



March 31, 2022

Dear Shareholder:

You are cordially invited to attend the 2022 Annual Meeting of Shareholders of MKS Instruments, Inc. to be held on Tuesday, May 10, 2022 at 10:00 a.m., Eastern Time, at our headquarters at 2 Tech Drive, Suite 201, Andover, Massachusetts 01810.

The attached notice of Annual Meeting and proxy statement describe the business to be transacted at the Annual Meeting and provide additional information about us that you should know when voting your shares. The principal business at the Annual Meeting will be (i) the election of three Class II Directors, each for a three-year term, (ii) the approval of our 2022 Stock Incentive Plan, (iii) the approval, on an advisory basis, of executive compensation and (iv) the ratification of the selection of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the year ending December 31, 2022.

Whether or not you plan to attend the Annual Meeting, please carefully review the attached proxy materials and take the time to cast your vote.

On behalf of MKS, I would like to express our appreciation for your continued interest in our Company.

Sincerely,

JOHN T.C. LEE
President and Chief Executive Officer

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MKS INSTRUMENTS, INC.
2 Tech Drive, Suite 201
Andover, Massachusetts 01810

NOTICE OF 2022 ANNUAL MEETING OF SHAREHOLDERS
TO BE HELD ON TUESDAY, MAY 10, 2022 at 10:00 A.M. EASTERN TIME

To our Shareholders:

The 2022 Annual Meeting of Shareholders of MKS INSTRUMENTS, INC., a Massachusetts corporation, will be held on Tuesday, May 10, 2022 at 10:00 a.m., Eastern Time, at our headquarters at 2 Tech Drive, Suite 201, Andover, Massachusetts 01810, for the following purposes:

- | | |
|----|---|
| 1. | The election of three Class II Directors, each for a three-year term; |
| 2. | The approval of our 2022 Stock Incentive Plan; |
| 3. | The approval, on an advisory basis, of executive compensation; and |
| 4. | The ratification of the selection of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the year ending December 31, 2022. |

The shareholders will also act on any other business as may properly come before the meeting.

We provide access to our proxy materials over the Internet under the U.S. Securities and Exchange Commission's "notice and access" rules. As a result, we mail to our shareholders a Notice of Internet Availability of Proxy Materials, which we refer to as the Notice. We are mailing the Notice on or about March 31, 2022, and it contains instructions on how to access the proxy statement and our Annual Report for the fiscal year ended December 31, 2021, which we refer to as the 2021 Annual Report, over the Internet. The Notice also contains instructions on how our shareholders can receive a paper copy of our proxy materials, including this proxy statement, our 2021 Annual Report, and a form of proxy card or voting instruction card. All shareholders who do not receive the Notice, including shareholders who have previously requested to receive paper copies of proxy materials, will receive a paper copy of the proxy materials by mail unless they have previously requested delivery of proxy materials electronically.

The Board of Directors has fixed the close of business on March 2, 2022 as the record date for the determination of shareholders entitled to notice of, and to vote at, the Annual Meeting and any adjournment or postponement thereof. Your vote is important no matter how many shares you own. Whether or not you expect to attend the meeting, we urge you to vote your shares.

If you are a shareholder of record, you may vote by using the Internet or calling the toll-free telephone number as described in the instructions included in your Notice, or, if you received a paper copy of the proxy materials, by completing, signing, dating and returning your proxy card or voting instruction card. If you are a beneficial shareholder (i.e. the shares you own are held in "street name" by a bank, broker or other nominee), you may vote by following the instructions your broker, bank or other nominee provides to you. Your prompt response is necessary to ensure that your shares are represented at the meeting. You can change your vote and revoke your proxy any time before the polls close at the meeting by following the procedures described in the accompanying proxy statement.

By Order of the Board of Directors,

A handwritten signature in black ink that reads "Kathleen F. Burke".

KATHLEEN F. BURKE
Secretary

Andover, Massachusetts
March 31, 2022

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MKS INSTRUMENTS, INC.
2 Tech Drive, Suite 201
Andover, Massachusetts 01810

PROXY STATEMENT

This proxy statement is furnished in connection with the solicitation of proxies by the Board of Directors of MKS Instruments, Inc., a Massachusetts corporation, for use at the 2022 Annual Meeting of Shareholders to be held on Tuesday, May 10, 2022 at 10:00 a.m., Eastern Time, at our headquarters at 2 Tech Drive, Suite 201, Andover, Massachusetts 01810, and at any adjournment or postponement thereof, which we refer to as the 2022 Annual Meeting. References in this proxy statement to “we,” “us,” the “Company” or “MKS” refer to MKS Instruments, Inc. and its consolidated subsidiaries.

All proxies will be voted in accordance with the applicable shareholder’s instructions. If no choice is specified in the proxy, the shares will be voted in favor of the matters set forth in the accompanying Notice of 2022 Annual Meeting of Shareholders. Any proxy may be revoked by a shareholder at any time before its exercise by delivery of written revocation to the Secretary of MKS or by voting during the 2022 Annual Meeting. Attendance at the 2022 Annual Meeting will not in itself be deemed to revoke a proxy.

We provide access to our proxy materials over the Internet under the “notice and access” rules of the U.S. Securities and Exchange Commission, which we refer to as the SEC. As a result, we mail to our shareholders a Notice of Internet Availability of Proxy Materials, which we refer to as the Notice. We are mailing the Notice on or about March 31, 2022. The Notice contains instructions on how to access the proxy statement and our Annual Report for the fiscal year ended December 31, 2021, which we refer to as the 2021 Annual Report, over the Internet. The Notice also contains instructions on how our shareholders can receive a paper copy of our proxy materials, including this proxy statement, our 2021 Annual Report, and a form of proxy card or voting instruction card. All shareholders who do not receive the Notice, including shareholders who have previously requested to receive paper copies of proxy materials, will receive a paper copy of the proxy materials by mail unless they have previously requested delivery of proxy materials electronically.

IMPORTANT NOTICE REGARDING THE AVAILABILITY OF PROXY MATERIALS FOR THE ANNUAL MEETING OF SHAREHOLDERS TO BE HELD ON MAY 10, 2022

This proxy statement and the 2021 Annual Report are available for viewing, printing and downloading at investor.mksinst.com/annual-meeting-materials.

A COPY OF OUR ANNUAL REPORT ON FORM 10-K FOR THE YEAR ENDED DECEMBER 31, 2021 AS FILED WITH THE SEC, EXCLUDING EXHIBITS, WILL BE FURNISHED WITHOUT CHARGE TO ANY SHAREHOLDER UPON WRITTEN REQUEST TO: INVESTOR RELATIONS DEPARTMENT, MKS INSTRUMENTS, INC., 2 TECH DRIVE, SUITE 201, ANDOVER, MA 01810. EXHIBITS WILL BE PROVIDED UPON WRITTEN REQUEST AND PAYMENT OF AN APPROPRIATE PROCESSING FEE.

VOTING OF SECURITIES AND VOTES REQUIRED

At the close of business on March 2, 2022, the record date for the determination of shareholders entitled to notice of, and to vote at, the 2022 Annual Meeting, there were issued and outstanding and entitled to vote 55,562,986 shares of our common stock, no par value per share, which we refer to as our Common Stock. Each outstanding share entitles the record holder to one vote on each matter submitted at the 2022 Annual Meeting.

In order to transact business at the 2022 Annual Meeting, we must have a quorum. Under our Amended and Restated By-Laws, the holders of a majority of the shares of Common Stock issued and outstanding and entitled to vote at the 2022 Annual Meeting shall constitute a quorum for the transaction of business at the 2022 Annual Meeting. Shares of Common Stock held by shareholders present at the 2022 Annual Meeting or represented by proxy (including “broker non-votes” and shares that abstain or do not vote with respect to a particular proposal to be voted upon) will be counted for purposes of determining whether a quorum exists at the 2022 Annual Meeting. If a quorum is not present, the meeting will be adjourned until a quorum is obtained.

The affirmative vote of the holders of a plurality of the votes cast on the matter is required for the election of directors (Proposal One); provided, however, any director nominee who receives a greater number of withhold votes than affirmative votes, which we refer to as a Majority Withhold Vote, in an uncontested election must offer to tender to the Board of Directors his or her resignation promptly following the certification of election results. The Board of Directors must accept or reject a resignation within 90 days following the certification of election results and publicly disclose its decision. Accordingly, the nominees who receive the highest number of votes of the shares present, in person or by proxy, and entitled to vote shall be elected to the available Class II Director positions, and in the event any nominee receives a Majority Withhold Vote, the resignation policy will apply as summarized here and as set forth in Section B.4 of our Corporate Governance Guidelines, which are posted on our website at <https://www.mksinst.com/corporate-governance> under Corporate Governance Documents. The vote on our 2022 Stock Incentive Plan (Proposal Two), the advisory vote on executive compensation (Proposal Three) and the ratification of PricewaterhouseCoopers LLP (Proposal Four) require the affirmative vote of the holders of a majority of the votes cast on the matter. Proposal Three is a non-binding proposal.

Shares held by shareholders who abstain from voting as to a particular matter, and “broker non-votes,” which are shares held in “street name” by banks, brokers or other nominees who indicate on their proxies that they do not have discretionary authority to vote such shares as to a particular non-routine matter, including the election of directors, the vote on our 2022 Stock Incentive Plan and the advisory vote on executive compensation, will not be counted as votes in favor of, or as votes cast for, a matter. Accordingly, abstentions and broker non-votes will have no effect on the voting on a matter that requires the affirmative vote of a majority of the votes cast on the matter. If the shares you own are held in street name by a bank, brokerage firm or other nominee, your bank, brokerage firm or other nominee, as the record holder of your shares, is required to vote your shares according to your instructions. In order to vote your shares, you will need to follow the instructions your bank, brokerage firm or other nominee provides to you.

For additional details about voting and attending the 2022 Annual Meeting, please see “Voting and Meeting Information” below.

VOTING AND MEETING INFORMATION

The following sections provide additional details about voting and attending the 2022 Annual Meeting.

Voting Your Shares

If you are a **shareholder of record**, you may vote your shares in any of the following ways:

Internet



You may vote your shares in advance of the 2022 Annual Meeting via the Internet by accessing our online portal at www.proxyvote.com. Proxies submitted via the Internet must be received by 11:59 p.m. Eastern Time on May 9, 2022.

Telephone



You may vote your shares in advance of the 2022 Annual Meeting telephonically by calling 1-800-690-6903 and following the instructions on your proxy card. Proxies submitted by telephone must be received by 11:59 p.m. Eastern Time on May 9, 2022.

Mail



If you received a paper copy of the proxy materials, you may vote your shares in advance of the 2022 Annual Meeting by completing, signing, dating and returning your proxy card or voting instruction card. Proxies submitted via mail must be received by May 9, 2022.

In-Person at the 2022 Annual Meeting



You may vote your shares during the 2022 Annual Meeting by (i) if you received a paper copy of the proxy materials, completing your proxy card or voting instruction card or (ii) if you did not receive a paper copy of the proxy materials, completing a ballot to be provided by the Company at the meeting. If you have previously submitted your proxy and you vote your shares in accordance with these instructions during the meeting, your previously submitted proxy will be revoked.

If you are a **beneficial shareholder** (i.e. the shares you own are held in “street name” by a bank, broker or other nominee), your bank, broker or other nominee will provide a vote instruction form to you with this proxy statement, which you may use to direct how your shares will be voted. **You must instruct your bank, broker or other nominee how to vote with respect to the election of directors, the 2022 Stock Incentive Plan and the executive compensation advisory vote; your bank, broker or other nominee cannot exercise its discretion to vote on these matters on your behalf.** Many banks and brokers offer the option of voting over the Internet or by telephone, instructions for which would be provided by your bank or broker on your vote instruction form. You may only vote your shares in-person at the 2022 Annual Meeting if you obtain a proxy issued in your name from your bank, broker or other nominee. For instructions on how to revoke or change your vote, you should contact your bank, broker or other nominee.

Attending the 2022 Annual Meeting

Admission of shareholders of record and beneficial shareholders to the 2022 Annual Meeting will begin at 9:45 a.m. Eastern Time. Shareholders of record who wish to attend the meeting should be prepared to present photo identification and beneficial shareholders who wish to attend the meeting should be prepared to present photo identification and a letter from their bank, broker or nominee confirming beneficial ownership of shares of our Common Stock. In addition, all shareholders will be required to comply with any federal, state and/or local government guidance related to COVID-19 in force on the day of the meeting.

Proxy Materials

You can view and download our proxy materials and 2021 Annual Report at our online portal, available to shareholders at www.proxyvote.com.

Shareholder List

During the 2022 Annual Meeting, a complete list of our shareholders of record will be available for viewing by shareholders for any purpose germane to the 2022 Annual Meeting. Shareholders submitting any such request will be asked to include the 16-digit control number found on their proxy card, voting instruction card or Notice.

Whether or not you plan to attend the 2022 Annual Meeting, we urge you to vote your shares over the Internet or by telephone, or complete, sign, date and return the proxy card in the accompanying postage-prepaid envelope if you received a printed proxy card. A prompt response will greatly facilitate arrangements for the 2022 Annual Meeting and your cooperation will be appreciated. Shareholders who attend the 2022 Annual Meeting may vote their shares at the 2022 Annual Meeting even if they have previously sent in their proxies.

PROPOSED ACQUISITION OF ATOTECH

As announced on July 1, 2021, the Company entered into a definitive agreement to acquire Atotech Limited, or Atotech, a leading process process chemicals technology company, which we refer to as the Acquisition. The closing of the proposed Acquisition is subject to satisfaction of certain closing conditions, including receipt of required regulatory approval from China and approval from the Royal Court of Jersey.

Subject to the closing of the proposed Acquisition, Atotech will form a new, fourth division of the Company. On October 25, 2021, the Board of Directors of the Company appointed James A. Schreiner, who currently serves as the Company's Senior Vice President and Chief Operating Officer, to lead this new division as Senior Vice President and Chief Operating Officer, Atotech Division, subject to and effective upon the closing of the proposed Acquisition. In addition, on October 25, 2021, the Board of Directors elected Geoffrey Wild as a Class III Director, effective immediately following the closing of the proposed Acquisition, to fill the existing vacancy on the Board of Directors, and to serve until the 2023 Annual Meeting of Shareholders. Mr. Wild is currently the President and Chief Executive Officer and a director of Atotech.

PROPOSAL ONE – ELECTION OF DIRECTORS

Our Amended and Restated By-Laws provide for a Board of Directors that is divided into three classes. The term of the Class II Directors expires at the 2022 Annual Meeting, the term of the Class III Directors expires at the 2023 Annual Meeting of Shareholders and the term of the Class I Directors expires at the 2024 Annual Meeting of Shareholders. Our Board of Directors, upon the recommendation of our Nominating and Corporate Governance Committee, has nominated John T.C. Lee, Jacqueline F. Moloney and Michelle M. Warner to serve as Class II Directors for a term to expire at the 2025 Annual Meeting of Shareholders. Dr. Lee, Ms. Moloney and Ms. Warner currently serve as directors. Each nominee has consented to being named herein and, if elected, to serve as a director until his or her successor is duly elected and qualified.










There is currently one vacancy on the Board of Directors, which our Amended and Restated By-Laws provide shall be filled solely by the affirmative vote of a majority of the remaining directors then in office. To fill this vacancy, as described under the heading “Proposed Acquisition of Atotech,” on October 25, 2021, the Board of Directors elected Geoffrey Wild, the current President and Chief Executive Officer and a director of Atotech, as a Class III director, effective immediately following the closing of the proposed Acquisition.

Shares represented by all proxies received by the Board of Directors and not so marked as to withhold authority to vote for an individual director will be voted (unless one or more nominees are unable or unwilling to serve) for the election of the nominees named below. The Board of Directors expects that each of the nominees named below will be available for election, but if any of them is not a candidate at the time the election occurs, it is intended that such proxies will be voted for the election of a substitute nominee to be designated by the Board of Directors. Proxies cannot be voted for a greater number of persons than the number of nominees named in this proxy statement.

THE BOARD OF DIRECTORS BELIEVES THAT APPROVAL OF THE ELECTION OF JOHN T.C. LEE, JACQUELINE F. MOLONEY AND MICHELLE M. WARNER TO SERVE AS CLASS II DIRECTORS IS IN THE BEST INTERESTS OF MKS AND OUR SHAREHOLDERS AND THEREFORE RECOMMENDS A VOTE “FOR” ALL NOMINEES.

DIRECTORS

Set forth below are the names and ages of each member of our Board of Directors (including those who are nominees for election as Class II Directors), the positions and offices held, principal occupation and business experience during at least the past five years, the names of other publicly held companies on which the individual currently serves, or in the past five years has served, as a director, and the year each member of our Board of Directors joined our Board. We have also included information about each individual’s specific experience, qualifications, attributes or skills that led the Board of Directors to conclude that he or she should serve as a director of MKS. Information with respect to the number of shares of Common Stock beneficially owned by each individual, directly or indirectly, as of March 2, 2022, appears in this proxy statement under the heading “Security Ownership of Certain Beneficial Owners and Management.”

Name	Age	Position	Audit Committee	Compensation Committee	Nominating and Corporate Governance Committee	Class to Which Director Currently Belongs
Rajeev Batra	54	Director				I
Peter J. Cannone III	56	Director				III
Gerald G. Colella	65	Chair				I
Joseph B. Donahue	63	Director				III
John T.C. Lee*	59	Director, President and CEO				II
Jacqueline F. Moloney*	68	Lead Director				II
Elizabeth A. Mora	61	Director				I
Michelle M. Warner*	55	Director				II



Chair



Member

* Nominee for election at the 2022 Annual Meeting

Name	Year Became Director	Background and Qualifications
Rajeev Batra	2018	<p>Mr. Batra has served as President of Siemens Digital Industries U.S., an innovation leader in automation and digital transformation in the process and discrete industries, since April 2019. Previously, Mr. Batra served in various senior roles at Siemens U.S., including President of the Digital Factory Division from October 2014 to April 2019, President of the Industry Automation Division from October 2009 to October 2014, Vice President and General Manager, Automation & Motion Division from October 2007 to October 2009, and Vice President and General Manager, Automotive & Aerospace Vertical Markets from October 2002 to October 2007. Mr. Batra is also a director of Amsted Industries, a diversified global manufacturer of industrial components serving primarily the railroad, vehicular, and construction and building markets, Vice Chair of the Board of Trustees and a member of the Executive Committee of the Manufacturers Alliance, a non-profit manufacturing leadership network that offers benchmarking, professional development, and research services, and a member of the Board of Governors of NEMA (National Electrical Manufacturers Association), a trade association of electrical equipment manufacturers, where he previously served as Chair. Mr. Batra received a B.S. in Electrical Engineering from Lawrence Technological University and an M.B.A. from the University of Michigan. Mr. Batra's 20-plus years in executive leadership roles in broad industrial markets, his extensive portfolio experience in the automation, digitalization and I4.0/IoT areas, and his current role as President of Siemens Digital Industries U.S., qualify him to serve as a member of our Board of Directors.</p>
Peter J. Cannone	2021	<p>Mr. Cannone has served as Chairman and Chief Executive Officer of Demand Science, a global leading revenue intelligence platform delivering a comprehensive suite of business to business solutions, since August 2020. From April 2019 to July 2020, he served as General Partner of Optum Ventures, a healthcare-focused venture capital firm. From July 2018 to April 2019, he served as Chief Executive Officer of UpCurve, Inc., a management company, where he oversaw portfolio firms that provided critical digital, cloud, financial and healthcare solutions to small and midsize businesses. From November 2015 to December 2018, he served as Chief Executive Officer of ThriveHive, a provider of digital marketing services and one of UpCurve's portfolio firms. From January 2007 to November 2014, he served as President and Chief Executive Officer of OnForce, a leading vendor of SaaS technology-enabled workforce solutions. From 1997 to 2006, he held senior management positions at PC Connection, Inc. and MicroWarehouse. Mr. Cannone holds a B.A. in Economics from the University of Massachusetts, Amherst, and an M.B.A. from Rensselaer Polytechnic Institute. Mr. Cannone's 25 years of experience in executive leadership and senior management roles, including direct knowledge and experience in mergers and acquisitions, capital raising and financial planning and analysis, qualifies him to serve as a member of our Board of Directors.</p>

Name	Year Became Director	Background and Qualifications
Gerald G. Colella	2014	<p>Mr. Colella has served as our Chair of the Board of Directors since May 2020. He served as our Chief Executive Officer from January 2014 until his retirement in January 2020. Additionally, he served as our President from February 2013 to May 2018. He served as our Chief Operating Officer from January 2010 until December 2013 (additionally serving as Vice President until his promotion to President in February 2013). He served as our Vice President and Chief Business Officer from April 2005 until January 2010. Mr. Colella joined MKS in 1983 and progressed from materials planning and logistics to leading our global business and service operations before assuming his senior management roles. Mr. Colella has served as a director of Columbus McKinnon Corporation, a global leader in intelligent motion solutions, since November 2021 and Mr. Colella previously served as a director of GCP Applied Technologies Inc. from 2017 to 2020. He holds a B.A. in Secondary Education from the University of Massachusetts and an M.B.A. from Southern New Hampshire University. Mr. Colella's 35-plus years of experience within the Company, including direct knowledge and experience in operations, business strategy and growth, both organically and by acquisitions, gives him particularly deep insight into our organization.</p>
Joseph B. Donahue	2020	<p>Mr. Donahue served as Executive Vice President and Chief Operating Officer of TE Connectivity Ltd., a publicly held manufacturer of connectors, sensors and minimally invasive surgical assemblies for the automotive, industrial, medical, aerospace and communications/consumer markets, from 2011 until 2017. He concurrently served as President of the Network Solutions segment of TE Connectivity from August 2012 until the divestiture of that business in August 2015. He also served at TE Connectivity (formerly Tyco Electronics Ltd.), including as President, Transportation Solutions segment from 2010 through July 2012, President of the Global Automotive Division from 2008 through 2009 and Senior Vice President of the same division beginning in September 2007. From September 2006 to August 2007, he was Group Vice President, Woodcoatings Division, for Valspar Corporation, a manufacturer of commercial and industrial coatings. Over the prior 16 years, Mr. Donahue held a variety of senior management roles at TE Connectivity and AMP Incorporated. Mr. Donahue holds a B.S. in Biological Sciences and an M.S. in Plastics Engineering from the University of Massachusetts, Lowell. He also holds an M.S. in Manufacturing Systems Engineering from Lehigh University. Mr. Donahue's extensive experience in executive leadership roles for companies serving multiple markets, including industrial, as well as his experience managing all aspects of company global operations, including supply chain, manufacturing, environment, health and safety, and lean, his international experience having lived and worked in Japan, China and Germany, and his merger and acquisition experience qualify him to serve as a member of our Board of Directors.</p>

Name	Year Became Director	Background and Qualifications
John T.C. Lee	2020	<p>Dr. Lee has served as our President and Chief Executive Officer since January 2020. From September 2019 to January 2020, he served as our President, from May 2018 to September 2019, he served as our President and Chief Operating Officer, and from November 2016 to May 2018, he served as our Senior Vice President and Chief Operating Officer. From January 2014 until October 2016, Dr. Lee served as our Senior Vice President of Business Units. From November 2012 until December 2013, Dr. Lee served as our Senior Vice President, Controls, HPS (our integrated process solutions business), and Pressure, Flow, Measurement and Control, or PFMC. From January 2011 to November 2012, he served as Senior Vice President, Controls and PFMC, and from October 2007 to January 2011, he served as our Group Vice President, Controls and Information Technology products. Prior to joining MKS, Dr. Lee served as the Managing Director of Factory Technology and Projects within the Solar Business Group at Applied Materials, Inc., a global leader providing processing equipment to the semiconductor and display markets, from February 2007 until October 2007. From 2002 until February 2007, he served as General Manager of the Cleans Product Group and the Maydan Technology Center at Applied Materials. Prior to Applied Materials, Dr. Lee served from 1997 until 2002 as Research Director of the Silicon Fabrication Research Department at Lucent Technologies, Inc., a voice, data and video communications provider, and from 1991 until 1997 as a Member of the Technical Staff in the Plasma Processing Research Group within Bell Labs. He has served as Vice Chair and a member of the Executive Committee of the Board of Directors of the Massachusetts High Technology Council since 2021. Dr. Lee holds a B.S. from Princeton University and both an M.S.C.E.P. and a Ph.D. from the Massachusetts Institute of Technology, all in Chemical Engineering. Dr. Lee's education combined with his technical understanding of our numerous and varied complex products, gained from over fourteen years of experience working in progressive leadership roles at our Company, and previously at Applied Materials, one of our largest customers, provide him with a unique leadership perspective.</p>
Jacqueline F. Moloney	2016	<p>Ms. Moloney has served since 2015 as the Chancellor of the University of Massachusetts, Lowell, a public university with over 18,000 students, and served as its Executive Vice Chancellor from 2007 to 2015. Ms. Moloney has been a tenured professor at the University since 1994 and served as the Dean of Online and Continuing Education from 1994 to 2007. Since 2008, Ms. Moloney has served as a director and member of the compensation, nominating and corporate governance, strategic planning, technology and executive committees of Enterprise Bancorp, Inc., a publicly held bank. She is also a member of the Board of Directors of the Massachusetts High Technology Council. Ms. Moloney holds a B.S. in Sociology from the University of Massachusetts, Lowell, an M.A. in Social Psychology from Goddard College and an Ed.D. from the University of Massachusetts, Lowell. She has over 30 years of experience as a leader in non-profit organizations. Ms. Moloney has a deep history of working with business and industry, and she established the first incubators at the University of Massachusetts, Lowell, which are the home to approximately 65 early stage companies. She provides valuable knowledge and insight on emerging strategic planning and management and business trends.</p>

Name	Year Became Director	Background and Qualifications
Elizabeth A. Mora	2012	<p>Ms. Mora served as the Chief Administrative Officer from March 2016 to August 2020, and as the Chief Financial Officer from 2008 to February 2016, of The Charles Stark Draper Laboratory, Inc., a non-profit engineering research and development laboratory serving the national interest in applied research, engineering development, advanced technical education, and technology transfer, or Draper Labs. From 1997 until 2008, she worked for Harvard University, ultimately serving as Chief Financial Officer and Vice President for Finance, and previously serving as Associate Vice President, Research Administration and the Director of the Office of Sponsored Research. Prior to joining Harvard, Ms. Mora worked for Coopers and Lybrand (now PricewaterhouseCoopers LLP) from 1989 to 1997 and was one of the founding members of its National Regulatory Consulting Practice. Since May 2021, Ms. Mora has served on the Board of Directors of Inogen, Inc., a medical technology company that primarily develops, manufactures and markets portable oxygen concentrators, and since December 2021, she has served as Chairperson of the Board of Directors of Inogen. Since 2021, she has also served on the Board of Directors of Limoneira Company, an agribusiness and real estate development company, and Everest Consolidator Acquisition Corporation, a special purpose acquisition company. She previously served as a director of GCP Applied Technologies Inc. from 2016 to 2020. Ms. Mora is a Certified Public Accountant and has a B.A. in Political Science from the University of California, Berkeley and an M.B.A. from the Simmons College Graduate School of Management. Ms. Mora's extensive financial background, including her previous role as Chief Administrative Officer of a prominent research and development organization, provides valuable insights for our Board of Directors, the Audit Committee and the Compensation Committee. Also, Ms. Mora provides valuable insights on cyber security based on her prior oversight of Information Technology at Draper Labs, a leader in cyber security threat detection.</p>
Michelle M. Warner	2019	<p>Ms. Warner has served as Executive Director of CEO Perspectives, a leadership development program for executives of Fortune 500 and select growth companies, since January 2022. She also founded and has served as principal of MMW Advisors, LLC, a strategic advisory firm focused on mergers and acquisitions, corporate governance and legal and compliance matters, since July 2020. Ms. Warner served as Senior Vice President, General Counsel and Corporate Secretary for USG Corporation, a leading manufacturer of building products and solutions, from January 2016 until its acquisition by privately held Gerb. Knauf KG in April 2019. From 1997 until 2015, she worked in a variety of legal positions for Motorola Solutions, Inc. (formerly Motorola, Inc.), a provider of communication infrastructure, devices, accessories, software and services, most recently as Deputy General Counsel and Corporate Secretary, prior to that, serving as Corporate Vice President, Law, Corporate, Securities and Transactions. She is a member of the President's Council of the Museum of Science and Industry, Chicago, where she completed a two-year term as Chair and as an ex officio member of the Board of Trustees. In addition, she serves on the Board of Advisors of Denison University. Ms. Warner received a J.D. from the Northwestern University School of Law and a B.S. in Economics from Denison University. Due to Ms. Warner's strong background in mergers and acquisitions, as well as securities and corporate governance, she provides valuable experience to our Board of Directors. In addition, her exposure to CEOs and board members from leading global organizations, as well as world-class academics and thought leaders provides valuable insights and perspectives to our management team.</p>

Director Skills, Experience and Background

MKS is a global provider of instruments, systems, subsystems and process control solutions that measure, monitor, deliver, analyze, power and control critical parameters of advanced manufacturing processes to improve process performance and productivity for our customers. Many of the markets for our products are cyclical and highly competitive. As we discuss below under the heading “Corporate Governance – Director Candidates,” the Nominating and Corporate Governance Committee is responsible for evaluating the appropriate skills, experience and background that MKS seeks in Board members in the context of our business and the existing composition of the Board of Directors. This evaluation includes numerous factors, such as integrity, business acumen, knowledge of our business and industry, effectiveness, experience, diligence, conflicts of interest and the ability to act in the interests of all shareholders.

