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gaap:ServiceMember2024-01-012024-06-300001049502mksi:VacuumSolutionsDivisionMember2024-01-012024-06-300001049502mksi:OtherCountriesMember2024-01-012024-06-300001049502us-gaap:RestrictedStockUnitsRSUMember2024-06-300001049502us-gaap:NondesignatedMember2024-01-012024-06-300001049502mksi:IncrementalTermLoanFacilityMemberus-gaap:InterestRateCapMembermksi:SwapAgreementOneMember2024-06-300001049502country:CN2024-04-012024-06-300001049502us-gaap:ServiceMember2023-01-012023-06-300001049502us-gaap:FairValueInputsLevel2Memberus-gaap:MoneyMarketFundsMemberus-gaap:FairValueMeasurementsRecurringMember2023-12-310001049502mksi:UsdTrancheAMembermksi:TermSofrBorrowingsMember2024-01-012024-06-300001049502mksi:IncrementalUsdTrancheBMember2024-01-220001049502us-gaap:CommonStockMember2024-03-310001049502mksi:SpecialtyIndustrialMember2023-01-012023-06-300001049502us-gaap:NondesignatedMember2024-04-012024-06-300001049502country:KR2023-01-012023-06-300001049502srt:MinimumMemberus-gaap:RevolvingCreditFacilityMember2024-01-012024-06-300001049502us-gaap:CashFlowHedgingMemberus-gaap:ForeignExchangeForwardMember2024-04-012024-06-300001049502mksi:IncrementalTermLoanFacilityMember2023-12-310001049502us-gaap:CostOfSalesMember2024-04-012024-06-300001049502mksi:IncrementalTrancheBLoansSecondAmendmentMember2024-06-300001049502us-gaap:FairValueInputsLevel2Memberus-gaap:FairValueMeasurementsRecurringMembermksi:InterestRateHedgeMember2024-06-300001049502mksi:PhotonicsSolutionsDivisionMember2023-01-012023-06-300001049502mksi:BorrowingsUnderEuroTrancheBMember2024-01-012024-06-300001049502mksi:IndentureAndTheNotesMembermksi:ConvertibleSeniorNotesDue2030Member2024-05-162024-05-160001049502us-gaap:RevolvingCreditFacilityMemberexch:JPBX2024-01-012024-06-300001049502mksi:UsdTrancheBMembermksi:TermSofrBorrowingsMember2023-10-032023-10-030001049502mksi:PhotonicsSolutionsDivisionMember2024-04-012024-06-300001049502us-gaap:RetainedEarningsMember2023-03-310001049502us-gaap:CustomerRelationshipsMember2023-12-310001049502us-gaap:FairValueInputsLevel1Memberus-gaap:FairValueMeasurementsRecurringMembermksi:InterestRateHedgeMember2023-12-310001049502mksi:BaseRateBorrowingsMemberus-gaap:SubsequentEventMember2024-07-232024-07-230001049502mksi:ConvertibleSeniorNotesDue2030Member2023-04-012023-06-300001049502mksi:SwapAgreementSixMemberus-gaap:InterestRateSwapMembermksi:IncrementalTermLoanFacilityMember2024-06-300001049502mksi:TermLoanFacilityMember2024-01-012024-06-300001049502us-gaap:FairValueInputsLevel2Memberus-gaap:MoneyMarketFundsMemberus-gaap:FairValueMeasurementsRecurringMember2024-06-300001049502us-gaap:FairValueInputsLevel3Memberus-gaap:FairValueMeasurementsRecurringMember2023-12-310001049502mksi:ConvertibleSeniorNotesDue2030Membermksi:CappedCallTransactionsMember2024-05-130001049502mksi:PatentsTrademarksTradeNamesAndOtherMember2024-01-012024-06-300001049502us-gaap:FairValueInputsLevel2Memberus-gaap:BankTimeDepositsMemberus-gaap:FairValueMeasurementsRecurringMember2023-12-310001049502mksi:CompletedTechnologyRightsMember2023-12-310001049502mksi:VacuumSolutionsDivisionMember2024-06-300001049502mksi:MaterialsSolutionsDivisionMember2024-01-012024-06-300001049502mksi:USDollarJapaneseYenMemberus-gaap:ForeignExchangeForwardMember2024-06-300001049502mksi:VacuumSolutionsDivisionMemberus-gaap:ServiceMember2024-04-012024-06-300001049502mksi:CompletedTechnologyRightsMember2024-01-012024-06-300001049502us-gaap:MoneyMarketFundsMemberus-gaap:FairValueMeasurementsRecurringMember2023-12-310001049502mksi:IncrementalRevolvingCommitmentsMember2024-02-132024-02-130001049502mksi:UsdTrancheAMember2024-01-220001049502mksi:IncrementalTermLoanFacilityMemberus-gaap:InterestRateCapMembermksi:SwapAgreementTwoMember2023-12-310001049502us-gaap:AociIncludingPortionAttributableToNoncontrollingInterestMember2024-03-310001049502us-gaap:ConvertibleDebtMember2024-06-300001049502us-gaap:ServiceMembermksi:MaterialSolutionsDivisionsMember2024-01-012024-06-300001049502mksi:MaterialsSolutionsDivisionMember2024-06-300001049502mksi:FederalFundsRateMember2024-01-012024-06-300001049502mksi:UsdTrancheBFirstAmendmentMember2024-01-012024-06-3000010495022023-01-012023-03-310001049502us-gaap:InterestRateSwapMembermksi:SwapAgreementEightMembermksi:IncrementalTermLoanFacilityMember2024-01-012024-06-300001049502us-gaap:FairValueInputsLevel3Memberus-gaap:MoneyMarketFundsMemberus-gaap:FairValueMeasurementsRecurringMember2023-12-310001049502us-gaap:NetInvestmentHedgingMembermksi:EuroTrancheBMember2024-01-220001049502us-gaap:AdditionalPaidInCapitalMember2023-12-310001049502mksi:SemiconductorMember2024-01-012024-06-300001049502us-gaap:ServiceMembermksi:MaterialSolutionsDivisionsMember2024-04-012024-06-300001049502mksi:EuroChineseRenminbiMemberus-gaap:ForeignExchangeForwardMember2024-06-300001049502mksi:USDollarMemberus-gaap:ForeignExchangeForwardMember2023-12-310001049502us-gaap:AociIncludingPortionAttributableToNoncontrollingInterestMember2023-03-310001049502country:JP2024-04-012024-06-300001049502us-gaap:Material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(2) Stock-based compensation (167) (167) Cash dividend (\$0.22 per common share) (15) Comprehensive (loss) income (net of tax): (15) Net income (loss) (15) Other comprehensive (loss) income (40) Balance at June 30, 2024 (167.3) (0.1) 2,042 (381) (190) 2,233 Common Stock Additional Paid-In Capital Retained Accumulated Other Comprehensive Total Stockholders' Shares Amount Capital Earnings (Loss) Income Equity Balance at December 31, 2022 (66.6) (\$2,142) \$2,272 \$69 \$4,483 Net issuance under stock-based plans (0.1) (6) Stock-based compensation (18) (18) (18) Cash dividend (\$0.22 per common share) (15) (15) Comprehensive (loss) income (net of tax): (15) (15) Net (loss) income (42) (42) Other comprehensive income (loss) (13) (13) Balance at March 31, 2023 (66.7) (2,154) (2,215) (82) (4,451) Net issuance under stock-based plans (0.2) (1) (1) (1) Stock-based compensation (13) (13) Cash dividend (\$0.22 per common share) (15) (15) Comprehensive (loss) income (net of tax): (15) (15) Net (loss) income (1,769) (1,769) Other comprehensive (loss) income (186) (186) Balance at June 30, 2023 (66.9) (2,168) (431) (2,495) The accompanying notes are an integral part of the unaudited condensed consolidated financial statements. 5 MKS INSTRUMENTS, INC. CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS (in millions) (Unaudited) Six Months Ended June 30, 2024 2023 Cash flows from operating activities: Net income (loss) \$ 37 (\$1,812) Adjustments to reconcile net income (loss) to net cash provided by (used in) operating activities: Depreciation and amortization 175 (208) Goodwill and intangible asset impairments 1,827 Unrealized loss (gain) on derivatives not designated as hedging instruments 20 Amortization of debt issuance costs and original issue discount 16 (15) Loss on extinguishment of debt 47 (4) Stock-based compensation 26 (31) Provision for excess and obsolete inventory 25 (30) Deferred income taxes (95) (120) Other 4 (1) Changes in operating assets and liabilities 1 (1) Accounts receivable (11) (80) Inventories (13) (94) Other current and non-current assets (23) (11) Accounts payable (30) (108) Accrued compensation (48) (35) Income taxes payable (33) (56) Other current and non-current liabilities (26) (2) Net cash provided by (used in) operating activities (189) (22) Cash flows from investing activities: Proceeds from sale of long-lived assets (1) (1) Purchases of property, plant and equipment (45) (35) Net cash used in investing activities (44) (34) Cash flows from financing activities: Proceeds from borrowings 2,161 (1) Payments of borrowings (2,075) (45) Purchase of capped calls related to Convertible Notes (167) (167) Payments of deferred financing fees (33) (33) Dividend payments (30) (29) Net (payments) proceeds related to employee stock awards (11) (5) Other financing activities (4) (4) Net cash used in financing activities (159) (78) Effect of exchange rate changes on cash and cash equivalents (11) (18) Decrease in cash and cash equivalents (25) (152) Cash and cash equivalents at beginning of period 875 (909) Cash and cash equivalents at end of period \$ 850 \$ 757 The accompanying notes are an integral part of the unaudited condensed consolidated financial statements 6 MKS INSTRUMENTS, INC. NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (in millions, except per share data) (1) Basis of Presentation The terms "MKS" and the "Company" refer to MKS Instruments, Inc. and its subsidiaries. All intercompany accounts and transactions have been eliminated in consolidation. The interim financial data as of June 30, 2024, and for the three and six months ended June 30, 2024, are unaudited; however, in the opinion of MKS, the interim data includes all adjustments, consisting of normal recurring adjustments, necessary for a fair statement of the results for the interim periods. The condensed consolidated balance sheet presented as of December 31, 2023 has been derived from the consolidated audited financial statements as of that date. The unaudited condensed consolidated financial statements presented herein have been prepared in accordance with the instructions to Form 10-Q and do not include all of the information and note disclosures required by United States generally accepted accounting principles (U.S. GAAP). The unaudited condensed consolidated financial statements should be read in conjunction with the audited consolidated financial statements and notes thereto included in the MKS Annual Report on Form 10-K for the year ended December 31, 2023 filed with the U.S. Securities and Exchange Commission on February 27, 2024. The preparation of these unaudited condensed consolidated financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent liabilities at the date of the unaudited condensed consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. On an on-going basis, management evaluates its estimates and judgments, including those related to revenue recognition, inventory valuation, warranty costs, stock-based compensation, intangible assets, goodwill, other long-lived assets and income taxes. Management bases its estimates and judgments on historical experience and on various other factors that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions. As a result of rounding, there may be immaterial differences in amounts presented and certain calculations may not sum to the total number expressed in each category or tie to a corresponding schedule. The Company has three reportable segments: the Vacuum Solutions Division ("VSD"), the Photonics Solutions Division ("PSD") and the Materials Solutions Division ("MSD") as described in Note 15. During the quarter ended March 31, 2024, the Company moved its Optical Sensing Products ("OSP") product line from the PSD segment to the VSD segment. The purpose of this realignment was to group the OSP products with related semiconductor products within the VSD segment. Prior periods have been recast to reflect this change. The Company reserves the right to make reclassifications between segments. (2) Recent Accounting Pronouncements Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures In November 2023, the Financial Accounting Standards Board (FASB) issued Accounting Standard Update (ASU) No. 2023-07, Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures, which requires a public entity to disclose significant segment expenses and other segment items on an annual and interim basis and provide in interim periods all disclosures about a reportable segment's profit or loss and assets that are currently required annually. Additionally, it requires a public entity to disclose the title and position of the Chief Operating Decision Maker (CODM). The ASU does not change how a public entity identifies its operating segments, aggregates them, or applies the quantitative thresholds to determine its reportable segments. The new standard is effective for fiscal years beginning after December 15, 2023, and interim periods within fiscal years beginning after December 15, 2024, with early adoption permitted. A public entity should apply the amendments in this ASU retrospectively to all prior periods presented in the financial statements. The Company is currently evaluating the impact of this ASU on its disclosures within the consolidated financial statements. Income Taxes (Topic 740): Improvements to Income Tax Disclosures, which focuses on the rate reconciliation and income taxes paid. ASU No. 2023-09 requires a public business entity to disclose, on an annual basis, a tabular rate reconciliation using both percentages and currency amounts, broken out into specified categories with certain reconciling items further broken out by nature and jurisdiction to the extent those items exceed a specified threshold. In addition, all entities are required to disclose income taxes paid, net of refunds received disaggregated by federal, state/local, and foreign and by jurisdiction if the amount is at least 5% of total income tax 7 MKS INSTRUMENTS, INC. NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (in millions, except per share data) (1) Payments, net of refunds received. For PBEs, the new standard is effective for annual periods beginning after December 15, 2024, with early adoption permitted. An entity may apply the amendments in this ASU prospectively by providing the revised disclosures for the period ending December 31, 2025 and continuing to provide the pre-ASU disclosures for the prior periods, or may apply the amendments retrospectively by providing the revised disclosures for all period presented. The Company is currently evaluating the impact of this ASU on its consolidated financial statements and related disclosures. (3) Revenue from Contracts with Customers Contract assets as of June 30, 2024 and December 31, 2023 were \$22 and \$26, respectively. A roll-forward of the Company's deferred revenue and customer advances is as follows: Six Months Ended June 30, 2024 (1) \$ 96 Additions to deferred revenue and customer advances (60) (84) Amount of deferred revenue and customer advances recognized in income (72) (93) Ending balance, June 30(2) \$ 67 \$ 87 (1) Beginning balance as of January 1, 2024 included \$77 of current deferred revenue and customer advances and \$2 of non-current deferred revenue. Beginning balance as of January 1, 2023 included \$94 of current deferred revenue and customer advances and \$2 of non-current deferred revenue. (2) Ending balance as of June 30, 2024 included \$65 of current deferred revenue and customer advances and \$2 of non-current deferred revenue. Ending balance as of June 30, 2023 included \$85 of current deferred revenue and customer advances and \$2 of non-current deferred revenue. Revenue from certain custom products, including MSD plating equipment, and revenue from certain service contracts are recorded over time. Remaining product and services revenues are recorded at a point in time. Disaggregation of Revenue The following tables summarize product and service revenue from contracts with customers in MKS' three reportable segments. Three Months Ended June 30, 2024 VSD PSD MSD Total Net revenues: \$ 276 \$ 210 \$ 284 \$ 770 Services \$ 59 \$ 44 \$ 14 \$ 117 Total net revenues \$ 335 \$ 254 \$ 298 \$ 887 Three Months Ended June 30, 2023 VSD PSD MSD Total Net revenues: \$ 373 \$ 228 \$ 284 \$ 885 Services \$ 61 \$ 43 \$ 14 \$ 118 Total net revenues \$ 434 \$ 271 \$ 298 \$ 1,003 Six Months Ended June 30, 2024 VSD PSD MSD Total Net revenues: \$ 550 \$ 424 \$ 550 \$ 1,524 Services \$ 118 \$ 83 \$ 30 \$ 231 Total net revenues \$ 668 \$ 507 \$ 580 \$ 1,755 MKS INSTRUMENTS, INC. NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (in millions, except per share data) (1) Six Months Ended June 30, 2023 VSD PSD Total

