well as elastomer floats for level sensing in fuel tanks, motors, and storage tanks applications in the general industrial and automotive markets. We sell our elastomer components under our ENDUR® trade name and our floats under our NITROPHYL® trade name.

The following table presents a disaggregation of revenue from contracts with customers and other pertinent financial information, for the periods indicated; inter-segment sales have been eliminated from the net sales data:

<i>(Dollars in thousands)</i>	Advanced Connectivity Solutions	Elastomeric Material Solutions	Power Electronics Solutions	Other	Total
Three Months Ended March 31, 2020					
Net sales - recognized over time	\$ —	\$ 2,827	\$ 46,401	\$ 3,650	\$ 52,878
Net sales - recognized at a point in time	64,553	80,699	320	360	145,932
Total net sales	\$ 64,553	\$ 83,526	\$ 46,721	\$ 4,010	\$ 198,810
Operating income (loss)	\$ 5,462	\$ 11,517	\$ (684)	\$ 1,180	\$ 17,475
Three Months Ended March 31, 2019					
Net sales - recognized over time	\$ —	\$ 3,006	\$ 59,602	\$ 4,604	\$ 67,212
Net sales - recognized at a point in time	80,470	89,756	212	2,148	172,586
Total net sales	\$ 80,470	\$ 92,762	\$ 59,814	\$ 6,752	\$ 239,798
Operating income	\$ 13,064	\$ 13,431	\$ 4,267	\$ 2,038	\$ 32,800

Net sales by operating segment and by geographic area was as follows:

(Dollars in thousands)

Region/Country	Net Sales ⁽¹⁾				
	Advanced Connectivity Solutions	Elastomeric Material Solutions	Power Electronics Solutions	Other	Total
Three Months Ended March 31, 2020					
United States	\$ 14,453	\$ 38,567	\$ 8,172	\$ 979	\$ 62,171
Other Americas	944	2,449	109	311	3,813
Total Americas	15,397	41,016	8,281	1,290	65,984
China	24,625	18,375	8,308	225	51,533
Other APAC	15,319	12,953	4,360	548	33,180
Total APAC	39,944	31,328	12,668	773	84,713
Germany	3,673	3,634	13,056	149	20,512
Other EMEA	5,539	7,548	12,716	1,798	27,601
Total EMEA	9,212	11,182	25,772	1,947	48,113
Total net sales	\$ 64,553	\$ 83,526	\$ 46,721	\$ 4,010	\$ 198,810
Three Months Ended March 31, 2019					
United States	\$ 13,071	\$ 43,465	\$ 7,477	\$ 1,290	\$ 65,303
Other Americas	752	2,083	20	191	3,046
Total Americas	13,823	45,548	7,497	1,481	68,349
China	42,489	22,419	11,064	2,513	78,485
Other APAC	14,141	14,488	5,338	809	34,776
Total APAC	56,630	36,907	16,402	3,322	113,261
Germany	4,472	3,436	21,947	146	30,001
Other EMEA	5,545	6,871	13,968	1,803	28,187
Total EMEA	10,017	10,307	35,915	1,949	58,188
Total net sales	\$ 80,470	\$ 92,762	\$ 59,814	\$ 6,752	\$ 239,798

⁽¹⁾ Net sales are allocated to countries based on the location of the customer. The table above lists individual countries with 10% or more of net sales for the periods indicated.

Revenue from Contracts with Customers

We have contract assets primarily related to unbilled revenue for revenue recognized related to products that are deemed to have no alternative use whereby we have the right to payment. Revenue is recognized in advance of billing to the customer in these circumstances as billing is typically performed at the time of shipment to the customer. The unbilled revenue is included in contract assets on the condensed consolidated statements of financial position.

Contract assets by operating segment were as follows:

(Dollars in thousands)

	March 31, 2020	December 31, 2019
Advanced Connectivity Solutions	\$ —	\$ —
Elastomeric Material Solutions	1,207	1,077
Power Electronics Solutions	17,456	19,471
Other	1,515	1,907
Total contract assets	\$ 20,178	\$ 22,455

We did not have any contract liabilities as of March 31, 2020 or December 31, 2019. No impairment losses were recognized for either of the three-month periods ended March 31, 2020 and 2019, respectively, on any receivables or contract assets arising from our contracts with customers.

Note 15 – Supplemental Financial Information

Restructuring and Impairment Charges

The components of “Restructuring and impairment charges” line item in the condensed consolidated statements of operations, were as follows:

<i>(Dollars in thousands)</i>	Three Months Ended	
	March 31, 2020	March 31, 2019
Restructuring Charges	\$ —	\$ 806
Impairment charges	—	16
Total restructuring and impairment charges	\$ —	\$ 822

Restructuring Charges

In 2018, we made the decision to consolidate our Santa Fe Springs, California operations into our facilities in Carol Stream, Illinois and Bear, Delaware, which was completed as of December 31, 2019. We recorded \$0.8 million of expense for the three months ended March 31, 2019 related to this facility consolidation.