Listed below are the skills and experience that we consider important for our directors given our current business and organizational structure. The continuing directors’ and director nominees’ biographies and the matrix below note each director’s and director nominee’s relevant experience, qualifications and skills relative to this list.

Skills/Competencies

- Industry Experience

A significant portion of our sales are derived from products sold to semiconductor capital equipment manufacturers and semiconductor device manufacturers. In addition, our products are used in the industrial technologies, life and health sciences, as well as research and defense markets. Directors with education and experience in semiconductor technology and other industrial technologies provide valuable perspectives on our research and development efforts, competing technologies, the products and processes we develop, our manufacturing and assembly and the markets in which we compete.

- M&A/Business Development Experience

Directors with a background in mergers and acquisitions and business development provide insights into developing and implementing strategies for growing our business. Useful experience in this area includes skills in assessing and analyzing the “fit” of a proposed acquisition with our long-term strategy, valuing transactions and assessing management’s integration plans with existing operations.

- CEO/COO/CFO Experience

Directors who have served in senior leadership positions are important to us because they have the experience and perspective to analyze, shape, and oversee the execution of important operational and policy issues.

- Experienced Director

Directors with public company board experience understand the dynamics and operation of a corporate board, the relationship of a public company board to the Chief Executive Officer and other executive officers, the legal and regulatory landscape in which public companies must operate, and how to oversee an ever-changing mix of strategic, operational, and compliance-related matters.

- International Experience

We are a global organization with manufacturing, research and development, and sales offices in many countries. We sell our products to thousands of customers worldwide and a significant portion of our revenues are from sales to customers in international markets. Our manufacturing facility locations include Austria, Canada, China, France, Germany, Israel, Italy, Romania, Singapore, South Korea and the United States. Because of these factors, directors with international experience can provide valuable business, regulatory and cultural perspectives regarding many important aspects of our business.

Functional Background

- Accounting/Finance

Knowledge of financial markets, financing operations, and accounting and financial reporting processes is very important as it assists our directors in understanding, advising on, and overseeing our capital structure, financing and investing activities as well as our financial reporting and internal controls.

- Engineering/R&D

Our products incorporate sophisticated technologies to measure, monitor, deliver, analyze, power and control complex semiconductor and advanced manufacturing processes, thereby enhancing uptime, yield and throughput for our customers. We have developed, and continue to develop, new products to address industry trends. Directors with education and experience in engineering and research and development provide valuable perspectives regarding our research and development efforts, competing technologies, the products and processes we develop, our manufacturing and assembly and the markets in which we compete.

- Regulatory/Legal/Governance

Directors with a regulatory, legal or governance background can assist the Board of Directors in fulfilling its oversight responsibilities regarding our compliance, engagement with regulatory authorities, and governance structure.

- Marketing/Sales

Directors with marketing, brand management and sales experience can provide expertise and guidance as we seek to expand the markets in which we compete, grow sales and strengthen our brands.

- Operations

As we operate in many cyclical markets, with rapid demand changes, and have a broad footprint of international manufacturing operations, understanding of and experience with manufacturing and other operational processes are valuable assets to our Board of Directors.

- Digitization/Cybersecurity/IoT

The markets we serve increasingly rely on digitization and electronic connectivity as growth drivers, including, for example, the Internet of Things, or IoT. Further, we rely on various information technology networks and systems, some of which are managed by third parties, to process, transmit and store electronic information and to carry out and support a variety of business activities, and the safety and security of our digital information is paramount to our success. Directors who have a sophisticated understanding of global digitization and/or cybersecurity literacy can assist with the Board of Directors' oversight of driving future growth and securing our digital information in the rapidly evolving digital landscape.

Personal Demographics

Representation of a mix of ages, gender and racially diverse perspectives expand the Board of Directors' understanding of the needs and perspectives of our customers, suppliers, employees and shareholders. In addition, we consider the tenure each director has on our Board of Directors to ensure the continued independence and effectiveness of the Board of Directors.

Board Skills Matrix

The below matrix and the directors' biographies note each director's relevant experience, qualifications and skills relative to the skills and experience we consider important for our directors.

	Directors							
	1	2	3	5	6	6	7	8
	Rajeev Batra	Peter J. Cannone III	Gerald G. Colella	Joseph B. Donahue	John T.C. Lee	Jacqueline F. Moloney	Elizabeth A. Mora	Michelle M. Warner
SKILL/COMPETENCIES								
• Industry Experience	✓		✓	✓	✓			✓
• M&A/Business Development Experience		✓	✓	✓	✓	✓		✓
• CEO/COO/CFO Experience	✓	✓	✓	✓	✓	✓	✓	
• Experienced Public Company Director			✓			✓	✓	
• International Experience		✓	✓	✓	✓	✓		✓
FUNCTIONAL BACKGROUND								
• Accounting/Finance							✓	
• Engineering/R&D	✓			✓	✓			
• Regulatory/Legal/Governance							✓	✓
• Marketing/Sales	✓	✓	✓					
• Operations	✓		✓	✓				
• Digitization/Cybersecurity/IoT	✓						✓	
PERSONAL DEMOGRAPHICS								
• Tenure (years)	4	1	8	2	2	6	10	3
• Age	54	55	65	63	59	68	61	55

Board Diversity Matrix

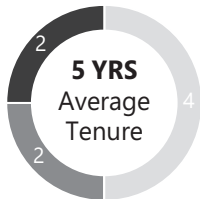
The below matrix shows diversity statistics for our directors as of March 31, 2022.

Total Number of Directors	8	
	Female	Male
PART I: GENDER IDENTITY		
• Gender Identity	3	5
PART II: DEMOGRAPHIC BACKGROUND		
• Asian	0	2
• White	3	3
• LGBTQ+	1	

Demographic Ratio Graphs

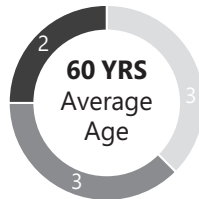
The following demographic ratio graphs show data for our directors.

Tenure



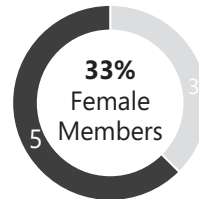
- 0-3 years
- 4-7 years
- 8+ years

Age



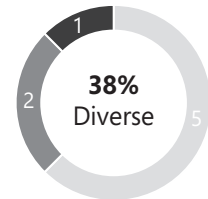
- <56 years
- 56-64 years
- 65+ years

Gender



- Female
- Male

Diversity



- Non-Diverse
- People of Color
- LGBTQ+

PROPOSAL TWO – APPROVAL OF 2022 STOCK INCENTIVE PLAN

Why We Are Requesting Shareholder Approval of the 2022 Stock Incentive Plan

We are asking shareholders to approve the MKS Instruments, Inc. 2022 Stock Incentive Plan, which we refer to as the 2022 Plan. Our Board of Directors believes that our success depends, in large part, on our ability to maintain a competitive position by attracting, retaining and motivating key employees with experience and ability. We believe that our stock-based compensation programs are central to this objective. On February 7, 2022, upon the recommendation of the Compensation Committee, and subject to shareholder approval, the Board of Directors adopted the 2022 Plan. The 2022 Plan is intended to replace our 2014 Stock Incentive Plan, which we refer to as the Prior Plan, which expires by its terms on May 5, 2024. Upon the expiration of the Prior Plan, all then-outstanding awards under the Prior Plan will remain in effect, but no additional awards may be made under the Prior Plan. If our shareholders approve the 2022 Plan at the 2022 Annual Meeting, then we will not grant any new awards under the Prior Plan after the 2022 Annual Meeting; however, awards outstanding under the Prior Plan will remain in effect. The 2022 Plan provides for awards for up to 6,600,000 shares of Common Stock minus the number of shares of Common Stock subject to any equity awards granted by us under the Prior Plan after March 2, 2022 but before the 2022 Plan is approved by shareholders, which we refer to as the Prior Plan Interim Period Grants.

As of March 2, 2022, (i) an aggregate of 439,153 shares of our Common Stock were subject to outstanding restricted stock units, or RSUs, granted under the Prior Plan and under RSUs that we assumed in connection with our acquisitions of Newport Corporation, or Newport, and Electro Scientific Industries, Inc., or ESI, and (ii) 12,206,539 shares of our Common Stock were available for future awards under the Prior Plan. In addition, (i) stock appreciation rights, or SARs, with respect to 12,539 shares of our Common Stock were outstanding under the equity plan that we assumed in connection with our acquisition of Newport, with a weighted-average remaining term of 0.21 years and a weighted-average measurement price of \$31.13 per share, and (ii) no shares of our Common Stock were subject to outstanding performance-based RSUs granted under the Prior Plan.

If shareholders approve the 2022 Plan, awards may be made under the 2022 Plan for up to 6,600,000 shares of our Common Stock, subject to adjustment in the event of stock splits and other similar events and which number of shares of Common Stock will be reduced due to the Prior Plan Interim Period Grants as described above. We expect that the proposed share pool under the 2022 Plan, even though lower than the existing share pool under the Prior Plan, will allow us to continue to grant equity awards at our historic rates for approximately five to six years, but may vary based on changes in participation and MKS stock price.

We believe that our stock-based compensation programs have been integral to our success in the past and will be important to our ability to succeed in the future. If the 2022 Plan is not approved, we will not be able to make long-term equity incentive awards under a shareholder-approved equity incentive plan after the expiration of the Prior Plan on May 5, 2024. Therefore, we consider approval of the 2022 Plan vital to our future success. **ACCORDINGLY, THE BOARD OF DIRECTORS BELIEVES ADOPTION OF THE 2022 PLAN IS IN THE BEST INTERESTS OF MKS AND OUR SHAREHOLDERS AND THEREFORE RECOMMENDS A VOTE “FOR” THE APPROVAL OF THE 2022 PLAN.**

Highlights of the 2022 Plan

No liberal share recycling. The 2022 Plan prohibits the re-granting of (i) shares withheld or delivered to satisfy the exercise price of an award or to satisfy tax withholding obligations, (ii) shares that were subject to a SAR and were not issued upon the net settlement or net exercise of such award, or (iii) shares repurchased on the open market using proceeds from the exercise of an award.

Fungible Share Pool. Full-value awards count against the shares available for grant under the 2022 Plan as 1.91 shares for each share of our Common Stock subject to the award.

No Repricing of Awards. The 2022 Plan prohibits the direct or indirect repricing of stock options or SARs without shareholder approval.

No Discounted Options or SARs. All options and SARs must have an exercise or measurement price that is at least equal to the fair market value of the underlying Common Stock on the date of grant.

No Reload Options or SARs. No options or SARs granted under the 2022 Plan may contain a provision entitling the award holder to the automatic grant of additional options or SARs in connection with any exercise of the original option or SAR.

No Dividend Equivalents on Options or SARs. No options or SARs granted under the 2022 Plan may provide for the payment or accrual of dividend equivalents.

Dividends and Dividend Equivalents on Restricted Stock, Restricted Stock Units and Other-Stock Based Awards Not Paid Until Award Vests. Any dividends or dividend equivalents paid with respect to restricted stock, RSUs or other stock-based awards will be subject to the same restrictions on transfer and forfeitability as the award with respect to which it is paid.

Limit on Non-Employee Director Compensation. The maximum aggregate amount of cash earned or paid and value of awards (calculated based on grant date fair value for financial reporting purposes) granted to any non-employee director in any calendar year may not exceed \$750,000 (excluding fees related to regulatory compliance). Exceptions to these limitations may only be made by our Board of Directors in extraordinary circumstances provided that the non-employee director receiving any additional compensation does not participate in the decision to award such compensation.

Material Amendments Require Shareholder Approval. Shareholder approval is required prior to an amendment to the 2022 Plan that would (i) materially increase the number of shares authorized, (ii) expand the types of awards that may be granted or (iii) materially expand the class of participants eligible to participate.

Administered by an Independent Committee. The 2022 Plan is administered by the Compensation Committee, which is made up entirely of independent directors.

Information Regarding Overhang and Dilution

In developing our share request for the 2022 Plan and analyzing the impact of utilizing equity as a means of compensation on our shareholders, we considered both our “overhang” and our “burn rate.”

Overhang is a measure of potential dilution, which we define as the sum of (i) the total number of shares underlying all equity awards outstanding and (ii) the total number of shares available for future award grants, divided by the number of shares of our Common Stock outstanding. As of March 2, 2022, there were 451,692 shares underlying all equity awards outstanding, 12,206,539 shares available for future awards, and 55,562,986 shares outstanding. Accordingly, our overhang at March 2, 2022 was 23%. Historically, however, MKS has granted all of our equity awards in the form of full-value awards. Applying the fungible share ratio applicable to full-value awards under the 2022 Plan, pursuant to which each full-value equity award reduces the shares available under the 2022 Plan by 1.91 shares, and, assuming our historic grant practices continue, if the 6,600,000 shares of Common Stock proposed to be authorized for grant under the 2022 Plan (which number of shares of Common Stock will be reduced due to the Prior Plan Interim Period Grants as described above) replace the 12,206,539 shares available for future awards in the calculation, our overhang on March 2, 2022 would have been 13%.

Burn rate provides a measure of the potential dilutive impact of our equity award program. Set forth below is a table that reflects our burn rate for the 2021, 2020 and 2019 calendar years as well as an average over those years.

Calendar Year	Awards Granted	Basic Weighted Average Number of Shares of our Common Stock Outstanding	Gross Burn Rate(1)
2021	228,917	55,420,069	0.41%
2020	310,028	55,095,597	0.56%
2019	440,135	54,710,842	0.80%
Three-Year Average ...	326,360	55,075,503	0.59%

- (1) We define “Gross Burn Rate” as the number of equity awards granted in the year divided by the basic weighted average number of shares of our Common Stock outstanding. For purposes of this calculation, for each year, we counted the shares subject to any performance-based achievement based on the maximum number of shares of our Common Stock issuable under such awards.

Description of the 2022 Plan

The following is a brief summary of the 2022 Plan, a copy of which is attached as *Appendix A* to this proxy statement. References to our Board of Directors in this summary shall include the Compensation Committee or any similar committee appointed by our Board of Directors to administer the 2022 Plan.

Types of Awards; Shares Available for Awards; Share Counting Rules

The 2022 Plan provides for the grant of incentive stock options intended to qualify under Section 422 of the Internal Revenue Code of 1986, as amended, or the Code, non-statutory stock options, SARs, restricted stock, RSUs, other stock-based awards and cash awards as described below, which we collectively refer to as awards.

Subject to adjustment in the event of stock splits, stock dividends or similar events, awards may be made under the 2022 Plan (any or all of which awards may be in the form of incentive stock options) for up to 6,600,000 shares of our Common Stock; provided, however, that the number of shares of Common Stock that may be issued under the 2022 Plan will be reduced, on a one-for-one basis, by the number of shares of Common Stock subject to the Prior Plan Interim Period Grants.

The 2022 Plan uses a “fungible share” concept under which each share of our Common Stock subject to awards granted as options and SARs cause one share of our Common Stock per share under the award to be removed from the available share pool, while each share of our Common Stock subject to awards granted as restricted stock, RSUs, or other stock-based awards where the per share purchase price for the award is less than 100% of the fair market value of our Common Stock on the date of grant of the award will cause 1.91 shares of our Common Stock per share under the award to be removed from the available share pool. Shares of our Common Stock covered by awards granted under the 2022 Plan that are returned to the 2022 Plan as described in the following paragraph and become available for issuance pursuant to a new award will be credited back to the pool at the same rates described above.

Subject to adjustment in the event of stock splits, stock dividends or similar events, the maximum number of shares with respect to which awards may be granted to any one participant under the 2022 Plan may not exceed 500,000 shares per calendar year. For purposes of this per-participant limit, the combination of an option in tandem with a SAR is treated as a single award. Each share of our Common Stock subject to an award will be counted as one share for purposes of this limit.

The 2022 Plan provides that the maximum aggregate amount of cash and value of awards (calculated based on grant date fair value for financial reporting purposes) granted to any individual non-employee director in any calendar year may not exceed \$750,000. However, fees paid by the Company on behalf of any non-employee director in connection with regulatory compliance and any amounts paid to a non-employee director as reimbursement of an expense will not count against this limit. Exceptions to this limitation may only be made by our Board of Directors in extraordinary circumstances provided that any non-employee director receiving additional compensation does not participate in the decision to award such compensation. This limitation does not apply to cash or awards granted to a non-employee director in his or her capacity as an advisor or consultant to the Company.

For purposes of counting the number of shares available for the grant of awards under the 2022 Plan and the per-participant limit of the 2022 Plan, all shares of Common Stock covered by SARs will be counted against the number of shares available for the grant of awards and against the per-participant limit of the 2022 Plan. However, SARs that may be settled only in cash will not be so counted. Similarly, to the extent that an RSU award may be settled only in cash, no shares will be counted against the shares available for the grant of awards under the 2022 Plan or the per-participant limit of the 2022 Plan. In addition, if we grant a SAR in tandem with an option for the same number of shares of our Common Stock and provide that only one such award may be exercised, which we refer to as a tandem SAR, only the shares covered by the option, and not the shares covered by the tandem SAR, will be so counted, and the expiration of one in connection with the other's exercise will not restore shares to the 2022 Plan.

Shares covered by awards under the 2022 Plan that expire or are terminated, surrendered, or cancelled without having been fully exercised or are forfeited in whole or in part (including as a result of shares subject to

such award being repurchased by us at the original issuance price pursuant to a contractual repurchase right) or that result in any shares not being issued (including as a result of a SAR or an RSU that was settleable either in cash or in stock actually being settled in cash) will again be available for the grant of awards under the 2022 Plan (subject, in the case of incentive stock options, to any limitations under the Code). In the case of the exercise of a SAR, the number of shares counted against the shares available for the grant of awards and against the per-participant limit of the 2022 Plan will be the full number of shares subject to the SAR multiplied by the percentage of the SAR actually exercised, regardless of the number of shares actually used to settle the SAR upon exercise, and the shares covered by a tandem SAR will not again become available for grant upon the expiration or termination of the tandem SAR.

Shares of Common Stock that are delivered (by actual delivery, attestation or net exercise) to us by a participant to purchase shares of Common Stock upon exercise of an award or to satisfy tax withholding obligations (including shares retained from the award creating the tax obligation) will not be added back to the number of shares available for the future grant of awards under the 2022 Plan. Shares purchased by us on the open market using proceeds from the exercise of an award will not increase the number of shares available for future grant of awards.

In connection with a merger or consolidation of an entity with us or our acquisition of property or stock of an entity, our Board of Directors may grant awards under the 2022 Plan in substitution for any options or other stock or stock-based awards granted by such entity or an affiliate thereof on such terms as our Board of Directors determines appropriate in the circumstances, notwithstanding any limitation on awards contained in the 2022 Plan. No such substitute awards shall count against the overall share limits or any sub-limits of the 2022 Plan, except as required by reason of Section 422 and related provisions of the Code.

Descriptions of Awards

Options. Optionees receive the right to purchase a specified number of shares of Common Stock at a specified exercise price and subject to the other terms and conditions that are specified in connection with the option grant. An option that is not intended to be an "incentive stock option" is a "non-statutory stock option." Options may not be granted at an exercise price that is less than 100% of the fair market value of our Common Stock on the date of grant. If our Board of Directors approves the grant of an option with an exercise price to be determined on a future date, the exercise price may not be less than 100% of the fair market value of our Common Stock on that future date. Under present law, incentive stock options may not be granted at an exercise price less than 110% of the fair market value in the case of stock options granted to optionees holding more than 10% of the total combined voting power of all classes of our stock or any of our subsidiaries. Under the terms of the 2022 Plan, options may not be granted for a term in excess of ten years (and, under present law, five years in the case of incentive stock options granted to optionees holding greater than 10% of the total combined voting power of all classes of our stock or any of our subsidiaries). The 2022 Plan permits participants to pay the exercise price of options using one or more of the following manners of payment: (i) payment by cash or by check, (ii) except as may otherwise be provided in the applicable option agreement or approved by our Board of Directors, in connection with a "cashless exercise" through a broker, (iii) to the extent provided in the applicable option agreement or approved by our Board of Directors, and subject to certain conditions, by delivery to us of shares of Common Stock owned by the participant valued at their fair market value, (iv) to the extent provided in an applicable non-statutory stock option agreement or approved by our Board of Directors, by delivery of a notice of "net exercise" as a result of which we will retain a number of shares of Common Stock otherwise issuable pursuant to the stock option equal to the aggregate exercise price for the portion of the option being exercised divided by the fair market value of our Common Stock on the date of exercise, (v) to the extent permitted by applicable law and provided for in the applicable option agreement or approved by our Board of Directors, by any other lawful means (but not by a promissory note of the participant), or (vi) by any combination of these forms of payment. No option granted under the 2022 Plan may contain a provision entitling the participant to the automatic grant of additional options in connection with any exercise of the original option. No options granted under the 2022 Plan may provide for the payment or accrual of dividend equivalents.

Stock Appreciation Rights. A SAR is an award entitling the holder, upon exercise, to receive a number of shares of our Common Stock, or cash (or a combination of shares of our Common Stock and cash) determined by reference to appreciation, from and after the date of grant, in the fair market value of a share of our Common

Stock over the measurement price. The 2022 Plan provides that the measurement price of a SAR may not be less than the fair market value of our Common Stock on the date the SAR is granted (provided, however, that if our Board of Directors approves the grant of a SAR effective as of a future date, the measurement price shall not be less than 100% of the fair market value on such future date) and that SARs may not be granted with a term in excess of 10 years. No SARs granted under the 2022 Plan may contain a provision entitling the participant to the automatic grant of additional SARs in connection with any exercise of the original SAR. No SARs granted under the 2022 Plan may provide for the payment or accrual of dividend equivalents.

Limitation on Repricing of Options or SARs. With respect to options and SARs, unless such action is approved by shareholders or otherwise permitted under the terms of the 2022 Plan in connection with certain changes in capitalization and reorganization events, we may not (1) amend any outstanding option or SAR granted under the 2022 Plan to provide an exercise price or measurement price per share that is lower than the then-current exercise price or measurement price per share of such outstanding option or SAR, (2) cancel any outstanding option or SAR (whether or not granted under the 2022 Plan) and grant in substitution therefor new awards under the 2022 Plan (other than certain substitute awards issued in connection with an acquisition by us, described above) covering the same or a different number of shares of our Common Stock and having an exercise price or measurement price per share lower than the then-current exercise price or measurement price per share of the canceled option or SAR, (3) cancel in exchange for a cash payment any outstanding option or SAR with an exercise price or measurement price per share above the then-current fair market value of our Common Stock or (4) take any other action under the 2022 Plan that constitutes a “repricing” within the meaning of the rules of the Nasdaq Stock Market, or Nasdaq.

Restricted Stock Awards. Restricted stock awards entitle recipients to acquire shares of our Common Stock, subject to our right to repurchase all or part of such shares at their issue price or other stated or formula price (or to require forfeiture of such shares if issued at no cost) in the event that the conditions specified in the applicable award are not satisfied prior to the end of the applicable restriction period established for such award. Any dividends (whether paid in cash, stock or property) declared and paid by us with respect to shares of restricted stock will be paid to the participant only if and when such shares become free from the restrictions on transferability and forfeitability that apply to such shares.

Restricted Stock Unit Awards. RSUs entitle the recipient to receive shares of our Common Stock, or cash equal to the fair market value of such shares, to be delivered at the time such award vests or on a deferred basis pursuant to the terms and conditions established by our Board of Directors. Our Board of Directors may provide that settlement of RSUs will be deferred on a mandatory basis or, at the election of the participant, in a manner that complies with Section 409A of the Code. A participant has no voting rights with respect to any RSU. Our Board of Directors may provide that a grant of RSUs may provide the participant with the right to receive an amount equal to any dividends or other distributions declared and paid on an equal number of outstanding shares of our Common Stock. Any such dividend equivalents may be settled in cash and/or shares of our Common Stock and will be subject to the same restrictions on transfer and forfeitability as the RSUs with respect to which such dividend equivalents are awarded.

Other Stock-Based Awards. Under the 2022 Plan, our Board of Directors may grant other awards of shares of our Common Stock, and other awards that are valued in whole or in part by reference to, or are otherwise based on, shares of our Common Stock or other property, having such terms and conditions as our Board of Directors may determine. We refer to these types of awards as other stock-based awards. Other stock-based awards may be available as a form of payment in settlement of other awards granted under the 2022 Plan or as payment in lieu of compensation to which a participant is otherwise entitled. Other stock-based awards may be paid in shares of our Common Stock or in cash, as our Board of Directors may determine. The award agreements of other stock-based awards may provide the holder of these awards with the right to receive dividend equivalents. Dividend equivalents may be settled in cash and/or shares of our Common Stock and will be subject to the same restrictions on transfer and forfeitability as the other stock-based award with respect to which they are awarded.

Cash Awards. Under the 2022 Plan, the Board of Directors has the right to grant cash-based awards, including awards subject to performance conditions.

Performance Conditions. Our Board of Directors may specify that the degree of granting, vesting and/or payout of any award subject to performance-based vesting conditions will be subject to the achievement of one or more of the following performance measures established by the Board of Directors, which may be based on the relative or absolute attainment of specified levels of one or any combination of the following measures (and which may be determined pursuant to generally accepted accounting principles ("GAAP") or on a non-GAAP basis, as determined by the Board of Directors): net income, earnings before or after discontinued operations, interest, taxes, depreciation and/or amortization, earnings per share, earnings per share before or after discontinued operations, interest, taxes, depreciation and/or amortization, bookings, bookings growth, revenue, revenue growth, operating profit before or after discontinued operations and/or taxes, operating expenses, gross margin, operating margin, profit margin, cost savings, inventory management, working capital, customer satisfaction, product quality, manufacturing objectives, completion of strategic acquisitions/dispositions, receipt of regulatory approvals, cash position, earnings growth, cash flow or cash position, stock price, market share, return on sales, assets, equity or investment, improvement of financial ratings, achievement of balance sheet, income statement or cash flow objectives, total shareholder return or any other performance measure as the Board of Directors may determine. These goals may reflect absolute entity or business unit performance or a relative comparison to the performance of a peer group of entities or other external measure of the selected performance criteria and may be absolute in their terms or measured against or in relationship to other companies comparably, similarly or otherwise situated. The Board of Directors may specify that such performance measures will be adjusted to exclude any one or more of (i) extraordinary, non-recurring charges or other events, (ii) gains or losses on the dispositions of discontinued operations, (iii) other non-standard gains or losses, (iv) the cumulative effects of changes in accounting principles, (v) the write-down of any asset, (vi) fluctuation in foreign currency exchange rates, (vii) amortization of acquired intangible assets, (viii) acquisition and divestiture related charges or credits, (ix) litigation or claim judgments or settlements, (x) gain on sale of assets (xi) excess and obsolete inventory adjustments, (xii) tax effects of adjustments, (xiii) the effect of changes in tax laws or other laws affecting reported results, (xiv) charges for restructuring and reorganization programs and (xv) any other factors as the Board of Directors may determine. Such performance measures: (x) may vary by participant and may be different for different awards; (y) may be particular to a participant or the department, branch, line of business, subsidiary or other unit in which the participant works and (z) may cover such period as may be specified by the Board of Directors. The Board of Directors will have the authority to make equitable adjustments to the performance goals in recognition of unusual or non-recurring events affecting the Company or the financial statements of the Company, in response to changes in applicable laws or regulations or to account for items of gain, loss or expense determined to be extraordinary or unusual in nature or infrequent in occurrence or related to the disposal of a segment of a business or related to a change in accounting principles. Our Board of Directors may adjust the cash or number of shares payable pursuant to a performance award, and the Board of Directors may, at any time, waive the achievement of the applicable performance measures. Notwithstanding its designation as a performance award, no option or SAR will provide for the payment or accrual of dividend equivalents, any dividends declared and paid by the Company with respect to shares of restricted stock will be subject to the same dividend rules for restricted stock awards not designated as a performance award and any right to receive dividend equivalents on an award of RSUs and other stock-based awards will be subject to the same dividend equivalent rules for such awards that are not designated as a performance award.

Eligibility to Receive Awards

All of our employees, officers, and directors, as well as our consultants and advisors, are eligible to receive awards under the 2022 Plan. However, incentive stock options may only be granted to our employees, employees of our present or future parent or subsidiary corporations, and employees of any other entities the employees of which are eligible to receive incentive stock options under the Code.

Transferability of Awards

Awards may not be sold, assigned, transferred, pledged or otherwise encumbered by a participant, either voluntarily or by operation of law, except by will or the laws of descent and distribution or, other than in the case of an incentive stock option, pursuant to a qualified domestic relations order. During the life of the participant, awards are exercisable only by the participant. However, except with respect to awards that are subject to Section 409A of the Code and incentive stock options, our Board of Directors may permit or provide in an award for the gratuitous transfer of the award by the participant to or for the benefit of any immediate family member,

family trust or other entity established for the benefit of the participant and/or an immediate family member thereof if we would be eligible to use a Form S-8 under the Securities Act of 1933, as amended, for the registration of the sale of the Common Stock subject to such award to the proposed transferee. Further, we are not required to recognize any transfer until such time as the participant and the permitted transferee have, as a condition to the transfer, delivered to us a written instrument in form and substance satisfactory to us confirming that such transferee will be bound by all of the terms and conditions of the award. None of the restrictions described in this paragraph prohibit a transfer from the participant to the Company.