MSD Â Total Â Net revenues: Â Â Â Â Â Products Â \$ 635 Â \$ 387 Â \$ 575 Â \$ 1,597 Â Services Â 103 Â 70 Â 27 Â 200 Â Total net revenues Â \$ 738 Â \$ 457 Â \$ 602 Â \$ 1,797 Â The following table summarizes revenue from contracts with customers in the Company's three end markets: Semiconductor, Electronics and Packaging, and Specialty Industrial. Â Three Months Ended June 30, Â Six Months Ended June 30, Â 2024 Â 2023 Â 2023 Â Semiconductor Â \$ 369 Â \$ 441 Â \$ 720 Â \$ 750 Â Electronics and Packaging Â 229 Â 225 Â 437 Â 447 Â Specialty Industrial Â 289 Â 337 Â 600 Â \$ 887 Â \$ 1,003 Â \$ 1,755 Â \$ 1,797 Â (4)Fair Value MeasurementsIn accordance with the provisions of fair value accounting, a fair value measurement assumes that the transaction to sell an asset or transfer a liability occurs in the principal market for the asset or liability or, in the absence of a principal market, the most advantageous market for the asset or liability and defines fair value based upon an exit price model. The fair value measurement guidance establishes a fair value hierarchy which requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. The guidance describes three levels of inputs that may be used to measure fair value: Level 1 Quoted prices in active markets for identical assets or liabilities as of the reporting date. Active markets are those in which transactions for the asset or liability occur in sufficient frequency and volume to provide pricing information on an ongoing basis. Level 2 Observable inputs other than Level 1 prices, 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 2 assets and liabilities include debt securities with quoted prices that are traded less frequently than exchange-traded instruments or securities or derivative contracts that are valued using a pricing model with inputs that are observable in the market or can be derived principally from or corroborated by observable market data. 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. Level 3 assets and liabilities include financial instruments whose value is determined using pricing models, discounted cash flow methodologies, or similar techniques, as well as instruments for which the determination of fair value requires significant management judgment or estimation. In certain cases, the inputs used to measure fair value may fall into different levels of the fair value hierarchy. In such cases, the Company categorizes such assets and liabilities based on the lowest level input that is significant to the fair value measurement in its entirety. The Company's assessment of the significance of a particular input to the fair value measurement in its entirety requires judgment and considers factors specific to the asset or liability.9 MKS INSTRUMENTS, INC.NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL

STATEMENTS(in millions, except per share data) Assets and liabilities of the Company are measured at fair value on a recurring basis as of June 30, 2024 and are summarized as follows: Fair Value Measurements at Reporting Date Using Description June 30, 2024 Quoted Prices in Active Markets for Identical Assets (Level 1) Significant Other Observable Inputs (Level 2) Significant Unobservable Inputs (Level 3) Assets: Cash equivalents: Money market funds \$ 324 \$ 324 \$ \$ 6 Time deposits \$ 21 \$ 21 \$ Available-for-sale securities: Time deposits and certificates of deposit \$ 1 \$ 1 \$ Group insurance contracts \$ 6 \$ 6 Derivatives: Foreign exchange forward contracts \$ 10 \$ 10 \$ Interest rate hedges - current \$ 15 \$ 15 \$ Interest rate hedges - non-current \$ 53 \$ 53 \$ Pension and deferred compensation plan assets \$ 20 \$ 20 \$ Total assets \$ 452 \$ 326 \$ 126 \$ Liabilities: Derivatives: Foreign exchange forward contracts-current \$ 2 \$ 2 \$ Interest rate hedges-non-current \$ 1 \$ 1 \$ Total liabilities \$ 3 \$ 3 \$ Reported as follows: Assets: Cash and cash equivalents(1) \$ 345 \$ 324 \$ 21 Short-term investments \$ 1 \$ 1 \$ Other current assets \$ 25 \$ 25 \$ Total current assets \$ 371 \$ 324 \$ 47 \$ Other assets \$ 81 \$ 2 \$ 79 \$ Liabilities: Other current liabilities \$ 2 \$ 2 \$ Other non-current liabilities \$ 1 \$ 1 \$ (1) The cash and cash equivalents amount presented in the table above does not include cash of \$505 as of June 30, 2024.10 MKS INSTRUMENTS, INC.NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS(in millions, except per share data) Assets and liabilities of the Company are measured at fair value on a recurring basis as of December 31, 2023 and are summarized as follows: Fair Value Measurements at Reporting Date

Using Â Description Â December 31, 2023 Â Â Quoted Prices inActive Markets forIdentical Assets (Level 1) Â Â SignificantOtherObservableInputs(Level 2) Â Â SignificantUnobservableInputs(Level 3) Â Assets: Â Â Â Â Â Â Â Â Â Â Â Cash equivalents: Â Â Â Â Â Â Â Â Â Â Â Money market funds Â \$ 356 Â Â \$ 356 Â Â \$ â€"Â Â Â \$ â€"Â Time deposits Â 12 Â Â Â Â Â 12 Â Â Â Â Â Available-for-sale securities: Â Â Â Â Â Â Â Â Â Â Â Group insurance contracts Â 6 Â Â Â Â Â 6 Â Â Â Â Â Derivatives Â Â Â Â Â Â Â Â Â Foreign exchange forward contracts Â 2 Â Â Â Â Â Â Â Â Â Interest rate hedge - current Â 3 Â Â Â Â Â Â Â Â Â Interest rate hedge - non-current Â 41 Â Â Â Â Â Â Â Â Â Pension and deferred compensation plan assets Â 19 Â Â Â Â Â Â Â Â Â Total assets Â \$ 439 Â Â \$ 356 Â Â \$ 83 Â Â \$ â€"Â Liabilities: Â Â Â Â Â Â Â Â Â Â Â Â Â Â Â Derivatives Â Â Â Â Â Â Â Â Â Â Â Foreign exchange forward contracts Â \$ 5 Â Â \$ â€"Â Â Â \$ 5 Â Â \$ â€"Â Total liabilities Â \$ 5 Â Â \$ â€"Â Â Â \$ 5 Â Â \$ â€"Â Â Reported as follows: Â Â Â Â Â Â Â Â Â Assets: Â Â Â Â Â Â Â Â Â Cash and cash equivalents (1) Â \$ 368 Â Â \$ 356 Â Â \$ 12 Â Â \$ â€"Â Other current assets Â 5 Â Â Â Â Â Â Â Â Â Total current assets Â \$ 373 Â Â \$ 356 Â Â \$ 17 Â Â \$ â€"Â Other assets Â \$ 66 Â Â \$ â€"Â Â \$ 66 Â Â \$ â€"Â Liabilities: Â Â Â Â Â Â Â Â Â Â Â Â Â Â Â Other current liabilities Â \$ 5 Â Â \$ â€"Â Â Â \$ 5 Â Â \$ â€"Â Â (1) The cash and cash equivalents amount presented in the table above does not include cash of \$507 as of December 31, 2023. Other Fair Value Disclosures The estimated carrying value and fair value of the Companyâ€™s debt as of June 30, 2024 and December 31, 2023 are as follows: Â Â June 30, 2024 Â Â December 31, 2023 Â Â Carrying Value Â Â Fair Value Â Â Carrying Value Â Â Fair Value Â Â Fair Value Â Â Term Loan Facility Â \$ 3,617 Â Â \$ 3,622 Â Â \$ 4,953 Â Â \$ 4,965 Â Convertible Notes Â Â 1,400 Â Â 1,493 Â Â Â Â Â Â Â Â Â Total Â \$ 5,017 Â Â \$ 5,115 Â Â \$ 4,953 Â Â \$ 4,965 Â The estimated carrying value and fair value of the Companyâ€™s Term Loan Facility, as defined and further described in Note 8, was determined using available market information based on recent trades or activity of debt instruments with substantially similar risks, terms and maturities, which fall within Level 2 under the fair value hierarchy. The estimated fair value of the Companyâ€™s Convertible Notes, as defined and further described in Note 8, was determined based on the last traded price of the Convertible Notes for the period ended June 30, 2024, and falls under Level 3 of the fair value hierarchy. Pension and Deferred

price of the Convertible Notes for the period ended June 30, 2024, and falls under Level 2 of the fair value hierarchy. Pension and Deferred Compensation Plan Assets The pension and deferred compensation plan assets represent investments in mutual funds, exchange traded funds, government securities and other time deposits. These investments are set aside for employee retirement benefits of certain of the Company's subsidiaries. 11 MKS INSTRUMENTS, INC. NOTES TO UNAUDITED CONSOLIDATED FINANCIAL STATEMENTS (in millions, except per share data) Derivatives As a result of the Company's global operating activities and variable interest rate borrowings, the Company is exposed to market risks from changes in foreign currency exchange rates and interest rates, which may adversely affect its operating results and financial position. When deemed appropriate, the Company minimizes its risks from foreign currency exchange rate and interest rate fluctuations through the use of derivative financial instruments. The principal market in which the Company executes its foreign currency and interest rate contracts is the institutional market in an over-the-counter environment with a relatively high level of price transparency. The market participants are typically large commercial banks. The contracts are valued using broker quotations or market transactions. (5) Derivatives and Net Investment Hedge Foreign Exchange Forward Contracts The Company hedges a portion of its forecasted foreign currency-denominated intercompany sales of inventory, over a maximum period of eighteen months, using foreign exchange forward contracts accounted for as cash-flow hedges. To the extent these derivatives are effective in offsetting the variability of the hedged cash flows, and otherwise meet the hedge accounting criteria, changes in the derivatives' fair value are not included in current earnings but are included in other comprehensive income ("OCI") in stockholders' equity. These changes in fair value will subsequently be reclassified into earnings, as applicable, when the forecasted transaction occurs. To the extent that a previously designated hedging transaction is no longer an effective hedge, any ineffectiveness measured in the hedging relationship is recorded in earnings in the period it occurs. The cash flows resulting from foreign exchange forward contracts are classified in the condensed consolidated statements of cash flows as part of cash flows from operating activities. The Company does not enter into derivative instruments for trading or speculative purposes. The Company also enters into foreign exchange forward contracts to hedge against changes in the balance sheet for certain subsidiaries to mitigate the risk associated with certain foreign currency transactions in the ordinary course of business. These derivatives are not designated as cash flow hedging instruments and gains or losses from these derivatives are recorded immediately in other (income) expense, net. The following tables

hedging instruments and gains or losses from these derivatives are recorded immediately in other (income) expense, net. The following tables summarize the primary net hedging positions and fair values of foreign exchange forward contracts outstanding as of June 30, 2024 and December 31, 2023: **June 30, 2024** **Currency Hedged (Buy/Sell)** **Net NotionalValue** **Fair Value Asset (Liability)** **U.S. dollar/Japanese yen** **\$ 31** **\$ 5** **U.S. dollar/South Korean won** **72** **2** **U.S. dollar/Taiwan dollar** **27** **1** **U.S. dollar/Singapore dollar** **1** **1** **U.S. dollar/Chinese renminbi** **20** **2** **U.S. dollar/Mexican peso** **6** **1** **U.S. dollar/Thai baht** **4** **1** **U.S. dollar/Hong Kong dollar** **1** **1** **U.S. dollar/Euro/Chinese renminbi** **2** **2** **U.S. dollar/Euro/Canadian dollar** **1** **1** **Malaysian ringgit/U.S. dollar** **7** **1** **U.S. dollar/Polish zloty/U.S. dollar** **1** **1** **U.K. pound sterling/U.S. dollar** **27** **1** **Canadian dollar/U.S. dollar** **1** **1** **Total** **\$ 206** **\$ 8** **12 MKS INSTRUMENTS, INC. NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS**(in millions, except per share data)**December 31, 2023** **Currency Hedged (Buy/Sell)** **Net NotionalValue** **Fair Value (Liability) Asset** **U.S. dollar/Japanese yen** **\$ 65** **\$ 4** **U.S. dollar/South Korean won** **70** **3** **U.S. dollar/Taiwan dollar** **22** **1** **U.S. dollar/Singapore dollar** **1** **1** **U.S. dollar/Chinese renminbi** **8** **1** **U.S. dollar/Mexican peso** **5** **1** **U.S. dollar/Euro/Canadian dollar** **1** **1** **U.K. pound sterling/U.S. dollar** **19** **1** **Total** **\$ 266** **\$ (3)** **The following table summarizes the net gains (losses) on derivatives designated as cash flow hedging instruments:** **Three Months Ended June 30, 1**