Other Operating Expense, Net

The components of “Other operating expense, net” line item in the condensed consolidated statements of operations, were as follows:

<i>(Dollars in thousands)</i>	Three Months Ended	
	March 31, 2020	March 31, 2019
Lease income	\$ —	\$ (547)
Depreciation on leased assets	—	1,185
Loss on sale or disposal of property, plant and equipment	20	273
Total other operating expense, net	\$ 20	\$ 911

In connection with the transitional leaseback of a portion of the facility and certain machinery and equipment acquired from Isola USA (Isola) in August 2018, we recognized lease income and related depreciation on leased assets of \$0.5 million and \$1.2 million, respectively, for the three months ended March 31, 2019.

Interest Expense, Net

The components of “Interest expense, net” line item in the condensed consolidated statements of operations, were as follows:

<i>(Dollars in thousands)</i>	Three Months Ended	
	March 31, 2020	March 31, 2019
Interest on revolving credit facility	\$ 1,079	\$ 2,251
Interest rate swap settlements	86	(122)
Line of credit fees	166	126
Debt issuance amortization costs	138	138
Interest on finance leases	33	32
Interest income	(320)	(489)
Other	25	2
Total interest expense, net	\$ 1,207	\$ 1,938

Note 16 – Recent Accounting Standards

Recently Issued Standards

In March 2020, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2020-04, *Reference Rate Reform (Topic 848): Facilitation of the Effects of Reference Rate Reform on Financial Reporting*. This ASU applies only to contracts, hedging relationships, and other transactions that reference LIBOR or another reference rate that is expected to be discontinued after reference rate reform. This ASU provides optional expedients and exceptions to accounting under GAAP for contract modifications that replace a reference rate affected by reference rate reform. The amendments in this update were effective as of March 12, 2020 and we may elect to apply the amendments to contract modifications or hedging relationships entered into through December 31, 2022. We are currently evaluating the potential impact of adopting this guidance on our consolidated financial statements.

Recently Adopted Standards Reflected in Our 2020 Financial Statements

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments-Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*. This ASU replaces the incurred loss model with a new expected loss impairment model that applies to certain financial assets measured at amortized cost, including trade and other receivables and contract assets. We adopted this update in January 2020 using the modified-retrospective approach, and it did not have a material impact on our condensed consolidated financial statements.

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

As used herein, the "Company," "Rogers," "we," "us," "our" and similar terms include Rogers Corporation and its subsidiaries, unless the context indicates otherwise.

Forward-Looking Statements

This Quarterly Report on Form 10-Q includes "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended (the Exchange Act). Such statements are generally accompanied by words such as "anticipate," "assume," "believe," "could," "estimate," "expect," "foresee," "goal," "intend," "may," "might," "plan," "potential," "predict," "project," "should," "seek," "target" or similar expressions that convey uncertainty as to future events or outcomes. Forward-looking statements are based on assumptions and beliefs that we believe to be reasonable; however, assumed facts almost always vary from actual results, and the differences between assumed facts and actual results could be material depending upon the circumstances. Where we express an expectation or belief as to future results, that expectation or belief is expressed in good faith and based on assumptions believed to have a reasonable basis. We cannot assure you, however, that the stated expectation or belief will occur or be achieved or accomplished. Among the factors that could cause our results to differ materially from those indicated by forward-looking statements are risks and uncertainties inherent in our business including, without limitation:

- the duration and impacts of the novel coronavirus (COVID-19) global pandemic and efforts to contain its transmission, including the effect of these factors on our business, suppliers, customers, end users and economic conditions generally;
- failure to capitalize on, volatility within, or other adverse changes with respect to the Company's growth drivers, including advanced mobility and advanced connectivity, such as delays in adoption or implementation of new technologies;
- uncertain business, economic and political conditions in the United States (U.S.) and abroad, particularly in China, South Korea, Germany, Hungary and Belgium, where we maintain significant manufacturing, sales or administrative operations;
- the trade policy dynamics between the U.S. and China reflected in trade agreement negotiations and the imposition of tariffs and other trade restrictions, including trade restrictions on Huawei Technologies Co., Ltd. (Huawei);
- fluctuations in foreign currency exchange rates;
- our ability to develop innovative products and the extent to which they are incorporated into end-user products and systems;
- the extent to which end-user products and systems incorporating our products achieve commercial success;
- the ability of our sole or limited source suppliers to deliver certain key raw materials, including commodities, to us in a timely and cost-effective manner;
- intense global competition affecting both our existing products and products currently under development;
- business interruptions due to catastrophes or other similar events, such as natural disasters, war, terrorism or public health crises;
- failure to realize, or delays in the realization of, anticipated benefits of acquisitions and divestitures due to, among other things, the existence of unknown liabilities or difficulty integrating acquired businesses;
- our ability to attract and retain management and skilled technical personnel;
- our ability to protect our proprietary technology from infringement by third parties and/or allegations that our technology infringes third party rights;
- changes in effective tax rates or tax laws and regulations in the jurisdictions in which we operate;
- failure to comply with financial and restrictive covenants in our credit agreement or restrictions on our operational and financial flexibility due to such covenants;
- the outcome of ongoing and future litigation, including our asbestos-related product liability litigation;
- changes in environmental laws and regulations applicable to our business; and
- disruptions in, or breaches of, our information technology systems.