No Rights as a Shareholder; Clawback

No participant shall have any rights as a shareholder with respect to any shares of Common Stock to be distributed with respect to an award granted under the 2022 Plan until becoming a record holder of such shares, subject to the terms of an award agreement. In accepting an award under the 2022 Plan, a participant agrees to be bound by any clawback policy that the Company has in effect or may adopt in the future.

Plan Benefits

As of March 2, 2022, seven executive officers (all of whom are also employees) and seven directors (excluding the CEO, who is an executive officer) would be eligible to receive awards under the 2022 Plan. In addition, the 2022 Plan permits grants of awards to employees. As of March 2, 2022, we had approximately 6,000 employees. The granting of awards under the 2022 Plan is discretionary, and the Company cannot now determine the number or type of awards to be granted in the future to any particular person or group.

On March 2, 2022, the last reported sale price of our Company Common Stock on Nasdaq was \$153.42.

Administration

The 2022 Plan will be administered by our Board of Directors. Our Board of Directors has the authority to grant awards, to adopt, amend and repeal the administrative rules, guidelines and practices relating to the 2022 Plan that it deems advisable, and to construe and interpret the provisions of the 2022 Plan and any award agreements entered into under the 2022 Plan. Our Board of Directors may correct any defect, supply any omission or reconcile any inconsistency in the 2022 Plan or any award. All actions and decisions by our Board of Directors with respect to the 2022 Plan and any awards made under the 2022 Plan will be made in our Board of Directors' discretion and will be final and binding on all persons having or claiming any interest in the 2022 Plan or in any award.

Pursuant to the terms of the 2022 Plan, our Board of Directors may delegate any or all of its powers under the 2022 Plan to one or more committees or subcommittees of our Board of Directors. The Board of Directors has authorized the Compensation Committee to administer certain aspects of the 2022 Plan. Awards granted to non-employee directors must be granted and administered by a committee of the Board of Directors, all of the members of which are independent directors as defined by Section 5605(a)(2) or any successor provision of the Nasdaq Marketplace Rules.

Subject to any applicable limitations contained in the 2022 Plan, the Board of Directors, the Compensation Committee, or any other committee to whom the Board of Directors delegates authority, as the case may be, selects the recipients of awards and determines (i) the number of shares of Common Stock, cash or other consideration covered by awards and the terms and conditions of such awards, including the dates upon which such awards become exercisable or otherwise vest, (ii) the exercise or measurement price of awards, if any, and (iii) the duration of awards.

Each award under the 2022 Plan may be made alone or in addition or in relation to any other award. The terms of each award need not be identical, and our Board of Directors need not treat participants uniformly. Our Board of Directors will determine the effect on an award of the disability, death, termination or other cessation of employment or service, authorized leave of absence or other change in the employment or other service status of a participant, and the extent to which, and the period during which, the participant (or the participant's legal representative, conservator, guardian or designated beneficiary) may exercise rights or receive any benefits under an award. The Board of Directors may at any time provide that any award shall become immediately exercisable in whole or in part, free from some or all restrictions or conditions or otherwise realizable in whole or in part, as the case may be.

In the event of any stock split, reverse stock split, stock dividend, recapitalization, combination of shares, reclassification of shares, spin-off or other similar change in capitalization or event, or any dividend or distribution to holders of our Common Stock, other than an ordinary cash dividend, we are required to make equitable adjustments (or make substituted awards, as applicable), in the manner determined by our Board of Directors, to (i) the number and class of securities available under the 2022 Plan, (ii) the share counting rules set forth in the 2022 Plan, (iii) the sub-limit contained in the 2022 Plan, (iv) the number and class of securities and exercise price per share of each outstanding option, (v) the share- and per-share provisions and the measurement price of each outstanding SAR, (vi) the number of shares subject to and the repurchase price per share subject to each outstanding award of restricted stock, and (vii) the share and per-share-related provisions and the purchase price, if any, of each outstanding RSU award and each outstanding other stock-based award.

We will indemnify and hold harmless each director, officer, employee or agent to whom any duty or power relating to the administration or interpretation of the 2022 Plan has been or will be delegated against any cost or expense (including attorneys' fees) or liability (including any sum paid in settlement of a claim with our Board of Directors' approval) arising out of any act or omission to act concerning the 2022 Plan unless arising out of such person's own fraud or bad faith.

Amendment of awards. Except as otherwise provided under the 2022 Plan with respect to repricing outstanding stock options or SARs and with respect to actions requiring shareholder approval, our Board of Directors may amend, modify or terminate any outstanding award, including but not limited to, substituting therefor another award of the same or a different type, changing the date of exercise or realization, and converting an incentive stock option to a non-statutory stock option, provided that the participant's consent to any such action will be required unless our Board of Directors determines that the action, taking into account any related action, does not materially and adversely affect the participant's rights under the 2022 Plan or the change is otherwise permitted under the terms of the 2022 Plan in connection with a change in capitalization or reorganization event.

Reorganization Events

The 2022 Plan contains provisions addressing the consequences of any reorganization event. A reorganization event is defined under the 2022 Plan as (a) any merger or consolidation of us with or into another entity as a result of which all of our Common Stock is converted into or exchanged for the right to receive cash, securities or other property, or is canceled, (b) any transfer or disposition of all of our Common Stock for cash, securities or other property pursuant to a share exchange or other transaction or (c) our liquidation or dissolution.

Provisions Applicable to Awards Other than Restricted Stock. Under the 2022 Plan, if a reorganization event occurs, our Board of Directors may take any one or more of the following actions as to all or any (or any portion of) outstanding awards other than restricted stock on such terms as our Board of Directors determines (except to the extent specifically provided otherwise in an applicable award agreement or another agreement between a participant and us): (1) provide that such awards shall be assumed, or substantially equivalent awards shall be substituted, by the acquiring or succeeding corporation (or an affiliate thereof), (2) upon written notice to a participant, provide that all of the participant's unvested awards will be forfeited immediately before the reorganization event and/or that all of the participant's unexercised awards will terminate immediately prior to the consummation of such reorganization event unless exercised by the participant (to the extent then exercisable) within a specified period following the date of such notice, (3) provide that outstanding awards shall become exercisable, realizable, or deliverable, or restrictions applicable to an award shall lapse, in whole or in part prior to or upon such reorganization event, (4) in the event of a reorganization event under the terms of which holders of our Common Stock will receive upon consummation thereof a cash payment for each share surrendered in the reorganization event, which we refer to as the Acquisition Price, make or provide for a cash payment to participants with respect to each award held by a participant equal to (A) the number of shares of our Common Stock subject to the vested portion of the award (after giving effect to any acceleration of vesting that occurs upon or immediately prior to such reorganization event) multiplied by (B) the excess, if any, of (I) the Acquisition Price over (II) the exercise, measurement or purchase price of such award and any applicable tax withholdings, in exchange for the termination of such award, provided, that if the Acquisition Price per share (as determined by our Board of Directors) does not exceed the exercise price of the award, then the award will be canceled without any payment of consideration, (5) provide that, in connection with our liquidation or dissolution, awards shall convert

into the right to receive liquidation proceeds (if applicable, net of the exercise, measurement or purchase price thereof and any applicable tax withholdings) and (6) any combination of the foregoing. Our Board of Directors is not obligated to treat all awards, all awards held by a participant, or all awards of the same type, identically. Certain RSU awards that are subject to Section 409A of the Code will be settled in accordance with the terms of the applicable award agreement. Our Board of Directors, with reasonable notice to participants holding options or SARs, may impose a limitation on the ability these participants to exercise their awards for the minimum number of days prior to the closing of the reorganization event as is reasonably necessary to facilitate the orderly closing of the reorganization event.

Provisions Applicable to Restricted Stock. Upon the occurrence of a reorganization event other than our liquidation or dissolution, our repurchase and other rights with respect to outstanding restricted stock will inure to the benefit of our successor and will, unless our Board of Directors determines otherwise, apply to the cash, securities or other property which our Common Stock was converted into or exchanged for pursuant to such reorganization event in the same manner and to the same extent as they applied to such restricted stock. However, our Board of Directors may either provide for termination or deemed satisfaction of such repurchase or other rights under the instrument evidencing any restricted stock or any other agreement between a participant and us, either initially or by amendment or provide for forfeiture of such restricted stock if issued at no cost. Upon the occurrence of a reorganization event involving our liquidation or dissolution, except to the extent specifically provided to the contrary in the instrument evidencing any award of restricted stock or any other agreement between the participant and us, all restrictions and conditions on all restricted stock then outstanding shall automatically be deemed terminated or satisfied.

Provisions for Foreign Participants

The Board of Directors may establish one or more sub-plans under the 2022 Plan to satisfy applicable securities, tax or other laws of various jurisdictions. The Board of Directors will establish such sub-plans by adopting supplements to the 2022 Plan containing any limitations on the Board of Directors' discretion under the 2022 Plan and any additional terms and conditions not otherwise inconsistent with the 2022 Plan as the Board of Directors deems necessary or desirable. All supplements adopted by the Board of Directors will be deemed to be part of the 2022 Plan, but each supplement will only apply to participants within the affected jurisdiction.

Amendment or Termination

If we receive shareholder approval of the 2022 Plan, no award may be granted under the 2022 Plan after May 9, 2032, but awards previously granted may extend beyond that date. Our Board of Directors may amend, suspend or terminate the 2022 Plan or any portion of the 2022 Plan at any time, except that (i) no amendment may be made to the plan to permit an option or SAR to be repriced without shareholder approval and (ii) no amendment that would require shareholder approval under the rules of the national securities exchange on which the Company then maintains its primary listing may be made effective unless and until such amendment has been approved by our shareholders. If the national securities exchange on which the Company then maintains its primary listing does not have rules regarding when shareholder approval of amendments to equity compensation plans is required (or if our Common Stock is not then listed on any national securities exchange), no amendment of the 2022 Plan materially increasing the number of shares authorized under the plan, expanding the types of awards that may be granted under the plan or materially expanding the class of participants eligible to participate in the plan will be effective unless and until the Company's shareholders approve such amendment. If at any time the approval of our shareholders is required as to any other modification or amendment under Section 422 of the Code or any successor provision with respect to incentive stock options, our Board of Directors may not effect such modification or amendment without such approval. Unless otherwise specified in the amendment, any amendment to the 2022 Plan adopted in accordance with the procedures described above will apply to, and be binding on the holders of, all awards outstanding under the 2022 Plan at the time the amendment is adopted, provided that our Board of Directors determines that such amendment, taking into account any related action, does not materially and adversely affect the rights of participants under the 2022 Plan. No award will be made that is conditioned on shareholder approval of any amendment to the 2022 Plan unless the award provides that (i) it will terminate or be forfeited if shareholder approval of such amendment is not obtained within no more than 12 months from the date the award was granted and (ii) it may not be exercised or settled (or otherwise result in the issuance of shares of our Common Stock) prior to the receipt of such shareholder approval.

If shareholders do not approve the adoption of the 2022 Plan, the 2022 Plan will not go into effect, and the Company will not grant any awards under the 2022 Plan. In this event, the Board of Directors will consider whether to adopt alternative arrangements based on its assessment of the needs of the Company.

Federal Income Tax Consequences

The following is a summary of the United States federal income tax consequences that generally will arise with respect to awards granted under the 2022 Plan. This summary is based on the federal tax laws in effect as of the date of this proxy statement. In addition, this summary assumes that all awards are exempt from, or comply with, the rules under Section 409A of the Code regarding nonqualified deferred compensation. Changes to these laws could alter the tax consequences described below.

Incentive Stock Options. A participant will not have income upon the grant of an incentive stock option. Also, except as described below, a participant will not have income upon exercise of an incentive stock option if the participant has been employed by the Company or its corporate parent or 50% or majority-owned corporate subsidiary at all times beginning with the option grant date and ending three months before the date the participant exercises the option. If the participant has not been so employed during that time, then the participant will be taxed as described below under "Non-statutory Stock Options." The exercise of an incentive stock option may subject the participant to the alternative minimum tax.

A participant will have income upon the sale of the stock acquired under an incentive stock option at a profit (if sales proceeds exceed the exercise price). The type of income will depend on when the participant sells the stock. If a participant sells the stock more than two years after the option was granted and more than one year after the option was exercised, then all of the profit will be long-term capital gain. If a participant sells the stock prior to satisfying these waiting periods, then the participant will have engaged in a disqualifying disposition and a portion of the profit will be ordinary income and a portion may be capital gain. This capital gain will be long-term if the participant has held the stock for more than one year and otherwise will be short-term. If a participant sells the stock at a loss (sales proceeds are less than the exercise price), then the loss will be a capital loss. This capital loss will be long-term if the participant held the stock for more than one year and otherwise will be short-term.

Non-statutory Stock Options. A participant will not have income upon the grant of a non-statutory stock option. A participant will have compensation income upon the exercise of a non-statutory stock option equal to the value of the stock on the day the participant exercised the option less the exercise price. Upon sale of the stock, the participant will have capital gain or loss equal to the difference between the sales proceeds and the value of the stock on the day the option was exercised. This capital gain or loss will be long-term if the participant has held the stock for more than one year and otherwise will be short-term.

Stock Appreciation Rights. A participant will not have income upon the grant of a SAR. A participant generally will recognize compensation income upon the exercise of a SAR equal to the amount of the cash and the fair market value of any stock received. Upon the sale of the stock, the participant will have capital gain or loss equal to the difference between the sales proceeds and the value of the stock on the day the SAR was exercised. This capital gain or loss will be long-term if the participant held the stock for more than one year and otherwise will be short-term.

Restricted Stock Awards. A participant will not have income upon the grant of restricted stock unless an election under Section 83(b) of the Code is made within 30 days of the date of grant. If a timely 83(b) election is made, then a participant will have compensation income equal to the value of the stock less the purchase price. When the stock is sold, the participant will have capital gain or loss equal to the difference between the sales proceeds and the value of the stock on the date of grant. If the participant does not make an 83(b) election, then when the stock vests the participant will have compensation income equal to the value of the stock on the vesting date less the purchase price. When the stock is sold, the participant will have capital gain or loss equal to the sales proceeds less the value of the stock on the vesting date. Any capital gain or loss will be long-term if the participant held the stock for more than one year and otherwise will be short-term.

Restricted Stock Units. A participant will not have income upon the grant of an RSU. A participant is not permitted to make a Section 83(b) election with respect to an RSU award. When the RSU vests, the participant will

have income on the vesting date in an amount equal to the fair market value of the stock on the vesting date less the purchase price, if any. When the stock is sold, the participant will have capital gain or loss equal to the sales proceeds less the value of the stock on the vesting date. Any capital gain or loss will be long-term if the participant held the stock for more than one year and otherwise will be short-term.

Other Stock-Based Awards. The tax consequences associated with any other stock-based award granted under the 2022 Plan will vary depending on the specific terms of such award. Among the relevant factors are whether or not the award has a readily ascertainable fair market value, whether or not the award is subject to forfeiture provisions or restrictions on transfer, the nature of the property to be received by the participant under the award, and the participant's holding period and tax basis for the award or underlying Common Stock.

Tax Consequences to the Company. There will be no tax consequences to the Company except that the Company will be entitled to a deduction when a participant has compensation income, subject to the limitations of Section 162(m) of the Code.

THE BOARD OF DIRECTORS RECOMMENDS THAT YOU VOTE "FOR" THE APPROVAL OF THE MKS INSTRUMENTS, INC. 2022 STOCK INCENTIVE PLAN.

PROPOSAL THREE – ADVISORY VOTE ON EXECUTIVE COMPENSATION

The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, or the Dodd-Frank Act, enables our shareholders to vote to approve, on a non-binding, advisory basis, the compensation of our Named Executive Officers as disclosed in this proxy statement under the heading “Executive Compensation” including “Compensation Discussion and Analysis,” the tabular disclosure regarding such compensation, and the accompanying narrative disclosure. This vote is not intended to address any specific item of compensation, but rather the overall compensation of our Named Executive Officers and the philosophy, policies and practices of executive compensation described in this proxy statement. The advisory vote is not a vote on our compensation practices for non-executive employees or our Board of Directors. The Dodd-Frank Act requires the Company to hold the advisory vote on executive compensation at least once every three years, but we have elected to submit the advisory vote to shareholders annually.

As described in detail under the heading “Executive Compensation — Compensation Discussion and Analysis,” our executive compensation program is designed to attract, motivate, and retain our executive officers, who are critical to our success. Under this program, our executive officers are rewarded for the achievement of specific short-term and long-term goals. Please see the “Compensation Discussion and Analysis” for additional details about our executive compensation program and philosophy, including information about the compensation of our Named Executive Officers.

The Compensation Committee continually reviews the compensation program for our executive officers to ensure it achieves the desired goals of aligning our executive compensation structure with our shareholders’ interests and current market practices. At the 2021 Annual Meeting of Shareholders, our shareholders overwhelmingly approved our executive compensation, with over 98% of the votes cast voting in favor of the “say-on-pay” proposal. The Compensation Committee considered the results of the 2021 “say-on-pay” vote, and based upon strong shareholder support, determined that our executive compensation program did not require any material changes in response to the 2021 “say-on-pay” vote.

Our Board of Directors is asking shareholders to approve a non-binding advisory vote on the following resolution:

RESOLVED, that the compensation paid to the Company’s Named Executive Officers, as disclosed pursuant to the compensation disclosure rules of the SEC, including the Compensation Discussion and Analysis, the compensation tables and any related material disclosed in this proxy statement, is hereby approved.

This vote on the compensation of our Named Executive Officers is advisory, and therefore not binding on the Company, the Compensation Committee or our Board of Directors. Our Board of Directors and our Compensation Committee value the opinions of our shareholders and to the extent there is any significant vote against the Named Executive Officers’ compensation as disclosed in this proxy statement, we will consider our shareholders’ concerns and the Compensation Committee will evaluate whether any actions are necessary to address those concerns.

THE BOARD OF DIRECTORS BELIEVES THAT THE PROPOSAL TO APPROVE, ON A NON-BINDING ADVISORY BASIS, THE EXECUTIVE COMPENSATION CONTAINED IN THIS PROXY STATEMENT IS IN THE BEST INTERESTS OF MKS AND OUR SHAREHOLDERS AND THEREFORE RECOMMENDS A VOTE “FOR” THIS PROPOSAL.

PROPOSAL FOUR – RATIFICATION OF SELECTION OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Our Audit Committee has selected PricewaterhouseCoopers LLP, or PwC, as the Company's independent registered public accounting firm for the fiscal year ending December 31, 2022. PwC was our independent registered public accounting firm for the fiscal year ended December 31, 2021.

Representatives of PwC are expected to attend the 2022 Annual Meeting. They will have the opportunity to make a statement if they so desire and will be available to respond to appropriate questions from shareholders. In the event that the ratification of the selection of PwC as our independent registered public accounting firm is not obtained at the 2022 Annual Meeting, the Board of Directors will reconsider its appointment.

THE BOARD OF DIRECTORS BELIEVES THAT THE PROPOSAL TO RATIFY THE SELECTION OF PWC AS OUR INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM FOR THE FISCAL YEAR ENDING DECEMBER 31, 2022 IS IN THE BEST INTERESTS OF MKS AND OUR SHAREHOLDERS AND THEREFORE RECOMMENDS A VOTE "FOR" THIS PROPOSAL.

CORPORATE GOVERNANCE

Board Independence

The Board of Directors has determined that all of the members of the Board of Directors, other than Mr. Colella and Dr. Lee, are independent as defined under the rules of Nasdaq. Mr. Colella is not independent, as he is our former Chief Executive Officer, and Dr. Lee is not independent as he currently serves as our President and Chief Executive Officer.

Board Leadership Structure

Since 2005, we have separated the roles of Chief Executive Officer and Chair of the Board of Directors in recognition of the differences between the two roles. The Chief Executive Officer is responsible for setting the strategic direction of the Company and the day-to-day leadership and performance of the Company, while the Chair of the Board of Directors provides guidance to the Chief Executive Officer, sets the agenda for Board meetings and presides over meetings of the full Board of Directors.

In addition, our Corporate Governance Guidelines provide that during any period in which the Chair of the Board of Directors is not an independent director, and in such other instances as the Board of Directors may determine from time to time, a Lead Director shall be elected by and from the independent directors. As Mr. Colella, the Chair of our Board of Directors, is not independent, we are currently obligated under our Corporate Governance Guidelines to have a Lead Director. Ms. Moloney has served as our Lead Director since 2020.

The primary role of the Lead Director is to serve as a liaison between the independent directors and the Chair of the Board of Directors and/or the Chief Executive Officer and to represent the independent directors, as appropriate. Pursuant to our Corporate Governance Guidelines, which are posted on our website at <https://www.mksinst.com/corporate-governance> under Corporate Governance Documents, the Lead Director shall, among other matters:

- have the authority to call meetings of the independent directors;
- preside at all meetings of the Board of Directors at which the Chair of the Board of Directors is not present;
- assure that at least two meetings per year of only the independent directors are held and chair any such meetings of the independent directors;
- facilitate communications and serve as a liaison between the independent directors and the Chair of the Board of Directors and/or the Chief Executive Officer, provided that any director is free to communicate directly with the Chair of the Board of Directors and with the Chief Executive Officer;

- work with the Chair of the Board of Directors and the Chief Executive Officer in the preparation of the agenda for each Board of Directors meeting and approve each such agenda;
- if a meeting is held between a major shareholder and a representative of the independent directors, the Lead Director shall serve, subject to availability, as such representative of the independent directors; and
- otherwise consult with the Chair of the Board of Directors and the Chief Executive Officer on matters relating to corporate governance and performance of the Board of Directors.

Our Board of Directors believes that its leadership structure is appropriate at this time for our Company because it strikes an effective balance between management and independent leadership participation in the Board of Directors' process.

Communications from Shareholders

The Board of Directors will give attention to written communications that are submitted by shareholders and will respond if appropriate. The Chair of the Nominating and Corporate Governance Committee, with the assistance of our General Counsel, is primarily responsible for monitoring communications from shareholders and for providing copies or summaries to the other directors as he or she considers appropriate. Communications are forwarded to all directors if they relate to important substantive matters and include suggestions or comments that the Chair of the Nominating and Corporate Governance Committee considers to be important for the directors to know. In general, communications relating to corporate governance and long-term corporate strategy are more likely to be forwarded than communications relating to ordinary business affairs, personal grievances and matters as to which we tend to receive repetitive or duplicative communications.

Shareholders who wish to send communications on any topic to the Board of Directors should address such communications to the Board of Directors in care of Kathleen F. Burke, Esq., Senior Vice President, General Counsel and Secretary, MKS Instruments, Inc., 2 Tech Drive, Suite 201, Andover, MA 01810.

Code of Business Conduct and Ethics

We have adopted a code of business conduct and ethics that applies to all of our directors, officers and employees (including the principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions), which is posted on our website at <https://www.mksinst.com/corporate-governance> under Corporate Governance Documents. We intend to disclose on our website any amendments to, or waivers for our executive officers or directors from, our code of business conduct and ethics.

Board's Role in Risk Oversight

Management is responsible for the day-to-day management of risks the Company faces, while the Board of Directors, as a whole and through its committees, has the ultimate responsibility for the oversight of risk management. Senior management attends quarterly meetings of the Board of Directors, provides presentations on operations, including significant risks, and is available to address any questions or concerns raised by the Board of Directors. Additionally, our three standing board committees assist the Board of Directors in fulfilling its oversight responsibilities in certain areas of risk. Pursuant to its charter, the Audit Committee coordinates the Board of Directors' oversight of the Company's internal controls over financial reporting, disclosure controls and procedures, and code of business conduct and ethics. The Audit Committee also is responsible for discussing the Company's policies with respect to financial risk assessment and financial risk management and overseeing the steps management has taken with respect to data privacy and cybersecurity risk exposure. Management regularly reports to the Audit Committee on these areas. The Compensation Committee assists the Board of Directors in fulfilling its oversight responsibilities with respect to the management of risks arising from our compensation policies and programs as well as succession planning. The Nominating and Corporate Governance Committee assists the Board of Directors in fulfilling its oversight responsibilities with respect to the management of risks associated with board organization, membership and structure, succession planning for our directors, corporate governance and corporate social responsibility, including climate-related risks. In addition, from time to time, the Board of Directors may constitute a special committee to focus on a particular matter or risk. When any of the committees receives a report related to material risk oversight, the chair of the relevant committee reports on the discussion to the full Board of Directors.

Transactions with Related Persons

Our code of business conduct and ethics sets forth the general principle that our directors, officers and employees should refrain from engaging in any activity having a personal interest that presents a conflict of interest. The code of business conduct and ethics prohibits directors, officers and employees from engaging in any activity that may reasonably be expected to give rise to a conflict of interest or to adversely affect our interests. The code of business conduct and ethics provides that all employees are responsible for disclosing to the Company any transaction or relationship that reasonably could be expected to give rise to a conflict of interest, and executive officers and directors must report such transactions to the Board of Directors, which shall be responsible for determining whether such transaction or relationship constitutes a conflict of interest.

In addition, our written Related Person Transaction Procedures set forth the procedures for reviewing transactions that could be deemed to be “related person transactions” (defined as transactions required to be disclosed pursuant to Item 404 of Regulation S-K of applicable SEC regulations). In accordance with these procedures, directors and executive officers are required to submit annual certifications regarding interests and affiliations held by them and certain of their family members. We then review our records to determine whether we have engaged in any transactions since the beginning of our prior fiscal year with such affiliated persons and entities or with any person or entity known by MKS to be the beneficial owner of more than 5% of our voting securities, and provide a summary to the Audit Committee of any such material transaction in which the related person has a direct or indirect interest. In accordance with the procedures, the Audit Committee reviews any such transactions (including, but not limited to, transactions constituting related person transactions). In reviewing any such transaction, the Audit Committee considers, among other things, the related person’s interest in the transaction, the approximate dollar value of the transaction, whether the transaction was undertaken in the ordinary course of business, whether the terms of the transaction were at arm’s length, the purpose and potential benefits to the Company of the transaction, and whether the transaction is in the best interests of the Company. The Audit Committee may, in its sole discretion, impose such conditions as it deems appropriate in connection with any related person transaction. In accordance with the Audit Committee charter, the Audit Committee reviews the Related Person Transaction Procedures from time to time.

Wellington Management Group LLP, Wellington Group Holdings LLP, Wellington Investment Advisors Holdings LLP and Wellington Management Company LLP, which we refer to collectively as the Wellington Group, collectively beneficially owned approximately 8% of the Company’s outstanding voting shares as of March 2, 2022, based on a filing they made with the SEC. Wellington Management LLP, an affiliate of the Wellington Group, manages a cash and investment account of MKS in the aggregate amount of approximately \$306 million as of December 31, 2021. In 2021, MKS paid Wellington Management LLP approximately \$273,000 for these cash and investment management services. Wellington Management LLP must manage this account in accordance with, and subject to, the Company’s Corporate Investment Policy, which establishes clear guidelines for acceptable investments. As part of our Related Person Transaction Procedures, our Audit Committee reviewed the foregoing relationship with Wellington Management LLP.

Board of Director Meetings and Committees of the Board of Directors

The Board of Directors held 12 meetings in 2021. During 2021, each director attended at least 75% of the aggregate of the total number of meetings of the Board of Directors and the total number of meetings of all committees of the Board of Directors on which he or she served. Pursuant to our Corporate Governance Guidelines, directors are encouraged to attend our annual meeting of shareholders. All of the directors then serving on the Board of Directors attended the 2021 Annual Meeting of Shareholders.

The Board of Directors has established three standing committees — Audit, Compensation, and Nominating and Corporate Governance — each of which operates under a charter that has been approved by the Board of Directors. Each committee’s current charter is posted on our website at <https://www.mksinst.com/corporate-governance> under Corporate Governance Documents.

Audit Committee

The Audit Committee consists of Ms. Mora (Chair), Mr. Cannone and Mr. Donahue. Ms. Mora was elected Chair of the Audit Committee and Ms. Moloney joined the Audit Committee in February 2021, when Janice K. Henry

resigned as a member of the Board of Directors. In May 2021, Mr. Cannone replaced Ms. Moloney as a member of the Audit Committee upon his election to the Board of Directors. The Board of Directors has determined that each of Ms. Mora and Mr. Cannone is an “audit committee financial expert” as defined in applicable SEC regulations. Each member of the Audit Committee also meets the requirements for independence under applicable Nasdaq and SEC rules. The Audit Committee’s responsibilities include:

- appointing, approving the fees of, assessing the independence of, evaluating, retaining and, when necessary, terminating the engagement of our independent registered public accounting firm;
- overseeing the work of our independent registered public accounting firm, including through the receipt and consideration of certain reports from the independent registered public accounting firm;
- reviewing and discussing our annual audited financial statements and related disclosures with management and the independent registered public accounting firm;
- reviewing our quarterly unaudited financial statements;
- coordinating oversight of our internal controls over financial reporting, disclosure controls and procedures, and code of business conduct and ethics;
- overseeing our internal audit function;
- discussing our policies with respect to financial risk assessment and financial risk management;
- establishing procedures for the receipt and retention of accounting-related complaints and concerns;
- discussing our earnings press releases in advance of public disclosure, as well as generally discussing the types of financial information and earnings guidance, including “pro forma” and other “adjusted” non-GAAP information, provided to analysts, rating agencies and others;
- meeting independently with our internal audit staff, independent registered public accounting firm and management;
- reviewing our procedures for reviewing related person transactions, recommending any changes to these procedures and reviewing any related person transactions;
- reviewing and approving our corporate investment policy, including our hedging policy;
- reviewing and approving derivative financial instruments, including those subject to mandatory clearing;
- overseeing the work of management to monitor and control data privacy and cybersecurity risk exposure;
- reviewing with management our overall tax strategy, including areas requiring significant judgment or risk; and
- preparing the Audit Committee report required to be included in the annual proxy statement.