be entitled to take various actions, including the acceleration of amounts due under the Credit Facilities and all actions permitted to be taken by a secured creditor. As of June 30, 2024, the Company was in compliance with all covenants under the Credit Agreement. The Company paid certain customary fees to and expenses of (i) JPMorgan Chase Bank, N.A., Barclays Bank PLC, BofA Securities, Inc., Citibank, N.A., HSBC Securities (USA) Inc. and Mizuho Bank, Ltd. in their respective capacities as lead 19 MKS INSTRUMENTS, INC. NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (in millions, except per share data) arrangers and bookrunners in connection with the Credit Facilities on the Effective Date, (ii) JPMorgan Chase Bank, N.A. in its capacity as lead arranger in connection with each of the First Amendment, the Second Amendment and the Third Amendment and (iii) the lenders providing the Incremental Revolving Commitments pursuant to the Third Amendment. As described further below under "Convertible Notes," on May 16, 2024, the Company completed a private offering of convertible senior notes. A significant portion of the net proceeds from the offering was used to repay approximately \$1,206 of the USD Tranche B. As a result of the repayment, the Company recorded a \$38 loss on extinguishment of debt. As of June 30, 2024, the weighted average interest rate of the Term Loan Facility was 7.5%. The Revolving Facility has a maturity date in August 2027 while the USD Tranche B and Euro Tranche B have a maturity date in August 2029. As of June 30, 2024, there were no borrowings under the Revolving Facility. Convertible Notes On May 16, 2024, the Company completed a private offering of \$1,400 aggregate principal amount of its convertible senior notes due 2030 (the "Convertible Notes"). The Convertible Notes were sold in a private placement under a purchase agreement, dated as of May 13, 2024 (the "Purchase Agreement"), entered into by and between the Company and each of Morgan Stanley & Co. LLC, J.P. Morgan Securities LLC, BofA Securities, Inc. and Mizuho Securities USA LLC, as representatives of the several initial purchasers named therein, for resale to persons reasonably believed to be qualified institutional buyers in reliance on Rule 144A under the Securities Act of 1933, as amended. The aggregate principal amount of the Convertible Notes sold in the offering was \$1,400, which included \$200 aggregate principal amount of the Convertible Notes issued pursuant to an option to purchase, within a 13-day period beginning on, and including, the date on which the Convertible Notes were first issued, which the initial purchasers exercised in full on May 14, 2024 and which additional purchase was also completed on May 16, 2024. The net proceeds from the offering were approximately \$1,374 after deducting the initial purchasers' discounts and commissions and estimated offering expenses paid by the Company. The Company used approximately \$167 of the net proceeds from the offering to pay the cost of the capped call transactions described below. The Company used the remaining net proceeds from the offering to repay approximately \$1,206 in borrowings outstanding under the USD Tranche B, together with accrued interest, as well as for general corporate purposes. Indenture and the Convertible Notes On May 16, 2024, the Company entered into an indenture (the "Indenture") with respect to the Convertible Notes with U.S. Bank Trust Company, National Association, as trustee (the "Trustee"). Under the Indenture, the Convertible Notes are senior unsecured obligations of the Company and bear interest at a coupon rate of 1.25% per annum, with interest payable semiannually in arrears on June 1 and December 1 of each year, beginning on December 1, 2024. The Convertible Notes will mature on June 1, 2030, unless earlier converted, redeemed or repurchased in accordance with their terms. Subject to certain conditions, on or after June 5, 2027, the Company may redeem for cash all or any portion of the Convertible Notes at a redemption price equal to 100% of the principal amount of the Convertible Notes to be redeemed, plus accrued and unpaid interest to, but excluding, the redemption date, if the last reported sale price of the Company's common stock has been at least 130% of the conversion price then in effect for at least 20 trading days (whether or not consecutive) during the period of 30 consecutive trading days ending on, and including, the trading day immediately preceding the date the notice of redemption is sent. The conversion rate for the Convertible Notes is initially 6.4799 shares of the Company's common stock per one thousand dollars principal amount of the Convertible Notes, which is equivalent to an initial conversion price of approximately \$154.32 per share. The conversion rate is subject to adjustment upon the occurrence of certain events. Upon conversion, the Company will pay cash up to the aggregate principal amount of the Convertible Notes to be converted and pay or deliver, as the case may be, cash, shares of common stock or a combination of cash and shares of common stock, at the Company's election, in respect of the remainder, if any, of its conversion obligation in excess of the aggregate principal amount of the Convertible Notes being converted. Prior to March 1, 2030, noteholders may convert all or any portion of their Convertible Notes only upon the occurrence of certain events and during certain periods, and thereafter, at any time until the second scheduled trading day immediately preceding the maturity date. 20 MKS INSTRUMENTS, INC. NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (in millions, except per share data) If the Company undergoes a fundamental change (as defined in the Indenture) prior to the maturity date of the Convertible Notes, holders may require the Company to repurchase for cash all or any portion of their Convertible Notes at a fundamental change repurchase price equal to 100% of the principal amount of the Convertible Notes to be repurchased, plus any accrued and unpaid interest to, but excluding, the fundamental change repurchase date. The Indenture contains customary terms and covenants, including that upon certain events of default that are occurring and continuing, either the Trustee or the holders of at least 25% in aggregate principal amount of the outstanding Convertible Notes may declare 100% of the principal of, and accrued and unpaid interest, if any, on, all the Convertible Notes to be due and payable. As of June 30, 2024, the Convertible Notes are classified as a long-term liability, net of issuances costs, on the condensed consolidated balance sheet. The Convertible Notes were issued at par and costs associated with the issuance of the Convertible Notes are amortized to interest expense over the contractual term of the Convertible Notes. As of June 30, 2024, the effective interest rate of the Convertible Notes was 1.56%. Capped Call Transactions On May 13, 2024, in connection with the pricing of the Convertible Notes, and on May 14, 2024, in connection with the exercise in full by the initial purchasers of their option to purchase additional Convertible Notes, the Company entered into privately negotiated capped call transactions with certain of the initial purchasers of the Convertible Notes or their respective affiliates and other financial institutions. The capped call transactions are expected generally to reduce the potential dilution to the Company's common stock upon conversion of any Convertible Notes and/or offset any cash payments that the Company is required to make in excess of the principal amount of any converted Convertible Notes, as the case may be, with such reduction and/or offset subject to a cap initially equal to \$237.42 per share, which represents a premium of 100% over the last reported sale price of \$118.71 per share of the Company's common stock on the Nasdaq Global Select Market on May 13, 2024, and is subject to customary adjustments under the terms of the capped call transactions. The Company evaluated the capped call transactions and determined that they should be accounted for separately from the Convertible Notes. The cost of \$167 to purchase the capped call transactions was recorded as a reduction to additional paid-in capital in the consolidated balance sheet as of June 30, 2024 as the capped call transactions are indexed to the Company's own stock and met the criteria to be classified in stockholders' equity. The Company's interest expense is as follows:

Three Months Ended June 30, 2024	\$ 82	\$ 98	\$ 177	\$ 188	\$ 192	\$ 202																																		
Six Months Ended June 30, 2024	\$ 154	\$ 164	\$ 174	\$ 184	\$ 194	\$ 204																																		
Contractual interest expense	\$ 82	\$ 98	\$ 177	\$ 188	\$ 192	\$ 202																																		
Total interest expense on Term Loan Facility	\$ 89	\$ 104	\$ 192	\$ 202																																				
Convertible Notes	\$ 2	\$ 2	\$ 2	\$ 2																																				
Amortization of debt issuance costs as interest expense	\$ 2	\$ 2	\$ 2	\$ 2																																				
Contractual interest expense	\$ 2	\$ 2	\$ 2	\$ 2																																				
Total interest expense on Convertible Notes	\$ 3	\$ 3	\$ 3	\$ 3																																				
Interest expense	\$ 3	\$ 3	\$ 3	\$ 3																																				
Other interest expense, net	\$ (13)	\$ (16)	\$ (29)	\$ (29)																																				
Total interest expense	\$ 79	\$ 88	\$ 166	\$ 173																																				
(1) Other interest expense, net primarily consists of interest (income) expense related to the Company's interest rate swap and interest rate cap agreements. Lines of Credit and Borrowing Arrangements Certain of the Company's Japanese subsidiaries have lines of credit and a financing facility with various financial institutions, many of which generally expire and are renewed at three-month intervals with the remaining having no expiration date. The lines of credit and financing facility provided for aggregate borrowings as of June 30, 2024 and December 31, 2023 of up to an equivalent of \$19 and \$14, respectively. There were no borrowings outstanding under these arrangements at June 30, 2024 and December 31, 2023. 21 MKS INSTRUMENTS, INC. NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (in millions, except per share data) Contractual maturities of the Company's debt obligations as of June 30, 2024 are as follows: Year Amount 2024 (remaining) \$ 25 2025 \$ 50 2026 \$ 50 2027 \$ 50 2028 \$ 50 2029 \$ 3,392 Thereafter \$ 1,400 (9) Product Warranties The Company provides for the estimated costs to fulfill customer warranty obligations upon the recognition of the related revenue. The Company's warranty obligations are affected by shipment volume, product failure rates, utilization levels, material usage and supplier warranties on parts delivered to the Company. Should actual product failure rates, utilization levels, material usage, or supplier warranties on parts differ from the Company's estimates, revisions to the estimated warranty liability would be required. The Company engages in extensive product quality programs and processes, including actively monitoring and evaluating the quality of its component suppliers. Product warranty activities were as follows: <table border="1"><tr><td>Three Months Ended June 30, 2024</td><td>\$ 22</td><td>\$ 27</td><td>\$ 4</td></tr><tr><td>Beginning of period</td><td>\$ 22</td><td>\$ 27</td><td>\$ 4</td></tr><tr><td>Provision for product warranties</td><td>\$ 13</td><td>\$ 14</td><td>\$ 14</td></tr><tr><td>Charges to warranty liability</td><td>\$ (12)</td><td>\$ (8)</td><td>\$ (8)</td></tr><tr><td>End of period</td><td>\$ 23</td><td>\$ 23</td><td>\$ 14</td></tr></table> As of June 30, 2024, short-term product warranties of \$14 and long-term product warranties of \$9 were included within other current liabilities and other non-current liabilities, respectively, within the accompanying condensed consolidated balance sheet. As of June 30, 2023, short-term product warranties of \$17 and long-term product warranties of \$6 were included within other current liabilities and other non-current liabilities, respectively, within the accompanying condensed consolidated balance sheet. (10) Other Current Liabilities Other current liabilities consisted of the following: <table border="1"><tr><td>June 30, 2024</td><td>December 31, 2023</td></tr><tr><td>Accrued compensation and other employee-related obligations</td><td>\$ 110</td><td>\$ 159</td></tr><tr><td>Deferred revenue and customer advances</td><td>\$ 65</td><td>\$ 77</td></tr><tr><td>Income taxes payable</td><td>\$ 89</td><td>\$ 57</td></tr><tr><td>Lease liabilities</td><td>\$ 37</td><td>\$ 30</td></tr><tr><td>Other</td><td>\$ 98</td><td>\$ 105</td></tr><tr><td>Total other current liabilities</td><td>\$ 399</td><td>\$ 428</td></tr></table> The Company's effective tax rates for the three and six months ended June 30, 2024 were (3.6)% and 8.9% respectively. The Company's effective tax rates for the three and six months ended June 30, 2024 were lower than the U.S. statutory tax rate mainly due to the tax benefit related to the U.S. deduction for foreign derived intangible income ("FDII") and research and development tax credits, partially offset by an expected increase in foreign withholding taxes and U.S. base erosion and anti-abuse tax. 22 MKS INSTRUMENTS, INC. NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (in millions, except per share data) The Company's effective tax rates for the three and six months ended June 30, 2023 were 1.2% and 3.2%, respectively. The goodwill impairment relating to the electronics and general metal finishing reporting units of MSD and the equipment solutions reporting unit of PSD was considered non-deductible goodwill for tax purposes and therefore no	Three Months Ended June 30, 2024	\$ 22	\$ 27	\$ 4	Beginning of period	\$ 22	\$ 27	\$ 4	Provision for product warranties	\$ 13	\$ 14	\$ 14	Charges to warranty liability	\$ (12)	\$ (8)	\$ (8)	End of period	\$ 23	\$ 23	\$ 14	June 30, 2024	December 31, 2023	Accrued compensation and other employee-related obligations	\$ 110	\$ 159	Deferred revenue and customer advances	\$ 65	\$ 77	Income taxes payable	\$ 89	\$ 57	Lease liabilities	\$ 37	\$ 30	Other	\$ 98	\$ 105	Total other current liabilities	\$ 399	\$ 428
Three Months Ended June 30, 2024	\$ 22	\$ 27	\$ 4																																					
Beginning of period	\$ 22	\$ 27	\$ 4																																					
Provision for product warranties	\$ 13	\$ 14	\$ 14																																					
Charges to warranty liability	\$ (12)	\$ (8)	\$ (8)																																					
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June 30, 2024	December 31, 2023																																							
Accrued compensation and other employee-related obligations	\$ 110	\$ 159																																						
Deferred revenue and customer advances	\$ 65	\$ 77																																						
Income taxes payable	\$ 89	\$ 57																																						
Lease liabilities	\$ 37	\$ 30																																						
Other	\$ 98	\$ 105																																						
Total other current liabilities	\$ 399	\$ 428																																						

759 Å Å 784 Å Right-of-use assets, net Å Å 229 Å Å 225 Å Goodwill and intangible assets, net Å Å 4,913 Å Å 5,173 Å Other assets Å Å 314 Å Å 240 Å Total assets Å \$ 8,863 Å Å \$ 9,118 Å Å 26 MKS INSTRUMENTS, INC.NOTES TO UNAUDITED CONDENSED CONSOLIDATED FINANCIAL STATEMENTS(in millions, except per share data)Å Goodwill associated with each of the Companyâ€™s reportable segments is as follows: Å Å VSD Å PSD Å MSD Å Total Å Reportable segment: Å Å Å Å Å Å Å Gross goodwill, at December 31, 2023 Å \$ 359 Å Å \$ 1,007 Å Å \$ 3,021 Å Å \$ 4,387 Å Foreign currency translation Å (1) Å (2) Å (56) Å (59) Gross goodwill, at June 30, 2024 Å Å 358 Å Å 1,005 Å Å 2,965 Å Å 4,328 Å Accumulated goodwill impairment, at December 31, 2023 and June 30, 2024 Å Å (141) Å (390) Å Å (1,302) Å Å (1,833) Goodwill, net of accumulated impairment and foreign currency translation, at June 30, 2024 Å \$ 217 Å Å \$ 615 Å Å \$ 1,663 Å Å 2,495 Å Geographic AreaInformation about the Companyâ€™s operations by geographic area is presented in the tables below. Starting in the second quarter of 2024, the Company changed its basis of reporting geographical net revenues from the location in which the sale originated to the shipped-to location of the end customer. Prior periods have been recast to reflect this change, which was made to better align with how management reviews geographic net revenues. Intercompany sales between geographic areas are at tax transfer prices and have been eliminated from consolidated net revenues. Å Three Months Ended June 30, Å Å Six Months Ended June 30, Å Net revenues: Å 2024 Å Å 2023 Å Å 2024 Å Å 2023 Å United States Å \$ 202 Å Å \$ 265 Å Å \$ 421 Å Å \$ 452 Å China Å Å 199 Å Å 200 Å Å 369 Å Å 360 Å South Korea Å Å 82 Å Å 90 Å Å 170 Å Å 169 Å Taiwan Å Å 62 Å Å 65 Å Å 110 Å Å 128 Å Japan Å Å 55 Å Å 82 Å Å 112 Å Å 140 Å Singapore Å Å 55 Å Å 69 Å Å 111 Å Å 124 Å Other Å Å 232 Å Å 232 Å Å 462 Å Å 424 Å Å \$ 887 Å Å \$ 1,003 Å Å \$ 1,755 Å Å \$ 1,797 Å Long-lived assets include property, plant and equipment, net, right-of-use assets, net and certain other assets, and exclude goodwill, intangible assets and long-term tax-related accounts. Long-lived assets: Å June 30, 2024 Å Å December 31, 2023 Å United States Å \$ 462 Å Å \$ 459 Å China Å Å 165 Å Å 163 Å Germany Å Å 136 Å Å 149 Å Other Å Å 321 Å Å 326 Å Å \$ 1,084 Å Å \$ 1,097 Å Å (16)Restructuring and OtherThe Company recorded restructuring and other charges of \$2 and \$5 during the three and six months ended June 30, 2024, respectively, primarily related to severance costs due a global cost-saving initiative implemented in the fourth quarter of 2023. Restructuring and other charges for these periods also included a \$1 charge related to a legal matter. The Company recorded restructuring charges of \$11 and \$12 during the three and six months ended June 30, 2023, respectively, primarily related to severance costs due to global cost-saving initiatives implemented in each of the first and second quarters of 2023.27 MKS INSTRUMENTS, INC.NOTES TO UNAUDITED CONDENSED FINANCIAL STATEMENTS(in millions, except per share data)Å The activity related to the Companyâ€™s restructuring accrual is shown below: Å Å Six Months Ended June 30, Å Å 2024 Å Å 2023 Å Restructuring accrual, beginning of period Å \$ 9 Å Å \$ 3 Å Charged to expense Å Å 4 Å Å 12 Å Payments and adjustments Å Å (6) Å Å (6) Restructuring accrual, end of period Å \$ 7 Å Å \$ 9 Å Å (17)Commitments and ContingenciesLitigationThe Company is subject to various legal proceedings and claims that have arisen in the ordinary course of business. In the opinion of management, the ultimate disposition of these matters will not have a material adverse effect on the Companyâ€™s results of operations, financial condition or cash flows.