Our forward-looking statements are expressly qualified by these cautionary statements, which you should consider carefully, along with the risks discussed in this section and elsewhere in this report, including under the section entitled "Risk Factors" in Part II, Item 1A and in our Annual Report on Form 10-K for the year ended December 31, 2019 (the Annual Report) and our other reports filed with the Securities and Exchange Commission, any of which could cause actual results to differ materially from historical results or anticipated results. We undertake no obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise, unless required by law.

The following discussion and analysis of our financial condition and results of operations should be read together with our condensed consolidated financial statements and the related notes that appear elsewhere in this Form 10-Q along with our audited consolidated financial statements and the related notes thereto in our Annual Report.

Company Background and Strategy

Rogers Corporation designs, develops, manufactures and sells high-performance and high-reliability engineered materials and components to meet our customers' demanding challenges. We operate three strategic operating segments: Advanced Connectivity Solutions (ACS), Elastomeric Material Solutions (EMS) and Power Electronics Solutions (PES). The remaining operations, which represent our non-core businesses, are reported in our Other operating segment. We have a history of innovation and have established Innovation Centers for our research and development (R&D) activities in Chandler, Arizona, Burlington, Massachusetts, Eschenbach, Germany and Suzhou, China. We are headquartered in Chandler, Arizona. Our growth strategy is based upon the following principles: (1) market-driven organization, (2) innovation leadership, (3) synergistic mergers and acquisitions, and (4) operational excellence. As a market-driven organization, we are focused on growth drivers, including advanced mobility and advanced connectivity. More specifically, in addition to the impact of COVID-19 discussed below, the key medium- to long-term trends currently affecting our business include the increasing use of advanced driver assistance systems (ADAS) and increasing electrification of vehicles, including electric and hybrid electric vehicles (EV/HEV), in the automotive industry and new technology adoption in the telecommunications industry, including next generation wireless infrastructure. In addition to our focus on advanced mobility and advanced connectivity in the automotive and telecommunications industries, we sell into a variety of other markets including general industrial, portable electronics, connected devices, aerospace and defense, mass transit and renewable energy.

Our sales and marketing approach is based on addressing these trends, while our strategy focuses on factors for success as a manufacturer of engineered materials and components: performance, quality, service, cost, efficiency, innovation and technology. We have expanded our capabilities through organic investment and acquisitions and strive to ensure high quality solutions for our customers. We continue to review and re-align our manufacturing and engineering footprint in an effort to attain a leading competitive position globally. We have established or expanded our capabilities in various locations in support of our customers' growth initiatives.

We seek to enhance our operational and financial performance by investing in research and development, manufacturing and materials efficiencies, and new product initiatives that respond to the needs of our customers. We strive to evaluate operational and strategic alternatives to improve our business structure and align our business with the changing needs of our customers and major industry trends affecting our business.

COVID-19 Update

The global COVID-19 pandemic has affected and continues to affect Rogers' business and operations. In response to the outbreak, Rogers prioritized the safety and well-being of its employees—including implementing social distancing initiatives in its facilities, expanding personal protective equipment usage, enhancing plant hygiene processes, and extending employee benefits, which increased our expenses in the quarter—while at the same time taking actions to preserve business continuity.

Our China business and operations were the first to be impacted by the virus, with the government temporarily suspending our operations, as well as the operations of most Chinese business, including our Chinese customers and suppliers, at the beginning of February. We resumed production in mid-February and reached full production capacity by early-March.

Our U.S. and European businesses were first impacted later in the quarter, and the impact continued through the quarter and continues through the date of this filing. In both the U.S. and Europe, we generally maintained operations at close to normal levels, with the additional employee safety precautions implemented at our facilities. We do not believe these additional precautions in the aggregate, had a material impact on our financial performance during the quarter. In the U.S., exemptions from state-level "shelter in place" directives with respect to numerous sectors, including the Communications, Healthcare and Public Health, Defense Industrial Base, Critical Manufacturing and Information Technology sectors, have largely enabled us to continue our operations.

Our operations were not affected by any material shortages, as our inventory and supply chain met our manufacturing requirements.

Demand was uneven in the quarter amongst the various markets we serve. 5G and 4G wireless infrastructure demand in China increased late in the first quarter 2020, while automotive demand was adversely impacted late in the quarter globally, on a sequential quarter basis. We expect some of the demand will be deferred into the second quarter or later during this calendar year, while other demand is likely lost.

We expect that the COVID-19 pandemic will have a continuing but uncertain impact on our business and operations in the short- and medium-term. Due to the above circumstances and as described generally in this Form 10-Q, our results of operations for the three months ended March 31, 2020 are not necessarily indicative of the results to be expected for the full year.

