

MKS INSTRUMENTS INC  
Form DEF 14A  
March 28, 2018  
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**UNITED STATES**  
**SECURITIES AND EXCHANGE COMMISSION**

WASHINGTON, DC 20549

**SCHEDULE 14A**

(Rule 14A-101)

INFORMATION REQUIRED IN

PROXY STATEMENT

**SCHEDULE 14A INFORMATION**

**Proxy Statement Pursuant to Section 14(a) of the**

**Securities Exchange Act of 1934**

(Amendment No.    )

Filed by the Registrant

Filed by a Party other than the Registrant

Check the appropriate box:

Preliminary Proxy Statement

**Confidential, for Use of the Commission Only** (as permitted by Rule 14a-6(e)(2))

Definitive Proxy Statement

Definitive Additional Materials

Soliciting Material Pursuant to §240.14a-12

**MKS Instruments, Inc.**

(Name of Registrant as Specified in its Charter)

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**MKS INSTRUMENTS, INC.**

**2 Tech Drive, Suite 201**

**Andover, Massachusetts 01810**

March 28, 2018

Dear Shareholder:

You are cordially invited to attend the 2018 Annual Meeting of Shareholders of MKS Instruments, Inc. to be held on Wednesday, May 9, 2018 at 10:00 a.m., Eastern Time, at MKS Instruments, Inc., 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 two Class I Directors, each for a three-year term, (ii) the approval, on an advisory basis, of executive compensation and (iii) the ratification of the selection of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the year ending December 31, 2018.

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. If you attend the Annual Meeting, you may vote in person if you wish, even if you have previously voted, in which case your proxy vote will be revoked.

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

Sincerely,

GERALD G. COLELLA

Chief Executive Officer and President

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**MKS INSTRUMENTS, INC.**

**2 Tech Drive, Suite 201**

**Andover, Massachusetts 01810**

**NOTICE OF 2018 ANNUAL MEETING OF SHAREHOLDERS**

**TO BE HELD ON MAY 9, 2018**

To our Shareholders:

The 2018 Annual Meeting of Shareholders of MKS INSTRUMENTS, INC., a Massachusetts corporation, will be held on Wednesday, May 9, 2018 at 10:00 a.m., Eastern Time, at MKS Instruments, Inc., 2 Tech Drive, Suite 201, Andover, Massachusetts 01810 for the following purposes:

1. The election of two Class I Directors, each for a three-year term;
2. The approval, on an advisory basis, of executive compensation; and
3. The ratification of the selection of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the year ending December 31, 2018.

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

Instead of mailing a paper copy of our proxy materials to all of our shareholders, this year we are providing 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 are mailing to our shareholders a Notice of Internet Availability of Proxy Materials, which we refer to as the Notice, instead of a paper copy of this proxy statement and our Annual Report for the fiscal year ended December 31, 2017, which we refer to as the 2017 Annual Report. We are mailing the Notice on or about March 28, 2018, and it contains instructions on how to access the proxy materials over the Internet. The Notice also contains instructions on how each of our shareholders can receive a paper copy of our proxy materials, including this proxy statement, our 2017 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. We have chosen to employ this distribution process to conserve natural resources and reduce

the costs of printing and distributing our proxy materials.

The Board of Directors has fixed the close of business on March 7, 2018 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 you expect to attend the meeting or not, please vote your shares by using the Internet as described in the instructions included on your Notice, by calling the toll-free telephone number, or, if you received a paper copy of the proxy materials, by completing, signing, dating and returning your proxy card or voting instruction form. 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.

If you would like to attend the Annual Meeting and your shares are held by a broker, bank or other nominee, you must bring to the Annual Meeting a letter from the nominee confirming your beneficial ownership of such shares. In order to vote your shares at the Annual Meeting, you must obtain from the nominee a proxy issued in your name. You must also bring a form of personal identification.

By Order of the Board of Directors,

RICHARD S. CHUTE

Secretary

Andover, Massachusetts

March 28, 2018

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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 2018 Annual Meeting of Shareholders to be held on May 9, 2018 at 10:00 a.m., Eastern Time, at MKS Instruments, Inc., 2 Tech Drive, Suite 201, Andover, Massachusetts 01810, and at any adjournment or postponement thereof, which we refer to as the 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 2018 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. Attendance at the Annual Meeting will not in itself be deemed to revoke a proxy unless the shareholder gives affirmative notice at the Annual Meeting that the shareholder intends to revoke the proxy and vote in person.

Instead of mailing a paper copy of our proxy materials to all of our shareholders, this year we are providing 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 are mailing to our shareholders a Notice of Internet Availability of Proxy Materials, which we refer to as the Notice, instead of a paper copy of this proxy statement and our Annual Report for the fiscal year ended December 31, 2017, which we refer to as the 2017 Annual Report. We are mailing the Notice on or about March 28, 2018, and it contains instructions on how to access those documents over the Internet. The Notice also contains instructions on how each of our shareholders can receive a paper copy of our proxy materials, including this proxy statement, our 2017 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 9, 2018**

**This proxy statement and the 2017 Annual Report to Shareholders are available for viewing, printing and downloading at <http://investor.mksinst.com/financial-information/annual-reports>.**

**A COPY OF OUR ANNUAL REPORT ON FORM 10-K FOR THE YEAR ENDED DECEMBER 31, 2017 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 7, 2018, the record date for the determination of shareholders entitled to notice of, and to vote at, the Annual Meeting, there were issued and outstanding and entitled to vote 54,488,757 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 Annual Meeting.

In order to transact business at the 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 Annual Meeting shall constitute a quorum for the transaction of business at the Annual Meeting. Shares of Common Stock held by shareholders present in person 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 Annual Meeting. If a quorum is not present, the meeting will be adjourned until a quorum is obtained.

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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 I 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 [investor.mksinst.com](http://investor.mksinst.com) in the Corporate Governance tab. The advisory vote on executive compensation (Proposal Two) and the ratification of PricewaterhouseCoopers LLP (Proposal Three) require the affirmative vote of the holders of a majority of the votes cast on the matter. Proposal Two 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 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 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 or brokerage firm, your bank or brokerage firm, 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 directions your bank or brokerage firm provides you.