The Audit Committee held five meetings in 2021.

Compensation Committee

The Compensation Committee consists of Mr. Batra (Chair), Ms. Moloney and Ms. Mora. Mr. Batra was elected Chair of the Compensation Committee in February 2021 when Ms. Mora assumed the role of Chair of the Audit Committee. Each member of the Compensation Committee meets the requirements for independence under applicable Nasdaq and SEC rules. The Compensation Committee’s responsibilities include:

- reviewing and approving the compensation of our Chief Executive Officer, our other executive officers and, at the discretion of the Compensation Committee, other direct reports to our Chief Executive Officer;
- overseeing the evaluation of our Chief Executive Officer, our other executive officers and, at the discretion of the Compensation Committee, other direct reports to our Chief Executive Officer;
- overseeing our Chief Executive Officer and our other executives’ succession planning;
- periodically reviewing and approving our management incentive bonus plans;

- overseeing the risks associated with our compensation policies and practices and annually reviewing whether such policies and practices are reasonably likely to have a material adverse effect on the Company;
- reviewing the Compensation Discussion and Analysis required to be included in the annual proxy statement;
- preparing the annual Compensation Committee Report required to be included in the annual proxy statement;
- overseeing and administering our equity incentive plans;
- reviewing the results of advisory shareholder votes on executive compensation and recommending how frequently the Company should conduct such votes;
- overseeing our stock ownership guidelines and monitoring compliance therewith;
- reviewing and approving our clawback policy and monitoring compliance therewith;
- reviewing and making recommendations to the Board of Directors with respect to director compensation; and
- appointing, compensating, assessing the independence of, and overseeing the work of any compensation consultant.

The Compensation Committee held seven meetings in 2021. See the section below entitled “Executive Compensation — Compensation Discussion and Analysis” for further information about the role of the Compensation Committee and the scope of its activities.

Compensation Risk Assessment

Our Compensation Committee engaged its independent compensation consultant, Pearl Meyer & Partners, LLC, or Pearl Meyer, to conduct a risk assessment of our compensation programs and practices to understand if any risks exist that are reasonably likely to have a material adverse effect on our Company, and the results were reviewed by our Compensation Committee. Based on this assessment, our Compensation Committee concluded that our compensation programs and practices, as a whole, are appropriately structured and do not pose a material risk to our Company. Our compensation programs are intended to reward our executive officers and other employees for strong performance over the long-term, with consideration to short-term actions and results that strengthen and grow our Company. We believe our compensation programs provide the appropriate balance between short-term and long-term incentives, focusing on sustainable and profitable growth for our Company.

Compensation Committee Interlocks and Insider Participation

In 2021, Mr. Batra, Ms. Moloney and Ms. Mora served on the Compensation Committee. None of the members of the Compensation Committee during 2021 were, at any time, officers or employees of MKS or our subsidiaries, and none of them had any relationship with us requiring disclosure under applicable SEC rules and regulations. None of our executive officers serves, or has served, as a member of the Board of Directors or Compensation Committee (or other committee serving an equivalent function) of any other entity which has one or more executive officers serving as a member of our Board of Directors or Compensation Committee.

Nominating and Corporate Governance Committee

The Nominating and Corporate Governance Committee consists of Ms. Moloney (Chair), Mr. Batra and Ms. Warner. Each member of the Nominating and Corporate Governance Committee meets the requirements for independence under applicable Nasdaq and SEC rules. The Nominating and Corporate Governance Committee’s responsibilities include:

- identifying individuals qualified to become members of the Board of Directors, consistent with criteria approved by the Board of Directors;

- recommending to the Board of Directors the persons to be nominated for election as directors and to each of the committees of the Board of Directors, including the director recommended to serve as chair of each committee;
- designating a Lead Director (if any), subject to the approval of the independent directors;
- reviewing each director's continuation on the Board of Directors at least once every three years;
- overseeing the director succession planning process;
- reviewing each director's independence under Nasdaq listing standards and the applicable rules of the SEC;
- overseeing corporate governance policies and reviewing the Company's charter, by-laws and corporate governance guidelines;
- reviewing and reporting to the Board of Directors on the Company's corporate social responsibility and sustainability efforts, including climate-related risks and opportunities;
- retaining and terminating any search firm to be used to identify director nominees;
- periodically reviewing the Board of Directors' leadership structure to assess whether it is appropriate;
- conducting the annual evaluations of the Board of Directors, each of the committees of the Board of Directors and the directors who are up for nomination; and
- monitoring communications from shareholders and other interested parties, including stockholder proposals, such as those related to corporate social responsibility, environmental and governance matters.

The Nominating and Corporate Governance Committee held nine meetings in 2021.

For information relating to the nomination of directors, see "Director Candidates" below.

Director Candidates

The Nominating and Corporate Governance Committee recommended to the Board of Directors that the director nominees be nominated by the Board of Directors for election as Class II Directors. The Nominating and Corporate Governance Committee utilizes a number of processes to identify and evaluate director candidates, including the engagement of a third-party executive search firm and other resources to identify potential director candidates, as needed. Activities relating to identifying and selecting nominees include Board assessments of each incumbent director nominee for the current year, requests to Board members and others for recommendations of potential candidates, meetings from time to time to evaluate biographical information and background material relating to potential candidates and interviews of selected candidates by the members of the Nominating and Corporate Governance Committee and other members of the Board of Directors. The Nominating and Corporate Governance Committee recommended to the Board of Directors the nomination of Dr. Lee, Ms. Moloney and Ms. Warner for election at the 2022 Annual Meeting.

In considering whether to recommend any particular candidate for inclusion in the Board of Directors' slate of recommended director nominees, the Nominating and Corporate Governance Committee applies the criteria attached to the Company's Corporate Governance Guidelines. These criteria include the candidate's integrity, business acumen, knowledge of our business and industry, effectiveness, experience, diligence, conflicts of interest and the ability to act in the interests of all shareholders. The Nominating and Corporate Governance Committee does not assign specific weights to particular criteria and no particular criterion is a prerequisite for each prospective nominee. The Nominating and Corporate Governance Committee also assesses the candidate's professional background and skills against those of the existing Board members to ensure a breadth and diversity of expertise that suits the Company's current and future business risks, industries and challenges. See "Directors — Board Skills Matrix." Nominees shall not be discriminated against on the basis of race, religion, national origin, sex, sexual orientation, disability or any other basis proscribed by law. In considering director candidates, the Nominating and Corporate Governance Committee actively seeks diverse candidates for the pool from which candidates are chosen. While the Nominating and Corporate Governance Committee does not have a formal policy with respect to diversity, the Board of Directors and the Nominating and Corporate Governance Committee believe that it is essential that the members of the Board of Directors represent diverse viewpoints. In considering

candidates for the Board of Directors, the Nominating and Corporate Governance Committee considers the entirety of each candidate's credentials in the context of these standards. We believe that the backgrounds and qualifications of our directors, considered as a group, should provide a composite mix of experience, knowledge and abilities that will allow the Board of Directors to fulfill its responsibilities.

Shareholders may recommend individuals to the Nominating and Corporate Governance Committee for consideration as potential director candidates by submitting their names, together with appropriate biographical information and background materials and a statement as to whether the shareholder or group of shareholders making the recommendation has beneficially owned at least \$2,000 in market value or 1% of our Common Stock, whichever is less, for at least a year as of the date such recommendation is made, to the Nominating and Corporate Governance Committee, in care of Kathleen F. Burke, Esq., Senior Vice President, General Counsel and Secretary, MKS Instruments, Inc., 2 Tech Drive, Suite 201, Andover, MA 01810. Assuming that appropriate biographical and background material has been provided on a timely basis, the Nominating and Corporate Governance Committee will evaluate shareholder-recommended candidates by following substantially the same process, and applying the same criteria, as it does in considering other candidates.

Shareholders also have the right under our Amended and Restated By-Laws to directly nominate director candidates, without any action or recommendation on the part of the Nominating and Corporate Governance Committee or the Board of Directors, by following the procedures set forth under the heading "Deadline for Submission of Shareholder Proposals for the 2023 Annual Meeting" below.

CORPORATE SOCIAL RESPONSIBILITY

Governance

Corporate Social Responsibility, or CSR, is a key priority for MKS and our leaders. As such, our CSR Program and overall CSR Management System is overseen by the CEO and the Nominating and Corporate Governance Committee.

MKS' cross-functional CSR Steering Committee meets throughout the year, and sets program strategy, defines annual objectives, provides guidance on high-level tactics to achieve its stated objectives, communicates the CSR Program to internal and external stakeholders and monitors CSR industry trends. In accordance with its charter, the Nominating and Corporate Governance Committee also reviews and reports to the Board of Directors on the Company's CSR and sustainability efforts, including climate-related risks and opportunities as well as the impact of other environmental and social issues on the Company.

In addition, our leadership approach is based on our commitment to conduct business with the highest standards of integrity. Our Code of Business Conduct and Ethics and our Human Rights and Labor Standards Policy are designed to ensure that we deliver on this commitment every day.

Human Capital Management

We are committed to our people and strive to foster a diverse, equitable and inclusive community, invest in continuous learning and development, engage meaningfully with employees, offer a competitive compensation and benefits program and provide a safe and healthy workplace. We believe that diversity of gender, race, ethnicity, sexual orientation, culture, education, background and experience fuels innovation and results as well as enables our employees to succeed. Our executive team is comprised of 20% female members and is 20% racially diverse, our Board of Directors is comprised of 38% female members, is 25% racially diverse and 13% LGBTQ+, and our Lead Director is a woman.

In 2021, we offered diversity, equity and inclusion, or DE&I, training for all employees and began bias awareness training for our global talent acquisition team. We proactively provide our hiring managers with diverse candidate slates in our employee recruiting process and, in accordance with our Corporate Governance Guidelines, seek diverse candidates for the pool from which our Board of Director nominees are chosen. We also regularly conduct robust analyses of pay practices across gender globally and other diversity factors within the United States to detect any existing disparities within base and total compensation, taking prompt and effective action to correct any identified disparities.

MKS is committed to investing in learning and professional development. Our employees have access to a wide range of programs, classes, and resources to help them excel in their careers and share what they learn with their colleagues. Our performance management process includes performance feedback and career development discussions that are dynamic and actionable throughout the year. In 2021, we broadly rolled out a course to develop our focus on employee engagement, change management and leadership excellence. Over the last two years, approximately 240 of our leaders also completed a DE&I course hosted by a consulting firm recognized as best-in-class in the area of DE&I capability building. In addition, we provide financial support for college and graduate education for U.S. employees and access to online learning for all employees in local languages to help further the careers of our entire workforce.

In 2021, MKS conducted its first global employee engagement survey, the results of which were thoroughly assessed and shared with our CEO and executive leadership team as well as our Board of Directors. We plan to conduct employee engagement surveys on an annual basis and use the feedback we receive to examine current practices and drive new initiatives. MKS is also committed to providing total compensation packages that attract, motivate and retain our employees, as well as recognizing and rewarding each employee's sustained performance and results. In addition, we are committed to ensuring that our total compensation packages are externally competitive while supporting our business plans and strategies. As employee turnover is an indicator of employee satisfaction, we monitor turnover globally. MKS has a very stable and committed workforce, as evidenced by low voluntary turnover. Our 12-month rolling average for voluntary turnover at the end of 2021 was below 7%. Our employee average tenure is more than 10 years.

Health & Safety

MKS is committed to providing a safe and healthy workplace for all employees. We accomplish this through compliance with applicable laws and regulations regarding workplace safety, including recognition and control of workplace hazards, tracking injury and illness rates and maintaining detailed emergency and business continuity plans. We also offer employees and eligible family members a full range of health and wellness programs, as well as many clinical and administrative services.

Throughout the COVID-19 pandemic, the safety and well-being of our global workforce has been our highest priority. The commitment to this effort is evidenced by the extensive planning and numerous actions we swiftly took to respond to the pandemic, including implementing a number of safety precautions for our employees and a "work-from-home" policy for a significant portion of our workforce. MKS continues to maintain workplace flexibility such as working remotely where possible to reduce the number of people who are on site each day.

Environmental Management

We value the environment and the communities in which we live and work. We are committed to operating our business in an environmentally and socially responsible manner, while conserving natural resources and reducing our environmental impact on the air, water, and land.

Innovation is a key part of our ability to sustain our product differentiation and increase our relevance to customers. Our products are used in a broad range of industries and applications. In particular, our products contribute to indirectly driving positive environmental impact and progress, including through supporting the development of renewable energy infrastructure, enabling environmental safety compliance, and increasing energy and water efficiencies in certain production processes.

In 2020, we collected data from certain of our offices and facilities, mostly in the United States, on our greenhouse gas emissions, energy consumption, and water consumption, which we reported in 2021. We strive to continue collecting this data across more of our MKS sites globally and plan to introduce new metrics in the future.

We believe that it is critical to create relationships with our stakeholders that support responsible and ethical business practices, conduct and compliance, which in turn benefits our employees, our environment, and our business.

Additional information regarding MKS' activities related to its people and sustainability can be found in our Corporate Social Responsibility Report, which is accessible through the Corporate Social Responsibility section of our website at <https://www.mksinst.com/corporate-social-responsibility>. Our Corporate Social Responsibility Report is updated periodically.

DIRECTOR COMPENSATION

Cash Compensation

The following table summarizes the cash compensation payable by us to non-employee directors in 2021:

	Annual Retainer
Base Retainer for All Non-Employee Board Members	\$70,000
<i>Additional Retainers for Services:</i>	
Chair	\$75,000
Lead Director	\$25,000
Audit Committee Chair	\$25,000
Other Audit Committee Members	\$12,500
Compensation Committee Chair	\$20,000
Other Compensation Committee Members	\$10,000
Nominating and Corporate Governance Committee Chair	\$15,000
Other Nominating and Corporate Governance Committee Members	\$ 7,500

Retainers are pro-rated based on the time a director serves in the capacities listed. In addition, from time to time, the Board of Directors may establish special committees related to specific matters and may include a retainer for service on such special committees in its discretion.

Equity Compensation

Non-employee directors are eligible for awards under our 2014 Stock Incentive Plan, which is administered by the Compensation Committee. If the 2022 Plan is approved by our shareholders, non-employee directors will be eligible for awards under the 2022 Plan. In 2021, under our director compensation program, non-employee directors received automatic grants of RSUs on the date of the 2021 Annual Meeting of Shareholders, with a grant date value of \$200,000, which RSUs shall vest in full on the day prior to the 2022 Annual Meeting.

If a new non-employee director joins our Board of Directors after our annual meeting of shareholders but before January 1st of the following year, he or she will be entitled to an initial RSU grant with a value equal to the annual RSU grant. In the event a non-employee director joins our Board of Directors during the period from January 1st through the date of that year's annual meeting of shareholders, he or she will not be entitled to an initial RSU grant but will be entitled to the annual RSU grant on the date of the annual meeting of shareholders.

Director Compensation Table for 2021

The following table summarizes compensation earned by or paid to non-employee directors in 2021. Dr. Lee is excluded from the table because he was an executive officer in 2021 and his compensation is set forth in the Executive Compensation section below, under the heading "Executive Compensation Tables — Summary Compensation Table for 2021."

Name	Fees Earned or Paid in Cash (\$)	Stock Awards (\$)(1)	Total (\$)
Rajeev Batra	\$ 95,972	\$200,000	\$295,972
Peter J. Cannone III(2)	\$ 55,809(3)	\$200,000	\$255,809
Gerald G. Colella	\$153,000(3)(4)	\$200,000	\$353,000
Joseph B. Donahue	\$ 90,500(3)	\$200,000	\$290,500
Janice K. Henry(5)	\$ 14,514	\$ —	\$ 14,514
Jacqueline F. Moloney	\$122,589	\$200,000	\$322,589
Elizabeth A. Mora	\$104,618	\$200,000	\$304,618
Michelle M. Warner	\$ 85,500(3)	\$200,000	\$285,500

-
- (1) Represents the aggregate grant date fair value for each RSU granted during the year, calculated in accordance with Financial Accounting Standards Board Accounting Standards Codification 718, or ASC 718. The assumptions used in determining the grant date fair values of these awards are set forth in Note 17 to our consolidated financial statements, which were included in our Annual Report on Form 10-K that was filed with the SEC on February 28, 2022. The outstanding stock awards held as of December 31, 2021 by each of the non-employee directors consisted of 1,147 RSUs.
 - (2) Mr. Cannone became a director in May 2021.
 - (3) Includes consideration for services on a special committee of the Board of Directors, which compensation consists of a flat fee of \$3,000 for up to five meetings and \$1,000 per meeting thereafter up to a maximum of \$10,000. In connection with their service on the special committee, Mr. Colella, Mr. Donahue and Ms. Warner each received \$10,000 and Mr. Cannone, who became a director in May 2021, received \$3,000.
 - (4) In connection with his retirement as Chief Executive Officer in January 2020, Mr. Colella receives retiree medical benefits for life for himself and his spouse. In addition, Mr. Colella is reimbursed for certain out-of-pocket health care costs capped at \$6,000 annually. The net present value of these benefits was \$592,073 as of December 31, 2021 and we paid \$24,935 for these benefits in 2021. Mr. Colella receives no other retirement benefits.
 - (5) Ms. Henry served as a director until February 2021.

AUDIT AND FINANCIAL ACCOUNTING OVERSIGHT

Audit Committee Report

The Audit Committee of our Board of Directors has reviewed our audited financial statements for the year ended December 31, 2021 and discussed them with our management.

The Audit Committee discussed with PricewaterhouseCoopers LLP, or PwC, our independent registered public accounting firm, the matters required to be discussed by the applicable requirements of the Public Company Accounting Oversight Board and the SEC.

The Audit Committee has received the written disclosures and the letter from our independent registered public accounting firm required by the applicable requirements of the Public Company Accounting Oversight Board regarding the independent accountant's communications with the Audit Committee concerning independence, and has discussed with the independent accountant the independent accountant's independence.

Based on the review and discussions referred to above, the Audit Committee recommended to our Board of Directors that the audited financial statements be included in our Annual Report on Form 10-K for the year ended December 31, 2021.

Respectfully submitted,

Elizabeth A. Mora, Chair
Peter J. Cannone III
Joseph B. Donahue

Principal Accountant Fees and Services

For the years ended December 31, 2021 and 2020, aggregate fees for professional services rendered by our independent registered public accounting firm, PwC, in the following categories were as follows:

	2021	2020
Audit Fees	\$4,093,450	\$4,143,170
Audit-Related Fees	172,500	-
Tax Fees	239,483	284,204
All Other Fees	376,150	116,052
Total	<u>\$4,881,583</u>	<u>\$4,543,426</u>

Audit Fees

Audit fees billed for both years consisted of fees for professional services rendered for: (i) the audit of our annual consolidated financial statements, (ii) statutory audits, (iii) the review of our consolidated financial statements included in our quarterly reports on Form 10-Q, (iv) audit services related to other reports filed with the SEC and (v) the audit of our internal controls over financial reporting as required by the rules and regulations promulgated under Section 404 of the Sarbanes-Oxley Act of 2002.

Audit-Related Fees

Audit-related fees for the year ended December 31, 2021 were for professional services associated with the proposed acquisition of Atotech. There were no audit-related fees for the year ended December 31, 2020.

Tax Fees

Tax fees for the years ended December 31, 2021 and December 31, 2020 were for services related to tax compliance, including the preparation of tax returns, and tax planning and tax advice, including assistance with foreign operations and foreign tax audits.

All Other Fees

All other fees for the years ended December 31, 2021 and December 31, 2020 were for due diligence services performed in connection with potential acquisitions and for accounting research software.

In 2021 and 2020, all fees for professional services rendered by our independent registered public accounting firm were pre-approved pursuant to the Audit Committee's pre-approval requirements, described below.

Pre-Approval Policy and Procedures

The Audit Committee's charter sets forth the Audit Committee's obligations relating to the approval of all audit and non-audit services that are to be performed by our independent registered public accounting firm. The charter provides that we will not engage our independent registered public accounting firm to provide audit or non-audit services unless the service is pre-approved by the Audit Committee. In addition, we will not engage any other accounting firm to provide audit services unless such services are pre-approved by the Audit Committee. It is the Audit Committee's policy that with respect to services performed or to be performed by PwC in connection with each fiscal year of the Company, the annual fees for non-audit services in such year shall not exceed one half of the aggregate fees payable to PwC for such year, without the prior express approval of the Audit Committee.

In connection with the foregoing, the Audit Committee may approve specific services in advance. In addition, from time to time, the Audit Committee may pre-approve specified types of services that are expected to be provided to us by our independent registered public accounting firm during the next 12 months. Any such pre-approval of types of services is detailed as to the particular service or type of service to be provided and is also generally subject to a maximum dollar amount.

The Audit Committee has also delegated to the Chair of the Audit Committee the authority to approve any audit or non-audit services to be provided to us by our independent registered public accounting firm. Any approval of services by the Chair of the Audit Committee pursuant to this delegated authority is reported on at the next meeting of the Audit Committee.

The Audit Committee has considered and determined that the provision of the non-audit services noted in the foregoing table is compatible with maintaining PwC's independence.

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table sets forth certain information with respect to the beneficial ownership of our Common Stock by (i) each shareholder known to us to be the beneficial owner of more than 5% of the outstanding shares of our Common Stock; (ii) the Named Executive Officers named in the Summary Compensation Table below; (iii) each of our current directors; and (iv) all of our directors and executive officers as a group. Unless otherwise indicated in the footnotes to the table, all equity amounts set forth in the table are as of March 2, 2022, and the address for each of our directors and executive officers is: c/o MKS Instruments, Inc., 2 Tech Drive, Suite 201, Andover, Massachusetts 01810.

Name of Beneficial Owner	Number of Shares Beneficially Owned(1)	Percentage of Common Stock Beneficially Owned
<i>5% shareholders</i>		
The Vanguard Group, Inc. 100 Vanguard Blvd. Malvern, PA 19355	5,643,401(2)	10.16%
BlackRock, Inc. 55 East 52 nd Street New York, NY 10055	5,059,771(3)	9.11%
Capital International Investors 333 South Hope Street 55th Floor Los Angeles, CA 90071	4,859,954(4)	8.75%
Wellington Management Group LLP 280 Congress Street Boston, MA 02210	4,401,028(5)	7.92%
<i>Named Executive Officers</i>		
John T.C. Lee	51,516	*
Seth H. Bagshaw	31,764	*
Kathleen F. Burke	46,128	*
Mark M. Gitin	8,608(6)	*
James A. Schreiner	5,758	*
<i>Non-Employee Directors</i>		
Rajeev Batra	6,083	*
Joseph B. Donahue	1,988	*
Peter J. Cannone III	-	-
Gerald G. Colella	97,001(7)	*
Jacqueline F. Moloney	7,467	*
Elizabeth A. Mora	13,401	*
Michelle M. Warner	3,969	*
All directors and executive officers as a group (14 persons)	284,382(8)	*

* Represents less than 1% of the outstanding Common Stock.

(1) We believe that each shareholder has sole voting and investment power with respect to the shares listed, except as otherwise noted. The number of shares beneficially owned by each shareholder is determined under SEC rules, and the information is not necessarily indicative of ownership for any other purpose. Under such

rules, beneficial ownership includes any shares as to which the person has sole or shared voting or investment power and also any shares that the individual has the right to acquire within 60 days after March 2, 2022, subject to the vesting of RSUs or the exercise of any stock option or other right. The inclusion herein of any shares of Common Stock deemed beneficially owned does not constitute an admission by such shareholder of beneficial ownership of those shares of Common Stock. Percentage ownership calculations are based on 55,562,986 shares of Common Stock outstanding as of March 2, 2022. Shares of Common Stock which an individual or entity has a right to acquire within the 60-day period following March 2, 2022, pursuant to the vesting of RSUs or the exercise of any stock options or other right, are deemed to be outstanding for the purpose of computing the percentage ownership of such individual or entity, but are not deemed to be outstanding for the purpose of computing the percentage ownership of any other person or entity shown in the table.

- (2) Based on information set forth in a Schedule 13G/A filed by The Vanguard Group, Inc. on February 10, 2022, reporting stock ownership as of December 31, 2021. The Vanguard Group, Inc. has shared voting power with respect to 33,066 shares, sole investment power with respect to 5,564,790 shares and shared investment power with respect to 78,611 shares.
- (3) Based on information set forth in a Schedule 13G/A filed by BlackRock, Inc. on February 1, 2022, reporting stock ownership as of December 31, 2021. BlackRock, Inc. has sole voting power with respect to 4,891,641 shares and sole investment power with respect to 5,059,771 shares.
- (4) Based on information set forth in a Schedule 13G/A filed by Capital International Investors, a division of Capital Research and Management Company, on February 11, 2022, reporting stock ownership as of December 31, 2021. Capital International Investors has sole voting power with respect to 4,858,766 shares and sole investment power with respect to 4,859,954 shares.
- (5) Based on information set forth in a Schedule 13G/A filed by Wellington Management Group LLP on February 4, 2022, reporting stock ownership as of December 31, 2021. Wellington Management Group LLP has shared voting power with respect to 3,898,269 shares and shared investment power with respect to 4,401,028 shares.
- (6) Consists of 6,811 shares held directly by Dr. Gitin and 1,797 shares subject to RSUs that vest within 60 days after March 2, 2022.
- (7) Consists of one share held directly by Mr. Colella and 97,000 shares held in the name of The Gerald G. Colella Living Trust.
- (8) Consists of 280,385 shares held directly or indirectly by such directors and executive officers and 3,997 shares subject to RSUs that vest within 60 days of March 2, 2022.

To our knowledge, there are no voting trusts or similar arrangements among any of the foregoing persons or entities with respect to the voting of shares of Common Stock.

EXECUTIVE OFFICERS

The following is a brief summary of the background of each of our current executive officers, other than Dr. Lee, whose background is described under the heading “Directors” above:

Name	Age	Background and Qualifications
Seth H. Bagshaw, Senior Vice President, Chief Financial Officer and Treasurer	62	Mr. Bagshaw has served as our Senior Vice President and Chief Financial Officer since May 2017 and as Treasurer since March 2011. From January 2010 to May 2017, he served as our Vice President and Chief Financial Officer. From March 2006 until January 2010, Mr. Bagshaw served as our Vice President and Corporate Controller. Prior to joining MKS, Mr. Bagshaw served as Vice President and Chief Financial Officer of Vette Corp., an integrated global supplier of thermal management systems, from 2004 until 2006. From 1999 until 2004, Mr. Bagshaw served as Vice President and Corporate Controller of Varian Semiconductor Equipment Associates, Inc., a leading producer of ion implantation equipment used in the semiconductor manufacturing industry, and from 1998 until 1999, he served as Vice President and Chief Financial Officer of Palo Alto Products International, Inc., an industrial design, engineering and manufacturing company, until its acquisition by Flextronics International, Ltd. Prior to that, Mr. Bagshaw held several senior financial management positions at Waters Corporation, a developer of innovative analytical science solutions, most recently as Vice President and Chief Financial Officer of its Asia-Pacific region, and was a Senior Manager at PricewaterhouseCoopers LLP. Mr. Bagshaw has been a member of the Board of Directors of Associated Industries of Massachusetts, a non-profit state-wide employer advocacy and service organization, since 2010 and has served on its Audit Committee since 2014. Mr. Bagshaw is a Certified Public Accountant and has a B.S. in Business Administration from Boston University and an M.B.A. from Cornell University.
Kathleen F. Burke, Senior Vice President, General Counsel and Secretary	57	Ms. Burke has served as our Senior Vice President and General Counsel since May 2017 and as our Secretary since May 2019. From April 2011 to May 2017, she served as our Vice President and General Counsel, and from January 2005 to May 2019, she served as our Assistant Secretary. From January 2005 to April 2011, Ms. Burke served as our General Counsel, and from February 2004 to January 2005, she served as our Corporate Counsel. Prior to joining MKS, Ms. Burke was a corporate attorney at Wilmer Cutler Pickering Hale and Dorr LLP (formerly Hale and Dorr LLP), a full-service international law firm, from 1994 to 2004. Ms. Burke served as a member of the Board of Directors of the Northeast Chapter of the Association of Corporate Counsel, a global legal association, from 2009 to 2020 and served as the Chapter's President from 2011 to 2013, and its Vice President from 2010 to 2011 and its Treasurer from 2009 to 2011. Ms. Burke holds a B.A. from Boston College and a J.D. from Boston College Law School.