Executive Summary

The following key highlights and factors should be considered when reviewing our results of operations, financial position and liquidity:

- In the first quarter of 2020 as compared to the first quarter of 2019, our net sales decreased 17.1% to \$198.8 million, our gross margin decreased approximately 260 basis points to 33.0% from 35.6%, and operating income decreased approximately 490 basis points to 8.8% from 13.7%.
- We borrowed \$150.0 million under our revolving credit facility during the first quarter of 2020 as a precautionary measure in order to increase our cash position and preserve financial flexibility given current uncertainty in the global markets resulting from the COVID-19 pandemic.
- We incurred approximately \$0.7 million of incremental costs due to the COVID-19 pandemic in the first quarter of 2020, primarily related to employee compensation and benefits.

Results of Operations

The following table sets forth, for the periods indicated, selected operations data expressed as a percentage of net sales:

	Three Months Ended	
	March 31, 2020	March 31, 2019
Net sales	100.0 %	100.0 %
Gross margin	33.0 %	35.6 %
Selling, general and administrative expenses	20.3 %	18.0 %
Research and development expenses	3.9 %	3.2 %
Restructuring and impairment charges	— %	0.3 %
Other operating expense, net	— %	0.4 %
Operating income	8.8 %	13.7 %
Equity income in unconsolidated joint ventures	0.6 %	0.3 %
Other (expense) income, net	(0.4)%	0.6 %
Interest expense, net	(0.6)%	(0.8)%
Income before income tax expense	8.4 %	13.8 %
Income tax expense	1.7 %	2.0 %
Net income	6.7 %	11.8 %

Net Sales and Gross Margin

<i>(Dollars in thousands)</i>	Three Months Ended	
	March 31, 2020	March 31, 2019
Net sales	\$ 198,810	\$ 239,798
Gross margin	\$ 65,630	\$ 85,394
Percentage of net sales	33.0 %	35.6 %

Net sales decreased by 17.1% in the first quarter of 2020 compared to the first quarter of 2019. Our PES, ACS and EMS operating segments had net sales decreases of 21.9%, 19.8% and 10.0%, respectively. The decrease in net sales was primarily driven by significantly lower net sales in the 4G and 5G wireless infrastructure markets in our ACS operating segment, lower net sales in the portable electronics, general industrial and EV/HEV markets in our EMS operating segment and lower net sales in the variable frequency drives and mass transit markets in our PES operating segment. Net sales were unfavorably impacted by foreign currency impacts of \$2.6 million, or 1.1%, due to the depreciation in value of the euro, Chinese renminbi and Korean won relative to the U.S. dollar.

The lower net sales in the 4G and 5G wireless infrastructure markets in our ACS operating segment reflected the cumulative effect of the pause in the 5G deployments in China due to the impacts from the COVID-19 pandemic, the waning of 4G infrastructure spending by telecommunications companies in anticipation of 5G, as well as the impacts of the trade restrictions on Huawei. In our ACS operating segment, we anticipate lower net sales in the 4G and 5G wireless infrastructure markets year-

over-year in the second quarter of 2020, on both a quarter-to-date and year-to-date basis. However, on a sequential quarter basis, we experienced net sales growth in the 4G and 5G wireless infrastructure markets, and we anticipate this growth to continue into the second quarter of 2020 as a result of China's planned 5G deployments.

In our EMS operating segment, we anticipate lower net sales in the portable electronics, automotive and EV/HEV markets year-over-year in the second quarter of 2020, on both a quarter-to-date and year-to-date basis due to the impact from the COVID-19 pandemic. On a sequential quarter basis, we anticipate lower net sales in the general industrial, portable electronics and automotive markets due to the impacts from the COVID-19 pandemic.

The lower net sales in variable frequency drives market in our PES operating segment was due to a slowdown in industrial automation demand combined with customer inventory rebalancing, which began in mid-2019, and has continued through the first quarter of 2020. We anticipate lower net sales in the vehicle electrification and EV/HEV markets on a sequential quarter basis due to the impacts from the COVID-19 pandemic on the automotive industry.

Gross margin as a percentage of net sales decreased approximately 260 basis points to 33.0% in the first quarter of 2020 compared to 35.6% in the first quarter of 2019. Gross margin in the first quarter of 2020 was unfavorably impacted by lower volume and unfavorable product mix in our ACS and PES operating segments, unfavorable absorption of fixed overhead costs in our PES and ACS operating segments and an increase in inventory reserve provisions in our PES and EMS operating segments. This was partially offset by favorable productivity performance in our PES, EMS and ACS operating segments, yield improvements, lower freight, duties and tariffs costs in our ACS and PES operating segments, as well as lower fixed overhead costs in our EMS operating segment. The COVID-19 pandemic impacted our gross margin with \$0.6 million of incremental costs, primarily related to employee compensation and benefits.