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Our Amended and Restated By-Laws provide for a Board of Directors that is divided into three classes. The term of the Class I Directors expires at the 2018 Annual Meeting, the term of the Class II Directors expires at the 2019 Annual Meeting and the term of the Class III Directors expires at the 2020 Annual Meeting. Our Board of Directors, upon the recommendation of our Nominating and Corporate Governance Committee, has nominated Gerald G. Colella and Elizabeth A. Mora to serve as Class I Directors for a term to expire at the 2021 Annual Meeting. Mr. Colella and Ms. Mora 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.

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.

**THE BOARD OF DIRECTORS BELIEVES THAT APPROVAL OF THE ELECTION OF GERALD G. COLELLA AND ELIZABETH A. MORA TO SERVE AS CLASS I DIRECTORS IS IN THE BEST INTERESTS OF MKS AND OUR SHAREHOLDERS AND THEREFORE RECOMMENDS A VOTE FOR BOTH 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 I Directors) and 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 director'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 director, directly or indirectly, as of January 1, 2018, appears in this proxy statement under the heading Security Ownership of Certain Beneficial Owners and Management. Robert J. Phillippy, who currently serves as a Class I Director, is not standing for re-election to the Board of Directors and, accordingly, his tenure as a director will end as of the date of our 2018 Annual Meeting on May 9, 2018.

<b>Name</b>	<b>Age</b>	<b>Position</b>	<b>Class to Which Director Currently Belongs</b>
John R. Bertucci	77	Director, Chairman	III
Gregory R. Beecher(1)	60	Director	III
Richard S. Chute(2)	79	Director, Secretary	II
Gerald G. Colella*	61	Director, Chief Executive Officer and President	I
Peter R. Hanley(2)(3)	78	Director	II
Rick D. Hess(3)	64	Director	III
Jacqueline F. Moloney(1)(2)	64	Director	II

Elizabeth A. Mora(1)(3)*	57	Director	I
Robert J. Phillippy	57	Director	I

(1) Member of Audit Committee

(2) Member of Nominating and Corporate Governance Committee

(3) Member of Compensation Committee

\* Nominee for election at this meeting

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<b>Name</b>	<b>Year Became Director</b>	<b>Background and Qualifications</b>
John R. Bertucci	1970	Mr. Bertucci has been Chairman of the Board of Directors since November 1995. Mr. Bertucci served as Executive Chairman from July 2005 until December 2006. Mr. Bertucci served as our Chief Executive Officer from November 1995 to July 2005 and served as President from 1974 to May 1999 and again from November 2001 to April 2004. From 1970 to 1974, he was our Vice President and General Manager. Mr. Bertucci holds an M.S. in Industrial Administration and a B.S. in Metallurgical Engineering from Carnegie Mellon University. Mr. Bertucci has served as a member of the Board of Trustees of Carnegie Mellon University since May 2002 and served on its Audit Committee and Executive Committee from 2007 to 2016. He also serves as a member of the Board of Trustees or the Board of Directors of three non-profit organizations. Mr. Bertucci's 35 years of experience working for MKS, including a combined 28 years as our President, gives him a unique insight into the challenges and strategies relevant to the semiconductor industry as a whole, and to our Company in particular.
Gregory R. Beecher	2006	Mr. Beecher has served as Chief Financial Officer of Teradyne, Inc., a semiconductor and system level test equipment provider, since 2001. Mr. Beecher was an audit partner with PricewaterhouseCoopers LLP from October 1993 to March 2001, working with numerous semiconductor equipment and instrument providers, along with other technology-related enterprises, and advising on complex accounting issues. Mr. Beecher has an M.S. in Accounting from Northeastern University. Mr. Beecher has served as a director and Chairman of the Audit Committee of Xyleco, Inc., a privately held company, since October 2016. Mr. Beecher served as a director of Hittite Microwave Corporation, a publicly traded developer of high performance integrated circuits, modules and subsystems, from June 2013 to May 2014. Mr. Beecher's extensive financial background, including his previous experience at a public accounting firm and his current role as Chief Financial Officer of a publicly held company, provides valuable insights for our Board of Directors and the Audit Committee.
Richard S. Chute	1974	Mr. Chute was a member of the law firm of Hill & Barlow, a Professional Corporation, from 1971 to January 2003, with an extensive corporate practice, and is currently an attorney in private practice. From October 2004 to November 2016, Mr. Chute served as a director and Chairman of the Audit Committee of Massachusetts Audubon Society, Inc., and he currently serves on its Advisory Council and as a member of its Administration and Finance Committee. Mr. Chute has also served as a director and member of the Nominating and Audit Committees of Manomet, Inc., a non-profit organization, since November 1993. He has served on over 15 other non-profit and private company boards. Mr. Chute's extensive legal experience provides him with a unique perspective, which is particularly valuable in Mr. Chute's current roles as

Secretary of the Company and as Chair of the Nominating and Corporate Governance Committee.