Name	Age	Background and Qualifications
Mark M. Gitin, Senior Vice President and General Manager, Light and Motion Division	55	Dr. Gitin has served as our Senior Vice President and General Manager, Light and Motion Division since January 2019. From June 2018 to December 2018, he served as our Vice President and General Manager of the Photonics Business Unit and Instruments and Motion Business Unit, and from September 2017 to December 2018, he served as our Vice President and General Manager of the Photonics Business Unit. Prior to joining MKS, from March 1995 to September 2017, Dr. Gitin held various management positions covering a wide range of technologies at Coherent, Inc., a leading provider of laser solutions and optics for microelectronics, life sciences, industrial manufacturing and scientific markets, including Vice President of Strategic Marketing, Vice President of Business Development and Vice President and General Manager of the Diodes, Fibers and Systems Business Unit. Dr. Gitin holds a B.S. in Electrical Engineering from University of California, Davis and an M.Eng. and Ph.D. in Electrical Engineering from Cornell University.
David P. Henry, Senior Vice President, Corporate Marketing, Project Management Office & Global Service	50	Mr. Henry has served as our Senior Vice President, Corporate Marketing, Project Management Office and Global Service since November 2020, where he oversees our marketing communications, strategic marketing, ecommerce, and project management functions and our global service business unit. From January 2020 to November 2020, he served as our Senior Vice President of Corporate Marketing and Project Management Office. From July 2016 to December 2019, Mr. Henry served as our Vice President of Corporate Marketing. From February 2014 to July 2016, he served as our Senior Director of Strategic Marketing. Prior to joining MKS, from December 1999 to February 2014, Mr. Henry served in various supply chain and marketing positions at 3M Company, a diversified technology company with a global presence in the safety and industrial, transportation and electronics, health care and consumer businesses. Mr. Henry holds a B.S. in Industrial Engineering from Worcester Polytechnic Institute and an M.B.A. from Bentley College.
James A. Schreiner, Senior Vice President and Chief Operating Officer	60	Mr. Schreiner has served as our Senior Vice President and Chief Operating Officer since September 2019. From July 2017 to September 2019, he served as the Senior Vice President of Global Operations for the Rosemount Measurement & Analytical Group of Automation Solutions at Emerson Electric Co., a multinational corporation that manufactures products and provides engineering services for a wide range of industrial, commercial, and consumer markets. Mr. Schreiner served in other senior roles at Emerson Electric, including Vice President of North America from March 2016 to July 2017, and Vice President of Europe from November 2010 to March 2016, both for the Rosemount Measurement & Analytical Group at Emerson Electric. Prior to Emerson Electric, Mr. Schreiner served in progressive leadership roles at Plexus Corp., ILX Lightwave Corporation, Tetra Pak and 3M Company. Mr. Schreiner holds a B.S. in Electrical Engineering from Montana State University, Bozeman as well as an Executive M.B.A. from the University of Colorado, Denver.

Name	Age	Background and Qualifications
Eric R. Taranto, Senior Vice President and General Manager, Vacuum and Analysis Division	54	Mr. Taranto has served as our Senior Vice President and General Manager, Vacuum and Analysis Division since November 2020. From September 2014 to November 2020, he served as our Vice President and General Manager of Business Units in our Vacuum & Analysis Division. In that position, he managed business units in our Company that primarily serve the semiconductor capital equipment market, including Automation and Control, Mass Spectrometry, Process and Environmental Gas, Integrated Systems, Plasma & Reactive Gas, and Power Solutions. From July 2014 to December 2020, he was also a member of our Office of the Chief Technology Officer (OCTO), and he chaired the OCTO from January 2018 to December 2020. From September 2000 to September 2014, Mr. Taranto served in a range of managerial and senior engineering positions at MKS. From December 1997 to September 2000, he served as a senior engineer for D.I.P. Inc., a digital-control network supplier, until it was acquired by MKS in September 2000.

Our executive officers are appointed by the Board of Directors on an annual basis and serve until their successors are duly appointed and qualified. There are no family relationships among any of our executive officers or directors.

EXECUTIVE COMPENSATION

Compensation Discussion and Analysis

Introduction

The purpose of this section of our proxy statement is to provide an overview of our executive compensation program, our compensation philosophy and objectives, and the material decisions we made with respect to each element of our executive compensation program. Throughout this proxy statement, we refer to the “Named Executive Officers” listed below.

Name	Title
John T.C. Lee	President and Chief Executive Officer
Seth H. Bagshaw	Senior Vice President, Chief Financial Officer and Treasurer
Kathleen F. Burke	Senior Vice President, General Counsel and Secretary
Mark M. Gitin	Senior Vice President and General Manager, Light & Motion Division
James A. Schreiner	Senior Vice President and Chief Operating Officer

In October 2021, as described under the heading “Proposed Acquisition of Atotech,” our Board of Directors appointed Mr. Schreiner, who currently serves as our Senior Vice President and Chief Operating Officer, to the position of Senior Vice President and Chief Operating Officer, Atotech Division, subject to and effective upon the closing of the proposed acquisition of Atotech.

Following this Compensation Discussion and Analysis, you will find a series of tables containing specific information about the compensation earned by or paid to our Named Executive Officers in 2021.

Executive Summary

Our Business

We are a global provider of instruments, systems, subsystems and process control solutions that measure, monitor, deliver, analyze, power and control critical parameters of advanced manufacturing processes to improve process performance and productivity for our customers. Our 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, vacuum technology, temperature sensing, lasers, photonics, optics, precision motion control, vibration control and laser-based manufacturing systems solutions. We also provide services relating to the maintenance and repair of our products, installation services and training. Our primary served markets include semiconductor, industrial technologies, life and health sciences, and research and defense.

Company Performance in 2021

We delivered record revenue, net income and operating cash flow in 2021, despite unprecedented supply chain constraints and continuous COVID disruptions.

Our record performance was driven by significant growth in revenue from our Semiconductor and Advanced Markets. We were able to execute with laser focus on meeting our customers’ needs while ensuring the safety and wellbeing of our employees, which remains our highest priority.

Our focus on meeting our customers’ needs did not impact our long-term strategy. We invested in a number of areas to drive organic growth, while executing on strategic M&A opportunities. Our acquisition of Photon Control Inc., which we completed in July 2021, brought us critical temperature sensing, which is a seamless fit within our Surround the Chamber® offering. We expect our proposed acquisition of Atotech, which was announced on July 1, 2021, will add valuable chemistry expertise, enhance the breadth of our innovation capabilities, and accelerate our customers’ roadmaps in the era of miniaturization and complexity.

We also made important strides in strengthening MKS by prioritizing our Corporate Social Responsibility efforts. We issued our inaugural CSR report, in which we articulated our strong commitment to diversity, equity and inclusion, as well as environmental management, employee development and governance.

In 2021, key results include:

- record revenue of \$2.9 billion, an increase of 27% from \$2.3 billion in 2020;
- record Semiconductor Market revenue of \$1.8 billion, an increase of 32% from \$1.4 billion in 2020, led by strong growth across our Vacuum and Analysis Division, including another record year in our Power Solutions business, and strong growth in sales by our Light and Motion Division to semiconductor applications, particularly for lithography, metrology and inspection customers;
- Advanced Markets revenue of \$1.1 billion, an increase of 19% from \$944 million in 2020, led by growing demand in Advanced Electronics applications, particularly for Flexible PCB via drilling applications, and recovery in Industrial, Life and Health Science, and Research and Defense markets;
- record net income of \$551 million, or \$9.90 per diluted share, compared to net income of \$350 million, or \$6.33 per diluted share, in 2020;
- record operating cash flow of \$640 million, a 25% increase from the \$513 million reported in 2020; and
- a return of \$48 million to MKS shareholders in cash dividends.

2021 Compensation Outcomes

Our executive compensation program is designed to reward our Named Executive Officers for performance and to align their interests with those of our shareholders. As a result of our financial performance in 2021, our Named Executive Officers received 200% of their target variable cash compensation tied to non-GAAP operating income and 200% of their target performance-based equity compensation tied to non-GAAP EBITDA. We believe these financial performance metrics are important to our shareholders because each is an indicator of how well we manage the operations and profitability of our Company. The successful alignment of our financial performance goals with our incentive payout opportunities for 2021 is evidenced by the fact that both our annual cash incentive plan and our performance-based equity awards paid out at maximum achievement in a year where our Company achieved record revenue, net income and operating cash flow.

Consideration of 2021 Advisory Vote on Executive Compensation

At our 2021 Annual Meeting of Shareholders, held on May 11, 2021, we submitted to our shareholders an advisory vote on executive compensation. Although annual advisory “say-on-pay” votes are non-binding, our Compensation Committee considers the outcome of this vote each year when making compensation decisions for our Named Executive Officers. At the 2021 Annual Meeting, our shareholders overwhelmingly approved our executive compensation, with over 98% of the votes cast voting in favor of the “say-on-pay” proposal.

The Compensation Committee considered the results of the 2021 “say-on-pay” vote, and based upon strong shareholder support, determined that our executive compensation program did not require any material changes in response to the 2021 “say-on-pay” vote. The Compensation Committee will continue to consider the views of our shareholders in connection with our executive compensation program, in addition to considering evolving best practices, market compensation information and changing regulatory requirements. The Compensation Committee believes that the results of the 2021 “say-on-pay” vote were an endorsement of our compensation and pay decisions made in relation to our performance.

Compensation Philosophy and Objectives

The primary objectives of our executive compensation program are to:

- attract and retain high caliber executive talent;
- motivate and reward the attainment of short-term objectives that drive long-term value; and
- foster long-term alignment of executive and shareholder interests.

We target each of our Named Executed Officers’ various compensation elements, including base salary, annual cash incentive compensation, and long-term equity incentive compensation, to be within a competitive range around median levels (plus or minus 15% of median) for each such respective position in the market. The competitive range is considered alongside other key factors when setting compensation levels, and final values may range from approximately the 25th percentile to approximately the 75th percentile, determined on an

individual basis. In considering the compensation of our Named Executive Officers relative to the market, we also qualitatively assess each Named Executive Officer's overall performance, tenure and potential contributions to MKS' ongoing growth. For 2021, the total target compensation of each of our Named Executive Officers fell within the competitive range of the median of our peer group, with the exception of the total target compensation of our Chief Financial Officer, which fell outside of the competitive range of the median of our peer group but below the 75th percentile.

Base salaries are designed to provide executives with a level of predictability and stability with respect to a portion of their total compensation package. Base salaries are a relatively small component of the overall pay packages of our Named Executive Officers because we believe a significant majority of executive compensation should be variable and based on performance.

Our annual cash incentive compensation program is designed to reward the attainment of short-term earnings goals that drive the long-term growth of MKS. We believe that our program goals are aligned with significant value creation, and that our plan creates a strong link between pay and performance while providing a meaningful incentive for our Named Executive Officers to deliver financial results that exceed our goals.

We provide our Named Executive Officers with long-term equity incentive compensation in the form of RSUs, approximately half of which are performance-based, in order to:

- foster long-term alignment of executive and shareholder interests;
- balance the short-term focus on annual cash incentive compensation with creating long-term shareholder value;
- reward strong operational performance; and
- retain executives by providing equity-based compensation that generally vests over a three-year period.

In order to further underscore our compensation values and enhance the efficacy of our pay programs, we also adhere to the following practices:

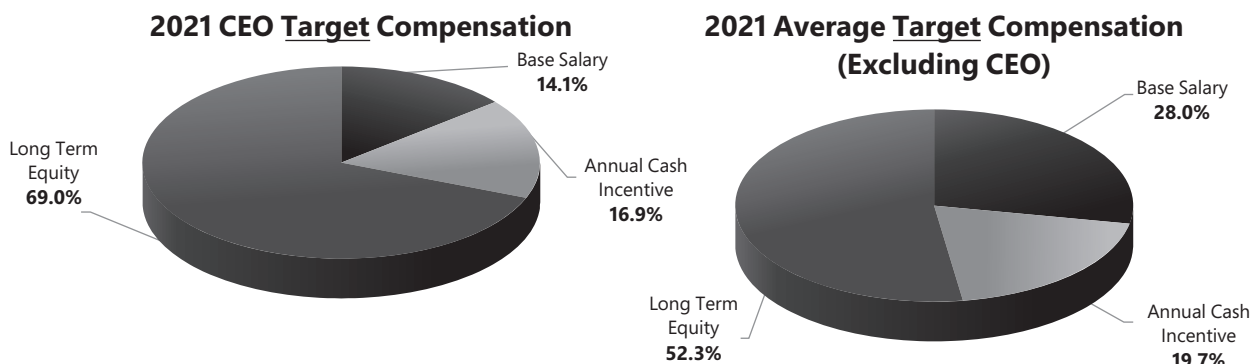
What We Do

- ✓ Offer a balanced compensation program designed to align with our business strategy, market practices and shareholder interests
- ✓ Provide maximum payout caps under incentive plans
- ✓ Conduct robust annual reviews and validation of our peer group
- ✓ Conduct annually a comprehensive risk assessment of compensation programs
- ✓ Maintain a clawback policy for incentive-based compensation
- ✓ Provide change-in-control benefits only upon a qualified termination of employment
- ✓ Review prior levels of compensation when making executive compensation decisions
- ✓ Maintain stock ownership guidelines
- ✓ Maintain a fully independent Compensation Committee
- ✓ Utilize an independent compensation consultant
- ✓ Executing on plan to eliminate perquisites altogether

What We Do Not Do

- x No repricing of underwater options without shareholder approval
- x No hedging or pledging of MKS shares
- x No incentives for excessive risk taking
- x No excessive perquisites

The following charts show the components of total target compensation for our Chief Executive Officer and our other Named Executive Officers as a group for 2021.



When the Compensation Committee met in May 2020 to review the peer companies to be used to determine 2021 executive compensation, the Committee elected to make no changes to the existing peer group, which consisted of 17 U.S. publicly traded companies that were primarily selected based on similar industry and size. In determining whether these companies remained appropriate for continued inclusion in the peer group, the Compensation Committee considered whether they had a revenue range relative to our trailing 12-month revenue as of December 31, 2019 between approximately 0.5 to 2.5 times and a market capitalization range relative to our market capitalization as of April 10, 2020 between approximately 0.3 and 3.0 times. The Compensation Committee also considered secondary factors including other relevant peer groups, commonality of peers, other performance considerations and whether a company is a competitor for talent. Publicly available compensation data from the following peer companies was used in determining executive compensation for 2021:

AMETEK, Inc.	KLA Corporation
Amkor Technology, Inc.	Lumentum Holdings Inc.
Brooks Automation, Inc. (now Azenta, Inc.)	National Instruments Corporation
Coherent, Inc.	Sensata Technologies Holding plc
Entegris, Inc.	Skyworks Solutions, Inc.
FLIR Systems, Inc. (now Teledyne FLIR, LLC)	Teradyne, Inc.
II-VI Incorporated	Trimble Inc.
IPG Photonics Corporation	Zebra Technologies Corporation
Keysight Technologies, Inc.	

In certain instances where robust peer group benchmark data was not available, our Compensation Committee utilized size and industry-appropriate broad survey data from Radford.

Elements of Compensation

The following summarizes the compensation elements for our Named Executive Officers:

Base Salary

When our Compensation Committee set 2021 annual executive compensation in February 2021, it approved salary increases of approximately 7% for Dr. Lee, approximately 4% for Mr. Schreiner, and approximately 3% for each of Mr. Bagshaw, Ms. Burke and Dr. Gitin. These salary increases were based on the compensation data of our peer group. In addition, with the exception of Dr. Gitin, who was not eligible to receive perquisites, the Compensation Committee approved salary adjustments for our Named Executive Officers to recognize the elimination of perquisites, effective December 31, 2020. These adjustments were calculated based on the value of the eliminated perquisites, which included company-leased cars or car allowances, company-paid health insurance, reimbursement of certain out-of-pocket healthcare costs, golf club memberships, financial planning

benefits and executive physicals. These salary increases and adjustments took effect on March 21, 2021. Mr. Bagshaw and Mr. Schreiner will receive an additional salary adjustment in 2024 to recognize the elimination of the only remaining perquisites, company-leased cars, which Mr. Bagshaw and Mr. Schreiner were permitted to retain until the expiration of their respective leases in 2023 to avoid lease cancellation costs.

Listed below is the base salary for Dr. Lee, our President and Chief Executive Officer, in 2020 and 2021.

Chief Executive Officer	2020 Base Salary	2021 Base Salary	Percentage Increase without Perquisite Adjustment	Percentage Increase with Perquisite Adjustment
John T.C. Lee	\$850,000	\$925,000	6.6%	8.8%

Listed below are the base salaries for our other Named Executive Officers in 2020 and 2021.

Named Executive Officer	2020 Base Salary	2021 Base Salary	Percentage Increase without Perquisite Adjustment	Percentage Increase with Perquisite Adjustment
Seth H. Bagshaw	\$563,000	\$600,000	3.1%	6.6%
Kathleen F. Burke	\$446,000	\$484,000	3.3%	8.5%
Mark M. Gitin	\$438,900	\$452,000	3.0%	N/A
James A. Schreiner	\$410,000	\$440,000	3.8%	7.3%

Annual Cash Incentive Compensation

For 2021, the Compensation Committee did not make any changes to our annual cash incentive program compared to 2020. Under our annual cash incentive plan, each Named Executive Officer was eligible to receive a performance bonus based on a specified percentage of eligible earnings, which is defined as eligible W-2 earnings received during the 2021 calendar year (i.e., base salary, including regular, holiday, vacation and sick pay, but excluding bonus payments). Cash bonus payouts for 2021 were based entirely on non-GAAP operating income after bonus and excluded any charges or income not related to the operating performance of the Company.

In 2021, payouts under the annual cash incentive plan were determined by multiplying a Named Executive Officer's "Target Bonus Amount" by the Company's percentage achievement of the financial performance objective, each as discussed below. Target Bonus Amount is the amount determined by multiplying each Named Executive Officer's eligible earnings in 2021 by the Target Bonus Percentages determined by our Compensation Committee each year. When our Compensation Committee set 2021 annual executive compensation in early 2021, it elected to increase the Target Bonus Percentage for Dr. Lee by 10%, increase the Target Bonus Percentage for each of Mr. Bagshaw and Ms. Burke by 5%, and maintain the existing Target Bonus Percentage for each of Dr. Gitin and Mr. Schreiner.

Listed below is the 2021 Target Bonus Percentage for each Named Executive Officer.

Named Executive Officer	2021 Target Bonus Percentage
John T.C. Lee	120%
Seth H. Bagshaw	90%
Kathleen F. Burke	70%
Mark M. Gitin	65%
James A. Schreiner	65%

In 2021, our Compensation Committee approved goals and associated incentive payout opportunities related to our 2021 non-GAAP operating income performance. Due to the cyclical nature and volatility of the markets in which we operate, including the consumer electronics market and semiconductor market, our Compensation Committee views it of paramount importance to set financial performance goals that are rigorous but attainable given the outlook for these markets for the coming year. For 2021, our Compensation Committee set target

achievement for our annual cash incentive plan at an amount that was greater than either target achievement or actual achievement in 2020. The successful alignment of our financial performance goals with our incentive payout opportunities for 2021 is evidenced by the fact that our annual cash incentive plan paid out at maximum achievement in a year where we achieved record revenue, net income and operating cash flow.

In 2021, participants in the annual cash incentive plan would not receive any portion of their Target Bonus Amount if non-GAAP operating income for the Company was less than \$292.54 million, which is referred to as the "Threshold Bonus Amount." Participants would receive 50% of their Target Bonus Amount if such non-GAAP operating income was \$292.5 million, would receive 100% of their Target Bonus Amount if such non-GAAP operating income was \$585.07 million, and would receive the maximum 200% if such non-GAAP operating income was \$702.09 million or more, with proportional payments for achievement in between these levels. If non-GAAP operating income before the calculation of bonus was greater than the Threshold Bonus Amount, but the inclusion of the bonus would result in an amount lower than the Threshold Bonus Amount, then only the portion of pre-bonus operating income above the Threshold Bonus Amount would be payable to participants on a pro rata basis. In 2021, for purposes of the annual cash incentive plan, non-GAAP operating income was \$783.01 million. As a result, participants were eligible to receive 200% of their Target Bonus Amounts under this formula. The 2021 non-GAAP operating income excludes the results of Photon Control Inc., which we acquired in July 2021, as well as restructuring charges, acquisition and integration costs and amortization of intangible assets.

Listed below are our Named Executive Officers' earned cash bonus payouts for 2021.

Named Executive Officer	Cash Payout	Payment as a Percent of Target
John T.C. Lee	\$2,178,466	200%
Seth H. Bagshaw	\$1,064,683	200%
Kathleen F. Burke	\$ 665,404	200%
Mark M. Gitin	\$ 583,671	200%
James A. Schreiner	\$ 563,001	200%

Our Compensation Committee has the authority to make other cash bonus awards to our executive officers as it deems appropriate. In November 2021, upon the recommendation of Dr. Lee, who requested that he not be considered for an award, the Compensation Committee approved discretionary cash bonuses to Mr. Bagshaw, Ms. Burke and Mr. Schreiner in recognition of their outstanding leadership of and attention to multiple strategic transactions in 2021. Among other transactions, Mr. Bagshaw, Ms. Burke and Mr. Schreiner led the Company through the acquisition of Photon Control Inc., which was completed in July 2021, and our proposed acquisition of Atotech, which was signed in July 2021, in addition to attending to their day-to-day responsibilities. These bonuses were paid in the following amounts in January 2022:

Named Executive Officer	Cash Bonus(1)
Seth H. Bagshaw	\$50,000
Kathleen F. Burke	\$50,000
James A. Schreiner	\$50,000

(1) Gross amount less all applicable taxes.

Our annual cash incentive program is also designed to incentivize profitability improvements during cyclical downturns in our business. Individuals who are eligible to participate in our annual cash incentive plan are also eligible to participate in our profit improvement cash bonus plan. In order to receive any payout under this plan, MKS must achieve specified profit enhancements or cost reductions by the end of the applicable calendar year. A participant's maximum bonus under this plan is 25% of his or her Target Bonus Amount (using the same definition as used in our annual cash incentive plan). A participant is only eligible to receive a payout under the profit improvement cash bonus plan if the participant receives less than 100% of his or her Target Bonus Amount under our annual incentive bonus plan. In addition, any payout under our profit improvement cash bonus plan is capped such that the combined payout under our annual cash incentive plan and under our profit improvement cash bonus plan will not exceed an amount equal to 100% of the participant's Target Bonus Amount under our annual

cash incentive plan. In 2021, our Named Executive Officers were not eligible to receive any payouts under our profit improvement cash bonus plan because our annual cash incentive plan paid out at over 100%.

Our Compensation Committee did not make any material design changes to our annual cash incentive program for 2022.

Long-Term Equity Incentive Compensation

When our Compensation Committee set 2021 annual executive compensation in February 2021, it awarded the following time-based and performance-based RSUs to our Named Executive Officers. These RSUs vest in three equal annual installments. The performance-based RSUs are subject to a one-year performance metric described below.

Named Executive Officer	Grant Date Value of Performance-Based RSUs(1)	Number of Performance-Based RSUs(1)	Grant Date Value of Time-Based RSUs	Number of Time-Based RSUs
John T.C. Lee	\$2,486,000	14,436.70	\$2,034,000	11,811.85
Seth H. Bagshaw	\$1,003,750	5,828.98	\$ 821,250	4,769.16
Kathleen F. Burke	\$ 525,000	3,048.78	\$ 525,000	3,048.78
Mark M. Gitin	\$ 285,000	1,655.05	\$ 285,000	1,655.05
James A. Schreiner	\$ 337,500	1,959.93	\$ 337,500	1,959.93

(1) Grant date value of performance-based RSUs and corresponding number of performance-based RSUs assuming 100% achievement. Achievement is capped at 200%.

With respect to performance-based RSUs, our goal is to select a Company financial performance metric that best aligns with our Company objectives. Since 2020, we have used non-GAAP EBITDA (defined as the Company's GAAP operating income excluding any charges or income not related to the operating performance of the Company plus depreciation and stock compensation expense), which we believe is an appropriate indicator of how effectively we manage the operations of our Company, while continuing to recognize the cyclical nature and volatility of the markets we serve, as well as to drive continued improvement in our Company's operating model independent of revenue levels.

Further, we choose to measure non-GAAP EBITDA over a one-year performance period because of the cyclical nature and volatility of our markets, making it challenging to set multi-year performance targets. To ensure our executive officers are focused on our Company's long-term performance, the performance-based RSUs vest over a three-year period in equal annual installments.

We use RSUs as our form of equity incentive compensation because we believe RSUs help to ensure that our executive officers' interests are aligned with our shareholders' interests in both a rising and a declining stock market. We believe RSUs are preferable to options, which have a relatively high accounting cost as compared to their potential value to the executive officer, and restricted stock, which gives the executive officer voting and dividend rights prior to full vesting. Also, because RSUs are worth more than options on the date of grant, we are able to grant fewer RSUs as compared to options, resulting in less dilution to shareholders' holdings.

In 2021, our Named Executive Officers would have forfeited all of their performance-based RSUs if our non-GAAP EBITDA was less than \$439.5 million at a revenue level of \$2.25 billion, or if such non-GAAP EBITDA was less than \$676.4 million at a revenue level of \$2.95 billion (with intermediate non-GAAP EBITDA minimum thresholds at different revenue levels in between). However, if we did achieve these non-GAAP EBITDA threshold levels at the respective revenue levels identified, our Named Executive Officers would receive 50% of their target performance-based RSUs. If our non-GAAP EBITDA was at or above \$568.8 million at a revenue level of \$2.25 billion or was at or above \$875.4 million at a revenue level of \$2.95 billion (with proportional thresholds in between), then our Named Executive Officers would receive the maximum of 200% of their target performance-based RSUs. Proportional achievement levels would be made for non-GAAP EBITDA between the minimum and maximum levels. In 2021, because our revenue was \$2.92 billion and our non-GAAP EBITDA was \$867.5 million, after excluding the results of Photon Control Inc., which we acquired in July 2021, as well as restructuring charges, acquisition and integration costs, amortization of intangible assets, depreciation of fixed assets and stock-based

compensation expense, our Named Executive Officers received 200% of their target performance-based RSUs. These performance-based RSUs, along with the time-based RSUs granted to our Named Executive Officers, vest in equal annual installments over three years from the original date of grant.

It is our practice to make an initial equity-based grant to all of our Named Executive Officers at the time they commence employment in an amount that is consistent with amounts granted to other executive officers in the industry at similar levels of seniority. In addition, we typically make an annual grant of equity-based compensation to our Named Executive Officers during the first fiscal quarter of each year. Discretionary equity-based awards may also be made throughout the year to provide an incentive to achieve a specific goal or to reward a significant achievement or for other reasons that the Compensation Committee determines. Our Compensation Committee did not make any discretionary equity-based awards to our Named Executive Officers in 2021.

Our Compensation Committee did not make any design changes to our 2022 annual equity incentive program.

Perquisites

Our Compensation Committee elected to discontinue perquisites effective December 31, 2020, with the exception that Mr. Bagshaw and Mr. Schreiner could retain their company-leased cars until the expiration of their respective leases in 2023 to avoid lease cancellation costs. To recognize the elimination of perquisites, adjustments were made when determining 2021 base salaries for each Named Executive Officer, other than Dr. Gitin, who was not eligible for perquisites, and for Mr. Bagshaw and Mr. Schreiner, an additional adjustment will be made to their respective 2024 base salaries when their car leases expire. See “Elements of Compensation — Base Salary” above for a further description of these salary adjustments. Our Compensation Committee believes the discontinuation of perquisites allows us to simplify and more consistently align our compensation and benefits offerings with other employees, while placing greater focus on performance-based compensation.

Severance and Change-in-Control Provisions

Each of our Named Executive Officers is entitled to certain payments and benefits in the event his or her employment terminates under specified circumstances as described in the applicable agreement and subject to his or her entry into a release of claims. In addition, in exchange for these payments and benefits, if and to the extent legally enforceable, each of these officers has agreed to be restricted from competing with the Company during and following his or her termination of employment for a twelve-month period. In addition, RSU agreements with our Named Executive Officers generally provide for acceleration of vesting in the event the executive’s employment is terminated without cause or the executive resigns for good reason within 24 months after a change-in-control event. The severance and change-in-control provisions are designed to be competitive in the marketplace, to provide security for each of our Named Executive Officers in the event that we are acquired and his or her respective position is impacted and to provide an incentive for our Named Executive Officers to stay with us through such a change-in-control event. These provisions are also intended to protect us from competitive harm by compensating our Named Executive Officers for agreeing to substantial non-compete provisions after employment termination. See “Executive Compensation Tables — Potential Payments Upon Termination or Change-in-Control” for more information about these agreements.

Compensation of our Chief Executive Officer

We entered into an employment agreement with Dr. Lee upon his becoming Chief Executive Officer in October 2019. The terms of Dr. Lee’s employment agreement reflected his role as the leader of our Company and the experience he brought to the position. For a detailed discussion of the material compensation terms of Dr. Lee’s employment agreement, including all amendments to this employment agreement, see “Executive Compensation Tables — Potential Payments Upon Termination or Change-in-Control.”

Compensation of our Other Named Executive Officers

We have entered into employment agreements with each of our other Named Executive Officers. In October 2021, in connection with the appointment of Mr. Schreiner to be Senior Vice President and Chief Operating Officer, Atotech Division, effective upon the closing of the proposed Atotech acquisition, our Compensation Committee

approved an amendment to Mr. Schreiner's existing employment agreement, which provided for an increase to Mr. Schreiner's base salary, an expatriate service bonus payable following a two-year term of expatriate service (or such longer term of service as may be mutually agreed by us and Mr. Schreiner) and enhanced severance compensation in the event that Mr. Schreiner resigns his employment if we fail to return him to the position of Senior Vice President and Chief Operating Officer or a position of at least substantially similar duties and authority within six months after his return to the United States following the completion of his expatriate service term. The compensation we agreed to pay Mr. Schreiner in connection with his appointment as Senior Vice President and Chief Operating Officer, Atotech Division, reflects the compensation negotiated with him. For a detailed discussion of the material compensation terms of these executive employment agreements, including all amendments to these employment agreements, see "Executive Compensation Tables — Potential Payments Upon Termination or Change-in-Control."