Selling, General and Administrative Expenses

<i>(Dollars in thousands)</i>	Three Months Ended	
	March 31, 2020	March 31, 2019
Selling, general and administrative expenses	\$ 40,330	\$ 43,252
Percentage of net sales	20.3 %	18.0 %

Selling, general and administrative (SG&A) expenses decreased 6.8% in the first quarter of 2020 from the first quarter of 2019, primarily due to a \$0.8 million decrease in other intangible assets amortization, a \$0.5 million decrease in professional services, a \$0.3 million decrease in depreciation, a \$0.2 million decrease in software costs, a \$0.1 million decrease in travel and entertainment expenses, a \$0.1 million decrease in total compensation and benefits and a \$0.1 million decrease in environmental charges.

Research and Development Expenses

<i>(Dollars in thousands)</i>	Three Months Ended	
	March 31, 2020	March 31, 2019
Research and development expenses	\$ 7,805	\$ 7,609
Percentage of net sales	3.9 %	3.2 %

R&D expenses increased 2.6% in the first quarter of 2020 from the first quarter of 2019 due to increases in total compensation and benefits as well as professional services.

Restructuring and Impairment Charges and Other Operating Expense, Net

<i>(Dollars in thousands)</i>	Three Months Ended	
	March 31, 2020	March 31, 2019
Restructuring and impairment charges	\$ —	\$ 822
Other operating expense, net	\$ 20	\$ 911

We incurred restructuring charges associated with the consolidation of our Santa Fe Springs, California operations with the Company's facilities in Carol Stream, Illinois and Bear, Delaware. We recognized no restructuring charges in the first quarter of 2020, and we recognized \$0.8 million of restructuring charges related to our facility consolidation in the first quarter of 2019.

Equity Income in Unconsolidated Joint Ventures

<i>(Dollars in thousands)</i>	Three Months Ended	
	March 31, 2020	March 31, 2019
Equity income in unconsolidated joint ventures	\$ 1,218	\$ 837

As of March 31, 2020, we had two unconsolidated joint ventures, each 50% owned: Rogers INOAC Corporation (RIC) and Rogers INOAC Suzhou Corporation (RIS). Equity income in those unconsolidated joint ventures increased 45.5% in the first quarter of 2020 from the first quarter of 2019. The increase was due to higher net sales for RIC, favorable foreign currency impacts for RIS and improved operational performance for both RIS and RIC, partially offset by lower net sales for RIS.

Other (Expense) Income, Net

<i>(Dollars in thousands)</i>	Three Months Ended	
	March 31, 2020	March 31, 2019
Other (expense) income, net	\$ (786)	\$ 1,404

Other (expense) income, net decreased to \$0.8 million in the first quarter of 2020 compared to \$1.4 million in the first quarter of 2019. On a quarter-to-date basis, the increase in expense was due to unfavorable impacts from our copper derivative contracts and foreign currency transactions, as well as lower net periodic benefit credits associated with our defined benefit plans, partially offset by favorable impacts from our foreign currency derivative contracts.

Interest Expense, Net

<i>(Dollars in thousands)</i>	Three Months Ended	
	March 31, 2020	March 31, 2019
Interest expense, net	\$ (1,207)	\$ (1,938)

Interest expense, net, decreased by 37.7% in the first quarter of 2020 from the first quarter of 2019, due to lower interest expense on borrowings under our revolving credit facility, which was mainly attributable to a lower weighted-average outstanding balance for the first quarter of 2020 compared to the first quarter of 2019. Due to the \$150.0 million of borrowings under our revolving credit facility late in the first quarter of 2020, we expect interest expense, net to increase in the second quarter of 2020 from the second quarter of 2019.

Income Taxes

<i>(Dollars in thousands)</i>	Three Months Ended	
	March 31, 2020	March 31, 2019
Income tax expense	\$ 3,441	\$ 4,704
Effective tax rate	20.6 %	14.2 %

Our effective income tax rate was 20.6% and 14.2% for the three months ended March 31, 2020 and 2019, respectively. The increase from the first quarter of 2019 was primarily due to the decrease in current quarter reversals of reserves for uncertain tax positions and the decrease in excess tax deductions on stock-based compensation, partially offset by the beneficial impact of changes in valuation allowance against deferred tax assets associated with carried over research and development credits.

Operating Segment Net Sales and Operating Income

Advanced Connectivity Solutions

<i>(Dollars in thousands)</i>	Three Months Ended	
	March 31, 2020	March 31, 2019
Net sales	\$ 64,553	\$ 80,470
Operating income	\$ 5,462	\$ 13,064

ACS net sales decreased by 19.8% in the first quarter of 2020 compared to the first quarter of 2019. The decrease in net sales over the first quarter of 2019 was primarily driven by significantly lower net sales in the 4G and 5G wireless infrastructure markets, which reflected the cumulative effect of the pause in the 5G deployments in China due to the impacts from the COVID-19 pandemic, the waning of 4G infrastructure spending by telecommunications companies in anticipation of 5G, as well as the impacts of the trade restrictions on Huawei. We anticipate lower net sales in the 4G and 5G wireless infrastructure markets year-over-year in the second quarter of 2020, on both a quarter-to-date and year-to-date basis. However, on a sequential quarter basis, we experienced net sales growth in the 4G and 5G wireless infrastructure markets, and we anticipate this growth to continue into the second quarter of 2020 as a result of China's planned 5G deployments. Net sales were

unfavorably impacted by \$0.6 million, or 0.7%, due to the depreciation in value of the Chinese renminbi and euro relative to the U.S. dollar.