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<b>Name</b>	<b>Year Became Director</b>	<b>Background and Qualifications</b>
Gerald G. Colella	2014	Mr. Colella has served as our Chief Executive Officer and President since January 2014. From February 2013 until December 2013, Mr. Colella served as our President and Chief Operating Officer. He served as Vice President and Chief Operating Officer from January 2010 until February 2013 and served as our Vice President and Chief Business Officer from April 2005 until January 2010. In addition, Mr. Colella also served as our Acting Group Vice President, PRG Products, from July 2007 to March 2010. From October 1997 to April 2005, he served as our Vice President, Global Business and Service Operations; from March 1996 to October 1997, he served as our Director of Materials Planning and Logistics; and from 1994 to 1996, he served as our Materials Planning and Logistics Manager. Mr. Colella joined MKS in 1983. 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 years of experience within the Company gives him particularly deep insight into our organization.
Peter R. Hanley	2008	From December 2009 until November 2010, Dr. Hanley served as an occasional consultant to Novellus Systems, Inc. (now Lam Research Corporation), a leading developer of semiconductor manufacturing equipment. From January 2004 until December 2007, Dr. Hanley served as a part-time employee of Novellus, engaged primarily in executive training. Dr. Hanley served as President of Novellus from May 2001 to December 2003. Prior to that, he served as Novellus Executive Vice President of Worldwide Sales from June 1992 until May 2001. Prior to joining Novellus, Dr. Hanley served from 1985 to 1992 at Applied Materials, Inc., a global leader providing processing equipment to the semiconductor and display markets, most recently as Group Vice President of Worldwide Sales and Service and previously as Vice President and General Manager of their Etch Products Division. Before joining Applied Materials, Inc., Dr. Hanley served from 1978 to 1984 at Varian Associates, a leader in the semiconductor capital equipment industry, most recently as Vice President of Technology and previously as Vice President and General Manager of their Extron Ion Implantation Division. Dr. Hanley has served as a member of the Advisory Board of Orbotech Ltd., a publicly held provider of yield-enhancing and production solutions, since 2014. Dr. Hanley holds a B.S. in Mechanical Engineering from Northeastern University and a Ph.D. in Applied Physics from Cornell University. Dr. Hanley's substantial background in the semiconductor industry for almost 40 years, including senior management roles at Novellus and Applied Materials, two of MKS' largest customers, provides the Board of Directors with insights into the industry's sales and marketing challenges and opportunities.



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Name	Year Became Director	Background and Qualifications
Rick D. Hess	2017	<p>Mr. Hess has served as Strategic Advisor to the Chief Executive Officer of Analog Devices, Inc., a publicly held semiconductor company, specializing in data conversion and signal processing technology, since June 2017. From 2014 to 2017, Mr. Hess served in various senior roles at Analog Devices, including Executive Vice President from September 2016 to June 2017; Senior Vice President, Communications and Automotive Business Group from November 2014 to September 2016; and Vice President, Radio and Microwave Group from July 2014 to November 2014. Before joining Analog Devices, Mr. Hess served as the Chief Executive Officer of Hittite Microwave Corporation from February 2013 to July 2014 (when it was acquired by Analog Devices). From 2011 to 2013, he was Vice President at American Superconductor Corporation, a provider of technologies and solutions for the electrical power infrastructure industry. From 2006 to 2010, Mr. Hess was President and Chief Executive Officer of Konarka Technologies, Inc., a developer of advanced photovoltaic cells on flexible plastic. From 2004 to 2006, he was President and Chief Executive Officer of Integrated Fuel Cell Technologies, Inc., a developer of fuel cell systems. From 1989 to 2004, Mr. Hess held several positions at M/A-COM, a semiconductor provider of high frequency components and systems for the wireless, defense, public safety and automotive markets, including President from 1999 to 2004. Mr. Hess had previously founded Stable Energy Sources, a manufacturer of microwave subsystems and components serving military and industrial markets. Mr. Hess served as a member of the Board of Directors of Hittite Microwave Corporation from 2005 until 2014. Mr. Hess received a B.S. in Electrical Engineering from Purdue University and an M.S. in Electrical Engineering from Johns Hopkins University. Mr. Hess' 30-plus years in executive leadership roles in the microwave, semiconductor, energy and manufacturing industries qualify him to serve as a member of our Board of Directors.</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 17,000 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 audit, strategic planning, marketing, investment, technology and executive committees of Enterprise Bancorp, Inc., a publicly held bank. She holds an Ed.D. from the University of Massachusetts Lowell. Ms. Moloney has over 30 years of experience as a leader in non-profit organizations. She 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 50 early stage companies. She provides valuable knowledge and insight on emerging strategic planning</p>

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and management and business trends.

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Name	Year Became Director	Background and Qualifications
Elizabeth A. Mora	2012	<p>Ms. Mora has served since March 2016 as the Chief Administrative Officer, and from 2008 to February 2016 served as the Chief Financial Officer, 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. 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. Ms. Mora is a Certified Public Accountant and has an M.B.A. from the Simmons College Graduate School of Management. She has served since 2016 as a director, and since January 2017 as Chairman of the Corporate Responsibility Committee, of GCP Applied Technologies, Inc., a publicly held company that provides construction and packaging technology products. Ms. Mora's extensive financial background, including her current 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, and strong leadership as Chair of the Compensation Committee.</p>

**Agreements as to Nomination**

Mr. Bertucci resigned from his employment with MKS effective December 31, 2006. Mr. Bertucci's employment agreement provided that if Mr. Bertucci resigned from his employment, then, subject to applicable law, our Amended and Restated By-Laws, our Restated Articles of Organization and the directors' fiduciary duties, the Board of Directors shall nominate Mr. Bertucci for election as a Class III director and consider Mr. Bertucci for appointment as Chairman of the Board of Directors, until such time as Mr. Bertucci is no longer eligible for nomination as a director.

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**PROPOSAL TWO ADVISORY VOTE ON EXECUTIVE COMPENSATION**

The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, or the Dodd-Frank Act, which added Section 14A to the Exchange 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 programs are designed to attract, motivate, and retain our Named Executive Officers, who are critical to our success. Under these programs, our Named 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 philosophy and programs, including information about the compensation of our Named Executive Officers for the 2017 fiscal year.

The Compensation Committee continually reviews the compensation programs for our Named Executive Officers to ensure they achieve the desired goals of aligning our executive compensation structure with our shareholders interests and current market practices.

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.**

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**PROPOSAL THREE 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, 2018. PwC was our independent registered public accounting firm for the fiscal year ended December 31, 2017.

Representatives of PwC are expected to be present at the Annual Meeting and 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 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, 2018 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 Mr. Phillippy, are independent as defined under the rules of the Nasdaq Stock Market, or Nasdaq.

**Board Leadership Structure**

Since 2005, we have separated the roles of Chief Executive Officer and Chairman 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 Chairman 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, the Board of Directors has established the position of Lead Director. Our Corporate Governance Guidelines provide that during any period in which the Chairman 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. While we are not obligated under our Corporate Governance Guidelines to have a Lead Director, as our Chairman of the Board of Directors is independent, we have currently elected to continue to do so. Mr. Beecher has served as Lead Director since 2012.