Compensation Consultant

We engage a compensation consultant to serve as an independent advisor to the Compensation Committee regarding compensation for our directors and our executive officers. The Compensation Committee utilizes the compensation consultant in the following ways:

- to provide the Compensation Committee with occasional consultation regarding compensation strategies and programs;
- to review our peer group to determine the appropriateness of its composition;
- to conduct formal competitive compensation analysis for the Compensation Committee regarding our directors and each executive officer, on a position-by-position basis, in comparison to similarly situated executive officers in our peer group using benchmarking data; and
- to assist the Compensation Committee with conducting a risk assessment of the Company's compensation policies and practices.

Since May 2019, the Compensation Committee has engaged Pearl Meyer as its compensation consultant. The Compensation Committee has determined that the engagement of Pearl Meyer as a compensation consultant does not raise any conflicts of interest with MKS.

Role of our Chief Executive Officer

Our Chief Executive Officer reviews with the Compensation Committee the performance of all other Named Executive Officers and makes recommendations relating to compensation of such executive officers. Management develops proposed company financial goals for review and approval by the Compensation Committee for the annual cash incentive plan and long-term performance-based equity incentive compensation, develops proposals relating to potential changes in compensation programs for review and approval by the Compensation Committee and provides the Compensation Committee and its advisors with information necessary to evaluate and implement compensation proposals and programs. Our Chief Executive Officer does not participate in discussions regarding his own compensation.

Governance Policies

Stock Ownership Guidelines

Our Stock Ownership Guidelines, which apply to members of the Board of Directors, the Chief Executive Officer and any other person who is or was a named executive officer while the guidelines are effective, provide that:

- Non-employee members of the Board of Directors shall own at least the lesser of (i) 4,000 shares of our Common Stock or (ii) the number of shares of our Common Stock equal in value to five times the annual retainer for Board service (exclusive of any compensation for committee service, meeting fees, leadership roles and the like).
- The Chief Executive Officer shall own at least the lesser of (i) 50,000 shares of our Common Stock or (ii) the number of shares of our Common Stock with a value equal to five times his or her annual base salary (excluding any bonus, award or special compensation).
- Other Named Executive Officers shall own at least the lesser of (i) 10,000 shares of our Common Stock or (ii) the number of shares of our Common Stock with a value equal to two times his or her annual base salary (excluding any bonus, award or special compensation).

These guidelines are based, in each case, on values in effect as of December 31 of the applicable year. The Stock Ownership Guidelines provide for a phase-in period over five years to achieve the respective ownership goals. All Named Executive Officers and directors were in compliance with the Stock Ownership Guidelines as of December 31, 2021.

Clawback Policy

Our Clawback Policy, which is applicable to incentive-based compensation (specifically our annual cash incentive plan and our performance-based RSUs) that is awarded to our current and former executive officers, provides that in the event we are required to prepare an accounting restatement due to fraud, misconduct or material noncompliance with financial reporting requirements, we will use reasonable efforts to recover any amount in excess of what would have been paid to such executive officers (or such former executive officers) under the accounting restatement for any such incentive-based compensation during the three-year period preceding the restatement. The Compensation Committee may direct the Company to recover additional amounts of incentive-based compensation up to the entire amount, including different amounts from different executive officers, if the Compensation Committee concludes that executive officer fraud or misconduct directly caused or materially contributed to the accounting restatement.

Prohibition on Hedging and Pledging

Our Insider Trading Policy prohibits any of our directors or employees from engaging in purchases of financial instruments or other transactions that hedge or offset, or are designed to hedge or offset, any decrease in the market value of our securities (including pre-paid variable forward contracts, equity swaps, collars and exchange funds), and prohibits such individuals from purchasing our securities on margin or pledging such securities as collateral for a loan.

Impact of Accounting on Executive Compensation

We account for stock-based compensation in accordance with the requirements of ASC 718. The Compensation Committee considers the impact of ASC 718 on our use of equity incentives as a key retention tool. The Compensation Committee regularly reviews its choice of equity incentives, taking into account both tax and accounting considerations.

COMPENSATION COMMITTEE REPORT

The Compensation Committee has reviewed and discussed the “Compensation Discussion and Analysis” required by Item 402(b) of Regulation S-K with management. Based on such review and discussions, the Committee recommended to the Board of Directors that the “Compensation Discussion and Analysis” be included in this proxy statement.

Respectfully submitted,

Rajeev Batra, Chair
Jacqueline F. Moloney
Elizabeth A. Mora

EXECUTIVE COMPENSATION TABLES

Summary Compensation Table for 2021

The following table sets forth the aggregate amounts of compensation earned by our Named Executive Officers in the years ended December 31, 2021, 2020 and 2019.

Name and Principal Position	Year	Salary (\$)	Bonus (\$)	Stock Awards \$(4)	Non-Equity Incentive Plan Compensation \$(5)	All Other Compensation \$(6)	Total (\$)
John T.C. Lee, President and Chief Executive Officer (principal executive officer)							
	2021	\$908,863	\$ -	\$4,520,000	\$2,178,466	\$31,026	\$7,638,355
	2020	\$850,000	\$30,921(2)	\$3,250,000	\$1,917,808	\$78,297	\$6,127,026
	2019	\$565,000	\$ -	\$1,650,000	\$ 487,778	\$62,734	\$2,765,512
Seth H. Bagshaw, Sr. Vice President, Chief Financial Officer and Treasurer (principal financial officer)							
	2021	\$592,075	\$50,000(3)	\$1,825,000	\$1,064,683	\$35,155	\$3,566,913
	2020	\$555,736	\$19,715(2)	\$1,725,000	\$ 977,888	\$68,991	\$3,347,330
	2019	\$530,000	\$ -	\$2,650,000	\$ 385,280	\$64,863	\$3,630,143
Kathleen F. Burke, Sr. Vice President, General Counsel and Secretary							
	2021	\$475,885	\$50,000(3)	\$1,050,000	\$ 665,404	\$30,979	\$2,272,268
	2020	\$440,394	\$19,715(2)	\$ 875,000	\$ 592,594	\$55,870	\$1,983,573
	2019	\$420,000	\$ -	\$1,300,000	\$ 229,005	\$55,374	\$2,004,379
Mark M. Gitin, Sr. Vice President, General Manager of Light & Motion Division(1)							
	2021	\$449,182	\$ -	\$ 570,000	\$ 583,671	\$30,834	\$1,633,687
James A. Schreiner Sr. Vice President and Chief Operating Officer(1)							
	2021	\$433,543	\$50,000(2)	\$ 675,000	\$ 563,001	\$88,221	\$1,809,765
	2020	\$407,769	\$14,121(3)	\$ 475,000	\$ 549,750	\$75,745	\$1,522,385

(1) Under the applicable rules of the SEC, (i) Dr. Gitin was not an executive officer in 2020 or 2019 and (ii) Mr. Schreiner was not an executive officer in 2019. Accordingly, their compensation is not included with respect to such years.

(2) Represents a discretionary cash bonus made in recognition of extraordinary efforts managing the Company's business during the COVID-19 pandemic.

(3) Represents a discretionary cash bonus made in recognition of outstanding leadership of and attention to multiple strategic transactions.

(4) Represents the aggregate grant date fair value for each RSU granted to the executive officer during the covered year, calculated in accordance with ASC 718. The assumptions used in determining the aggregate grant date fair values of awards are set forth in Note 17 to our consolidated financial statements, which were included in our Annual Report on Form 10-K that was filed with the SEC on February 28, 2022. The amounts under the "Stock Awards" column do not reflect the amount of compensation actually received by the Named Executive Officers during the fiscal year. Except with respect to Mr. Bagshaw and Ms. Burke for stock awards granted in 2019, at least fifty percent of the values listed under "Stock Awards" represent performance-based RSUs which are valued at the grant date based upon the probable outcome of the performance metrics. The maximum value of the RSUs, assuming the highest level of performance is achieved for the performance-based portion of the RSUs, was as follows for 2021, 2020 and 2019:

Named Executive Officer	2021		2020		2019	
	Maximum	Actual	Maximum	Actual	Maximum	Actual
Dr. Lee	\$7,006,000	\$7,006,000	\$4,143,750	\$4,036,500	\$2,125,000	\$1,479,000
Mr. Bagshaw	\$2,828,750	\$2,828,750	\$2,199,375	\$2,142,450	\$3,125,000	\$2,479,000
Ms. Burke	\$1,575,000	\$1,575,000	\$1,093,750	\$1,067,500	\$1,500,000	\$1,228,000
Dr. Gitin	\$ 855,000	\$ 855,000	N/A	N/A	N/A	N/A
Mr. Schreiner	\$1,012,500	\$1,012,500	\$ 593,750	\$ 579,500	N/A	N/A

With respect to stock awarded to Mr. Bagshaw and Ms. Burke in 2019, in addition to such executive officer's annual stock award, which was at least fifty percent performance-based RSUs, each received a time-based retention RSU award valued at \$1,000,000 and \$500,000, respectively, on the date of grant, to incentivize their continued services during a time of significant transition of the management team. Half of these awards vested on the second anniversary of the date of grant and the remainder will vest on the third anniversary of the date of grant.

- (5) Each Named Executive Officer's annual cash performance bonus for 2021, 2020 and 2019 was calculated based on a specified target percentage of his or her eligible earnings for the relevant plan year. The threshold bonus payout was 50% of this individual target bonus percentage and the maximum payout was 200% of this individual target bonus percentage, with proportional payouts for performance between these levels. Bonus payments were based on the achievement of non-GAAP operating income (defined as GAAP operating income after bonus and excluding any charges or income not related to the operating performance of the Company) for the 2021, 2020 and 2019 fiscal years (excluding the results of Photon Control Inc. with respect to 2021, which the Company acquired in July 2021, and excluding the Equipment & Solutions Division with respect to 2020 and 2019, which division was created after the Company acquired Electro Scientific Industries, Inc. in February 2019). The individual target bonus percentage and the actual bonus achieved for each of the Named Executive Officers were as follows:

	2021		2020		2019	
	Individual Target Bonus %	Annual Bonus Plan Achievement	Individual Target Bonus %	Annual Bonus Plan Achievement	Individual Target Bonus %	Annual Bonus Plan Achievement
Named Executive Officer						
Dr. Lee	120%	200%	110%	200%	95%	91%
Mr. Bagshaw	90%	200%	85%	200%	80%	91%
Ms. Burke	70%	200%	65%	200%	60%	91%
Dr. Gitin	65%	200%	N/A	N/A	N/A	N/A
Mr. Schreiner	65%	200%	65%	200%	N/A	N/A

- (6) Our Compensation Committee elected to discontinue perquisites effective December 31, 2020, with the exception that Mr. Bagshaw and Mr. Schreiner could retain their company-leased cars until the expiration of their respective leases in 2023 to avoid lease cancellation costs, as described under "Executive Compensation — Compensation Discussion and Analysis — Elements of Compensation — Perquisites." The amounts paid for such perquisites and the amount of all other compensation consisted of the following:

Named Executive Officer	Year	Auto	Club Membership	Health & Disability Benefits	401(k) Match	Other
Dr. Lee	2021	\$ -	\$ -	\$22,326	\$8,700	\$ -
	2020	\$18,238	\$8,714	\$42,795	\$8,550	\$ -
	2019	\$14,609	\$6,970	\$32,755	\$8,400	\$ -
Mr. Bagshaw	2021	\$ 4,129	\$ -	\$22,326	\$8,700	\$ -
	2020	\$12,640	\$8,873	\$38,928	\$8,550	\$ -
	2019	\$12,332	\$6,970	\$37,161	\$8,400	\$ -
Ms. Burke	2021	\$ -	\$ -	\$22,279	\$8,700	\$ -
	2020	\$15,526	\$ -	\$31,794	\$8,550	\$ -
	2019	\$14,287	\$ -	\$32,687	\$8,400	\$ -
Dr. Gitin	2021	\$ -	\$ -	\$22,134	\$8,700	\$ -
Mr. Schreiner	2021	\$11,579	\$ -	\$17,520	\$8,700	\$50,422
	2020	\$11,481	\$ -	\$20,511	\$8,550	\$35,203

Health and Disability Benefits for 2021 included Company-paid medical, dental, vision, short-term and long-term disability and life insurance. With respect to the "Auto" column, the amounts indicated for Mr. Bagshaw and Mr. Schreiner for 2021 reflect the temporary relief permitted by IRS Notice 2021-7 due to the ongoing

COVID-19 pandemic. With respect to the “Other” column, the amount indicated for Mr. Schreiner for 2021 relates to relocation expenses of \$36,796 and taxes with respect to such relocation expenses of \$13,626.

CEO Pay Ratio

We disclose the ratio of our median employee’s annual total compensation to our principal executive officer’s annual total compensation to provide a measure of equitability of pay within our Company. We believe our compensation philosophy and process yield an equitable result for all of our employees. During 2021, our principal executive officer was our Chief Executive Officer, John T.C. Lee. For 2021, the combined annual total compensation for Dr. Lee was \$7,638,355, and for our median employee was \$67,952, resulting in a pay ratio of approximately 112:1.

In accordance with applicable SEC rules, we identified the median employee as of December 18, 2019 (the median employee determination date) by (i) aggregating for each applicable employee (A) annual base salary for salaried employees (or hourly rate multiplied by expected annual work schedule for hourly employees), (B) the actual bonus, commissions and overtime or double-time received for 2019, and (C) the accounting value of any equity granted during 2019, and (ii) ranking this compensation measure for our employees from lowest to highest. This calculation was performed for all employees, excluding Mr. Colella, our principal executive officer as of the median employee determination date, whether employed on a full-time, part-time, or seasonal basis. For purposes of identifying the median employee, we converted amounts paid in foreign currencies to United States Dollars based on the applicable 2019 average exchange rates as of December 18, 2019. Due to anomalous compensation characteristics of our 2019 median employee related to COVID-19 premium pay for a temporary period of time during 2020 as well as associated overtime compensation, we substituted our 2019 median employee with another employee with substantially similar compensation to that of our 2019 median employee based on the compensation measure used to select the median employee in 2019. For 2021, as there have been no changes to our employee population or employee compensation arrangements that we reasonably believed would significantly affect our pay ratio disclosure, we continued to use our 2020 median employee for our pay ratio analysis.

The pay ratio reported above is a reasonable estimate calculated in a manner consistent with SEC rules based on our internal records and the methodology described above. Because the SEC rules for identifying the median compensated employee and calculating the pay ratio based on that employee’s annual total compensation allow companies to adopt a variety of methodologies, to apply certain exclusions, and to make reasonable estimates and assumptions that reflect their employee populations and compensation practices, the pay ratio reported by other companies may not be comparable to the pay ratio reported above, as other companies have different employee populations and compensation practices and may utilize different methodologies, exclusions, estimates and assumptions in calculating their own pay ratios.

Grants of Plan-Based Awards in Fiscal Year 2021 Table

Name	Grant Date(1)	Estimated Future Payouts Under Non-Equity Incentive Plan Awards(2)			Estimated Future Payouts Under Equity Incentive Plan Awards(3)			All Other Stock Awards: Number of Shares of Stock or Units (#)(4)	Grant Date Fair Value of Stock Awards \$(5)
		Threshold (\$)	Target (\$)	Maximum (\$)	Threshold (#)	Target (#)	Maximum (#)		
John T.C. Lee	N/A	\$545,318	\$1,090,635	\$2,181,271					
	2/16/2021				7,218	14,437	28,873	11,812	\$4,520,000
Seth H. Bagshaw	N/A	\$266,434	\$ 532,867	\$1,065,735					
	2/16/2021				2,914	5,829	11,658	4,769	\$1,825,000
Kathleen F. Burke	N/A	\$166,560	\$ 333,119	\$ 666,239					
	2/16/2021				1,524	3,049	6,098	3,049	\$1,050,000
Mark M. Gitin	N/A	\$145,984	\$ 291,968	\$ 583,937					
	2/16/2021				828	1,655	3,310	1,655	\$ 570,000
James A. Schreiner	N/A	\$140,901	\$ 281,803	\$ 563,606					
	2/16/2021				980	1,960	3,920	1,960	\$ 675,000

(1) This column shows the date of grant for all equity awards granted in 2021.

(2) Represents aggregate threshold, target and maximum payout levels under the annual cash incentive plan. The actual amount of annual cash incentive compensation earned by each Named Executive Officer in 2021 is reported

under the Non-Equity Incentive Plan Compensation column in the Summary Compensation Table for 2021. See Footnote 5 to the Summary Compensation Table for 2021 for details on the terms of the annual cash incentive plan.

- (3) These RSUs vest in equal annual installments over three years beginning in February 2022, subject to achievement of performance criteria established in 2021 and determined in January 2022.
- (4) These RSUs vest in equal annual installments over three years beginning in February 2022.
- (5) Reflects the combined grant date fair value of performance-based RSUs, if any, at the target achievement level and time-based RSUs. The fair value was \$172.20 per share for RSUs awarded on February 16, 2021.

Outstanding Equity Awards at 2021 Fiscal Year-End Table

Name	Stock Awards(1)			
	Number of Shares or Units of Stock That Have Not Vested (#)	Market Value of Shares or Units of Stock That Have Not Vested(2) (\$)	Equity Incentive Plan Awards: Number of Unearned Shares, Units or Other Rights That Have Not Vested (#)	Equity Incentive Plan Awards: Market or Payout Value of Unearned Shares, Units or Other Rights That Have Not Vested(2) (\$)
John T.C. Lee	5,821(3)	\$1,013,764	28,873(5)	\$5,028,881
	23,633(4)	\$4,116,215		
	11,812(5)	\$2,057,269		
Seth H. Bagshaw	5,584(3)	\$ 972,486	11,658(5)	\$2,030,466
	4,358(6)	\$ 759,033		
	12,034(4)	\$2,095,940		
	4,575(5)	\$ 796,856		
Kathleen F. Burke	2,865(3)	\$ 499,000	6,098(5)	\$1,062,012
	2,179(6)	\$ 379,521		
	6,251(4)	\$1,088,689		
	3,049(5)	\$ 531,006		
Mark M. Gitin	2,283(7)	\$ 397,707	3,310(5)	\$ 576,521
	3,594(8)	\$ 626,040		
	1,655(5)	\$ 288,260		
James A. Schreiner . .	1,434(9)	\$ 249,773	3,920(5)	\$ 682,722
	3,393(4)	\$ 590,983		
	1,960(5)	\$ 341,361		

- (1) All stock awards in the above table are RSUs. Except as otherwise noted below, all RSUs vest in three equal annual installments beginning one year from the date of grant, with an annual vesting date of February 15th or the next business day if February 15th is not a business day. RSUs listed in the "Equity Incentive Plan Awards" column were also subject to the achievement of performance criteria. None of the Named Executive Officers had any outstanding option awards.
- (2) The values were calculated based on the closing price of our Common Stock on December 31, 2021 of \$174.17 per share.
- (3) Grant date is February 15, 2019.
- (4) Grant date is February 18, 2020.
- (5) Grant date is February 16, 2021.
- (6) Grant date is October 28, 2019. These RSUs vest in two equal installments on the second and third anniversaries of the grant date.
- (7) Grant date is January 11, 2019. These RSUs vest in three equal annual installments beginning on the first anniversary of the grant date.
- (8) Grant date is April 17, 2020. These RSUs vest in three equal annual installments beginning on the first anniversary of the grant date.
- (9) Grant date is September 16, 2019. These RSUs vest in three equal annual installments beginning on the first anniversary of the grant date.

Option Exercises and Stock Vested in Fiscal Year 2021 Table

Name	Stock Awards*	
	Number of Shares Acquired on Vesting (#)(1)	Value Realized on Vesting (\$)(2)
John T.C. Lee	22,096	\$3,804,994
Seth H. Bagshaw	20,713(3)	\$3,443,082
Kathleen F. Burke	10,290	\$1,714,226
Mark M. Gitin	4,792	\$ 843,085
James A. Schreiner	3,130	\$ 507,868

(1) Reflects the number of shares vested before the surrender of shares in satisfaction of tax withholding obligations.

(2) Reflects the value realized before satisfaction of tax withholding obligations.

(3) Includes partial vesting of certain awards for U.S. Federal Insurance Contribution Act (FICA) tax purposes.

* There were no option exercises in 2021.

Potential Payments Upon Termination or Change-in-Control

Pursuant to applicable rules of the SEC, this section, including the tables below, summarizes the estimated payments and other benefits that each Named Executive Officer would be eligible to receive if his or her employment had terminated on December 31, 2021, under the circumstances set forth below.

John T.C. Lee

Pursuant to the terms of Dr. Lee's employment agreement dated as of November 18, 2019, Dr. Lee is entitled to receive a base salary and to participate in the Company's annual cash incentive program and long-term equity incentive plan. From time to time in its sole discretion, our Compensation Committee may review and adjust Dr. Lee's base salary, target compensation goal for the annual cash incentive program and target award for the long-term equity incentive plan.

Dr. Lee's employment agreement provides for a term that is at-will, with termination upon death, disability, or at the election of Dr. Lee or the Company. In the event that Dr. Lee's employment is terminated by the Company without cause (as defined below) or is terminated by Dr. Lee for good reason (as defined below), he is entitled to: (i) continuation of base salary for 18 months, (ii) a lump sum equal to 1.5 times the annual amount of his target cash incentive compensation for which he is eligible, (iii) any cash incentive compensation earned for the calendar year preceding his termination but not yet paid and (iv) to the extent that he elects to continue coverage, payment by the Company of premiums for medical, vision and dental insurance coverage under COBRA for a period of 18 months, less the premium contribution paid by similarly-situated employees.

In the event that Dr. Lee's employment is terminated by the Company without cause, or is terminated by Dr. Lee for good reason, within 24 months after a change-in-control (as defined in his employment agreement), he is entitled to: (i) a lump sum payment equal to three times his annual base salary, (ii) a lump sum payment equal to three times the annual amount of his target cash incentive compensation, (iii) any cash incentive compensation earned for the calendar year preceding his termination but not yet paid, (iv) a prorated portion of his then-current year's target cash incentive compensation, and (v) to the extent that he elects to continue coverage, payment by the Company of its usual share of premiums for medical, vision and dental insurance coverage under COBRA during the period of time Dr. Lee is entitled to elect such coverage under COBRA, and after the end of the COBRA continuation period, if Dr. Lee continues to pay the premium that would be charged for COBRA coverage, he may continue such insurance coverage until the end of the 36 month period following his employment termination date on the same terms as if COBRA coverage were still in effect and the Company will continue to pay the Company's usual share of such premiums. In the event such payments are determined to be subject to an excise tax imposed by Section 4999 of the Internal Revenue Code, such payments will be payable in full or, if applicable, reduced so that no portion of the payments is subject to the excise tax, whichever of the foregoing amounts results in receipt by Dr. Lee on an after-tax basis of the greater amount, taking into account all applicable taxes, including the penalty tax. Dr. Lee is not entitled to any gross-up payment for any such excise tax due.

In the event Dr. Lee's employment is terminated due to death or disability, he (or his estate) is entitled to:

- (i) any cash incentive compensation earned for the calendar year preceding his termination but not yet paid and
- (ii) a prorated portion of his then-current year's target cash incentive compensation.

Dr. Lee's employment agreement contains non-competition provisions that provide that he may not, during the term of his employment and for one year after termination of employment, engage in any competitive business or activity. In addition, he may not, during the term of employment and for two years after the termination of employment: (i) solicit, hire or otherwise induce any Company employee to terminate his or her employment with the Company, (ii) solicit or hire any of our suppliers, joint ventures, research partners or customers for the purpose of competing with the Company, (iii) encourage any of such persons or entities not to enter into a business relationship with the Company or interfere with the relationship between the Company and such persons or entities, or (iv) sell to any of the Company's customers any products of the types sold by the Company with respect to which products he had material dealings in the performance of his duties within the period two years prior to his termination.

Any equity awarded to Dr. Lee under the current or any future Company equity incentive plan that is unvested as of Dr. Lee's termination of employment date will be subject to accelerated vesting if and to the extent provided in the equity award agreements governing the award.

The RSU agreements for Dr. Lee provide for full acceleration of vesting of all RSUs (or, in the case of performance-based RSUs that are still subject to performance criteria, the target number of RSUs) if he is terminated without cause or resigns with good reason within 24 months following a change-in-control (as defined in the applicable agreements). The RSU agreements for Dr. Lee also provide for full acceleration of vesting of all shares (or, in the case of performance-based RSUs that are still subject to performance criteria, the actual number of RSUs to vest based upon satisfaction of performance criteria) upon retirement, death or disability. Retirement, in this context, means a voluntary termination of employment by Dr. Lee after he is at least age 65 and has at least 10 years of service with us or after he is at least age 60 and has at least 15 years of service with us.

For purposes of the foregoing description of benefits under the employment agreement with Dr. Lee, "cause" will exist if Dr. Lee: (i) commits a felony or engages in fraud, misappropriation or embezzlement, (ii) knowingly fails or refuses to perform his duties in a material way and either the failure or refusal cannot reasonably be cured (as determined by the Company in its reasonable judgment) or he fails to effect a cure within 10 days after the Company notifies him in writing of the failure or refusal, (iii) knowingly causes, or knowingly creates a serious risk of causing, material harm to the Company's business or reputation or (iv) breaches, in a material way, his employment agreement, the confidential information agreement or any other material agreement between him and the Company, and either the breach cannot be cured (as determined by the Company in its reasonable judgment) or he fails to effect a cure within 10 days after the Company notifies him in writing of the breach.

For purposes of the foregoing description of benefits under the employment agreement with Dr. Lee, subject to compliance with certain procedural requirements, "good reason" for Dr. Lee to resign will exist if, without his express written consent: (i) the Company materially reduces his position, duties, title, reporting relationship, authorities or responsibilities, (ii) the Company reduces his then-current base salary or target bonus, (iii) the Company changes his principal place of work to a location more than 50 miles from his then-current principal place of work or (iv) the Company breaches, in a material way, his employment agreement or any other material agreement between him and the Company.

Under the RSU agreements for Dr. Lee, "cause" means conviction for the commission of a felony, willful failure by him to perform his responsibilities to the Company, or willful misconduct by him. Subject to compliance with certain procedural requirements, "good reason" means voluntary separation from service within 90 days following (i) a material diminution in position, duties and responsibilities from those described in his employment agreement, (ii) a material reduction in his base salary (other than as part of a general salary reduction program affecting senior executives), (iii) a material reduction in the aggregate value of his pension and welfare benefits from those in effect prior to the change-in-control (other than as proportionate to the reductions applicable to other senior executives pursuant to a cost-saving plan that includes all senior executives), (iv) a material breach of any provision of the employment agreement by the Company, or (v) the Company's requiring him to be based at a location causing a one way commute in excess of 60 miles from his primary residence.

Potential Payments Upon Termination or Change-in-Control Table — John T.C. Lee

The following table sets forth the estimated benefits that Dr. Lee would have been entitled to receive upon termination of his employment effective December 31, 2021:

Termination Circumstance	Cash Severance		Value of Accelerated Unvested Equity	Benefits Continuation	Total
	Base Salary	Bonus			
Termination by the Company Without Cause	\$1,387,500	\$1,665,000	\$ -	\$31,070(1)	\$ 3,083,570
Executive Resignation for Good Reason	\$1,387,500	\$1,665,000	\$ -	\$31,070(1)	\$ 3,083,570
Retirement	\$ -	\$ -	\$ -(2)	\$ -	\$ -
Death	\$ -	\$1,110,000	\$9,701,689(2)	\$ -	\$10,811,689
Disability	\$ -	\$1,110,000	\$9,701,689(2)	\$ -	\$10,811,689
Within 24 Months Following a Change-in-Control:					
• Termination by the Company Without Cause	\$2,775,000	\$4,440,000	\$9,701,689(3)	\$62,140(4)	\$16,978,829
• Executive Resignation for Good Reason	\$2,775,000	\$4,440,000	\$9,701,689(3)	\$62,140(4)	\$16,978,829

- (1) Reflects our cost for continuation of medical, dental and vision coverage for 18 months following termination by the Company without cause or executive resignation for good reason, assuming the termination or resignation occurred on December 31, 2021.
- (2) Upon retirement, death or disability, RSUs fully vest, subject to achievement of any remaining performance criteria. The stated value assumes the retirement, death or disability occurred on December 31, 2021 and assumes the target number of unvested performance-based RSUs vested. Dr. Lee did not meet the requirements for retirement as of December 31, 2021.
- (3) The unvested time-based RSUs fully vest and the target number of unvested performance-based RSUs vest.
- (4) Reflects our cost for continuation of medical, dental and vision coverage for 36 months following termination within 24 months of a change in control, assuming the change in control occurred on December 31, 2021.

Other Named Executive Officers

The Company has entered into employment agreements with each of Mr. Bagshaw, Ms. Burke, Dr. Gitin and Mr. Schreiner. Pursuant to applicable rules of the SEC, below is a summary of the material terms of these employment agreements in place as of December 31, 2021.