(18)Subsequent EventOn July 23, 2024 (the â€œFourth Amendment Effective Dateâ€), the Company entered into the Fourth Amendment to the Credit Agreement (the â€œFourth Amendmentâ€). Pursuant to the Fourth Amendment, the Company (i) refinanced its existing USD Tranche B loan and Euro Tranche B loan with a new \$2,650 USD Tranche B loan and a new â€“800 Euro Tranche B loan, (ii) decreased the applicable margin for the USD Tranche B from 2.50% to 2.25% with respect to Term SOFR borrowings and from 1.50% to 1.25% with respect to base rate borrowings, (iii) decreased the applicable margin for the Euro Tranche B from 3.00% to 2.75% and (iv) extended the period during which a 1.00% prepayment premium may be required if the Company prepays any loans under the USD Tranche B or the Euro Tranche B in connection with a repricing transaction until the date that is six months following the Fourth Amendment Effective Date. In connection with the execution of the Fourth Amendment, the Company paid customary fees and expenses to JPMorgan Chase Bank, N.A. On July 23, 2024, immediately prior to the effectiveness of the Fourth Amendment, the Company made a voluntary prepayment of \$110 aggregate principal amount under the Term Loan Facility, consisting of \$69 principal amount of its USD Tranche B loan and â€“38 principal amount of its Euro Tranche B loan. Å 28 Å ITEM 2. MANAGEMENTâ€™S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS. This Quarterly Report on Form 10-Q contains â€œforward-looking statementsâ€ within the meaning of the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934 regarding the future financial performance, business prospects and growth of MKS Instruments, Inc. (â€œMKS,â€ the â€œCompany,â€ â€œour,â€ or â€œweâ€). These statements are only predictions based on current assumptions and expectations. Any statements that are not statements of historical fact (including statements containing the words â€œwill,â€ â€œprojects,â€ â€œintends,â€ â€œbelieves,â€ â€œplans,â€ â€œanticipates,â€ â€œexpects,â€ â€œestimates,â€ â€œforecasts,â€ â€œcontinuesâ€ and similar expressions) should be considered forward-looking statements. Actual events or results may differ materially from those in the forward-looking statements set forth herein. Among the important factors that could cause actual events to differ materially from those in the forward-looking statements that we make are the level and terms of our substantial indebtedness and our ability to service such debt; our entry into the chemicals technology business through our acquisition of Atotech Limited (â€œAtotechâ€) in August 2022 (the â€œAtotech Acquisitionâ€) which may expose us to significant additional liabilities; the risk that we are unable to integrate the Atotech Acquisition successfully or realize the anticipated synergies, cost savings and other benefits of the Atotech Acquisition; legal, reputational, financial and contractual risks resulting from the ransomware event we identified in February 2023, and other risks related to cybersecurity, data privacy and intellectual property; competition from larger, more advanced or more established companies in our markets; the ability to successfully grow our business, including through growth of the Atotech business and growth of the Electro Scientific Industries, Inc. business, which we acquired in February 2019, and financial risks associated with those and potential future acquisitions, including goodwill and intangible asset impairments; manufacturing and sourcing risks, including those associated with limited and sole source suppliers and the impact and duration of supply chain disruptions, component shortages, and price increases; changes in global demand; the impact of a pandemic or other widespread health crisis; risks associated with doing business internationally, including geopolitical conflicts, such as the conflict in the Middle East, trade compliance, regulatory restrictions on our products, components or markets, particularly the semiconductor market, and unfavorable currency exchange and tax rate fluctuations, which risks become more significant as we grow our business internationally and in China specifically; conditions affecting the markets in which we operate, including fluctuations in capital spending in the semiconductor, electronics manufacturing and automotive industries, and fluctuations in sales to our major customers; disruptions or delays from third-party service providers upon which our operations may rely; the ability to anticipate and meet customer demand; the challenges, risks and costs involved with integrating or transitioning global operations of the companies we have acquired; risks associated with the attraction and retention of key personnel; potential fluctuations in quarterly results; dependence on new product development; rapid technological and market change; acquisition strategy; volatility of stock price; risks associated with chemical manufacturing and environmental regulation compliance; risks related to defective products; financial and legal risk management; and the other important factors described under the heading â€œRisk Factorsâ€ in Part I, Item 1A of our Annual Report on Form 10-K for the year ended December 31, 2023 filed with the U.S. Securities and Exchange Commission on February 27, 2024 (â€œAnnual Reportâ€) and any subsequent Quarterly Reports on Form 10-Q. We are under no obligation to, and expressly disclaim any obligation to, update or alter these forward-looking statements, whether as a result of new information, future events or otherwise, even if subsequent events cause our views to change. The Managementâ€™s Discussion and Analysis of Financial Condition and Results of Operations describes principal factors affecting the results of operations, financial condition, cash flows and liquidity, as well as our critical accounting policies and estimates that require significant judgment and thus have the most significant potential impact on our condensed consolidated financial statements, and is intended to better allow investors to view the Company from managementâ€™s perspective. This section focuses on material events and uncertainties known to management that are reasonably likely to cause reported financial information not to be necessarily indicative of our future operating results or our future financial condition. This section provides an analysis of our financial results for the three months ended June 30, 2024 compared to the three months ended March 31, 2024, and the six months ended June 30, 2024 compared to the six months ended June 30, 2023. Overview We enable technologies that transform our world. We deliver foundational technology solutions to leading edge semiconductor manufacturing, electronics and packaging, and specialty industrial applications. We apply our broad science and engineering capabilities to create instruments, subsystems, systems, process control solutions and specialty chemicals technology that improve process performance, optimize productivity and enable unique innovations for many of the worldâ€™s leading technology and industrial companies. Our solutions are critical to addressing the challenges of miniaturization and complexity in advanced device manufacturing by enabling increased power, speed, feature enhancement and optimized connectivity. Our solutions are also critical to addressing ever-increasing performance requirements across a wide array of specialty industrial applications. 29 Å Segments We have three divisions which are our reportable segments, Vacuum Solutions Division (â€œVSDâ€), Photonics Solutions Division (â€œPSDâ€) and Materials Solutions Division (â€œMSDâ€). VSD delivers foundational technology solutions to leading edge semiconductor manufacturing, electronics and packaging and specialty industrial applications. VSD products are derived from our core competencies in pressure measurement and control, flow measurement and control, gas and vapor delivery, gas composition analysis, electronic control technology, reactive gas generation and delivery, power generation and delivery, temperature sensing and vacuum technology. PSD provides a full range of solutions including lasers, beam measurement and profiling, precision motion control, vibration isolation systems, photonics instruments, opto-mechanical components, optical elements, laser-based systems for flexible printed circuit board (â€œPCBâ€) processing, and laser-based systems for high density interconnect PCB and package substrate manufacturing. During the quarter ended March 31, 2024, we moved our Optical Sensing Products (â€œOSPâ€) product line from the PSD segment to the VSD segment. The purpose of this realignment was to better align the OSP products with semiconductor related products within the VSD segment. Prior periods have been recast to reflect this change. MSD develops leading process and manufacturing technologies for advanced surface modification, electroless and electrolytic plating, and surface finishing. Applying a comprehensive systems-and-solutions approach, MSDâ€™s portfolio includes chemistry, equipment, software, and services for innovative and high-technology applications in a wide variety of end markets. Markets Net Revenues by End Market Å Å Three Months Ended Å Å Six Months Ended Å (dollars in millions) Å June 30, 2024 Å Å % Total Å Å March 31, 2024

Â % Total Â June 30, 2024 Â % Total Â June 30, 2023 Â % Total Â Semiconductor Â \$ 369 Â 42 % Â \$ 351 Â 40 % Â \$ 720 Â 41 % Â \$ 750 Â 42 % Electronics and Packaging Â 229 Â 26 % Â 208 Â 24 % Â 437 Â 25 % Â 447 Â 25 % Specialty Industrial Â 289 Â 33 % Â 309 Â 36 % Â 598 Â 34 % Â 600 Â 33 % Â Total net revenues Â \$ 887 Â 100 % Â \$ 868 Â 100 % Â \$ 1,755 Â 100 % Â \$ 1,797 Â 100 % Semiconductor Market MKS is a critical solutions provider for semiconductor manufacturing. Our products are used in major semiconductor processing steps, such as deposition, etching, cleaning, lithography, metrology, and inspection. The semiconductor industry continually faces new challenges, as products become smaller, more powerful and highly mobile. Ultra-thin layers, smaller critical dimensions, new materials, 3D structures, and the ongoing need for higher yield and productivity drive the need for tighter process measurement and control, all of which MKS supports. We believe we are the broadest critical subsystem provider in the wafer fabrication equipment (â€œWFEâ€) ecosystem and address over 85% of the market. We have characterized our broad and unique offering as Surround the WaferÂ® to reflect the technology enablement we provide across almost every major process in semiconductor manufacturing today. The semiconductor market is subject to rapid demand shifts, which are difficult to predict, and we cannot be certain as to the timing or extent of future demand or any future softening in the semiconductor capital equipment industry. In addition to these rapid demand shifts, the semiconductor capital equipment industry is subject to significant trade restrictions, especially in China. For the three months ended June 30, 2024, net revenues in our semiconductor market increased by \$18 million, or 5%, compared to the prior quarter primarily due to strong in-quarter demand conversion within VSD. For the six months ended June 30, 2024, net revenues in our semiconductor market decreased by \$30 million, or 4%, compared to the same period in the prior year. This decrease was mainly due to continued softened demand for semiconductor capital equipment related to deposition and etching, partially offset by an increase in sales of our lithography, metrology and inspection products. Electronics and Packaging Market MKS is a foundational solutions provider for the electronics and packaging market. Our portfolio includes photonics components, laser drilling systems, electronics chemistries and plating equipment that are critical for the manufacturing of 30 Â PCBs and package substrates, and critical to wafer level packaging (â€œWLPâ€) applications. Similar to the semiconductor industry, the PCB, package substrate and WLP industries demand smaller features, greater density, and better performance. In addition, the electronics and packaging market also includes sales of our vacuum and photonics solutions for display manufacturing applications. We characterize our complementary offering of laser systems and chemistry solutions as Optimize the InterconnectÂ®, to reflect the unique technology enablement we provide at the Interconnect level within PCBs, package substrates and WLPs. For the three months ended June 30, 2024, net revenues in our electronics and packaging market increased by \$21 million, or 10%, compared to the prior quarter primarily due to an increase in chemistry sales within MSD. This sequential increase was also due to seasonality related to the Lunar New Year in the three months ended March 31, 2024. For the six months ended June 30, 2024, net revenues in our electronics and packaging market decreased by \$10 million, or 2%, compared to the same period in the prior year. This decrease was primarily due to lower revenue within MSD mainly as a result of lower palladium prices that are passed through to our customers, which were partially offset by volume growth in chemistry sales. Specialty Industrial Market MKSâ™ strategy in the specialty industrial market is to leverage our domain expertise and proprietary technologies across a broad array of applications in industrial technologies, life and health sciences, and research and defense markets. Industrial Technologies Industrial technologies encompasses a wide range of diverse applications, including chemistries for functional coatings, surface finishing and wear resistance in the automobile industry, vacuum solutions for synthetic diamond manufacturing and photonics for solar manufacturing. Other applications include vacuum and photonics solutions for light emitting diode and laser diode manufacturing. Life and Health Sciences Our products for life and health sciences are used in a diverse array of applications, including bioimaging, medical instrument sterilization, medical device manufacturing, analytical, diagnostic and surgical instrumentation, consumable medical supply manufacturing and pharmaceutical production. Research and Defense Our products for research and defense are sold to government, university and industrial laboratories for applications involving research and development in materials science, physical chemistry, photonics, optics and electronics materials. Our products are also sold for monitoring and defense applications, including surveillance, imaging and infrastructure protection. For the three months ended June 30, 2024, net revenues in our specialty industrial market decreased by \$20 million, or 7%, compared to the prior quarter mainly due to lower revenue in our general industrial and defense markets within VSD and PSD. For the six months ended June 30, 2024, net revenues in our specialty industrial market were essentially flat compared to the same period in the prior year. International Markets Starting in the second quarter of 2024, we changed our basis of reporting geographical net revenues from the location in which the sale originated to the shipped-to location of the end customer. Prior periods have been recast to reflect this change, which was made to better align with how management reviews geographic net revenues. A significant portion of our net revenues is from sales to customers in international markets. For the six months ended June 30, 2024 and 2023, international net revenues accounted for approximately 76% and 75%, respectively, of our total net revenues. A significant portion of our international net revenues was generated from sales to customers in China, South Korea, Japan, Taiwan and Singapore. We expect international net revenues will continue to account for a significant percentage of total net revenues for the foreseeable future. Long-lived assets located outside of the United States accounted for approximately 57% and 58% of our total long-lived assets as of June 30, 2024 and December 31, 2023. Long-lived assets include property, plant and equipment, net, right-of-use assets, net and certain other assets. 31 Â Critical Accounting Policies and Estimates The preparation of our consolidated financial statements and related disclosures in conformity with accounting principles generally accepted in the United States requires management to make judgments, assumptions and estimates that affect the amounts reported. There have been no material changes in our critical accounting policies since December 31, 2023. For further information about our critical accounting policies, please see the discussion of critical accounting policies in our Annual Report in the section captioned â€œManagementâ€™s Discussion and Analysis of Financial Condition and Results of Operationsâ€. Critical Accounting Policies and Estimates.Â Results of Operations The following table sets forth, for the periods indicated, the percentage of total net revenues of certain line items included in our condensed consolidated statements of operations and comprehensive (loss) income data: Â Three Months Ended Â Six Months Ended Â June 30, 2024 Â March 31, 2024 Â June 30, 2023 Â Net revenues: Â 100.0 % Products Â 86.8 % Â 86.9 % Â 88.9 % Services Â 13.2 % Â 13.1 % Â 13.2 % Â 11.1 % Total net revenues Â 100.0 % Â 100.0 % Â 100.0 % Cost of revenues: Â 46.4 % Â 45.9 % Â 46.2 % Â 48.9 % Cost of service revenues Â 6.3 % Â 6.3 % Â 6.3 % Â 6.3 % Total cost of revenues (exclusive of amortization shown separately below) Â 52.8 % Â 52.2 % Â 52.5 % Â 55.2 % Gross profit Â 47.3 % Â 47.8 % Â 47.5 % Â 44.8 % Research and development Â 7.4 % Â 8.1 % Â 7.7 % Â 8.2 % Selling, general and administrative Â 18.2 % Â 19.6 % Â 18.9 % Â 19.4 % Acquisition and integration costs Â 0.2 % Â 0.1 % Â 0.2 % Â 0.6 % Restructuring and other Â 0.2 % Â 0.3 % Â 0.3 % Fees and expenses related to amendments to the Term Loan Facility Â 0.7 % Fees and expenses related to amendments to the Term Loan Facility Â 0.3 % Â 0.2 % Â 0.2 % Amortization of intangible assets Â 6.9 % Â 7.1 % Â 7.0 % Â 8.7 % Goodwill and intangible asset impairments Â 101.7 % Income (loss) from operations Â 14.4 % Â 12.2 % Â 13.3 % Â (94.5) Interest income Â (0.6) Â (0.7) Â (0.6) Â (0.4) Interest expense Â 8.9 % Â 10.0 % Â 9.5 % Â 9.6 % Loss on extinguishment of debt Â 4.3 % Â 1.0 % Â 2.7 % Â 0.5 % Other (income) expense, net Â (0.8) Â (0.3) Â (0.6) Â 0.5 % Income (loss) before income taxes Â 2.6 % Â 2.2 % Â 2.3 % Â (104.2) Provision (benefit) for income taxes Â (0.1) Â 0.5 % Â 0.2 % Â (3.3) Net income (loss) Â 2.6 % Â 1.7 % Â 2.1 % Â (100.9 %) Net revenues Â Three Months Ended Â Six Months Ended Â (dollars in millions) Â June 30, 2024 Â March 31, 2024 Â June 30, 2024 Â June 30, 2023 Â Products Â \$ 770 Â \$ 754 Â \$ 1,524 Â \$ 1,597 Â Services Â 117 Â 114 Â 231 Â 200 Â Total net revenues Â \$ 887 Â \$ 868 Â \$ 1,755 Â \$ 1,797 Â For the three months ended June 30, 2024, net product revenues increased \$16 million compared to the prior quarter. This increase was primarily due to higher chemistry sales at MSD. For the six months ended June 30, 2024, net product revenues decreased \$73 million compared to the same period in the prior year, primarily due to lower demand in our semiconductor market, with a decrease in net product revenue from VSD partially offset by an increase in net product revenue from PSD. In addition, net product revenues in our electronics and packaging market decreased mainly from lower equipment sales in MSD. Net service revenues consisted mainly of fees for services related to the maintenance and repair of our products, sales of spare parts, and installation and training. For the three months ended June 30, 2024, net service revenues increased \$3 million compared to the prior quarter. 32 Â For the six months ended June 30, 2024, net service revenues increased \$31 million compared to the same period in the prior year, primarily due to an increase in net services revenue from VSD and PSD. This increase is reflective of lower product sales, as customers service their older equipment rather than purchase new equipment, and increased prices for servicing. The following table sets forth our net revenues by reportable segment: Â Three Months Ended Â Six Months Ended Â (dollars in millions) Â June 30, 2024 Â March 31, 2024 Â June 30, 2024 Â June 30, 2023 Â Net revenues: Â 457 Â Vacuum Solutions Division Â 335 Â 332 Â \$ 668 Â \$ 738 Â Photonics Solutions Division Â 254 Â 254 Â 507 Â 457 Â Materials Solutions Division Â 298 Â 282 Â 580 Â 602 Â Total net revenues Â \$ 887 Â \$ 868 Â \$ 1,755 Â \$ 1,797 Â For the three months ended June 30, 2024, net revenues from VSD increased \$3 million compared to the prior quarter. For the six months ended June 30, 2024, net revenues from PSD decreased \$70 million compared to the same period in the prior year, mainly due to a decrease in revenues from customers in the semiconductor market as a result of continued softened demand for semiconductor capital equipment in the deposition and etching tool markets. For the three months ended June 30, 2024, net revenues from PSD were flat compared to the prior quarter. For the six months ended June 30, 2024, net revenues from PSD increased \$50 million compared to the same period in the prior year mainly in the semiconductor and specialty industrial markets. The increase in semiconductor revenue is mainly related to an increase in sales of our lithography, metrology and inspection products. The increase in specialty industrial market revenue is mainly related to increases in sales to data communications and research and defense customers. For the three months ended June 30, 2024, net revenues from MSD increased \$16 million compared to the prior quarter, primarily due to an increase in chemistry sales due to seasonality as a result of the Lunar New Year in the prior quarter. For the six months ended June 30, 2024, revenues from MSD decreased \$22 million compared to the same period in the prior year, primarily due to lower equipment revenue as customers postponed certain investment decisions, and a small decrease in chemistry sales, primarily due to lower palladium prices that