The primary role of the Lead Director is to serve as a liaison between the independent directors and the Chairman of the Board of Directors and/or the Chief Executive Officer and to represent the interests of the independent directors, as appropriate. Pursuant to our Corporate Governance Guidelines, which are posted on our website at [investor.mksinst.com](http://investor.mksinst.com) in the Corporate Governance tab, 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 Chairman 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 Chairman of the Board of Directors and/or the Chief Executive Officer, provided that any director is free to communicate directly with the Chairman of the Board of Directors and with the Chief Executive Officer;



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work with the Chairman 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 Chairman 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 appropriate 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 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 and General Counsel, MKS Instruments, Inc., 2 Tech Drive, Suite 201, Andover, MA 01810.

## **Code of 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 [investor.mksinst.com](http://investor.mksinst.com) in the Corporate Governance tab. 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 conduct. The Audit Committee also is responsible for discussing the Company's policies with respect to financial risk assessment

and financial risk management. 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 as it relates to our Chief Executive Officer. 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 and corporate governance. In addition, from time to time, the Board of Directors may

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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 certain specified activities, and also prohibits directors, officers and employees from engaging in any other 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 to disclose to the Chief Financial Officer any material transaction or relationship that reasonably could be expected to give rise to a material conflict of interest, and 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 material 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 5% of the Company's outstanding voting shares as of December 31, 2017, according to filings they have made with the SEC. Wellington Management LLC, an affiliate of the Wellington Group, manages cash accounts of MKS in the aggregate amount of approximately \$242 million as of December 31, 2017. In 2017, MKS paid Wellington Management LLC approximately \$246,000 for these cash management services. Wellington Management LLC must manage the MKS cash accounts 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 LLC.

## **Board of Director Meetings and Committees of the Board of Directors**

The Board of Directors held four meetings in 2017. During 2017, 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 2017 Annual Meeting of Shareholders.

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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 [investor.mksinst.com](http://investor.mksinst.com) in the Corporate Governance tab.

### ***Audit Committee***

The Audit Committee consists of Mr. Beecher (Chair), Ms. Moloney and Ms. Mora. The Board of Directors has determined that each of the three current members of the Audit Committee 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 generally the types of information to be disclosed in our earnings press releases, as well as in financial information and earnings guidance 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; and

preparing the Audit Committee report required to be included in the annual proxy statement.

The Audit Committee held five meetings in 2017.

***Compensation Committee***

The Compensation Committee consists of Ms. Mora (Chair), Dr. Hanley and Mr. Hess. 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, or making recommendations to the Board of Directors with respect to, the compensation of our Chief Executive Officer and our other executive officers;

overseeing the evaluation of our executive officers;

overseeing Chief Executive Officer and other executive officer succession planning;

periodically reviewing and approving our management incentive bonus plan;

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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;

overseeing our policies on structuring compensation programs compliant with Section 162(m) of the Internal Revenue Code;

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 six meetings in 2017. See the section below entitled "Executive 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, Meridian, 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 2017, the Compensation Committee was comprised of Ms. Mora (Chair), Dr. Hanley and Mr. Hess. None of the members of the Compensation Committee during 2017 were, at any time, officers or employees of MKS or our subsidiaries, and none of them had any relationship with us requiring disclosure under Item 404 of Regulation S-K under the Securities Exchange Act of 1934, as amended. 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 Mr. Chute (Chair), Dr. Hanley and Ms. Moloney. 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;



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- 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;
- developing and recommending corporate governance guidelines to the Board of Directors;
- 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.

The Nominating and Corporate Governance Committee held two meetings in 2017.

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 I directors. The process followed by the Nominating and Corporate Governance Committee to identify and evaluate director candidates includes 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 the Board of Directors.

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, age, tenure, 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. 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 takes into account the value of diversity on the Board of Directors. 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 and General Counsel, 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.

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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 2019 Annual Meeting** below.

**DIRECTOR COMPENSATION****Cash Compensation**

The following table summarizes cash compensation payable by us to non-employee directors with respect to the period from January 1, 2017 through December 31, 2017:

	<b>Annual Retainer</b>
Base Retainer for All Non-Employee Board Members	\$ 60,000
<i>Additional Retainers for Services:</i>	
Chairman	\$ 45,000
Lead Director	\$ 20,000
Audit Committee Chair	\$ 25,000
Other Audit Committee Members	\$ 12,500
Compensation Committee Chair	\$ 20,000
Other Compensation Committee Members	\$ 8,000
Nominating and Corporate Governance Committee Chair	\$ 12,500
Other Nominating and Corporate Governance Committee Members	\$ 5,500

In October 2017, the Board of Directors, upon the recommendation of the Compensation Committee, approved several changes to the non-employee director cash compensation program. The fees described in the table above will remain in effect through March 31, 2018, and the table below sets forth the cash compensation payable by us to non-employee directors under the new cash compensation program effective as of April 1, 2018:

	<b>Annual Retainer</b>
Base Retainer for All Non-Employee Board Members	\$ 70,000
<i>Additional Retainers for Services:</i>	
Chairman	\$ 60,000
Lead Director	\$ 25,000
Audit Committee Chair	\$ 25,000
Other Audit Committee Members	\$ 12,500
Compensation Committee Chair	\$ 20,000
Other Compensation Committee Members	\$ 8,000
Nominating and Corporate Governance Committee Chair	\$ 12,500
Other Nominating and Corporate Governance Committee Members	\$ 5,500

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. In 2017, under our director compensation program, non-employee directors received automatic grants of restricted stock units, or RSUs, on the date of the 2017 Annual Meeting of Shareholders, with a grant date value of \$160,000, which RSUs shall vest in full on the day prior to the first annual meeting of shareholders following the date of grant (or if no such meeting is held within 13 months after

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the date of grant, on the 13 month anniversary of the date of grant). In October 2017, the Board of Directors, upon the recommendation of the Compensation Committee, increased the value of the annual RSU grant to \$170,000 for each non-employee director, effective on the date of the 2018 Annual Meeting of Shareholders.

If a new non-employee director joins our Board of Directors after our annual meeting of shareholders but before January 1<sup>st</sup> 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.