In addition to providing for a base salary, and eligibility to participate in the Company's annual cash incentive compensation program and long-term equity incentive plan, the employment agreements with Mr. Bagshaw, Ms. Burke, Dr. Gitin and Mr. Schreiner provide for terms that are at-will, with termination upon death, disability, or at our election if the executive fails to perform his or her duties or commits any other act constituting cause (as defined below). In the event that the executive resigns from the Company or is terminated by the Company without cause, subject to certain procedural requirements, the Company will pay such executive his or her base salary for a period of at least 30 days after the notice of such termination or resignation is delivered. In the event that we terminate Mr. Bagshaw, Ms. Burke, Dr. Gitin or Mr. Schreiner's employment without cause, each executive is entitled to a lump sum payment equal to 12 months base salary and to the extent that such executive elects to continue coverage, payment by the Company of premiums for medical, vision and dental insurance coverage under COBRA for a period of 12 months less the premium contribution paid by similarly-situated employees.

In the event that Mr. Bagshaw, Ms. Burke, Dr. Gitin or Mr. Schreiner's employment is terminated without cause or is terminated by the executive for good reason (as defined below) within 24 months after a change-in-control (as defined in the applicable agreement), such executive is entitled to "enhanced severance compensation," consisting of: (i) a lump sum payment equal to one and one-half times his or her annual base salary, or two times his annual base salary in the case of Mr. Bagshaw, (ii) a lump sum payment equal to one and one-half times the annual amount of his or her target incentive compensation for which such executive is eligible, or two times the annual amount of his target incentive compensation in the case of Mr. Bagshaw, (iii) a prorated portion of the

then-current year's target bonus amount, and (iv) to the extent that such executive elects to continue coverage, payment by the Company of its usual share of premiums for medical, vision and dental insurance coverage under COBRA for a period of 18 months, or 24 months in the case of Mr. Bagshaw, following termination. In the event such payments are determined to be subject to an excise tax imposed by Section 4999 of the Internal Revenue Code, such payments will be payable in full or, if applicable, reduced so that no portion of the payments is subject to the excise tax, whichever of the foregoing amounts results in receipt by Mr. Bagshaw, Ms. Burke, Dr. Gitin or Mr. Schreiner, as the case may be, on an after-tax basis of the greater amount, taking into account all applicable taxes, including the penalty tax. Mr. Bagshaw, Ms. Burke, Dr. Gitin and Mr. Schreiner are not entitled to any gross-up payment for any such excise tax due.

The employment agreements of Mr. Bagshaw, Ms. Burke and Mr. Schreiner contain non-competition provisions that provide that each executive may not, during the term of his or her employment and for one year after termination of employment, engage in any competitive business or activity. Each of Mr. Bagshaw, Ms. Burke, Dr. Gitin and Mr. Schreiner may also not, during the term of employment and for one year after the termination of employment, solicit or otherwise induce any Company employee to terminate his or her employment with the Company. In addition, Mr. Bagshaw, Ms. Burke and Mr. Schreiner may not, during the term of employment and for one year after the termination of employment (i) solicit or hire any of our suppliers, joint ventures, research partners or customers for the purpose of competing with the Company, (ii) encourage any of such persons or entities not to enter into a business relationship with MKS or interfere with the relationship between the Company and such persons or entities, or (iii) sell to any of the Company's customers any products of the types sold by the Company with respect to which products the executive officer had material dealings in the performance of his or her duties within the period two years prior to his or her termination.

Any equity awarded to Mr. Bagshaw, Ms. Burke, Dr. Gitin and Mr. Schreiner under the current or any future Company equity incentive plan that is unvested as of the date of their respective terminations of employment will be subject to accelerated vesting if and to the extent provided in the equity award agreements governing the award.

The RSU agreements for each of Mr. Bagshaw, Ms. Burke and Mr. Schreiner, and the RSU agreements for Dr. Gitin that were entered into following his appointment as an executive officer in February 2021, which we collectively refer to as the Executive Officer RSU Agreements, provide for full acceleration of vesting of all RSUs (or, in the case of performance-based RSUs that are still subject to performance criteria, the target number of RSUs) if such executive is terminated without cause or resigns with good reason within 24 months following a change-in-control (as defined in the applicable agreements). The RSU agreements for Dr. Gitin that were entered into prior to his appointment as an executive officer, which we refer to as the Non-Executive Officer RSU Agreements, do not provide for any acceleration of vesting in connection with a change-in-control. The Executive Officer RSU Agreements and the Non-Executive Officer RSU Agreements provide for full acceleration of vesting of all shares (or, in the case of performance-based RSUs that are still subject to performance criteria, the actual number of RSUs to vest based upon satisfaction of performance criteria) upon retirement, death or disability. Retirement, in this context, for Ms. Burke, Dr. Gitin and Mr. Schreiner, means a voluntary termination of employment by the executive after he or she is at least age 65 and has at least 10 years of service with us or after he or she is at least age 60 and has at least 15 years of service with us. Retirement, in this context, for Mr. Bagshaw means a voluntary termination of employment by the executive after he is at least age 60 and has at least 10 years of service with us. RSUs granted to executives typically vest in three equal annual installments, and typically at least half of the target annual equity grant value is subject to performance criteria.

For purposes of the foregoing description of benefits under the employment agreements with Mr. Bagshaw, Ms. Burke, Dr. Gitin and Mr. Schreiner, "cause" will exist if the executive: (i) commits a felony or engages in fraud, misappropriation or embezzlement, (ii) knowingly fails or refuses to perform such executive'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 such executive in writing of the failure or refusal, (iii) knowingly causes, or knowingly creates a serious risk of causing, material harm to the Company's business or reputation, or (iv) breaches, in a material way, such executive's employment agreement, the confidential information agreement or any other agreement between such executive 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 such executive in writing of the breach.

For purposes of the foregoing description of benefits under the employment agreements with Mr. Bagshaw, Ms. Burke, Dr. Gitin and Mr. Schreiner, subject to compliance with certain procedural requirements, "good reason" for the applicable executive to resign will exist if, without such executive's express written consent: (i) the Company materially reduces such executive's position, duties or responsibilities, (ii) the Company reduces such executive's then-current base salary, or (iii) the Company changes such executive's principal place of work to a location more than 50 miles from such executive's then-current principal place of work.

Under the Executive Officer RSU Agreements, “cause” means conviction for the commission of a felony, willful failure by the executive to perform his or her responsibilities to the Company, or willful misconduct by the executive. Subject to compliance with certain procedural requirements, “good reason” means voluntary separation from service within 90 days following (i) a material diminution in position, duties and responsibilities from those described in the executive’s employment agreement, (ii) a material reduction in the executive’s base salary (other than as part of a general salary reduction program affecting senior executives), (iii) a material reduction in the aggregate value of the executive’s pension and welfare benefits from those in effect prior to the change-in-control (other than as proportionate to the reductions applicable to other senior executives pursuant to a cost-saving plan that includes all senior executives), (iv) a material breach of any provision of the employment agreement by the Company, or (v) the Company’s requiring the executive to be based at a location causing a one way commute in excess of 60 miles from the executive’s primary residence.

Amendment to Mr. Schreiner’s Employment Agreement

In October 2021, in connection with the appointment of Mr. Schreiner to the position of Senior Vice President and Chief Operating Officer, Atotech Division, subject to and effective upon the closing of the Company’s proposed acquisition of Atotech, the Company and Mr. Schreiner entered into an amendment to Mr. Schreiner’s employment agreement. Pursuant to the amendment, (i) Mr. Schreiner’s base salary will increase to \$465,000, effective as of the closing; (ii) Mr. Schreiner will be eligible for an expatriate service bonus equal to \$500,000, which will be payable in a single lump sum within thirty days following Mr. Schreiner’s return to the United States following the completion of a two-year term of expatriate service (or such longer term of service as may be mutually agreed by the Company and Mr. Schreiner) as the Senior Vice President and Chief Operating Officer, Atotech Division, which we refer to as the Expatriate Service Term; and (iii) Mr. Schreiner will be eligible for enhanced severance compensation, as defined above, in the event that he resigns his employment if the Company fails to return him to the position of Senior Vice President and Chief Operating Officer or a position of at least substantially similar duties and authority within six months after his return to the United States following the completion of the Expatriate Service Term.

Potential Payments Upon Termination or Change-in-Control Table — Other Named Executive Officers

The following table sets forth the estimated benefits that Mr. Bagshaw, Ms. Burke, Dr. Gitin and Mr. Schreiner would have been entitled to receive upon termination of his or her employment effective December 31, 2021:

Termination Circumstance	Cash Severance		Value of Accelerated Unvested Equity	Benefits Continuation	Total
	Base Salary	Bonus			
Involuntary Without Cause					
Termination:					
Seth H. Bagshaw	\$ 600,000	\$ -	\$ -	\$20,713	\$ 620,713
Kathleen F. Burke	\$ 484,000	\$ -	\$ -	\$20,713	\$ 504,713
Mark M. Gitin	\$ 452,000	\$ -	\$ -	\$20,713	\$ 472,713
James A. Schreiner	\$ 440,000	\$ -	\$ -	\$15,035	\$ 455,035
Within 24 Months Following a					
Change-in-Control:					
Seth H. Bagshaw	\$1,200,000	\$1,620,000	\$5,639,558(1)	\$41,427(2)	\$8,500,985
Kathleen F. Burke	\$ 726,000	\$ 847,000	\$3,029,222(1)	\$31,070(2)	\$4,633,292
Mark M. Gitin	\$ 678,000	\$ 734,500	\$ 576,521(1)	\$31,070(2)	\$2,020,091
James A. Schreiner	\$ 660,000	\$ 715,000	\$1,523,478(1)	\$22,553(2)	\$2,921,031
Death or Disability:					
Seth H. Bagshaw	\$ -	\$ -	\$5,639,558(3)	\$ -	\$5,639,558
Kathleen F. Burke	\$ -	\$ -	\$3,029,222(3)	\$ -	\$3,029,222
Mark M. Gitin	\$ -	\$ -	\$1,600,267(3)	\$ -	\$1,600,267
James A. Schreiner	\$ -	\$ -	\$1,523,478(3)	\$ -	\$1,523,478
Retirement:					
Seth H. Bagshaw	\$ -	\$ -	\$4,880,515(4)	\$ -	\$4,880,515
Kathleen F. Burke	\$ -	\$ -	\$ -(4)	\$ -	\$ -
Mark M. Gitin	\$ -	\$ -	\$ -(4)	\$ -	\$ -
James A. Schreiner	\$ -	\$ -	\$ -(4)	\$ -	\$ -

- (1) Under the Executive Officer RSU Agreements, the unvested time-based RSUs fully vest and the target number of unvested performance-based RSUs vest.

- (2) Reflects our cost for continuation of medical, dental and vision coverage for 18 months (or 24 months in the case of Mr. Bagshaw) following involuntary without cause termination within 24 months following a change-in-control, assuming the termination occurred on December 31, 2021.
- (3) Upon death or disability, RSUs fully vest, subject to achievement of any remaining performance criteria. The stated value assumes the death or disability occurred on December 31, 2021 and assumes the target number of unvested performance-based RSUs vested.
- (4) Upon retirement (as defined in the RSU agreements), RSUs for Mr. Bagshaw, Ms. Burke, Dr. Gitin and Mr. Schreiner fully vest, subject to achievement of any remaining performance criteria. However, Ms. Burke, Dr. Gitin and Mr. Schreiner did not meet the requirements for retirement as of December 31, 2021.

EQUITY COMPENSATION PLAN INFORMATION

The following table provides information about the securities authorized for issuance under our equity compensation plans as of December 31, 2021:

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants and rights(1)	Weighted-average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))
	(a)	(b)	(c)
Equity compensation plans approved by security holders	546,793	\$31.13(2)	13,812,998(3)
Equity compensation plans not approved by security holders	-	-	-
Total	546,793		13,812,998(3)

- (1) In connection with our acquisition of Newport Corporation, or Newport, in April 2016, and Electro Scientific Industries, Inc., or ESI, in February 2019, we assumed certain RSUs and SARs granted under certain Newport and ESI equity plans, which we refer to as the Newport Assumed RSUs, Newport Assumed SARs, ESI Assumed RSUs and ESI Assumed SARs, as applicable, and which were converted automatically into RSUs and SARs, as applicable, with respect to shares of our Common Stock. As of December 31, 2021, the number of shares reflected in column (a) consists of: (i) Newport Assumed SARs with respect to an aggregate of 21,325 shares of our Common Stock, (ii) Newport Assumed RSUs and ESI Assumed RSUs with respect to 33,842 shares of our Common Stock and (iii) RSUs representing the right to receive an aggregate of 491,626 shares of our Common Stock upon vesting, all of which were issued under our 2014 Stock Incentive Plan. As of December 31, 2021, there were no outstanding ESI Assumed SARs.
- (2) The weighted average exercise price represents the base value of all outstanding Newport Assumed SARs. All outstanding RSUs were awarded without payment of any purchase price.
- (3) This number includes 12,206,231 shares available for issuance under our 2014 Stock Incentive Plan and 1,606,767 shares reserved for issuance under our 2014 Employee Stock Purchase Plan. Shares issued under our 2014 Stock Incentive Plan in respect of RSUs, restricted stock or other stock-based awards with a per share price lower than 100% of fair market value on the date of grant count against the shares available for grant under the plan as 2.4 shares for every share granted.

OTHER MATTERS

Our Board of Directors does not know of any other matters which may come before the 2022 Annual Meeting. However, if any other matters are properly presented to the meeting, it is the intention of the persons named in the accompanying proxy to vote, or otherwise act, in accordance with their judgment on such matters.

Expenses and Solicitation

All costs of solicitation of proxies will be borne by us. In addition to solicitations by mail, our directors, officers and regular employees, without additional remuneration, may solicit proxies by telephone and personal interviews and we reserve the right to retain outside agencies for the purpose of soliciting proxies. Brokers, custodians and fiduciaries will be requested to forward proxy soliciting material to the owners of stock held in their names, and we will reimburse them for their reasonable out-of-pocket expenses incurred in connection with the distribution of proxy materials.

Deadline for Submission of Shareholder Proposals for the 2023 Annual Meeting

Proposals of shareholders intended to be presented at the 2023 Annual Meeting of Shareholders must be received by us at our principal office in Andover, Massachusetts no later than December 1, 2022 for inclusion in the proxy statement for that meeting.

In addition, our Amended and Restated By-Laws (which are on file with the SEC) require that we be given advance notice of matters that shareholders wish to present for action at an annual meeting of shareholders, including director nominations (other than matters included in our proxy statement in accordance with Rule 14a-8 of the Securities Exchange Act of 1934, as amended). The required written notice must be delivered to our Secretary at our principal office at least 90 days but no more than 120 days prior to the first anniversary of the preceding year's annual meeting or it will be considered untimely. However, in the event that the date of the annual meeting is advanced by more than 20 days, or delayed by more than 60 days, from the first anniversary of the preceding year's annual meeting, a shareholder's notice must be received no earlier than the 120th day prior to the annual meeting and not later than the close of business on the later of (i) the 90th day prior to the annual meeting and (ii) the seventh day following the day on which notice of the date of the annual meeting was mailed or public disclosure of the date of the annual meeting was made, whichever occurs first. Assuming that the 2023 Annual Meeting of Shareholders is not advanced by more than 20 days or delayed by more than 60 days from the anniversary date of the 2022 Annual Meeting, shareholders will need to give us appropriate notice at the address noted above no earlier than January 10, 2023 and no later than February 9, 2023. The advance notice provisions of our Amended and Restated By-Laws contain the requirements of the written notice of shareholders and supersede the notice requirement contained in Rule 14a-4(c)(1) under the Securities Exchange Act of 1934, as amended.

No Incorporation by Reference

As provided under SEC rules, the "Audit Committee Report" and the "Compensation Committee Report" contained in this proxy statement are not incorporated by reference into any of our other filings with the SEC, except to the extent we specifically incorporate either report by reference into a filing. This proxy statement includes several website addresses. These website addresses are intended to be inactive textual references only. None of the information on, or accessible through, these websites is part of this proxy statement or is incorporated by reference herein.

By Order of the Board of Directors,

KATHLEEN F. BURKE
Secretary

March 31, 2022

MKS Instruments, Inc.

2022 STOCK INCENTIVE PLAN1. Purpose

The purpose of this 2022 Stock Incentive Plan (the “**Plan**”) of MKS Instruments, Inc., a Massachusetts corporation (the “**Company**”), is to advance the interests of the Company’s stockholders by enhancing the Company’s ability to attract, retain and motivate persons who are expected to make important contributions to the Company and by providing such persons with equity ownership opportunities and performance-based incentives that are intended to better align the interests of such persons with those of the Company’s stockholders. Except where the context otherwise requires, the term “**Company**” shall include any of the Company’s present or future parent or subsidiary corporations as defined in Sections 424(e) or (f) of the Internal Revenue Code of 1986, as amended, and any regulations thereunder (the “**Code**”) and any other business venture (including, without limitation, joint venture or limited liability company) in which the Company has a controlling interest, as determined by the Board of Directors of the Company (the “**Board**”).

2. Eligibility

All of the Company’s employees, officers and directors, as well as consultants and advisors to the Company (as the terms consultants and advisors are defined and interpreted for purposes of Form S-8 under the Securities Act of 1933, as amended (the “**Securities Act**”), or any successor form) are eligible to be granted Awards (as defined below) under the Plan. Each person who is granted an Award under the Plan is deemed a “**Participant**.” The Plan provides for the following types of awards, each of which is referred to as an “**Award**”: Options (as defined in Section 5), SARs (as defined in Section 6), Restricted Stock (as defined in Section 7), RSUs (as defined in Section 7), Other Stock-Based Awards (as defined in Section 8) and Cash-Based Awards (as defined in Section 8). Any type of Award may be granted as a Performance Award under Section 9. Except as otherwise provided by the Plan, each Award may be made alone or in addition or in relation to any other Award. The terms of each Award need not be identical, and the Board need not treat Participants uniformly.

3. Administration and Delegation

(a) Administration by Board of Directors. The Plan will be administered by the Board. The Board shall have authority to grant Awards and to adopt, amend and repeal such administrative rules, guidelines and practices relating to the Plan as it shall deem advisable. The Board may construe and interpret the terms of the Plan and any Award agreements entered into under the Plan. The Board may correct any defect, supply any omission or reconcile any inconsistency in the Plan or any Award. All actions and decisions by the Board with respect to the Plan and any Awards shall be made in the Board’s discretion and shall be final and binding on all persons having or claiming any interest in the Plan or in any Award.

(b) Appointment of Committees. To the extent permitted by applicable law, the Board may delegate any or all of its powers under the Plan to one or more committees or subcommittees of the Board (a “**Committee**”). All references in the Plan to the “**Board**” shall mean the Board or a Committee of the Board to the extent that the Board’s powers or authority under the Plan have been delegated to such Committee.

(c) Awards to Non-Employee Directors. Awards to non-employee directors will be granted and administered by a Committee, all of the members of which are independent directors as defined by Section 5605(a)(2) of the Nasdaq Marketplace Rules.

4. Stock Available for Awards(a) Number of Shares; Share Counting.

(1) Authorized Number of Shares. Subject to adjustment under Section 10, Awards may be made under the Plan (any or all of which Awards may be in the form of Incentive Stock Options, as defined in Section 5(b))

for up to 6,600,000 shares of common stock, no par value per share, of the Company (the “**Common Stock**”); provided, however, that the number of shares of Common Stock that may be issued under the Plan will be reduced, on a one-for-one basis, by the number of shares of Common Stock subject to any equity awards granted by the Company under the Company’s 2014 Stock Incentive Plan after March 2, 2022 but before the Plan is approved by shareholders.

(2) Fungible Share Pool. Subject to adjustment under Section 10, any Award that is not a Full-Value Award (as defined below) shall be counted against the share limit specified in Section 4(a)(1) as one share for each share of Common Stock subject to such Award and any Award that is a Full-Value Award shall be counted against the share limit specified in Section 4(a)(1) as 1.91 shares for each one share of Common Stock subject to such Full-Value Award. “**Full-Value Award**” means any Award of Restricted Stock, RSUs or Other Stock-Based Award with a per share price or per unit purchase price lower than 100% of the fair market value per share of Common Stock (valued in the manner determined or approved by the Board) on the date of grant. To the extent a share that was subject to an Award that counted as one share is returned to the Plan pursuant to Section 4(a)(3), each applicable share reserve will be credited with one share. To the extent that a share that was subject to an Award that counts as 1.91 shares is returned to the Plan pursuant to Section 4(a)(3), each applicable share reserve will be credited with 1.91 shares.

(3) Share Counting. For purposes of counting the number of shares available for the grant of Awards under this Section 4(a) and Section 4(b):

(A) all shares of Common Stock covered by SARs shall be counted against the number of shares available for the grant of Awards under the Plan and against the sublimit in Section 4(b); *provided, however*, that (i) SARs that may be settled only in cash shall not be so counted and (ii) if the Company grants a SAR in tandem with an Option for the same number of shares of Common Stock and provides that only one such Award may be exercised (a “**Tandem SAR**”), only the shares covered by the Option, and not the shares covered by the Tandem SAR, shall be so counted, and the expiration of one in connection with the other’s exercise will not restore shares to the Plan;

(B) to the extent that an RSU may be settled only in cash, no shares shall be counted against the shares available for the grant of Awards under the Plan or the sublimit contained in Section 4(b);

(C) if any Award (i) expires or is terminated, surrendered or canceled without having been fully exercised or is forfeited in whole or in part (including as the result of shares of Common Stock subject to such Award being repurchased by the Company at the original issuance price pursuant to a contractual repurchase right) or (ii) results in any Common Stock not being issued (including as a result of a SAR or an RSU that was settleable either in cash or in stock actually being settled in cash), the unused Common Stock covered by such Award shall again be available for the grant of Awards; *provided, however*, that (1) in the case of Incentive Stock Options, the foregoing shall be subject to any limitations under the Code, (2) in the case of the exercise of a SAR, the number of shares counted against the shares available under the Plan and against the sublimit in Section 4(b) shall be the full number of shares subject to the SAR multiplied by the percentage of the SAR actually exercised, regardless of the number of shares actually used to settle such SAR upon exercise and (3) the shares covered by a Tandem SAR shall not again become available for grant upon the expiration or termination of such Tandem SAR;

(D) shares of Common Stock delivered (either by actual delivery, attestation or net exercise) to the Company by a Participant to (i) purchase shares of Common Stock upon the exercise of an Award or (ii) satisfy tax withholding obligations with respect to Awards (including shares retained from the Award creating the tax obligation) shall not be added back to the number of shares available for the future grant of Awards; and

(E) shares of Common Stock repurchased by the Company on the open market using the proceeds from the exercise of an Award shall not increase the number of shares available for future grant of Awards.

(b) Per-Participant Limit. Subject to adjustment under Section 10, the maximum number of shares of Common Stock with respect to which Awards may be granted to any Participant under the Plan shall be 500,000 per calendar year. For purposes of the foregoing limit, the combination of an Option in tandem with an SAR shall be treated as a single Award. For the avoidance of doubt, each share subject to an Award shall be counted as one share for purposes of this sublimit.

(c) Limit on Non-Employee Director Compensation. The maximum aggregate amount of cash earned or paid and value of Awards (calculated based on grant date fair value for financial reporting purposes) granted in any calendar year to any individual non-employee director shall not exceed \$750,000; provided, however, that fees paid by the Company on behalf of any non-employee director in connection with regulatory compliance and any amounts paid to a non-employee director as reimbursement of an expense shall not count against the foregoing limit. The Board may make exceptions to this limit for individual non-employee directors in extraordinary circumstances, as the Board may determine in its discretion, provided that the non-employee director receiving such additional compensation may not participate in the decision to award such compensation. For the avoidance of doubt, this limitation shall not apply to cash earned or paid or Awards granted to a non-employee director in his or her capacity as an advisor or consultant to the Company.

(d) Substitute Awards. In connection with a merger or consolidation of an entity with the Company or the acquisition by the Company of property or stock of an entity, the Board may grant Awards in substitution for any options or other stock or stock-based awards granted by such entity or an affiliate thereof. Substitute Awards may be granted on such terms as the Board deems appropriate in the circumstances, notwithstanding any limitations on Awards contained in the Plan. Substitute Awards shall not count against the overall share limit set forth in Section 4(a)(1) or any sublimits contained in the Plan, except as may be required by reason of Section 422 and related provisions of the Code.

5. Stock Options

(a) General. The Board may grant options to purchase Common Stock (each, an “**Option**”) and determine the number of shares of Common Stock to be covered by each Option, the exercise price of each Option and the conditions and limitations applicable to the exercise of each Option, including conditions relating to applicable federal or state securities laws, as the Board considers necessary or advisable.

(b) Incentive Stock Options. An Option that the Board intends to be an “incentive stock option” as defined in Section 422 of the Code (an “**Incentive Stock Option**”) shall only be granted to employees of MKS Instruments, Inc., any of MKS Instruments, Inc.’s present or future parent or subsidiary corporations as defined in Sections 424(e) or (f) of the Code, and any other entities the employees of which are eligible to receive Incentive Stock Options under the Code, and shall be subject to and shall be construed consistently with the requirements of Section 422 of the Code. An Option that is not intended to be an Incentive Stock Option shall be designated a “**Nonstatutory Stock Option**.” The Company shall have no liability to a Participant, or any other person, if an Option (or any part thereof) that is intended to be an Incentive Stock Option is not an Incentive Stock Option or if the Company converts an Incentive Stock Option to a Nonstatutory Stock Option.

(c) Exercise Price. The Board shall establish the exercise price of each Option or specify the formula by which such exercise price will be determined. The exercise price shall be specified in the applicable Option agreement. The exercise price shall be not less than 100% of the Grant Date Fair Market Value (as defined below) of the Common Stock on the date the Option is granted; *provided* that if the Board approves the grant of an Option with an exercise price to be determined on a future date, the exercise price shall be not less than 100% of the Grant Date Fair Market Value on such future date. “**Grant Date Fair Market Value**” of a share of Common Stock for purposes of the Plan will be determined as follows:

- (1) if the Common Stock trades on a national securities exchange, the closing sale price (for the primary trading session) on the date of grant; or
- (2) if the Common Stock does not trade on any such exchange, the average of the closing bid and asked prices on the date of grant as reported by an over-the-counter marketplace designated by the Board; or
- (3) if the Common Stock is not publicly traded, the Board will determine the Grant Date Fair Market Value for purposes of the Plan using any measure of value it determines to be appropriate (including, as it considers appropriate, relying on appraisals) in a manner consistent with the valuation principles under Code Section 409A of the Code or any successor provision thereto, and the regulations thereunder (“**Section 409A**”), except as the Board may expressly determine otherwise.

For any date that is not a trading day, the Grant Date Fair Market Value of a share of Common Stock for such date will be determined by using the closing sale price or average of the bid and asked prices, as appropriate, for the immediately preceding trading day and with the timing in the formulas above adjusted accordingly. The Board can

substitute a particular time of day or other measure of “closing sale price” or “bid and asked prices” if appropriate because of exchange or market procedures or can use weighted averages either on a daily basis or such longer period, in each case to the extent permitted by Section 409A.

The Board shall determine the Grant Date Fair Market Value for purposes of the Plan, and all Awards are conditioned on the Participant’s agreement that the Board’s determination is conclusive and binding even though others might make a different determination.

(d) Duration of Options. Each Option shall be exercisable at such times and subject to such terms and conditions as the Board may specify in the applicable Option agreement; *provided, however*, that no Option will be granted with a term in excess of 10 years.

(e) Exercise of Options. Options may be exercised by delivery to the Company of a notice of exercise in a form (which may be electronic) approved by the Company, together with payment in full (in the manner specified in Section 5(f)) of the exercise price for the number of shares for which the Option is exercised. Shares of Common Stock subject to the Option will be delivered by the Company as soon as practicable following exercise.

(f) Payment Upon Exercise. Common Stock purchased upon the exercise of an Option granted under the Plan shall be paid for as follows:

(1) in cash or by check, payable to the order of the Company;

(2) except as may otherwise be provided in the applicable Option agreement or approved by the Board, by (i) delivery of an irrevocable and unconditional undertaking by a creditworthy broker to deliver promptly to the Company sufficient funds to pay the exercise price and any required tax withholding or (ii) delivery by the Participant to the Company of a copy of irrevocable and unconditional instructions to a creditworthy broker to deliver promptly to the Company funds sufficient to pay the exercise price and any required tax withholding;

(3) to the extent provided for in the applicable Option agreement or approved by the Board, by delivery (either by actual delivery or attestation) of shares of Common Stock owned by the Participant valued at their fair market value (valued in the manner determined or approved by the Board) provided (i) such method of payment is then permitted under applicable law, (ii) such Common Stock, if acquired directly from the Company, was owned by the Participant for such minimum period of time, if any, as may be established by the Board and (iii) such Common Stock is not subject to any repurchase, forfeiture, unfulfilled vesting or other similar requirements;

(4) to the extent provided for in the applicable Nonstatutory Stock Option agreement or approved by the Board, by delivery of a notice of “net exercise” to the Company, as a result of which the Participant would receive (i) the number of shares underlying the portion of the Option being exercised, less (ii) such number of shares as is equal to (A) the aggregate exercise price for the portion of the Option being exercised divided by (B) the fair market value of the Common Stock (valued in the manner determined or approved by the Board) on the date of exercise;

(5) to the extent permitted by applicable law and provided for in the applicable Option agreement or approved by the Board, by payment of such other lawful consideration as the Board may determine; *provided, however*, that in no event may a promissory note of the Participant be used to pay the Option exercise price; or

(6) by any combination of the above permitted forms of payment.