primarily related to the issuance of \$1.4 billion of Convertible Notes, as defined and described further below under â€œConvertible Notes,â€ at a coupon rate of 1.25%, in May 2024. Of the proceeds, \$1.2 billion was used to pay down our loans under the Term Loan Facility, as defined and described further below under â€œCredit Facilities,â€ at an interest rate of approximately 7.8%. For the six months ended June 30, 2024, interest expense, net decreased by \$11 million compared to the same period in the prior year. In addition to the issuance of the Convertible Notes and subsequent pay down of our loans under the Term Loan Facility, interest expense, net was lower as a result of the voluntary prepayments of \$100 million in October 2023, \$50 million in February 2024 and \$50 million in April 2024 on loans under the Term Loan Facility. Loss on extinguishment of debt Â Three Months Ended Â Six Months Ended Â (dollars in millions) Â June 30, 2024 Â March 31, 2024 Â June 30, 2024 Â June 30, 2023 Â Loss on extinguishment of debt Â \$ 38 Â \$ 9 Â \$ 47 Â \$ 47 Â For the three and six months ended June 30, 2024, in connection with the issuance in May 2024 of the Convertible Notes, as defined and described further below under â€œCredit Facilities,â€ we recorded a loss on extinguishment of debt as a result of the acceleration of deferred financing and original issue discount costs associated with our loans under the Term Loan Facility. For the three months ended March 31, 2024 and the six months ended June 30, 2024, we recorded a loss on extinguishment of debt as a result of the acceleration of deferred financing costs associated with the extinguishment of our senior secured tranche A term loans using proceeds from borrowing additional USD Tranche B and additional Euro Tranche B pursuant to the Second Amendment. Other (income) expense, net Â Three Months Ended Â Six Months Ended Â (dollars in millions) Â June 30, 2024 Â March 31, 2024 Â June 30, 2024 Â June 30, 2023 Â Other (income) expense, net Â \$ (7) Â \$ (3) Â \$ (10) Â \$ 9 Â Other (income) expense, net, for the three and six months ended June 30, 2024, three months ended March 31, 2024 and six months ended June 30, 2023, consisted primarily of net foreign exchange and fair value gains and losses. Benefit (provision) for income taxes Â Three Months Ended Â Six Months Ended Â (dollars in millions) Â June 30, 2024 Â March 31, 2024 Â June 30, 2024 Â June 30, 2023 Â (Benefit) provision for income taxes Â \$ (1) Â \$ 4 Â \$ 4 Â \$ (59) Â Our effective tax rates for the three months ended June 30, 2024 was lower than the U.S. statutory tax rate mainly due to the tax benefit related to the U.S deduction for foreign derived intangibles income (â€œFDIIâ€) and research and development 36 Â credits, partially offset by an expected increase in foreign withholding taxes and U.S. base erosion and anti-abuse tax. Our effective tax rate for the three months ended March 31, 2024 was higher than the U.S. statutory tax rate, mainly due to an expected increase in foreign withholding taxes and U.S. base erosion and anti-abuse tax, partially offset by the U.S. deduction for FDII and research and development credits. Our effective tax rates for the six months ended June 30, 2024 and 2023 were 8.9% and 3.2%, respectively. Our effective tax rate for the six months ended June 30, 2024 was lower than the U.S. statutory tax rate mainly due to the tax benefit related to the U.S deduction for FDII and research and development credits, partially offset by an expected increase in foreign withholding taxes and U.S. base erosion and anti-abuse tax. Our effective tax rate for the six months ended June 30, 2023 was lower than the U.S. statutory tax rate primarily due to the tax benefit related to the impairment of intangible assets. On a quarterly basis, we evaluate both positive and negative evidence that affects the realizability of net deferred tax assets and assess the need for a valuation allowance. The future benefit to be derived from our deferred tax assets is dependent upon our ability to generate sufficient future taxable income in each jurisdiction of the right type to realize the assets. Our future effective tax rate depends on various factors, including the impact of tax legislation, further interpretations and guidance from U.S. federal and state governments on the impact of proposed regulations issued by the Internal Revenue Service, further interpretations and guidance from foreign governments, the geographic composition of our pre-tax income, and changes in income tax reserves for unrecognized tax benefits. We monitor these factors and timely adjust our estimates of the effective tax rate accordingly. We expect the Atotech Acquisition will continue to have an unfavorable impact on our effective tax rate as MSD operates primarily in jurisdictions with tax rates higher than the U.S. statutory tax rate. However, the geographic mix of pre-tax income can change based on multiple factors, resulting in changes to the effective tax rate in future periods. While we believe we have adequately provided for all tax positions, amounts asserted by taxing authorities could materially differ from our accrued positions as a result of uncertain and complex application of tax law and regulations. Additionally, the recognition and measurement of certain tax benefits includes estimates and requires judgment by management. Accordingly, we may record additional provisions or benefits for U.S. federal, state, and foreign tax matters in future periods as new information becomes available. Liquidity and Capital Resources Cash and cash equivalents and short-term investments at June 30, 2024 and December 31, 2023 totaled \$851 million and \$875 million, respectively. The primary driver in our current and anticipated future cash flows is, and we expect will continue to be, cash generated from operations, consisting primarily of our net income (loss), excluding non-cash charges and changes in operating assets and liabilities. In periods when our sales are growing, higher sales to customers will result in increased trade receivables, and inventories will generally increase as we build products for future sales. This may result in lower cash generated from operations. Conversely, in periods when our sales are declining, our accounts receivable and inventory balances will generally decrease, resulting in increased cash from operations. We believe that our current cash and investments position and available borrowing capacity, together with the cash anticipated to be generated from our operations, will be sufficient to satisfy our estimated working capital, planned capital expenditure requirements, payments of debt, and any future cash dividends declared by our Board of Directors or share repurchases through at least the next 12 months and the foreseeable future. Net cash provided by operating activities was \$189 million for the six months ended June 30, 2024, resulting from net income of \$37 million, which included non-cash charges of \$198 million, mainly the result of \$175 million of depreciation and amortization expense and \$47 million of loss on extinguishment of debt, partially offset by \$95 million in deferred income taxes and a net increase in working capital of \$46 million. The net increase in working capital was primarily due to a decrease in accrued compensation of \$48 million, a decrease in accounts payable of \$30 million and a decrease in other current and non-current liabilities of \$26 million. This net increase in working capital was partially offset by an increase in income taxes payable of \$33 million and a decrease in other current and non-current assets of \$23 million. Net cash used in investing activities was \$44 million for the six months ended June 30, 2024, and consisted primarily of \$45 million in capital expenditures. Net cash used in financing activities was \$159 million for the six months ended June 30, 2024, primarily due to net proceeds from the issuance of Convertible Notes of \$1.4 billion and incremental loans under the Term Loan Facility in an aggregate principal amount of \$761 million. The proceeds of the incremental loans under the Term Loan Facility were used in part to prepay the USD Tranche A term loans outstanding under the Credit Agreement in full in an aggregate principal amount of \$744 million and the proceeds of the Convertible Notes were used in part to prepay a portion of the USD Tranche B loans in an aggregate principal amount of \$1.2 billion. In addition, there were normal quarterly debt payments and voluntary prepayments that totaled \$125 million. We also made payments of \$167 million to purchase a capped call option related to the Convertible Notes, \$33 million of debt financing costs and \$30 million of dividend payments. 37 Â Holders of our common stock are entitled to receive dividends when they are declared by our Board of Directors. During each of the first and second quarters of 2024 and 2023, our Board of Directors declared a cash dividend of \$0.22 per share. The cash dividends totaled \$30 million and \$29 million for the six months ended June 30, 2024 and 2023, respectively. On August 5, 2024, our Board of Directors declared a quarterly cash dividend of \$0.22 per share to be paid on September 6, 2024 to stockholders of record as of August 26, 2024. Future dividend declarations, if any, as well as the record and payment dates for such dividends, are subject to the final determination of our Board of Directors. Credit Facilities In connection with the completion of the Atotech Acquisition, on August 17, 2022 (the â€œEffective Dateâ€) we entered into a credit agreement with JPMorgan Chase Bank, N.A., as administrative agent and collateral agent, Barclays Bank PLC, and the lenders from time to time party thereto, which we have amended several times since (as amended, the â€œCredit Agreementâ€). As of June 30, 2024, the Credit Agreement provided for (i) a senior secured term loan facility comprised of two tranches: a \$2.7 billion loan (the â€œUSD Tranche Bâ€) and a â€“838 million loan (the â€œEuro Tranche Bâ€ and together with the USD Tranche B, the â€œTerm Loan Facilityâ€) and (ii) a senior secured revolving credit facility of \$675 million (the â€œRevolving Facilityâ€ and, together with the Term Loan Facility, the â€œCredit Facilitiesâ€), with the commitments under each of the foregoing facilities subject to increase from time to time subject to certain conditions. As of June 30, 2024, borrowings under the Credit Facilities bore interest at a rate per annum equal to, at our option, any of the following, plus, in each case, an applicable margin: (a) with respect to the USD Tranche B and the Revolving Facility, (x) a base rate determined by reference to the highest of (1) the federal funds effective rate plus 0.50%, (2) the prime rate quoted in The Wall Street Journal, or (3) a forward-looking term rate based on the variable secured overnight financing rate (â€œTerm SOFRâ€) (plus an applicable credit spread adjustment) for an interest period of one month, plus 1.00%, and (y) a Term SOFR rate (plus an applicable credit spread adjustment) for the interest period relevant to such borrowing, subject to a rate floor of (I) with respect to the USD Tranche B, 0.50% and (II) with respect to the Revolving Facility, 0.0%; and (b) with respect to the Euro Tranche B, a Euro Interbank Offered Rate (â€œEURIBORâ€) rate determined by reference to the costs of funds for Euro deposits for the interest period relevant to such borrowing adjusted for certain additional costs, subject to a EURIBOR rate floor of 0.0%. As of June 30, 2024, the applicable margins for borrowings under the Credit Facilities were (i) under the USD Tranche B and the Revolving Facility, 1.50% with respect to base rate borrowings and 2.50% with respect to Term SOFR borrowings and (ii) under the Euro Tranche B, 3.00%. In addition to paying interest on outstanding principal under the Credit Facilities, we are required to pay a commitment fee in respect of the unutilized commitments under the Revolving Facility. As of June 30, 2024, the commitment fee was 0.375% per annum. The commitment fee is subject to adjustment based on our first lien net leverage ratio as of the end of the preceding fiscal quarter. We must also pay customary letter of credit fees and agency fees. As of June 30, 2024, the weighted average interest rate of the Term Loan Facility was 7.5%. The Revolving Facility has a maturity date in August 2027 while the USD Tranche B and Euro Tranche B have a maturity date in August 2029. As of June 30, 2024, there were no borrowings under the Revolving Facility. On July 23, 2024, we entered into the Fourth Amendment to the Credit Agreement (the â€œRepricing Amendmentâ€). Pursuant to the Repricing Amendment we (i) refinanced the existing USD Tranche B loan and Euro Tranche B loan with a new \$2.6 billion USD Tranche B loan and a new â€“800 million Euro Tranche B loan, (ii) decreased the applicable margin for the USD Tranche B from 2.50% to 2.25% with respect to Term SOFR borrowings and from 1.50% to 1.25% with respect to base rate borrowings, (iii) decreased the applicable margin for the Euro Tranche B from 3.00% to 2.75% and (iv) provided that a 1.00% prepayment premium may be required if we prepay any loans under the Term Loan Facility in connection with a repricing transaction prior to January 23, 2025. In connection with the execution of the Repricing Amendment, we paid customary fees and expenses to JPMorgan Chase Bank, N.A. On July 23, 2024, immediately prior to the effectiveness of the Repricing