**Mr. Bertucci**

Mr. Bertucci resigned from his employment as our Executive Chairman effective December 31, 2006. At that time, he remained a Class III director and became non-executive Chairman of the Board of Directors. Pursuant to the terms of his employment agreement, Mr. Bertucci receives retiree medical benefits for life for himself and his spouse, which had a net present value of \$304,917 as of December 31, 2017. The agreement requires that he make an annual contribution towards the retiree benefits of \$1,500. Mr. Bertucci also receives a car allowance for life, which had a net present value of \$191,952 as of December 31, 2017. Mr. Bertucci receives no other retirement benefits.

The following table summarizes compensation paid to non-employee directors in 2017. Mr. Colella is excluded from the table because he is an executive officer, and his compensation is set forth in the Executive Compensation section below, under the heading Executive Compensation Tables Summary Compensation Table for 2017.

**Director Compensation Table for 2017**

Name	Fees Earned or Paid in			Total (\$)
	Cash (\$)	Stock Awards (\$)(1)	All Other Compensation (\$)	
Robert R. Anderson(2)	\$ 34,290	\$ -	\$ -	\$ 34,290
Gregory R. Beecher	\$ 108,000(3)	\$ 160,000	\$ -	\$ 268,000
John R. Bertucci	\$ 108,000(3)	\$ 160,000	\$ 29,672(4)	\$ 297,672
Richard S. Chute	\$ 72,500	\$ 160,000	\$ -	\$ 232,500
Peter R. Hanley	\$ 73,500	\$ 160,000	\$ -	\$ 233,500
Rick D. Hess(5)	\$ 43,527	\$ 160,000	\$ -	\$ 203,527
Jacqueline F. Moloney(6)	\$ 73,501	\$ 160,000	\$ -	\$ 233,501
Elizabeth A. Mora(7)	\$ 88,181	\$ 160,000	\$ -	\$ 248,181
Robert J. Phillippy	\$ 60,000	\$ 160,000	\$ 28,377(8)	\$ 248,377

(1) Represents the 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 16 to our consolidated financial statements, which are included in our Annual Report on Form 10-K filed with the SEC on February 28, 2018. Mr. Anderson did not hold any stock awards as of December 31, 2017. The outstanding stock awards held as of December 31, 2017 by each of the other non-employee directors consisted of 1,988 RSUs.

- (2) Mr. Anderson served as a director until May 2017.
  
- (3) Includes \$3,000 in consideration for services on a special committee of the Board of Directors, which compensation consisted 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.

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- (4) In connection with his retirement and pursuant to the terms of his previous employment agreement, Mr. Bertucci receives retiree medical benefits and a car allowance. The retiree medical benefits consist of benefits for life for himself and his spouse, towards which Mr. Bertucci makes an annual contribution of \$1,500. We paid \$14,774 for this benefit in 2017. We paid \$14,898 for Mr. Bertucci's car allowance in 2017.
- (5) Mr. Hess became a director and was elected to the Compensation Committee in May 2017.
- (6) Ms. Moloney was elected to the Audit Committee in May 2017.
- (7) Ms. Mora was elected Chair of the Compensation Committee in May 2017.
- (8) Mr. Phillippy was an employee of ours until July 1, 2016. Pursuant to the terms of his amended and restated severance compensation agreement, Mr. Phillippy receives benefits continuation for a period of twenty-four months from his termination date from the Company. These benefits consist of medical, dental and vision benefits for him and his family and long-term disability insurance for himself. We paid \$28,377 for this benefit in 2017.

## **SECTION 16(a) BENEFICIAL OWNERSHIP REPORTING COMPLIANCE**

Section 16(a) of the Securities Exchange Act of 1934, as amended, requires executive officers, directors and shareholders who beneficially own more than 10% of our Common Stock to file initial reports of ownership on Form 3 and reports of changes in ownership on Form 4 with the SEC and any national securities exchange on which our securities are registered. Executive officers, directors and greater than 10% beneficial owners are required by the SEC's regulations to furnish us with copies of all Section 16(a) forms they file.

Based solely on a review of the copies of such forms, and amendments thereto, furnished to us and written representations from the executive officers and directors, pursuant to Item 405 of Regulation S-K, we believe that all of our executive officers, directors and greater than 10% shareholders have complied with all applicable Section 16(a) filing requirements.

## **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, 2017 and discussed them with our management.

The Audit Committee has also received from, and discussed with, PricewaterhouseCoopers LLP, or PwC, our independent registered public accounting firm, various communications that our registered public accounting firm is required to provide to the Audit Committee, including the matters required to be discussed by the Auditing Standard No. 16, *Communications with Audit Committee*.

The Audit Committee has received the written disclosures and the letter from our independent registered public accounting firm required by Independence Standards Board Standard No. 1 (Independence Standards Board Standard No. 1, *Independence Discussions with Audit Committees*), as adopted by the Public Company Accounting Oversight

Board in Rule 3600T, and has discussed with our registered public accounting firm their 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, 2017.

Respectfully submitted,

Gregory R. Beecher, Chair

Jacqueline F. Moloney

Elizabeth A. Mora



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For the years ended December 31, 2017 and 2016, aggregate fees for professional services rendered by our independent registered public accounting firm, PwC, in the following categories were as follows:

	<b>2017</b>	<b>2016</b>
Audit Fees	\$ 3,526,135	\$ 4,196,230
Audit-Related Fees	150,000	607,934
Tax Fees	286,239	692,792
All Other Fees	2,700	1,800
<b>Total</b>	<b>\$ 3,965,074</b>	<b>\$ 5,498,756</b>

***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, 2017 were for professional services associated with a new revenue recognition accounting standard. Audit-related fees for the year ended December 31, 2016 were for due diligence services performed in connection with our acquisition of Newport Corporation in April 2016.

***Tax Fees***

Tax Fees for the year ended December 31, 2017 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. Tax Fees for the year ended December 31, 2016 were for services related to tax planning and tax advice, including assistance with foreign operations and foreign tax audits, and for services related to our acquisition of Newport Corporation.

***All Other Fees***

All Other Fees for the years ended December 31, 2017 and 2016 were for accounting research software.

In 2017 and 2016, all Audit Fees, Audit-Related Fees, Tax Fees and All Other Fees 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.

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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.