Operating income decreased by 58.2% in the first quarter of 2020 from the first quarter of 2019. As a percentage of net sales, operating income in the first quarter of 2020 was 8.5%, an approximately 770 basis point decrease as compared to the 16.2% reported in the first quarter of 2019. The decrease in operating income was primarily due to lower volume, unfavorable product mix, higher fixed overhead costs, unfavorable absorption of fixed overhead costs, partially offset by lower freight, duties and tariffs costs, favorable productivity performance and yield improvements.

Elastomeric Material Solutions

<i>(Dollars in thousands)</i>	Three Months Ended	
	March 31, 2020	March 31, 2019
Net sales	\$ 83,526	\$ 92,762
Operating income	\$ 11,517	\$ 13,431

EMS net sales decreased by 10.0% in the first quarter of 2020 compared to the first quarter of 2019. The decrease in net sales over the first quarter of 2019 was primarily driven by lower net sales in the portable electronics, general industrial and EV/HEV markets. We anticipate lower net sales in the portable electronics, automotive and EV/HEV markets year-over-year in the second quarter of 2020, on both a quarter-to-date and year-to-date basis due to the impact from the COVID-19 pandemic. On a sequential quarter basis, we anticipate lower net sales in the general industrial, portable electronics and automotive markets due to the impacts from the COVID-19 pandemic. Net sales were unfavorably impacted by \$0.9 million, or 0.9%, due to the depreciation in value of the Chinese renminbi, Korean won and euro relative to the U.S. dollar.

Operating income decreased by 14.3% in the first quarter of 2020 from the first quarter of 2019. As a percentage of net sales, first quarter of 2020 operating income was 13.8%, an approximately 70 basis point decrease as compared to the 14.5% reported in the first quarter of 2019. The decrease in operating income was primarily due to lower volume and an increase in inventory reserve provision, partially offset by favorable productivity performance and lower fixed overhead costs.

Power Electronics Solutions

<i>(Dollars in thousands)</i>	Three Months Ended	
	March 31, 2020	March 31, 2019
Net sales	\$ 46,721	\$ 59,814
Operating income (loss)	\$ (684)	\$ 4,267

PES net sales decreased by 21.9% in the first quarter of 2020 from the first quarter of 2019. The decrease in net sales over the first quarter of 2019 was primarily driven by lower net sales in variable frequency drives, mass transit and vehicle electrification markets. The lower net sales in variable frequency drives market was due to a slowdown in industrial automation demand combined with customer inventory rebalancing, which began in mid-2019, and has continued through the first quarter of 2020. We anticipate lower net sales in the vehicle electrification and EV/HEV markets on a sequential quarter basis due to the impacts from the COVID-19 pandemic on the automotive industry.

Net sales were unfavorably impacted by foreign currency fluctuations of \$1.1 million, or 1.8%, due to the depreciation in value of the euro and Chinese renminbi relative to the U.S. dollar.

Operating income decreased by 116.0% in the first quarter of 2020 from the first quarter of 2019. As a percentage of net sales, the first quarter of 2020 operating loss was 1.5% as compared to the 7.1% for operating income reported in the first quarter of 2019. The decrease in operating income was primarily due to lower volume, unfavorable product mix, unfavorable absorption of fixed overhead costs and an increase in inventory reserve provision, partially offset by favorable productivity performance, yield improvements and lower freight costs.

Other

<i>(Dollars in thousands)</i>	Three Months Ended	
	March 31, 2020	March 31, 2019
Net sales	\$ 4,010	\$ 6,752
Operating income	\$ 1,180	\$ 2,038

Net sales in this segment decreased by 40.6% in the first quarter of 2020 from the first quarter of 2019. The decrease in net sales over the first quarter of 2019 was primarily driven by a non-recurring last time buy in the Durel business in the first quarter of 2019, as well as lower demand in the automotive market partially resulting from the COVID-19 pandemic. Net sales

were unfavorably impacted by foreign currency fluctuations of \$0.1 million, or 0.9%, due to the depreciation in value of the Chinese renminbi relative to the U.S. dollar.

Operating income decreased 42.1% in the first quarter of 2020 compared to the first quarter of 2019. The decrease in operating income was primarily driven by lower volume and unfavorable absorption of fixed overhead costs. As a percentage of net sales, first quarter of 2020 operating income was 29.4%, an 80 basis point decrease as compared to the 30.2% reported in the first quarter of 2019.

Liquidity, Capital Resources and Financial Position

We believe that our existing sources of liquidity and cash flows that we expect to generate from our operations, together with our available credit facilities, will be sufficient to fund our operations, currently planned capital expenditures, research and development efforts and our debt service commitments, for at least the next 12 months. We regularly review and evaluate the adequacy of our cash flows, borrowing facilities and banking relationships in an effort to ensure that we have the appropriate access to cash to fund both our near-term operating needs and our long-term strategic initiatives.