Amendment, we made a voluntary prepayment of \$110 million aggregate principal amount of the Term Loan Facility, consisting of \$69 million principal amount of the USD Tranche B loan and ~\$38 million principal amount of the Euro Tranche B loan. We are required to make scheduled quarterly principal payments equal to approximately \$10 million with respect to the USD Tranche B and approximately ~\$2 million with respect to the Euro Tranche B, in each case with the balance due thereunder on the seventh anniversary of the Effective Date. There is no scheduled amortization under the Revolving Facility. Any principal amount outstanding under the Revolving Facility is due and payable in full on the fifth anniversary of the Effective Date. 38 A Under the Credit Agreement, we are required to prepay outstanding term loans, subject to certain exceptions, with portions of our annual excess cash flow as well as with the net cash proceeds of certain of its asset sales, certain casualty and condemnation events and the incurrence or issuances of certain debt. If at any time the aggregate amount of outstanding loans, unreimbursed letter of credit drawings and undrawn letters of credit under the Revolving Facility exceeds the aggregate commitments under the Revolving Facility, we are required to repay outstanding loans and/or cash collateralize letters of credit, with no reduction of the commitment amount. We may voluntarily prepay, and have voluntarily repaid, outstanding loans under the Credit Facilities from time to time, subject to certain conditions, without premium or penalty other than customary ¢breakage¢ costs with respect to Term SOFR or EURIBOR loans and any prepayment premium that might be applicable to repayments we make prior to January 23, 2025. Additionally, we may voluntarily reduce the unutilized portion of the commitment amount under the Revolving Facility. All obligations under the Credit Facilities are guaranteed by certain of our wholly-owned domestic subsidiaries and are required to be guaranteed by certain of our future wholly-owned domestic subsidiaries, and are secured by substantially all of our assets and the assets of such subsidiaries, subject to certain exceptions and exclusions. Under the Credit Agreement, we have the ability to incur additional incremental debt facilities in an amount up to (x) the greater of (1) \$1,011 million and (2) 75% of consolidated earnings before interest, taxes, depreciation, and amortization, plus (y) an amount equal to the sum of all voluntary prepayments of term loans under the Term Loan Facility, plus (z) an additional unlimited amount subject to pro forma compliance with certain leverage ratio tests (based on the security and priority of such incremental debt). The Credit Agreement contains customary representations and warranties, covenants and provisions relating to events of default. As of June 30, 2024, we were in compliance with all covenants under the Credit Agreement. The USD Tranche B and the Euro Tranche B are not subject to financial maintenance covenants. On May 16, 2024, we completed a private offering of Convertible Notes. A significant portion of the net proceeds from the offering was used to repay approximately \$1.2 billion of the USD Tranche B. As a result of the repayment, we recorded a \$38 million loss on extinguishment of debt. Convertible Notes On May 16, 2024, we completed a private offering of \$1.4 billion aggregate principal amount of convertible senior notes due 2030 (the ¢Convertible Notes¢). The Convertible Notes were sold in a private placement under a purchase agreement, dated as of May 13, 2024, entered into by and among us and Morgan Stanley & Co. LLC, J.P. Morgan Securities LLC, BofA Securities, Inc. and Mizuho Securities USA LLC, as representatives of the several initial purchasers named therein, for resale to persons reasonably believed to be qualified institutional buyers in reliance on Rule 144A under the Securities Act of 1933, as amended. The net proceeds from the offering were approximately \$1.4 billion after deducting the initial purchasers¢ discounts and commissions and estimated offering expenses paid by us. We used approximately \$167 million of the net proceeds from the offering to pay the cost of the capped call transactions described below. We used the remaining net proceeds from the offering to repay approximately \$1.2 billion in borrowings outstanding under the USD Tranche B, together with accrued interest, as well as for general corporate purposes. Indenture and the Convertible Notes On May 16, 2024, we entered into an indenture (the ¢Indenture¢) with respect to the Convertible Notes with U.S. Bank Trust Company, National Association, as trustee. Under the Indenture, the Convertible Notes are senior unsecured obligations of ours and bear interest at a coupon rate of 1.25% per annum, with interest payable semiannually in arrears on June 1 and December 1 of each year, beginning on December 1, 2024. The Convertible Notes will mature on June 1, 2030, unless earlier converted, redeemed or repurchased in accordance with their terms. Subject to certain conditions, on or after June 5, 2027, we may redeem for cash all or any portion of the Convertible Notes at a redemption price equal to 100% of the principal amount of the Convertible Notes to be redeemed, plus accrued and unpaid interest to, but excluding, the redemption date, if the last reported sale price of our common stock has been at least 130% of the conversion price then in effect for at least 20 trading days (whether or not consecutive) during the period of 30 consecutive trading days ending on, and including, the trading day immediately preceding the date the notice of redemption is sent. 39 A The conversion rate for the Convertible Notes is initially 6.4799 shares of our common stock per one thousand dollars principal amount of Notes, which is equivalent to an initial conversion price of approximately \$154.32 per share. The conversion rate is subject to adjustment upon the occurrence of certain events. Upon conversion, we will pay cash up to the aggregate principal amount of the Convertible Notes to be converted and pay or deliver, as the case may be, cash, shares of common stock or a combination of cash and shares of common stock, at our election, in respect of the remainder, if any, of its conversion obligation in excess of the aggregate principal amount of the Convertible Notes being converted. Prior to March 1, 2030, noteholders may convert all or any portion of their Convertible Notes only upon the occurrence of certain events and during certain periods, and thereafter, at any time until the second scheduled trading day immediately preceding the maturity date. If we undergo a fundamental change (as defined in the Indenture) prior to the maturity date of the Convertible Notes, holders may require us to repurchase for cash all or any portion of their Convertible Notes at a fundamental change repurchase price equal to 100% of the principal amount of the Convertible Notes to be repurchased, plus any accrued and unpaid interest to, but excluding, the fundamental change repurchase date. The Indenture contains customary terms and covenants, including that upon certain events of default that are occurring and continuing, either the trustee or the holders of at least 25% in aggregate principal amount of the outstanding Convertible Notes may declare 100% of the principal of, and accrued and unpaid interest, if any, on, all the Convertible Notes to be due and payable. As of June 30, 2024, the Convertible Notes are classified as a long-term liability, net of issuances costs, on the condensed consolidated balance sheet. The Convertible Notes were issued at par and costs associated with the issuance of the Convertible Notes are amortized to interest expense over the contractual term of the Convertible Notes. As of June 30, 2024, the effective interest rate of the Convertible Notes was 1.56%. Capped Call Transactions On May 13, 2024, in connection with the pricing of the Convertible Notes, and on May 14, 2024, in connection with the exercise in full by the initial purchasers of their option to purchase additional Convertible Notes, we entered into privately negotiated capped call transactions with certain of the initial purchasers of the Convertible Notes or their respective affiliates and other financial institutions. The capped call transactions are expected generally to reduce the potential dilution to our common stock upon conversion of any Convertible Notes and/or offset any cash payments that we are required to make in excess of the principal amount of any converted Convertible Notes, as the case may be, with such reduction and/or offset subject to a cap initially equal to \$237.42 per share (which represents a premium of 100% over the last reported sale price of \$118.71 per share of our common stock on The Nasdaq Global Select Market on May 13, 2024), and is subject to customary adjustments under the terms of the capped call transactions. Lines of Credit and Borrowing Arrangements Certain of our Japanese subsidiaries have lines of credit and a financing facility with various financial institutions, many of which generally expire and are renewed at three-month intervals with the remaining having no expiration date. These lines of credit and financing facility provided for aggregate borrowings as of June 30, 2024 and December 31, 2023 of up to an equivalent of \$19 million and \$14 million, respectively. There were no borrowings under these arrangements at June 30, 2024 and December 31, 2023. Derivatives We enter into derivative instruments for risk management purposes only, including derivatives designated as hedging instruments and those utilized as economic hedges. We operate internationally, and in the normal course of business, are exposed to fluctuations in interest rates and foreign exchange rates. These fluctuations can increase the costs of financing, investing and operating the business. We have used derivative instruments, such as foreign exchange forward contracts and options, to manage certain foreign currency exposure, and interest rate swaps and caps to manage interest rate exposure. By nature, all financial instruments involve market and credit risks. We enter into derivative instruments with major investment grade financial institutions and no collateral is required. We have policies to monitor the credit risk of these counterparties. While there can be no assurance, we do not anticipate any material non-performance by any of these counterparties. 40 A Interest Rate Agreements We have various interest rate swap agreements as described further in Note 5 to the Notes to the Condensed Consolidated Financial Statements that exchange the variable Term SOFR rate to a fixed rate in order to manage the exposure to interest rate fluctuations associated with the variable Term SOFR rate paid on the outstanding balance of the Term Loan Facility. Contractual Obligations There have been no changes outside the ordinary course of business to our contractual obligations as disclosed in our Annual Report. Recent Accounting Pronouncements Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures In November 2023, the Financial Accounting Standards Board (¢FASB¢) issued Accounting Standard Update (¢ASU¢) No. 2023-07, Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures, which requires a public entity to disclose significant segment expenses and other segment items on an annual and interim basis and provide in interim periods all disclosures about a reportable segment¢s profit or loss and assets that are currently required annually. Additionally, it requires a public entity to disclose the title and position of the Chief Operating Decision Maker. The ASU does not change how a public entity identifies its operating segments, aggregates them, or applies the quantitative thresholds to determine its reportable segments. The new standard is effective for fiscal years beginning after December 15, 2023, and interim periods within fiscal years beginning after December 15, 2024, with early adoption permitted. A public entity should apply the amendments in this ASU retrospectively to all prior periods presented in the financial statements. We are currently evaluating the impact of this ASU on our disclosures within the consolidated financial statements. Income Taxes (Topic 740): Improvements to Income Tax Disclosures In December 2023, the FASB issued ASU No. 2023-09, Income Taxes (Topic 740): Improvements to Income Tax Disclosures, which focuses on the rate reconciliation and income taxes paid. ASU No. 2023-09 requires a public business entity (¢PBE¢) to disclose, on an annual basis, a tabular rate reconciliation using both percentages and currency amounts, broken out into specified categories with certain reconciling items further broken out by nature and jurisdiction to the extent those items exceed a specified threshold. In addition, all entities are required to disclose income taxes paid, net of refunds received disaggregated by federal, state/local, and foreign and by jurisdiction if the amount is at least 5% of total income tax payments, net of refunds received. For PBEs, the new standard is effective for annual periods beginning after December 15, 2024, with early adoption permitted. An entity may apply the amendments in this ASU prospectively by providing the revised disclosures for the period ending December 31, 2025 and continuing to provide the pre-ASU disclosures for the prior periods, or may apply the amendments retrospectively by providing the revised disclosures for all period presented. We are currently evaluating the impact of this

ASU on our consolidated financial statements and related disclosures. 41 **ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.** Information concerning market risk is contained in the section entitled "Quantitative and Qualitative Disclosures About Market Risk" contained in our Annual Report. As of June 30, 2024, there were no material changes in our exposure to market risk from December 31, 2023.

ITEM 4. CONTROLS AND PROCEDURES. Evaluation of Disclosure Controls and Procedures Our management, with the participation of our Chief Executive Officer (who serves as both our principal executive officer and principal financial officer), evaluated the effectiveness of our disclosure controls and procedures as of June 30, 2024. The term "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"), means controls and other procedures of an issuer that are designed to ensure that information required to be disclosed by the issuer 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 Securities and Exchange Commission's ("SEC") rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by an issuer in the reports that it files or submits under the Exchange Act is accumulated and communicated to the issuer's management, including its principal executive and principal financial officers, or persons performing similar functions as appropriate to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on that evaluation, our Chief Executive Officer concluded that, as of June 30, 2024, our disclosure controls and procedures were effective to provide reasonable assurance that information required to be disclosed by us in reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in SEC rules and forms and is accumulated and communicated to our management, including our Chief Executive Officer, as appropriate to allow timely decisions regarding required disclosure.