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**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 January 1, 2018; 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 Owners	Number of Shares Beneficially Owned(1)	Percentage of Common Stock Beneficially Owned
<i>5% shareholders</i>		
Black Rock, Inc.	5,988,461(2)	11.02%
40 East 522 <sup>nd</sup> Street		
New York, NY 10022		
The Vanguard Group, Inc.	4,703,545(3)	8.65%
100 Vanguard Blvd.		
Malvern, PA 19355		
Wellington Management Group LLP	2,788,781(4)	5.13%
280 Congress Street		
Boston, MA 02210		
<i>Named Executive Officers</i>		
Gerald G. Colella	117,066(5)	*
Seth H. Bagshaw	45,165(6)	*
John R. Abrams	11,640(7)	*
John T.C. Lee	18,699(8)	*
Dennis L. Werth	43,144(9)	*
<i>Non-Employee Directors</i>		
Gregory R. Beecher	18,655	*
John R. Bertucci	589,878(10)	1.09%
Richard S. Chute	6,615	*
Peter R. Hanley	883	*
Rick D. Hess	-	-
Jacqueline F. Moloney	3,832	*
Elizabeth A. Mora	13,865	*

Robert J. Phillippy	17,354(11)	*
All directors and executive officers as a group (14 persons)	910,811(12)	1.67%

\* 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 January 1, 2018, 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 54,355,535

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shares of Common Stock outstanding as of January 1, 2018. Shares of Common Stock which an individual or entity has a right to acquire within the 60-day period following January 1, 2018, 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 Schedule 13G/A filed by Black Rock, Inc. on January 23, 2018, reporting stock ownership as of December 31, 2017. Black Rock, Inc. has sole voting power with respect to 5,866,362 shares and sole investment power with respect to 5,988,461 shares.
- (3) Based on information set forth in Schedule 13G/A filed by The Vanguard Group, Inc. on February 9, 2018, reporting stock ownership as of December 31, 2017. The Vanguard Group, Inc. has sole voting power with respect to 104,716 shares, shared voting power with respect to 6,704 shares, sole investment power with respect to 4,596,278 shares and shared investment power with respect to 107,267 shares.
- (4) Based on information set forth in Schedule 13G/A filed by Wellington Management Group LLP on February 8, 2018, reporting stock ownership as of December 31, 2017. Wellington Management Group LLP has shared voting power with respect to 2,471,717 shares and shared investment power with respect to 2,788,781 shares.
- (5) Consists of 5,024 shares held directly by Mr. Colella, 56,296 shares held in the name of Mr. Colella's trust and 55,746 shares subject to RSUs that vest within 60 days after January 1, 2018.
- (6) Consists of 21,766 shares held directly by Mr. Bagshaw and 23,399 shares subject to RSUs that vest within 60 days after January 1, 2018.
- (7) Consists of 2,383 shares held directly by Mr. Abrams and 9,257 shares subject to RSUs that vest within 60 days after January 1, 2018.
- (8) Consists of 152 shares held directly by Dr. Lee and 18,547 shares subject to RSUs that vest within 60 days after January 1, 2018.
- (9) Consists of 7,995 shares held in the name of Mr. Werth's trust, 11,068 shares subject to RSUs that vest within 60 days of January 1, 2018, and stock-settled stock appreciation rights with respect to 24,081 shares of Common Stock that are exercisable within 60 days of January 1, 2018.
- (10) Consists of 169,283 shares held directly by Mr. Bertucci, 114,754 shares held in the name of Mr. Bertucci's trusts, 167,150 shares held directly by Mr. Bertucci's wife and 138,691 held in the name of Mrs. Bertucci's trusts.

(11) Consists of shares held in the name of Mr. Phillippy's trust.

(12) Consists of 758,566 shares held directly or indirectly by such directors and executive officers, 128,164 shares subject to RSUs that vest within 60 days of January 1, 2018, and stock-settled stock appreciation rights with respect to 24,081 shares of Common Stock that are exercisable within 60 days of January 1, 2018.

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.

**Table of Contents****EXECUTIVE OFFICERS**

The following is a brief summary of the background of each of our current executive officers, other than Mr. Colella, whose background is described under the heading **Directors** above:

<b>Name</b>	<b>Age</b>	<b>Background and Qualifications</b>
Seth H. Bagshaw, Senior Vice President, Chief Financial Officer and Treasurer	58	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.
John R. Abrams, Senior Vice President of Global Sales and Service	65	Mr. Abrams has served as our Senior Vice President of Global Sales and Service since May 2015. Previously, he served as Senior Vice President of Sales from May 2014 to May 2015, and Vice President of U.S. Sales from October 2011 until December 2013. Prior to joining MKS, Mr. Abrams served as a business development consultant to AIRxpert Systems, Inc., an environmental information technology company, from October 2010 to October 2011. From February 2009 until September 2010, Mr. Abrams served as a Senior Marketing Manager for Varian, Inc., a maker of scientific equipment which was acquired by Agilent Technologies, Inc., a maker of measurement tools, in May 2010. From March 1997 until November 2008, Mr. Abrams served in several roles, most recently as Vice President of Global Sales, at Brooks Automation, Inc., a provider of automation, vacuum and instrumentation solutions. Mr. Abrams received a B.S. in Biological Sciences from Lowell Technological Institute and an M.B.A. from Boston University.