The following table illustrates the location of our cash and cash equivalents by our three major geographic areas:

<i>(Dollars in thousands)</i>	March 31, 2020	December 31, 2019
United States	\$ 196,571	\$ 39,354
Europe	26,494	31,166
Asia	85,212	96,329
Total cash and cash equivalents	<u>\$ 308,277</u>	<u>\$ 166,849</u>

Approximately \$111.7 million of our cash and cash equivalents were held by non-U.S. subsidiaries as of March 31, 2020. We did not make any changes in the three months ended March 31, 2020 to our position on the permanent reinvestment of our earnings from foreign operations. With the exception of certain of our Chinese subsidiaries, where a substantial portion of our Asia cash and cash equivalents are held, we continue to assert that historical foreign earnings are indefinitely reinvested.

<i>(Dollars in thousands)</i>	March 31, 2020	December 31, 2019
<i>Key Financial Position Accounts:</i>		
Cash and cash equivalents	\$ 308,277	\$ 166,849
Accounts receivable, net	\$ 144,202	\$ 122,285
Inventories	\$ 127,517	\$ 132,859
Borrowings under revolving credit facility	\$ 273,000	\$ 123,000

Changes in key financial position accounts and other significant changes in our statements of financial position from December 31, 2019 to March 31, 2020 were as follows:

- Accounts receivable, net increased 17.9% to \$144.2 million as of March 31, 2020, from \$122.3 million as of December 31, 2019. The increase from year-end was primarily due to higher net sales at the end of the first quarter 2020 compared to at the end of the 2019.
- Inventories decreased 4.0% to \$127.5 million as of March 31, 2020, from \$132.9 million as of December 31, 2019, primarily driven by primarily driven by reduced inventory reserves associated with the timing of volumes produced versus sold relative to the prior quarter.
- Borrowings under revolving credit facility increased 122.0% to \$273.0 million as of March 31, 2020, from \$123.0 million as of December 31, 2019, as a result of \$150.0 million in borrowings under our revolving credit facility during the first quarter of 2020 as a precautionary measure in order to increase our cash position and preserve financial flexibility given current uncertainty in the global markets resulting from the COVID-19 pandemic. For additional information regarding this facility and the Third Amended Credit Agreement, refer to “Note 9 – Debt” to the condensed consolidated financial statements in Part I, Item 1 of this Form 10-Q.

<i>(Dollars in thousands)</i>	Three Months Ended	
	March 31, 2020	March 31, 2019
Key Cash Flow Measures:		
Net cash provided by operating activities	\$ 8,633	\$ 17,060
Net cash used in investing activities	\$ (11,160)	\$ (10,015)
Net cash provided by (used in) financing activities	\$ 145,571	\$ (11,366)

As of March 31, 2020, cash and cash equivalents were \$308.3 million as compared to \$166.8 million as of December 31, 2019, an increase of \$141.4 million, or 84.8%. This increase was primarily due to the \$150.0 million in borrowings under our revolving credit facility during the first quarter of 2020, supplemented by cash flows generated by operations. This increase was partially offset by \$11.2 million in capital expenditures and \$5.0 million in tax payments related to net share settlement of equity awards.

Restrictions on Payment of Dividends

The Third Amended Credit Agreement generally permits us to pay cash dividends to our shareholders, provided that (i) no default or event of default has occurred and is continuing or would result from the dividend payment and (ii) our leverage ratio does not exceed 2.75 to 1.00. If our leverage ratio exceeds 2.75 to 1.00, we may nonetheless make up to \$20.0 million in restricted payments, including cash dividends, during the fiscal year, provided that no default or event of default has occurred and is continuing or would result from the payments. Our leverage ratio did not exceed 2.75 to 1.00 as of March 31, 2020.

Contingencies

During the first quarter of 2020, we did not become aware of any material developments related to environmental matters disclosed in our Annual Report, our asbestos litigation or other material contingencies previously disclosed or incur any material costs or capital expenditures related to such matters. Refer to “Note 12 – Commitments and Contingencies” to the condensed consolidated financial statements in Part I, Item 1 of this Form 10-Q for further discussion of these contingencies.

Off-Balance Sheet Arrangements

As of March 31, 2020, we did not have any off-balance sheet arrangements that have or are, in the opinion of management, reasonably likely to have a current or future material effect on our results of operations or financial position.

Critical Accounting Policies

There were no material changes in our critical accounting policies during the first quarter of 2020.

Recent Accounting Pronouncements

Refer to “Note 16 – Recent Accounting Standards” to the condensed consolidated financial statements in Part I, Item 1 of this Form 10-Q for discussion of recent accounting pronouncements including expected dates of adoption.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

There have been no material changes in our exposure to market risk during the first quarter of 2020. For discussion of our exposure to market risk, refer to “Item 7A. *Quantitative and Qualitative Disclosures About Market Risk*” contained in our Annual Report.