Changes in Internal Control over Financial Reporting There was no change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during the quarter ended June 30, 2024 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting. 42 **PART II. OTHER INFORMATION ITEM 1A. RISK FACTORS.** Information regarding risk factors affecting our business is discussed in the section entitled "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2023 filed with the U.S. Securities and Exchange Commission on February 27, 2024 (the "Annual Report"). The risk factor disclosure in the Annual Report is qualified by new risk factor disclosure set forth below related to our recent offering of \$1.4 billion aggregate principal amount of convertible senior notes due 2030 (the "Convertible Notes"). The market price of our common stock has fluctuated and may continue to fluctuate for reasons over which we have no control. The stock market has from time to time experienced, and is likely to continue to experience, extreme price and volume fluctuations. For example, the closing price of our common stock ranged from a high of \$137.16 to a low of \$97.35 between January 1, 2024 and June 30, 2024. Prices of securities of technology companies have been especially volatile and have often fluctuated for reasons that are unrelated to the operating performance of the companies. Historically, the market price of shares of our common stock has fluctuated greatly and could continue to fluctuate due to a variety of factors. In the past, companies that have experienced volatility in the market price of their stock have been the subject of securities class action litigation. If we become the subject of securities class action litigation, it could result in substantial costs and a diversion of our management's attention and resources. The market price of our common stock is also likely to be influenced by the Convertible Notes. For example, the market price of our common stock could become more volatile and could be depressed by: (i) investors' anticipation of the potential resale in the market of a substantial number of additional shares of our common stock received upon conversion of the Convertible Notes; and (ii) hedging or arbitrage trading activity that may develop involving the Convertible Notes and our common stock. Our consolidated indebtedness has increased substantially as a result of the Atotech Acquisition, as well as our offering of the Convertible Notes. This increased level of indebtedness could adversely affect us, including by increasing our interest expense and decreasing our business flexibility. As of July 31, 2024, we had approximately \$3.6 billion of principal indebtedness outstanding under a senior secured term loan facility (the "Term Loan Facility") comprised of two tranches: a \$2.6 billion loan (the "USD Tranche B") and a ~\$800 million loan (the "Euro Tranche B"). As of July 31, 2024, we also had \$675 million of available borrowing capacity under a senior secured revolving credit facility (the "Revolving Facility") and together with the Term Loan Facility, the "Credit Facilities"). On May 16, 2024, we completed a private offering of \$1.4 billion aggregate principal amount of the Convertible Notes, and used approximately \$1.2 billion of the proceeds to partially repay borrowings under the USD Tranche B. This level of indebtedness could have the effect, among other things, of reducing our flexibility to respond to changing business, industry and economic conditions, limiting our ability to obtain financing in the future and increasing interest expense. We also have incurred and will continue to incur various costs and expenses associated with our indebtedness. The amount of cash required to pay interest on our increased indebtedness levels, and the demands on our cash resources that come from that debt, are significant. Our level of indebtedness could also reduce funds available for working capital, capital expenditures, acquisitions and other general corporate purposes and may create competitive disadvantages relative to other companies with lower debt levels. If the financial performance of the combined company does not meet current expectations, then our ability to service our indebtedness may be adversely impacted. With respect to the Convertible Notes, the accounting method for convertible debt securities that may be settled in cash, such as the Convertible Notes, could have a material effect on our reported financial results. Furthermore, in the event the conditional conversion feature of the Convertible Notes is triggered, holders of Convertible Notes will be entitled to convert the Convertible Notes at any time during specified periods at their option. If one or more holders elect to convert their Convertible Notes, we would be required to settle any converted principal in cash, which could adversely affect our liquidity. In addition, even if holders do not elect to convert their Convertible Notes, we would be required under applicable accounting rules to reclassify all or a portion of the outstanding principal of the Convertible Notes as a current rather than long-term liability, which would result in a material reduction of our net working capital. If a fundamental change occurs prior to the maturity date of the Convertible Notes, holders of the Convertible Notes will have the right, at their option, to require us to repurchase all or a portion of their Notes. In addition, if a make-whole 43 **fundamental change** occurs prior to the maturity date of the Convertible Notes, we will in some cases be required to increase the conversion rate for a holder that elects to convert its Convertible Notes in connection with such make-whole fundamental change. Furthermore, the indenture governing the Convertible Notes prohibits us from engaging in certain mergers or acquisitions unless, among other things, the surviving entity assumes our obligations under the Convertible Notes and the indenture. These and other provisions in the indenture could deter or prevent a third party from acquiring us even when the acquisition may be favorable to investors. Despite our current level of indebtedness, we and our subsidiaries may still be able to incur more indebtedness. Although our debt agreements contain restrictions on the incurrence of additional indebtedness, these restrictions are subject to certain qualifications and exceptions, and thus, additional indebtedness may be incurred in compliance with these restrictions. This could further exacerbate the risks we describe. Moreover, we may be required to raise substantial additional financing to fund working capital, capital expenditures, acquisitions or other general corporate requirements. Our ability to arrange additional financing or refinancing will depend on, among other factors, our financial position and performance, as well as prevailing market conditions and other factors beyond our control. There can be no assurance that we will be able to obtain additional financing or refinancing on terms acceptable to us or at all.

ITEM 5. OTHER INFORMATION. For the three months ended June 30, 2024, none of our directors or officers (as defined in Rule 16a-1(f) under the Exchange Act) adopted or terminated a trading arrangement for the sale or purchase of Company securities that is either (1) a contract, instruction or written plan intended to satisfy the affirmative defense conditions of Rule 10b5-1(c) or (2) a non-Rule 10b5-1 trading arrangement (as defined in Item 408(c) of Regulation S-K). 44 **ITEM 6. EXHIBITS.** Exhibit No. **Exhibit Description** **Articles of Amendment to Restated Articles of Organization of the Registrant**, as filed with the Secretary of State of Massachusetts on May 18, 2001 **Articles of Amendment to Restated Articles of Organization of the Registrant**, as filed with the Secretary of State of Massachusetts on May 16, 2002 **Amended and Restated By-Laws of the Registrant** **Indenture**, dated May 16, 2024, between the Registrant and U.S. Bank Trust Company, National Association, as trustee **Form of Global Note** (included with Exhibit 4.1) **Employment Agreement**, effective April 30, 2024, between John Williams and the Registrant **Second Amendment**, dated May 7, 2024, to Employment Agreement, effective September 16, 2019, between James A. Schreiner and the Registrant **Fourth Amendment to Credit Agreement**, dated as of July 23, 2024, by and among the Registrant, as parent borrower, the other loan parties party thereto, JPMorgan Chase Bank, N.A., as administrative agent, and each lender party thereto **Certification of Principal Executive Officer and Principal Financial Officer** pursuant to Rule 13a-14(a)/Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended **Certification pursuant to 18 U.S.C. Section 1350**, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 **101.INS** **Inline XBRL Instance Document** - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document. **101.SCH** **Inline XBRL Taxonomy Extension Schema with Embedded Linkbase Documents** **Cover Page Interactive Data File** (formatted as inline XBRL with applicable taxonomy extension information contained in Exhibits 101) **Management contract or compensatory plan arrangement** **Incorporated by reference to the Registration Statement on Form S-4 (File No. 333-49738)**, filed with the Securities and Exchange Commission on November 13, 2000. **Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2001 (File No. 000-23621)**, filed with the Securities and Exchange Commission on August 14, 2001. **Incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2002 (File No. 000-23621)**, filed with the Securities and Exchange Commission on August 13, 2002. **Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-23621)**, filed with the Securities and Exchange Commission on May 6, 2014. **Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-23621)**, filed with the Securities and Exchange Commission on May 16, 2024. **Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-23621)**, filed with the Securities and Exchange Commission on May 8, 2024. **Incorporated by reference to the Registrant's Current Report on Form 8-K (File No. 000-23621)**, filed with the Securities and Exchange Commission on July 23, 2024. **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. A A MKS INSTRUMENTS, INC. A A Date: August 8, 2024 By: /s/ John T.C. Lee A John T.C. Lee A President and Chief Executive Officer A (Principal Executive Officer and Principal Financial Officer) A 46 EX-10.1 A Exhibit 10.1 EMPLOYMENT AGREEMENT A This Employment Agreement is effective 30 day of April 2024, by and between MKS Instruments, Inc., a Massachusetts corporation (â€œMKSâ€ or the â€œCompanyâ€), and John Williams of Tualatin, Oregon (â€œEmployeeâ€). WHEREAS, the Company and Employee entered into an Employment Agreement effective March 19, 2021 (the â€œPrior Employment Agreementâ€); WHEREAS, the Company and Employee intend to amend and restate the terms of their employment relationship as more particularly set forth herein in connection with Employeeâ€™s promotion to Executive Vice President and General Manager, Photonics Solutions Division; and WHEREAS, the Company and Employee intend that as of the Start Date (as defined below), this Employment Agreement and the Confidential Information Agreement referenced in Section 2 below shall supersede the Prior Employment Agreement and any other agreements relating to the employment relationship between the Company and Employee, including the Confidential Information Agreement of MKS Instruments, Inc. March 19, 2021; and NOW THEREFORE, in consideration of the premises and the mutual promises contained herein, the Company and Employee hereby agree as follows: 1. Employment. The Company is employing Employee on an at-will basis in the position of Executive Vice President and General Manager, Photonics Solutions Division, beginning May 12, 2024 (the â€œStart Dateâ€). Employeeâ€™s principal place of employment shall be Beaverton, Oregon. Employee agrees to comply with the Companyâ€™s policies. 2. Confidential Information Agreement. Employee will sign and deliver to the Company, at the same time that Employee executes this Employment Agreement, the Confidential Information, Intellectual Property and Non-Solicitation Agreement of MKS Instruments, Inc. (â€œConfidential Information Agreementâ€) that is Attachment A to this Employment Agreement. 3. Duty to The Company. While employed by the Company, Employee: (a) will devote his or her full working time and best efforts to the business of the Company; and (b) will not (without the prior, express, written consent of the Chief Executive Officer of the Company) engage in any business activity (whether or not for gain) that interferes with Employeeâ€™s work for the Company. Notwithstanding the previous sentence, this Employment Agreement does not prohibit Employee from managing his or her personal investments or engaging in charitable and unpaid professional activities (including serving on charitable and professional boards), so long as doing so does not materially interfere with Employeeâ€™s work for the Company or violate Section 7 of this Employment Agreement. 4. Compensation. A A (a) Base Salary. The Company will pay Employee base salary at the rate of \$450,000 per year, less applicable withholding and deductions (the â€œBase Salaryâ€), in accordance with the Companyâ€™s normal payroll practices. The Company may review and adjust the amount of the Base Salary from time to time in its sole discretion. (b) Incentive Compensation Plan. Employee will be entitled to participate in the Companyâ€™s Management Incentive Plan, to the extent applicable to Employeeâ€™s position. Employeeâ€™s bonus target will be 65% of eligible earnings, subject to the terms and conditions of the Management Incentive Plan. The Company may review and adjust the amount of the bonus target from time to time in its sole discretion. (c) Stock Incentive Plan. Employee will continue to be entitled to participate in the Companyâ€™s stock incentive plan to the extent applicable to Employeeâ€™s position. Employee is eligible to receive a 2024 target equity award with a grant date value of \$650,000 on May 15, 2024, which will consist of 50% time-based restricted stock units (â€œRSUâ€) and 50% performance-based restricted stock units (â€œPSUâ€) under the 2022 Stock Incentive Plan. Such equity award shall vest and be subject to the performance criteria as approved by MKSâ€™ Compensation Committee for all other executive officersâ€™ 2024 annual equity awards at its meeting on February 5, 2024 and as set forth in such restricted stock unit agreements under the 2022 Stock Incentive Plan. (d) Benefits. Employee will be eligible to participate in the Companyâ€™s generally available employee benefit plans, which currently include medical, dental, vision, life, accidental death and dismemberment, short-term disability and long-term disability insurance, a 401(k) savings plan and an employee stock purchase plan, subject to the terms and conditions of each plan. (e) Paid Time Off. Employee will be eligible for 25 days of paid vacation per year, plus paid sick time and holidays, all subject to the terms and conditions of the Companyâ€™s policies. (f) Expenses. The Company will reimburse Employee for expenses Employee reasonably incurs in performing his or her duties, to the extent provided in the Companyâ€™s expense reimbursement policies. Reimbursement of expenses in one tax year will not affect reimbursement of expenses in any other tax year. 5. End of Employment. Either Employee or the Company may end the employment relationship at any time, for any reason, with or without notice or cause. The employment relationship will end automatically and immediately upon Employeeâ€™s death or entitlement to long-term disability benefits under the Companyâ€™s long-term disability program. The date on which Employeeâ€™s employment ends, regardless of how it ends, is referred to in this Employment Agreement as the â€œEmployment End Date.â€ If Employee resigns or the Company terminates Employeeâ€™s employment, the Company will (in either case) have the right at any time, for any reason in its sole discretion to decide the Employment End Date. A A In no event will the Companyâ€™s deciding the Employment End Date following Employeeâ€™s resignation be considered termination by the Company of Employeeâ€™s employment. 6. Company Obligations Upon End of Employment. When the employment relationship ends, the Company will have no obligation to pay or provide Employee at any time any compensation, payment or benefit of any kind, except as expressly provided in Sections 6(a) through 6(e) below. (a) Minimum Obligations. When the employment relationship ends, no matter how it ends: (i) the Company will pay Employee any unpaid Base Salary through the Employment End Date; (ii) Employee will be entitled to accrued, vested benefits under the Companyâ€™s benefit plans and programs to the extent provided in Section 4(d); (iii) the Company will pay Employee for any accrued but unused vacation; and (iv) the Company will reimburse Employee for any unreimbursed expenses incurred through the Employment End Date to the extent provided in Section 4(f). (b) 30 Daysâ€™ Base Salary After Certain Resignations. If Employee provides the Company at least 30 daysâ€™ advance written notice of resignation of employment, is an active employee in good standing at the time of such notice and continues to perform his or her duties diligently and professionally to the extent requested thereafter, the Company will pay Employee his or her Base Salary for at least 30 days after such notice, even if the Employment End Date is earlier. (c) 30 Daysâ€™ Base Salary After Certain Terminations. If the Company terminates Employeeâ€™s employment other than for Cause, as defined below, the Company will provide Employee with written notice of termination and pay Employee his or her Base Salary for at least 30 days after such notice of termination, even if the Employment End Date is earlier. (d) Eligibility for Ordinary Severance Compensation. If the Company terminates Employeeâ€™s employment, Employee will be eligible for Ordinary Severance Compensation, as described below, provided that all of the following conditions are satisfied: (i) the Companyâ€™s primary reason for terminating Employeeâ€™s employment was a change to the Companyâ€™s business needs (such as reduction in force or elimination of position) and not Cause as defined below; (ii) Employee has complied with and continues to comply with all of Employeeâ€™s obligations under this Employment Agreement and the Confidential Information Agreement; and (iii) Employee executes, provides to the Company within 45 days after the Employment End Date and does not thereafter revoke or attempt to revoke, a general release of claims, which may at the Companyâ€™s option and in the Companyâ€™s sole discretion include post-employment restrictions substantially identical to the post-employment restrictions contained in Section 7 below, all in a form satisfactory to the Company (â€œGeneral Release Agreementâ€). The Companyâ€™s good-faith determination that one or more of the conditions listed above has not been satisfied will be binding and conclusive. (e) Ordinary Severance Compensation. A A If employee becomes eligible for Ordinary Severance Compensation: A A (i) Base Salary. The Company will pay Employee, within 14 days after the General Release Agreement becomes irrevocable, a lump sum in an amount equal to 12 months of Base Salary. (ii) Continuation of Benefits. For a period of 12 months after the Employment End Date, to the extent Employee is eligible for and elects to continue group medical, vision, or dental insurance coverage under COBRA and timely remits the amount of premium assessed to similarly situated active employees for comparable coverage, the Company will pay the Companyâ€™s usual share of such premiums. Benefits payable under this Section 6(e)(ii) will terminate to the extent Employee ceases to be eligible for COBRA coverage under the Companyâ€™s medical benefits plan. Notwithstanding the foregoing, the Company will not pay the contribution toward COBRA coverage described above to the extent that the Company reasonably determines that doing so would subject the Company to the excise tax under Section 4980D of the Internal Revenue Code (the â€œCodeâ€) (as a result of discriminatory coverage under a group health plan). (f) Eligibility for Enhanced Severance Compensation. Employee will become eligible for the â€œEnhanced Severance Compensation,â€ as described below, instead of Ordinary Severance Compensation under Section 6(d) and (e) above or under any other program or policy of the Company, if and only if all of the following conditions are satisfied: (i) the Company terminates Employeeâ€™s employment without â€œCauseâ€ (as defined below) or Employee resigns for â€œGood Reasonâ€ (as defined below); (ii) the Employment End Date is within 24 months after the effective date of a Change in Control (as defined below); (iii) Employee has complied with and continues to comply with all of Employeeâ€™s obligations under this Employment Agreement and the Confidential Information Agreement; and (iv) Employee executes, provides to the Company within 45 days after the Employment End Date and does not thereafter revoke or attempt to revoke, a General Release Agreement, as defined above. The Companyâ€™s good-faith determination that one or more of the conditions listed above has not been satisfied will be binding and conclusive. (g) Enhanced Severance Compensation. A A If Employee becomes eligible for the Enhanced Severance Compensation: (i) Base Salary. The Company will pay Employee, within 14 days after the General Release Agreement becomes irrevocable, a lump sum in an amount equal to one and one-half times annual Base Salary (determined without regard to any reduction in Base Salary giving rise to â€œGood Reason,â€ as defined below). (ii) Incentive Compensation. The Company will pay Employee, within 14 days after the General Release Agreement becomes irrevocable, a lump sum equal to one and one-half times the annual amount of incentive compensation for which Employee was eligible under any Incentive Compensation Plan of the Company then in effect for the year containing the Employment End Date. Additionally, Employee will receive a payment for target bonus, prorated for the current year. A A (iii) Continuation of Benefits. For a period of 18 months after the Employment End Date, to the extent Employee is eligible for and elects to continue group medical, vision, or dental insurance coverage under COBRA and timely remits the amount of premium assessed to similarly situated active employees for comparable coverage, the Company will pay the Companyâ€™s usual share of such premiums. Benefits payable under this Section 6(g)(iii) will terminate to the extent Employee ceases to be eligible for COBRA coverage under the Companyâ€™s medical benefits plan. Notwithstanding the foregoing, the Company will not pay the contribution toward COBRA coverage described above to the extent that the Company reasonably determines that doing so would subject the Company to the excise tax under Section 4980D of the Internal Revenue Code (the â€œCodeâ€) (as a result of discriminatory coverage under a group health plan). (iv) Restricted Stock Units or Stock Appreciation Rights. Employee's unvested equity awards as of the