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<b>Name</b>	<b>Age</b>	<b>Background and Qualifications</b>
John T.C. Lee, Senior Vice President and Chief Operating Officer	55	Dr. Lee has served as our Senior Vice President and Chief Operating Officer since November 2016. 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 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. 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.
Brian C. Quirk, Senior Vice President of Global Operations	59	Mr. Quirk has served as our Senior Vice President of Global Operations since January 2014. From May 2006 until December 2013, Mr. Quirk served as our Vice President of Global Operations. Prior to joining MKS, Mr. Quirk served as Vice President of Global Operations and Supply Chain at Brooks Automation, Inc., a provider of automation, vacuum and instrumentation solutions. Prior to that, Mr. Quirk held executive leadership roles in global operations at Teradyne, Inc., a semiconductor and system level equipment provider, GenRad, Inc. (acquired by Teradyne, Inc.), a manufacturer of electronic automatic test equipment and related software, and Stratus Computer, Inc. (now known as Stratus Technologies, Inc.), a producer of fault tolerant computer servers. Mr. Quirk has a B.S. in Business Management from Bentley University and an M.B.A. from Suffolk University.
Dennis L. Werth, Senior Vice President of Business Units	63	Mr. Werth has served as our Senior Vice President of Business Units since MKS acquired Newport Corporation in April 2016. Mr. Werth joined Newport Corporation in February 2005, most recently serving as Senior Vice President and General Manager of the Photonics Group from January 2013 until April 2016, and previously as Vice President of the Precision Components and Systems Business. Prior to joining Newport Corporation, Mr. Werth served as Senior Director and General Manager of Oriel Instruments, a supplier of products for the making and measuring of light, which was later acquired by Newport Corporation, from January 2004 until February 2005. Prior to joining Oriel, Mr. Werth was the Chief Operating Officer of Isowave, a supplier of advanced optical materials and fiber optic components, from July 2001 to December 2003. From November 1996 to June 2001, he served as



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<b>Name</b>	<b>Age</b>	<b>Background and Qualifications</b>
		Business Segment Leader, Electronic Components and Electronic Article Surveillance, at Allied Signal, Inc., a diversified manufacturer, which merged with Honeywell, Inc. in 1999. Prior to joining Allied Signal, from May 1985 to June 1996, Mr. Werth held various management positions of increasing responsibility at Amoco Corporation, most recently serving as Vice President of Marketing and Business Development of that company's ATx Telecom Systems, Inc. subsidiary (formerly Amoco Laser Company, which Mr. Werth co-founded in 1987 and which was sold to Scientific Atlanta in June 1996). Mr. Werth holds a B.S. in Engineering from the University of Illinois, an M.S. in Engineering from Ohio State University and an M.B.A. from Eastern Michigan University.

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.

**Table of Contents****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 following Named Executive Officers :

<b>Name</b>	<b>Title</b>
Gerald G. Colella	Chief Executive Officer and President
Seth H. Bagshaw	Senior Vice President, Chief Financial Officer and Treasurer
John R. Abrams	Senior Vice President of Global Sales and Service
John T.C. Lee	Senior Vice President and Chief Operating Officer
Dennis L. Werth	Senior Vice President of Business Units

Following this Compensation Discussion and Analysis, you will find a series of tables containing specific information about the compensation earned or paid in 2017 to our Named Executive Officers.

***Executive Summary******Our Business***

We are a global provider of instruments, 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. Our products are derived from our core competencies in pressure measurement and control, flow measurement and control, gas and vapor delivery, gas composition analysis, residual gas analysis, leak detection, control technology, ozone generation and delivery, RF & DC power, reactive gas generation, vacuum technology, lasers, photonics, sub-micron positioning, vibration control, and optics. We also provide services relating to the maintenance and repair of our products, installation services and training. Our primary served markets include semiconductor capital equipment, general industrial, life sciences and research.

***Company Performance in 2017 and Financial Highlights***

2017 was another exceptional year for MKS as revenue and earnings per share, or EPS, both set new Company records. Four years ago, we set a strategy around sustainable and profitable growth. One of the tenets of our strategy was to augment our strong semiconductor market portfolio with acquisitions that broadened our addressable markets. In April 2016, we completed the acquisition of Newport Corporation, or Newport, a global leader in lasers, optics and photonics. This acquisition not only increased our addressable share in our core semiconductor market, but has also given us critical mass to expand into other adjacent, technology intensive and growing markets, including industrial technologies, life and health sciences, and research and defense. Our ability to successfully integrate Newport into the existing MKS business helped us deliver the 2017 results.

We also continued to make significant progress addressing our customers' technical requirements. Investments in technical localization providing technical expertise and developing customer relationships close to our customers has

been an effective method to rapidly identify and solve our customers' most complex problems. This strategy has been a significant contributor to our success in the Asia region.

In addition, MKS accomplished the following in 2017:

Sales for 2017 were a record \$1.92 billion, an increase of 30% from \$1.47 billion in 2016 on a pro forma basis (i.e. assuming the acquisition of Newport occurred on January 1, 2016), driven by strong sales to our semiconductor customers, as well as customers in the industrial manufacturing and life and health sciences markets;

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in our historic business, now referred to as our Vacuum and Analysis Division, sales grew by 38% over 2016 to a record \$1.2 billion, led by very strong sales to our semiconductor customers, which increased nearly 50% from 2016;

sales in our Light and Motion Division, the historic Newport business, were \$709 million, an increase of 18% from \$602 million in 2016 on a pro forma basis, driven by both sales to semiconductor customers as well as industrial manufacturing customers;

net income increased to \$339.1 million in 2017 from \$104.8 million in 2016, or 224%;

earnings per share increased to \$6.16 in 2017 from \$1.94 in 2016, or 218%;

we continued to work diligently on integrating Newport and exiting 2017, fully realized our cost synergy commitment with over \$40 million in annualized cost synergies;

we continued to execute on our strategy to delever our balance sheet and significantly reduce our interest cost by successfully re-pricing our term loan for a third time during the year, as well as voluntarily pre-paying \$225 million of principal;

we returned \$38 million to MKS shareholders in cash dividends; and

we continued integrating the sales function to support cross selling of products from both Divisions.

*2017 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 strong financial results in 2017, our Named Executive Officers received 200% of their target variable cash compensation tied to non-GAAP operating income and 121% of their target performance-based equity compensation tied to non-GAAP cash flow from operations. We believe these financial performance metrics are important to our shareholders because each is an indicator of how well we manage the operations and capital of our Company. The Company performance portion of variable cash compensation for all of our executive officers other than Mr. Werth was tied to the financial performance of our Company as a whole. The Company performance portion of variable cash compensation for Mr. Werth, who heads up our Light and Motion Division, was tied to the financial performance of our Light and Motion Division.