Item 4. Controls and Procedures

EVALUATION OF DISCLOSURE CONTROLS AND PROCEDURES

The Company, with the participation of our Chief Executive Officer and Chief Financial Officer, conducted an evaluation of the design and operation of our disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the Exchange Act), as of March 31, 2020. The Company’s disclosure controls and procedures are designed (i) to ensure that information required to be disclosed by it in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC’s rules and forms and (ii) to ensure that information required to be disclosed in the reports the Company files or submits under the Exchange Act is accumulated and communicated to its management, including its Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure. Based on their evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that the Company’s disclosure controls and procedures were effective as of March 31, 2020.

CHANGES IN INTERNAL CONTROL OVER FINANCIAL REPORTING

There were no changes in the Company’s internal control over financial reporting during its most recently completed fiscal quarter that have materially affected or are reasonably likely to materially affect the Company’s internal control over financial reporting, as defined in Rule 13a-15(f) and 15d-15(f) under the Exchange Act.

Part II - Other Information

Item 1. Legal Proceedings

Refer to the discussion of certain environmental, asbestos and other litigation matters in “Note 12 – Commitments and Contingencies” to the condensed consolidated financial statements in Part I, Item 1 of this Form 10-Q.

Item 1A. Risk Factors

The COVID-19 pandemic and global responsive measures have impacted our business and results of operations and could materially adversely affect our business, results of operations and financial position in future periods.

The COVID-19 pandemic has now spread globally and resulted in governmental authorities implementing numerous responsive measures, such as travel bans and other restrictions, including quarantines, shelter-in-place and stay-home orders, transportation disruptions, closures and shutdowns. We maintain significant manufacturing and administrative operations in the U.S., China, Belgium, Germany, South Korea and Hungary, and each of these countries has been significantly affected by the outbreak and taken measures to try to contain it. We have also modified our business practices in an effort to ensure business continuity while promoting continued employee health and well-being. Collectively, these measures have impacted and are likely to continue to impact our workforce and operations. In addition, the outbreak and associated responsive measures have resulted in significant disruption of the global economy, leading to steep declines and increased volatility in the financial markets, and it is possible that a potentially severe global recession will follow.

There is considerable uncertainty regarding the effect of COVID-19 as well as current and future responsive measures on our business, including on our workforce and operations. We may experience sustained demand reductions for our products in certain end markets, be unable to satisfy customer demand and face increased operating costs, asset impairments and cash flow reductions, all of which could have a material adverse effect on our business, results of operations and financial position.

Item 6. Exhibits

List of Exhibits:

- 3.1 [Restated Articles of Organization of Rogers Corporation, as amended, incorporated by reference to Exhibit 3a to the Registrant’s Annual Report on Form 10-K for the fiscal year ended December 31, 2006.](#)
- 3.2 [Amended and Restated Bylaws of Rogers Corporation, effective February 11, 2016, incorporated by reference to Exhibit 3.1 to the Registrant’s Current Report on Form 8-K filed on February 26, 2016.](#)
- 10.1 [Second Amended and Restated Employment Agreement between the Company and Helen Zhang, dated April 13, 2020, filed herewith.](#)
- 31.1 [Certification of President and Chief Executive Officer \(Principal Executive Officer\) pursuant to Rule 13a-14\(a\) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002, filed herewith.](#)
- 31.2 [Certification of Senior Vice President, Chief Financial Officer and Treasurer \(Principal Financial Officer\) pursuant to Rule 13a-14\(a\) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002, filed herewith.](#)
- 32 [Certification of President and Chief Executive Officer \(Principal Executive Officer\) and Senior Vice President, Chief Financial Officer and Treasurer \(Principal Financial Officer\) pursuant to Rule 13a-14\(b\) of the Securities Exchange Act of 1934 and 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, furnished herewith.](#)
- 101 The following materials from Rogers Corporation’s Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2020 formatted in iXBRL (Inline Extensible Business Reporting Language): (i) Condensed Consolidated Statements of Operations for the three months ended March 31, 2020 and March 31, 2019, (ii) Condensed Consolidated Statements of Comprehensive Income (Loss) for the three months ended March 31, 2020 and March 31, 2019, (iii) Condensed Consolidated Statements of Financial Position as of March 31, 2020 and December 31, 2019, (iv) Condensed Consolidated Statements of Cash Flows for the three months ended March 31, 2020 and March 31, 2019, (v) Condensed Consolidated Statements of Shareholders’ Equity for the three months ended March 31, 2020 and March 31, 2019, (vi) Notes to Condensed Consolidated Financial Statements and (vii) Cover Page.
- 104 The cover page from Rogers Corporation’s Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2020, formatted in iXBRL and contained in Exhibit 101.

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.

ROGERS CORPORATION
(Registrant)

/s/ Michael M. Ludwig

Michael M. Ludwig

*Senior Vice President, Chief Financial Officer and Treasurer
Principal Financial Officer*

Dated: 4/30/2020