Employment End Date will be subject to accelerated vesting to the extent provided in the respective equity award agreement issued to Employee under the then effective MKS Instruments, Inc. equity incentive plan (including the MKS Instruments, Inc. 2022 Stock Incentive Plan). (h)No Obligation to Mitigate Damages; Effect on Other Contractual Rights. Employee will not be required to mitigate damages, by seeking other employment or otherwise, as a condition of receiving any portion of the Ordinary Severance Compensation or the Enhanced Severance Compensation. Nor will the Ordinary Severance Compensation or the Enhanced Severance Compensation be reduced by any compensation earned by Employee as the result of employment by an employer other than the Company or a direct or indirect parent, subsidiary or affiliate of the Company after the Employment End Date. Nothing in this Section 6(h) is intended to or shall delay, prevent or require any compensation for any termination of COBRA benefits that may occur pursuant to Section 6(e)(ii) or Section 6(g)(iii) above. (i)â€œCauseâ€ to terminate Employeeâ€™s employment will exist if Employee: (i) commits a felony or engages in fraud, misappropriation or embezzlement; (ii) knowingly fails or refuses to perform Employeeâ€™s duties in a material way and, to the extent that the Company determines such failure or refusal can reasonably be cured, fails or refuses to effect a cure within 10 days after the Company notifies Employee in writing of the failure or refusal; (iii) knowingly causes, or knowingly creates a serious risk of causing, material harm to the Companyâ€™s business or reputation; or (iv) breaches, in a material way, this Employment Agreement, the Confidential Information Agreement or any other agreement between Employee and the Company, and, to the extent that the Company determines such breach can reasonably be cured, fails or refuses to effect a cure within 10 days after the Company notifies Employee in writing of the breach. (j)â€œGood Reason.â€ â€œGood Reasonâ€ for Employee to resign will exist if, without Employeeâ€™s express written consent: (i) the Company materially reduces Employeeâ€™s position, duties or responsibilities; (ii) the Company reduces Employeeâ€™s Base Salary as in effect on the date hereof or as the same may be increased from time to time during the term of this Employment Agreement; (iii) the Company changes Employeeâ€™s principal place of work to a location more than 50 miles from Employeeâ€™s current principal place of work. Notwithstanding the foregoing, an action described above will not constitute Good Reason unless: (A) Employee, within 30 days after the he or she learns, or with reasonable diligence should have learned, of such action, delivers to the Company written notice identifying the action as Good Reason and demanding its correction; (B) the Company fails to correct such event within 30 days after receipt of such notice; and (C) Employee resigns for Good Reason within 90 days after the date Employee learned, or with reasonable diligence should have learned, of such action. (k)â€œChange in Control.â€ For purposes of this Employment Agreement, the term â€œChange in Controlâ€ will mean the first to occur of any of the following events: (i) any â€œpersonâ€ (as that term is used in Section 13 and 14(d)(2) of the Securities Exchange Act of 1934 (â€œExchange Actâ€)) becomes the beneficial owner (as that term is used in Section 13(d) of the Exchange Act), directly or indirectly, of fifty percent (50%) or more of MKSâ€™ capital stock entitled to vote in the election of directors; (ii) the shareholders of MKS approve any consolidation or merger of MKS other than a consolidation or merger of MKS in which the holders of the common stock of MKS immediately prior to the consolidation or merger hold more than fifty percent (50%) of the common stock of the surviving corporation immediately after the consolidation or merger; or (iii) the shareholders of MKS approve the sale or transfer of all or substantially all of the assets of MKS to parties that are not within a â€œcontrolled group of corporationsâ€ (as defined in Code Section 1563) in which MKS is a member. 7. Non-Competition. (a) During Employeeâ€™s MKS Employment (as defined below) and for 12 months immediately thereafter (together, the â€œNon-Compete Periodâ€), Employee will not engage in or otherwise carry on, directly or indirectly anywhere in the world (as principal, agent, employee, employer, investor, shareholder (except for holdings of no greater than 1% of the total outstanding shares in a publicly-traded company), consultant, partner, member, manager, financier or in any other individual or representative capacity of any kind whatsoever), any Competitive Activity (as defined below). A. (b)â€œMKS Employmentâ€ means the period beginning on the first day that Employee is employed by the Company and ending on the first day on which Employee is no longer employed by any MKS Entity (as defined below). (c)â€œMKS Entityâ€ means (i) the Company; (ii) any current or future parent, subsidiary or affiliate of the Company; or (iii) any successor or assign of (i) or (ii). (d)â€œCompetitive Activityâ€ means business or activity competitive with an MKS Entity but only to the extent that business or activity is related to, similar to, or competitive with the activities of the business unit(s), division(s), laborator(y)(ies), facility(y)(ies) and other operational unit(s) in or for which Employee performed work for an MKS Entity or about which Employee acquired Proprietary Information (as defined in the Confidential Information Agreement). (e) The Non-Compete Period shall be extended to two (2) years upon Employeeâ€™s breach of his/her fiduciary duty and/or unlawful taking, physically or electronically, of property belonging to the Company. (f) If any court of competent jurisdiction determines that this Section 7 is unenforceable because the Non-Compete Period is too long or because Competitive Activity includes too great a range of activities or too wide a geographic scope, the parties agree that this Section 7 should be interpreted to extend only over the maximum period of time or range of activities or geographic scope as to which it may be enforceable. (g) The post-employment restrictions on Employeeâ€™s conduct contained in this Employment Agreement and in the Confidential Information Agreement will continue to apply even if Employeeâ€™s duties, title, compensation, location or other terms or conditions of employment change, and even if such change or changes are material. (h) The Company and Employee agree that violation by Employee of any of the provisions of this Section 7 of this Employment Agreement would cause the Company irreparable harm beyond what could reasonably or adequately be compensated in damages, and that the Company would therefore be entitled (in addition to the Companyâ€™s other remedies) to an injunction, declaratory judgment or restraining order against any such violation or threatened violation. (i) Employee has had an opportunity to have this Agreement reviewed by an attorney before signing. (j) Employee acknowledges and agrees that this non-competition covenant is supported by the following mutually-agreed upon consideration, which the parties acknowledge and agree is fair and reasonable: at-will employment with the Company, the compensation and benefits associated therewith and the other terms and conditions of this Agreement. (k) If and to the extent Employee is employed in California, the provisions of this Section 7 shall not apply. A. 8. Code Section 409A Compliance. (a) Where this Employment Agreement refers to Employeeâ€™s termination of employment for purposes of receiving any payment, whether such a termination has occurred will be determined in accordance with Section 409A of the Internal Revenue Code (the â€œCodeâ€) and Treasury Regulation Section 1.409A-1(h) (or any successor provisions) to the extent required by law. (b) To the extent that benefits under Section 6 are contingent upon Employee providing a General Release Agreement, Employee will sign and return the General Release Agreement within the reasonable time period designated by the Company, which will not be more than 45 days. If the period for Employee to review a General Release Agreement plus any revocation period crosses calendar years, payments contingent upon the Release will be made in the later calendar year. Any payments contingent upon the General Release Agreement that would otherwise be made during the period for review and revocation of the General Release Agreement will be made, provided that the General Release Agreement is timely executed and returned to the Company and not revoked, on the first scheduled payment date after such period ends. Each payment in respect of Employeeâ€™s termination of employment under Section 6 of the Employment Agreement is designated as a separate payment for Section 409A purposes. (c) If Employee is designated as a â€œspecified Executiveâ€ within the meaning of Code Section 409A (while the Company is publicly traded), any deferred compensation payment subject to Section 409A to be made during the six-month period following Employeeâ€™s termination of employment will be withheld and the amount of the payments withheld will be paid in a lump sum, without interest, during the seventh month after Employeeâ€™s termination; provided, however, that if Employee dies prior to the expiration of such six month period, payment to Employeeâ€™s beneficiary will be made as soon as reasonably practicable following Employeeâ€™s death. The Company will identify in writing delivered to Employee any payments it reasonably determines are subject to delay under this Section 8(c). In no event will the Company have any liability or obligation with respect to taxes for which Employee may become liable as a result of the application of Code Section 409A. 9. Code Sections 280G/4999. If (a) any payments or benefits to Employee in connection with this Employment Agreement (â€œPaymentsâ€) would be subject to the excise tax imposed by Code Section 4999 (the â€œParachute Taxâ€), (b) paying Employee a lesser amount would avoid the Parachute Tax entirely and (c) payment of such lesser amount would, after taking into account applicable federal, state and local income taxes and the Parachute Tax, result in Employee receiving a greater after-tax payment than if the Company made the Payments in full, then the Company will pay Employee such lesser amount instead of making the Payments in full. The reporting and payment of any Parachute Tax will in all events be Employeeâ€™s responsibility. The Company will not in any event provide a gross-up or any other payment to compensate Employee for the payment of the Parachute Tax or for any reduction in the Payments. The Company will withhold from the Payments any amounts it reasonably determines are required under Code Section 4999(c) and the Treasury Regulations thereunder. A. 10. Withholding. The Company will deduct from the amounts payable to Employee pursuant to this Employment Agreement all withholding amounts and deductions required by law or authorized by Employee. 11. Changes to Plans and Policies. Nothing in this Employment Agreement will: (a) require the Company or its affiliates to establish, maintain or continue any incentive compensation plan, stock incentive plan or other benefit plan, policy or arrangement; (b) restrict the right of the Company or any of its affiliates to amend, modify or terminate any such plan, policy or arrangement; (c) entitle Employee to participate in any such plan, policy or arrangement at any specified level (or at all) in any year; or (d) prevent any future change to any such plan, policy or arrangement from applying to Employee in accordance with the terms of the change. 12. Assignment. The rights and obligations of the Company under this Employment Agreement will inure to the benefit of, and be binding upon, the Companyâ€™s successors and assigns. The rights and obligations of Employee under this Employment Agreement will inure to the benefit of, and will be binding upon, Employeeâ€™s heirs, executors and legal representatives. Employee may not delegate or assign any obligations under this Employment Agreement. 13. Entire Agreement and Severability. This Employment Agreement and the Confidential Information Agreement supersede any and all other agreements, either oral or in writing, between Employee and the Company with respect to the Companyâ€™s employment of Employee (including, for the avoidance of doubt, any agreements or communications regarding Employeeâ€™s separation from employment) and contain all of the covenants and agreements between the parties with respect to such employment. Neither party is entering into this Employment Agreement on the basis of any representation, inducement, promise or agreement, oral or otherwise, by any party, or by any one acting on behalf of any party, which is not stated herein. Any modification of this Employment Agreement will be effective only if it is in writing and signed by both parties to this Employment Agreement. If any provision in this Employment Agreement is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions will nevertheless continue in full force and effect without being impaired or invalidated in any way. 14. Miscellaneous. This Employment Agreement and the rights and obligations of the parties hereunder will be