(g) Limitation on Repricing. Unless such action is approved by the Company’s stockholders, the Company may not (except as provided for under Section 10): (1) amend any outstanding Option granted under the Plan to provide an exercise price per share that is lower than the then-current exercise price per share of such outstanding Option; (2) cancel any outstanding option (whether or not granted under the Plan) and grant in substitution therefor new Awards under the Plan (other than Awards granted pursuant to Section 4(c)) covering the same or a different number of shares of Common Stock and having an exercise or measurement price per share lower than the then-current exercise price per share of the canceled option, (3) cancel in exchange for a cash payment any outstanding Option with an exercise price per share above the then-current fair market value of the Common Stock (valued in the manner determined or approved by the Board); or (4) take any other action under the Plan that constitutes a “repricing” within the meaning of the rules of the Nasdaq Stock Market or any other exchange or marketplace on which the Company’s stock is listed or traded (the “**Exchange**”).

(h) No Reload Options. No Option granted under the Plan shall contain any provision entitling the Participant to the automatic grant of additional Options in connection with any exercise of the original Option.

(i) No Dividend Equivalents. No Option shall provide for the payment or accrual of dividend equivalents.

6. Stock Appreciation Rights

(a) General. The Board may grant Awards consisting of stock appreciation rights ("SARs") entitling the holder, upon exercise, to receive an amount of Common Stock or cash or a combination thereof (such form to be determined by the Board) determined by reference to appreciation, from and after the date of grant, in the fair market value of a share of Common Stock (valued in the manner determined or approved by the Board) over the measurement price established pursuant to Section 6(b). The date as of which such appreciation is determined shall be the exercise date.

(b) Measurement Price. The Board shall establish the measurement price of each SAR and specify it in the applicable SAR agreement. The measurement price shall not be less than 100% of the Grant Date Fair Market Value of the Common Stock on the date the SAR is granted; *provided* that if the Board approves the grant of an SAR effective as of a future date, the measurement price shall be not less than 100% of the Grant Date Fair Market Value on such future date.

(c) Duration of SARs. Each SAR shall be exercisable at such times and subject to such terms and conditions as the Board may specify in the applicable SAR agreement; *provided, however*, that no SAR will be granted with a term in excess of 10 years.

(d) Exercise of SARs. SARs may be exercised by delivery to the Company of a notice of exercise in a form (which may be electronic) approved by the Company, together with any other documents required by the Board.

(e) Limitation on Repricing. Unless such action is approved by the Company's stockholders, the Company may not (except as provided for under Section 10): (1) amend any outstanding SAR granted under the Plan to provide a measurement price per share that is lower than the then-current measurement price per share of such outstanding SAR; (2) cancel any outstanding SAR (whether or not granted under the Plan) and grant in substitution therefor new Awards under the Plan (other than Awards granted pursuant to Section 4(c)) covering the same or a different number of shares of Common Stock and having an exercise or measurement price per share lower than the then-current measurement price per share of the canceled SAR; (3) cancel in exchange for a cash payment any outstanding SAR with a measurement price per share above the then-current fair market value of the Common Stock (valued in the manner determined or approved by the Board) or (4) take any other action under the Plan that constitutes a "repricing" within the meaning of the rules of the Nasdaq Stock Market.

(f) No Reload SARs. No SAR granted under the Plan shall contain any provision entitling the Participant to the automatic grant of additional SARs in connection with any exercise of the original SAR.

(g) No Dividend Equivalents. No SAR shall provide for the payment or accrual of dividend equivalents.

7. Restricted Stock; RSUs

(a) General. The Board may grant Awards entitling recipients to acquire shares of Common Stock ("**Restricted Stock**"), subject to the right of the Company to repurchase all or part of such shares at their issue price or other stated or formula price (or to require forfeiture of such shares if issued at no cost) from the recipient in the event that conditions specified by the Board in the applicable Award are not satisfied prior to the end of the applicable restriction period or periods established by the Board for such Award. The Board may also grant Awards entitling the recipient to receive shares of Common Stock or cash to be delivered at the time such Award vests or on a deferred basis ("**RSUs**").

(b) Terms and Conditions for Restricted Stock and RSUs. The Board shall determine the terms and conditions of Restricted Stock and RSUs, including the conditions for vesting and repurchase (or forfeiture) and the issue price, if any.

(c) Additional Provisions Relating to Restricted Stock.

(1) Dividends. Any dividends (whether paid in cash, stock or property) declared and paid by the Company with respect to shares of Restricted Stock ("**Unvested Dividends**") shall be paid to the Participant only if and when such shares become free from the restrictions on transferability and forfeitability that apply to such shares. Each payment of Unvested Dividends will be made no later than the end of the calendar year in which the dividends are paid to stockholders of that class of stock or, if later, the 15th day of the third month following the lapsing of the restrictions on transferability and the forfeitability provisions applicable to the underlying shares of Restricted Stock. No interest will be paid on Unvested Dividends.

(2) Stock Certificates/Issuance. The Company may require that any stock certificates issued in respect of shares of Restricted Stock, as well as dividends or distributions paid on such Restricted Stock, shall be deposited in escrow by the Participant, together with a stock power endorsed in blank, with the Company (or its designee) or, alternatively, that such shares be issued in book entry only, in the name of the Participant with appropriate transfer and forfeiture restrictions. At the expiration of the applicable restriction periods, the Company (or such designee) shall deliver the certificates no longer subject to such restrictions (or, to the extent the Restricted Stock was issued in book entry, remove the restrictions) to the Participant or if the Participant has died, to his or her Designated Beneficiary(as defined below).

(d) Additional Provisions Relating to RSUs.

(1) Settlement. Upon the vesting of and/or lapsing of any other restrictions with respect to each RSU, the Participant shall be entitled to receive from the Company (i.e., settlement) the number of shares of Common Stock specified in the Award agreement or (if so provided in the applicable Award agreement or otherwise determined by the Board) an amount of cash equal to the fair market value (valued in the manner determined or approved by the Board) of such number of shares or a combination thereof. The Board may provide that settlement of RSUs shall be deferred, on a mandatory basis or at the election of the Participant, in a manner that complies with Section 409A.

(2) Voting Rights. A Participant shall have no voting rights with respect to any RSUs.

(3) Dividend Equivalents. The Award agreement for RSUs may provide Participants with the right to receive an amount equal to any dividends or other distributions declared and paid on an equal number of outstanding shares of Common Stock ("**Dividend Equivalents**"). Dividend Equivalents may be credited to an account for the Participant and may be settled in cash and/or shares of Common Stock, in each case to the extent provided in the applicable Award agreement. Dividend Equivalents with respect to RSUs will be subject to the same restrictions on transfer and forfeitability as the RSUs with respect to which paid. No interest will be paid on Dividend Equivalents.

8. Other Stock-Based and Cash-Based Awards

(a) General. The Board may grant other Awards of shares of Common Stock, and other Awards that are valued in whole or in part by reference to, or are otherwise based on, shares of Common Stock or other property ("**Other Stock-Based Awards**"). Such Other Stock-Based Awards shall also be available as a form of payment in the settlement of other Awards granted under the Plan or as payment in lieu of compensation to which a Participant is otherwise entitled. Other Stock-Based Awards may be paid in shares of Common Stock or cash, as the Board shall determine. The Company may also grant Awards denominated in cash rather than shares of Common Stock ("**Cash-Based Awards**").

(b) Terms and Conditions. Subject to the provisions of the Plan, the Board shall determine the terms and conditions of each Other Stock-Based Award or Cash-Based Award, including any purchase price applicable thereto.

(c) Dividend Equivalents. The Award agreement for an Other Stock-Based Award may provide Participants with the right to receive Dividend Equivalents. Dividend Equivalents may be credited to an account for the Participant and may be settled in cash and/or shares of Common Stock, in each case to the extent provided in the applicable Award agreement. Dividend Equivalents with respect to Other-Stock Based Awards will be subject to the same restrictions on transfer and forfeitability as the Other Stock-Based Award with respect to which paid. No interest will be paid on Dividend Equivalents.

9. Performance Awards.

(a) Grants. Awards under the Plan may be made subject to the achievement of performance goals pursuant to this Section 9 ("**Performance Awards**").

(b) Performance Measures. The Board may specify that the degree of granting, vesting and/or payout of any Performance Award shall be subject to the achievement of one or more performance measures established by the Board, which may be based on the relative or absolute attainment of specified levels of one or any combination of the following, and which may be determined pursuant to generally accepted accounting principles ("**GAAP**") or on a non-GAAP basis, as determined by the Board: net income, earnings before or after discontinued operations, interest, taxes, depreciation and/or amortization, earnings per share, earnings per share before or after discontinued operations, interest, taxes, depreciation and/or amortization, bookings, bookings growth, revenue, revenue growth, operating profit before or after discontinued operations and/or taxes, operating expenses, gross margin, operating margin, profit margin, cost savings, inventory management, working capital, customer satisfaction, product quality, manufacturing objectives, completion of strategic acquisitions/dispositions, receipt of regulatory approvals, cash position, earnings growth, cash flow or cash position, stock price, market share, return on sales, assets, equity or investment, improvement of financial ratings, achievement of balance sheet, income statement or cash flow objectives, total stockholder return or any other performance measure as the Board may determine. Such goals may reflect absolute entity or business unit performance or a relative comparison to the performance of a peer group of entities or other external measure of the selected performance criteria and may be absolute in their terms or measured against or in relationship to other companies comparably, similarly or otherwise situated. The Board may specify that such performance measures shall be adjusted to exclude any one or more of (i) extraordinary, non-recurring charges or other events, (ii) gains or losses on the dispositions of discontinued operations, (iii) other non-standard gains or losses, (iv) the cumulative effects of changes in accounting principles, (v) the writedown of any asset, (vi) fluctuation in foreign currency exchange rates, (vii) amortization of acquired intangible assets, (viii) acquisition and divestiture related charges or credits, (ix) litigation or claim judgments or settlements (x) gain on sale of assets (xi) excess and obsolete inventory adjustments, (xii) tax effects of adjustments, (xiii) the effect of changes in tax laws or other laws affecting reported results, (xiv) charges for restructuring and reorganization programs and (xv) any other factors as the Board may determine. Such performance measures: (x) may vary by Participant and may be different for different Awards; (y) may be particular to a Participant or the department, branch, line of business, subsidiary or other unit in which the Participant works and (z) may cover such period as may be specified by the Board. The Board shall have the authority to make equitable adjustments to the performance goals in recognition of unusual or non-recurring events affecting the Company or the financial statements of the Company, in response to changes in applicable laws or regulations or to account for items of gain, loss or expense determined to be extraordinary or unusual in nature or infrequent in occurrence or related to the disposal of a segment of a business or related to a change in accounting principles.

(c) Adjustments. The Board may adjust the cash or number of shares payable pursuant to such Performance Award, and the Board may, at any time, waive the achievement of the applicable performance measures.

(d) Dividends; Dividend Equivalents. Notwithstanding its designation as a Performance Award, no Option or SAR shall provide for the payment or accrual of dividend equivalents in accordance with Sections 5(i) and 6(g), as applicable, any dividends declared and paid by the Company with respect to shares of Restricted Stock shall be subject to Section 7(c)(1) and any right to receive Dividend Equivalents on an award of RSUs and Other Stock-Based Awards shall be subject to Sections 7(d)(3) and 8(c), as applicable.

10. Adjustments for Changes in Common Stock and Certain Other Events

(a) Changes in Capitalization. In the event of any stock split, reverse stock split, stock dividend, recapitalization, combination of shares, reclassification of shares, spin-off or other similar change in capitalization or event, or any dividend or distribution to holders of Common Stock other than an ordinary cash dividend, (i) the number and class of securities available under the Plan, (ii) the share counting rules and sublimit set forth in Sections 4(a) and 4(b), (iii) the number and class of securities and exercise price per share of each outstanding Option, (iv) the share and per-share provisions and the measurement price of each outstanding SAR, (v) the number of shares subject to and the repurchase price per share subject to each outstanding award of Restricted

Stock and (vi) the share and per-share-related provisions and the purchase price, if any, of each outstanding RSU and each Other Stock-Based Award, shall be equitably adjusted by the Board. Without limiting the generality of the foregoing, in the event the Company effects a split of the Common Stock by means of a stock dividend and the exercise price of and the number of shares subject to an outstanding Option are adjusted as of the date of the distribution of the dividend (rather than as of the record date for such dividend), then an optionee who exercises an Option between the record date and the distribution date for such stock dividend shall be entitled to receive, on the distribution date, the stock dividend with respect to the shares of Common Stock acquired upon such Option exercise, notwithstanding the fact that such shares were not outstanding as of the close of business on the record date for such stock dividend.

(b) Reorganization Events.

(1) Definition. A ***“Reorganization Event”*** shall mean: (a) any merger or consolidation of the Company with or into another entity as a result of which all of the Common Stock of the Company is converted into or exchanged for the right to receive cash, securities or other property or is canceled, (b) any transfer or disposition of all of the Common Stock of the Company for cash, securities or other property pursuant to a share exchange or other transaction or (c) any liquidation or dissolution of the Company.

(2) Consequences of a Reorganization Event on Awards Other than Restricted Stock.

(A) In connection with a Reorganization Event, the Board may take any one or more of the following actions as to all or any (or any portion of) outstanding Awards other than Restricted Stock on such terms as the Board determines (except to the extent specifically provided otherwise in an applicable Award agreement or another agreement between the Company and the Participant): (i) provide that such Awards shall be assumed, or substantially equivalent Awards shall be substituted, by the acquiring or succeeding corporation (or an affiliate thereof), (ii) upon written notice to a Participant, provide that all of the Participant's unvested Awards will be forfeited immediately prior to the consummation of such Reorganization Event and/or that all of the Participant's unexercised Awards will terminate immediately prior to the consummation of such Reorganization Event unless exercised by the Participant (to the extent then exercisable) within a specified period following the date of such notice, (iii) provide that outstanding Awards shall become exercisable, realizable, or deliverable, or restrictions applicable to an Award shall lapse, in whole or in part prior to or upon such Reorganization Event, (iv) in the event of a Reorganization Event under the terms of which holders of Common Stock will receive upon consummation thereof a cash payment for each share surrendered in the Reorganization Event (the ***“Acquisition Price”***), make or provide for a cash payment to Participants with respect to each Award held by a Participant equal to (A) the number of shares of Common Stock subject to the vested portion of the Award (after giving effect to any acceleration of vesting that occurs upon or immediately prior to such Reorganization Event) multiplied by (B) the excess, if any, of (I) the Acquisition Price over (II) the exercise, measurement or purchase price of such Award and any applicable tax withholdings, in exchange for the termination of such Award, *provided*, that if the Acquisition Price per share (as determined by the Board) does not exceed the exercise price of such Award, then the Award shall be canceled without any payment of consideration therefor; (v) provide that, in connection with a liquidation or dissolution of the Company, Awards shall convert into the right to receive liquidation proceeds (if applicable, net of the exercise, measurement or purchase price thereof and any applicable tax withholdings) and (vi) any combination of the foregoing. In taking any of the actions permitted under this Section 10(b)(2)(A), the Board shall not be obligated by the Plan to treat all Awards, all Awards held by a Participant, or all Awards of the same type, identically.

(B) Notwithstanding the terms of Section 10(b)(2)(A)(i), in the case of outstanding RSUs that are subject to Section 409A: (i) if the applicable RSU agreement provides that the RSUs shall be settled upon a “change in control event” within the meaning of Treasury Regulation Section 1.409A-3(i)(5)(i), and the Reorganization Event constitutes such a “change in control event”, then no assumption or substitution shall be permitted pursuant to Section 10(b)(2)(A)(i) and the RSUs shall instead be settled in accordance with the terms of the applicable RSU agreement; and (ii) the Board may only undertake the actions set forth in clauses (iii), (iv) or (v) of Section 10(b)(2)(A) if the Reorganization Event constitutes a “change in control event” as defined under Treasury Regulation Section 1.409A-3(i)(5)(i) and such action is permitted or required by Section 409A; if the Reorganization Event is not a “change in control event” as so defined

or such action is not permitted or required by Section 409A, and the acquiring or succeeding corporation does not assume or substitute the RSUs pursuant to clause (i) of Section 10(b)(2)(A), then the unvested RSUs shall terminate immediately prior to the consummation of the Reorganization Event without any payment in exchange therefor.

(C) For purposes of Section 10(b)(2)(A)(i), an Award (other than Restricted Stock) shall be considered assumed if, following consummation of the Reorganization Event, such Award confers the right to purchase or receive pursuant to the terms of such Award, for each share of Common Stock subject to the Award immediately prior to the consummation of the Reorganization Event, the consideration (whether cash, securities or other property) received as a result of the Reorganization Event by holders of Common Stock for each share of Common Stock held immediately prior to the consummation of the Reorganization Event (and if holders were offered a choice of consideration, the type of consideration chosen by the holders of a majority of the outstanding shares of Common Stock); *provided, however*, that if the consideration received as a result of the Reorganization Event is not solely common stock of the acquiring or succeeding corporation (or an affiliate thereof), the Company may, with the consent of the acquiring or succeeding corporation, provide for the consideration to be received upon the exercise or settlement of the Award to consist solely of such number of shares of common stock of the acquiring or succeeding corporation (or an affiliate thereof) that the Board determined to be equivalent in value (as of the date of such determination or another date specified by the Board) to the per share consideration received by holders of outstanding shares of Common Stock as a result of the Reorganization Event.

(D) The Board may impose a limitation on the ability of Participants holding Options and/or SARs to exercise their Awards for the minimum number of days prior to the closing of the Reorganization Event as is reasonably necessary to facilitate the orderly closing of the Reorganization Event. The Company shall provide reasonable notice to Participants of any such limitation on exercise.

(3) Consequences of a Reorganization Event on Restricted Stock. Upon the occurrence of a Reorganization Event other than a liquidation or dissolution of the Company, the repurchase and other rights of the Company with respect to outstanding Restricted Stock shall inure to the benefit of the Company's successor and shall, unless the Board determines otherwise, apply to the cash, securities or other property which the Common Stock was converted into or exchanged for pursuant to such Reorganization Event in the same manner and to the same extent as they applied to such Restricted Stock; *provided, however*, that the Board may either provide for termination or deemed satisfaction of such repurchase or other rights under the instrument evidencing any Restricted Stock or any other agreement between a Participant and the Company, either initially or by amendment, or provide for forfeiture of such Restricted Stock if issued at no cost. Upon the occurrence of a Reorganization Event involving the liquidation or dissolution of the Company, except to the extent specifically provided to the contrary in the instrument evidencing any Restricted Stock or any other agreement between a Participant and the Company, all restrictions and conditions on all Restricted Stock then outstanding shall automatically be deemed terminated or satisfied.

11. General Provisions Applicable to Awards

(a) Transferability of Awards. Awards shall not be sold, assigned, transferred, pledged or otherwise encumbered by a Participant, either voluntarily or by operation of law, except by will or the laws of descent and distribution or, other than in the case of an Incentive Stock Option, pursuant to a qualified domestic relations order, and, during the life of the Participant, shall be exercisable only by the Participant; *provided, however*, that, except with respect to Awards subject to Section 409A and Incentive Stock Options, the Board may permit or provide in an Award for the gratuitous transfer of the Award by the Participant to or for the benefit of any immediate family member, family trust or other entity established for the benefit of the Participant and/or an immediate family member thereof if the Company would be eligible to use a Form S-8 under the Securities Act for the registration of the sale of the Common Stock subject to such Award to such proposed transferee; *provided further*, that the Company shall not be required to recognize any such permitted transfer until such time as such permitted transferee shall, as a condition to such transfer, deliver to the Company a written instrument in form and substance satisfactory to the Company confirming that such transferee shall be bound by all of the terms and conditions of the Award. References to a Participant, to the extent relevant in the context, shall include references to authorized transferees. For the avoidance of doubt, nothing contained in this Section 11(a) shall be deemed to restrict a transfer to the Company.

(b) Documentation. Each Award shall be evidenced in such form (written, electronic or otherwise) as the Board shall determine. Each Award may contain terms and conditions in addition to those set forth in the Plan.

(c) Termination of Status. The Board shall determine the effect on an Award of the disability, death, termination or other cessation of employment or service, authorized leave of absence or other change in the employment or other service status of a Participant and the extent to which, and the period during which, the Participant, or the Participant's legal representative, conservator, guardian or Designated Beneficiary, may exercise rights, or receive any benefits, under an Award. "**Designated Beneficiary**" means (i) the beneficiary designated, in a manner determined by the Board, by a Participant to receive amounts due or exercise rights of the Participant in the event of the Participant's death or (ii) in the absence of an effective designation by a Participant, the Participant's estate.

(d) Withholding. The Participant must satisfy all applicable federal, state, and local or other income and employment tax withholding obligations before the Company will deliver stock certificates or otherwise recognize ownership of Common Stock under an Award. The Company may elect to satisfy the withholding obligations through additional withholding on salary or wages. If the Company elects not to or cannot withhold from other compensation, the Participant must pay the Company the full amount, if any, required for withholding or have a broker tender to the Company cash equal to the withholding obligations. Payment of withholding obligations is due before the Company will issue any shares on exercise, vesting or release from forfeiture of an Award or at the same time as payment of the exercise or purchase price, unless the Company determines otherwise. If provided for in an Award or approved by the Board, a Participant may satisfy the tax obligations in whole or in part by delivery (either by actual delivery or attestation) of shares of Common Stock, including shares retained from the Award creating the tax obligation, valued at their fair market value (valued in the manner determined or approved by the Company); *provided, however*, except as otherwise provided by the Board, that the total tax withholding where stock is being used to satisfy such tax obligations cannot exceed the Company's minimum statutory withholding obligations (based on minimum statutory withholding rates for federal and state tax purposes, including payroll taxes, that are applicable to such supplemental taxable income), except that, to the extent that the Company is able to retain shares of Common Stock having a fair market value (determined or approved by the Company) that exceeds the statutory minimum applicable withholding tax without financial accounting implications or the Company is withholding in a jurisdiction that does not have a statutory minimum withholding tax, the Company may retain such number of shares of Common Stock (up to the number of shares having a fair market value equal to the maximum individual statutory rate of tax (determined or approved by the Company)) as the Company shall determine to be necessary to satisfy the tax liability associated with any Award. Shares used to satisfy tax withholding requirements cannot be subject to any repurchase, forfeiture, unfulfilled vesting or other similar requirements.

(e) Amendment of Award. Except as otherwise provided in Sections 5(g) and 6(e) with respect to repricings or Section 12(d) with respect to actions requiring stockholder approval, the Board may amend, modify or terminate any outstanding Award, including but not limited to, substituting therefor another Award of the same or a different type, changing the date of exercise or realization, and converting an Incentive Stock Option to a Nonstatutory Stock Option. The Participant's consent to such action shall be required unless (i) the Board determines that the action, taking into account any related action, does not materially and adversely affect the Participant's rights under the Plan or (ii) the change is permitted under Section 10.

(f) Conditions on Delivery of Stock. The Company will not be obligated to deliver any shares of Common Stock pursuant to the Plan or to remove restrictions from shares previously issued or delivered under the Plan until (i) all conditions of the Award have been met or removed to the satisfaction of the Company, (ii) in the opinion of the Company's counsel, all other legal matters in connection with the issuance and delivery of such shares have been satisfied, including any applicable securities laws and regulations and any applicable stock exchange or stock market rules and regulations, and (iii) the Participant has executed and delivered to the Company such representations or agreements as the Company may consider appropriate to satisfy the requirements of any applicable laws, rules or regulations.

(g) Acceleration. The Board may at any time provide that any Award shall become immediately exercisable in whole or in part, free from some or all restrictions or conditions or otherwise realizable in whole or in part, as the case may be.

12. Miscellaneous

(a) No Right to Employment or Other Status. No person shall have any claim or right to be granted an Award by virtue of the adoption of the Plan, and the grant of an Award shall not be construed as giving a Participant the right to continued employment or any other relationship with the Company. The Company expressly reserves the right at any time to dismiss or otherwise terminate its relationship with a Participant free from any liability or claim under the Plan, except as expressly provided in the applicable Award.

(b) No Rights As Stockholder; Clawback. Subject to the provisions of the applicable Award, no Participant or Designated Beneficiary shall have any rights as a stockholder with respect to any shares of Common Stock to be distributed with respect to an Award until becoming the record holder of such shares. In accepting an Award under the Plan, the Participant agrees to be bound by any clawback policy that the Company has in effect or may adopt in the future.

(c) Effective Date and Term of Plan. The Plan shall become effective on the date the Plan is approved by the Company's stockholders (the "**Effective Date**"). No Awards shall be granted under the Plan after the expiration of 10 years from the Effective Date, but Awards previously granted may extend beyond that date.

(d) Amendment of Plan. The Board may amend, suspend or terminate the Plan or any portion thereof at any time provided that (i) neither Section 5(g) nor Section 6(e) requiring stockholder approval of any Option or SAR repricing may be amended without stockholder approval; (ii) no amendment that would require stockholder approval under the rules of the national securities exchange on which the Company then maintains its primary listing may be made effective unless and until the Company's stockholders approve such amendment; and (iii) if the national securities exchange on which the Company then maintains its primary listing does not have rules regarding when stockholder approval of amendments to equity compensation plans is required (or if the Company's Common Stock is not then listed on any national securities exchange), then no amendment to the Plan (A) materially increasing the number of shares authorized under the Plan (other than pursuant to Section 4(c) or 10), (B) expanding the types of Awards that may be granted under the Plan, or (C) materially expanding the class of participants eligible to participate in the Plan shall be effective unless and until the Company's stockholders approve such amendment. In addition, if at any time the approval of the Company's stockholders is required as to any other modification or amendment under Section 422 of the Code or any successor provision with respect to Incentive Stock Options, the Board may not effect such modification or amendment without such approval. Unless otherwise specified in the amendment, any amendment to the Plan adopted in accordance with this Section 12(d) shall apply to, and be binding on the holders of, all Awards outstanding under the Plan at the time the amendment is adopted, provided the Board determines that such amendment, taking into account any related action, does not materially and adversely affect the rights of Participants under the Plan. No Award shall be made that is conditioned upon stockholder approval of any amendment to the Plan unless the Award provides that (i) it will terminate or be forfeited if stockholder approval of such amendment is not obtained within no more than 12 months from the date of grant and (2) it may not be exercised or settled (or otherwise result in the issuance of Common Stock) prior to such stockholder approval.

(e) Authorization of Sub-Plans (including for Grants to non-U.S. Employees). The Board may from time to time establish one or more sub-plans under the Plan for purposes of satisfying applicable securities, tax or other laws of various jurisdictions. The Board shall establish such sub-plans by adopting supplements to the Plan containing (i) such limitations on the Board's discretion under the Plan as the Board deems necessary or desirable or (ii) such additional terms and conditions not otherwise inconsistent with the Plan as the Board shall deem necessary or desirable. All supplements adopted by the Board shall be deemed to be part of the Plan, but each supplement shall apply only to Participants within the affected jurisdiction and the Company shall not be required to provide copies of any supplement to Participants in any jurisdiction which is not the subject of such supplement.

(f) Compliance with Section 409A. If and to the extent (i) any portion of any payment, compensation or other benefit provided to a Participant in connection with his or her employment termination constitutes "nonqualified deferred compensation" within the meaning of Section 409A and (ii) the Participant is a specified employee as defined in Section 409A(a)(2)(B)(i) of the Code, in each case as determined by the Company in accordance with its procedures, by which determinations the Participant (through accepting the Award) agrees to be bound, such portion of the payment, compensation or other benefit shall not be paid before the day that is six months plus one day after the date of "separation from service" (as determined under Section 409A) (the "**New Payment Date**"), except as Section 409A may then permit. The aggregate of any payments that otherwise would

have been paid to the Participant during the period between the date of separation from service and the New Payment Date shall be paid to the Participant in a lump sum on such New Payment Date, and any remaining payments will be paid on their original schedule.

The Company makes no representations or warranty and shall have no liability to the Participant or any other person if any provisions of or payments, compensation or other benefits under the Plan are determined to constitute nonqualified deferred compensation subject to Section 409A but do not to satisfy the conditions of that section.

(g) Limitations on Liability. Notwithstanding any other provisions of the Plan, no individual acting as a director, officer, employee or agent of the Company will be liable to any Participant, former Participant, spouse, beneficiary, or any other person for any claim, loss, liability, or expense incurred in connection with the Plan, nor will such individual be personally liable with respect to the Plan because of any contract or other instrument such individual executes in his or her capacity as a director, officer, employee or agent of the Company. The Company will indemnify and hold harmless each director, officer, employee or agent of the Company to whom any duty or power relating to the administration or interpretation of the Plan has been or will be delegated, against any cost or expense (including attorneys' fees) or liability (including any sum paid in settlement of a claim with the Board's approval) arising out of any act or omission to act concerning the Plan unless arising out of such person's own fraud or bad faith.

(h) Governing Law. The provisions of the Plan and all Awards made hereunder shall be governed by and interpreted in accordance with the laws of the Commonwealth of Massachusetts, excluding choice-of-law principles of the law of such state that would require the application of the laws of a jurisdiction other than the Commonwealth of Massachusetts.

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