In 2017, our variable cash incentive compensation for all of our Named Executive Officers, other than our Chief Executive Officer, also included an individual performance component with an assigned weighting of 20% of total target variable cash compensation. The Named Executive Officers who were assigned individual performance goals achieved, on average, 188% of the portion of their target variable cash compensation tied to individual performance. Our Compensation Committee did not assign an individual performance component to our Chief Executive Officer's cash incentive compensation because it believes our Chief Executive Officer should be held accountable for the Company's overall performance.

When our Compensation Committee set 2017 executive compensation in early 2017, long-term equity incentive compensation comprised 64% of total target compensation for our Chief Executive Officer and 51% of total target compensation, on average, for our other Named Executive Officers. Total target compensation is defined as the sum of base salary, target annual cash incentive compensation and target long-term equity incentive compensation. By making equity a substantial component of executive officer compensation, we align our executive officers' long-term interests with those of our shareholders. Also, at least 50% of each Named Executive Officer's target long-term equity incentive compensation is based on a measure of Company performance.

Our annual cash incentive plan is designed to complement our long-term equity incentive plan by focusing on our Company's annual financial performance as measured by adjusted operating income. In 2017, our target annual cash incentive compensation comprised 18% of total target compensation for our Chief Executive Officer and 22% of total target compensation, on average, for our other Named Executive Officers.



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In 2017, base salary accounted for 18% of total target compensation for our Chief Executive Officer and 27% of total target compensation, on average, for our other Named Executive Officers. In 2017, our Chief Executive Officer had 82% of his total target compensation opportunity tied to annual and long-term incentive compensation and our other Named Executive Officers, on average, had 73% of their total target compensation opportunity tied to annual and long-term incentive compensation.

### *Consideration of 2017 Advisory Vote on Executive Compensation*

At our 2017 Annual Meeting of Shareholders, held on May 10, 2017, we submitted to our shareholders an advisory vote on executive compensation. Although annual advisory say-on-pay votes are non-binding, our Compensation Committee has considered, and will continue to consider, the outcome of this vote each year when making compensation decisions for our Named Executive Officers. At the 2017 Annual Meeting, our shareholders overwhelmingly approved the compensation of our Named Executive Officers, with approximately 96% of the votes cast voting in favor of the say-on-pay proposal.

The Compensation Committee considered the results of the 2017 say-on-pay vote, and based upon the strong shareholder support, does not believe that our executive compensation program requires material changes. The Compensation Committee will continue to consider the views of our shareholders in connection with our executive compensation program and will consider changes based upon evolving best practices, market compensation information and changing regulatory requirements. The Compensation Committee believes that the 2017 shareholder vote was an endorsement of our compensation and the pay decisions made in relation to our performance.

### *Compensation Philosophy and Objectives*

The primary objective of our executive compensation program is to attract, retain and motivate the critical talent that is required to execute our business strategy and lead us to achieve our long-term growth and earnings goals. This section summarizes our compensation philosophy and objectives relating to our Named Executive Officers.

We target each of the 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 for the individual position in the market. However, this is merely one factor that the Compensation Committee considers and we do not set any specific element or total compensation exactly to the median and, in certain cases, we will and do pay total compensation closer to the 25th and 75th percentiles when appropriate. In considering the compensation of our Named Executive Officers relative to the market, we also look qualitatively at the individual's overall performance, tenure and potential with MKS. Currently, all of our Named Executive Officers are paid within the competitive range of our peer group.

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 in the overall pay packages of our Named Executive Officers because we believe the significant majority of executive compensation should be variable and based on performance.

Our annual cash incentive compensation program provides a short-term incentive to reward management for reaching our annual earnings goals and, in certain cases, individual performance objectives, and to reinforce our pay-for-performance philosophy. We believe that our program provides significant incentive for our Named Executive Officers to exceed our financial goals.

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

align our executives' interests with those of our shareholders and to reward for operating performance;

balance the short-term focus of annual cash incentive compensation with creating long-term shareholder value; and

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retain executives by providing equity-based compensation that generally vests over a three-year period. 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 calendar year 2017.

When the Compensation Committee met in October 2016 to review peer companies to be used to determine 2017 executive compensation, no changes were made to the list of peer companies used to determine 2016 executive compensation. These peer companies had been selected in May 2016, following the closing of our acquisition of Newport, based on similar industry, market capitalization and revenue, with a revenue range relative to our projected revenue of between 0.4 times and 2.0 times. The Compensation Committee engaged its independent compensation consultant, Meridian, to prepare a competitive compensation analysis for each of our executives on a position-by-position basis based on estimated revenue and market capitalization of the combined company of \$1.4 billion and \$2.5-\$3.0 billion, respectively. Publicly available compensation data from the following comparable peer companies was used in determining executive compensation for 2017:

Amkor Technology Inc.	FLIR Systems, Inc.
Brooks Automation, Inc.	Linear Technology Corp.
Coherent, Inc.	Mentor Graphics Corporation
Cypress Semiconductor Corp.	National Instruments Corporation
Entegris, Inc.	Plantronics, Inc.
FEI Company	Teradyne, Inc.
Finisar Corp.	Viavi Solutions, Inc. (formerly JDS Uniphase Corporation)

Our Compensation Committee also considered size and industry-appropriate broad survey data from the 2017 Radford Global Technology Survey.

Our executive compensation program is guided by the following principles:

Offer compensation programs that are competitive, on a position-by-position basis, when benchmarked against programs at companies of similar size and in a similar industry.

Reward individual contributions to our financial, operational and strategic objectives.

Reward experience and potential with MKS.

Provide short-term annual performance incentives for management to meet or exceed our performance expectations.

Provide long-term performance-based equity incentive compensation to encourage management to focus on long-term and sustained operating performance and shareholder returns while also factoring in previous grant history and the dilutive impact of equity grants.

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Emphasize our pay-for-performance philosophy.

Align our executives' interests with those of our shareholders.

**What We Do**

Provide maximum payout caps under incentive plans.

Have 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.

Have stock ownership guidelines.

Have a fully independent Compensation Committee.

Utilize an independent compensation consultant.

**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.

***Elements of Compensation***

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

*Base Salary*

When our Compensation Committee set 2017 annual executive compensation in early 2017, it approved a salary increase of approximately 3% for each of our Chief Executive Officer, Chief Financial Officer and Chief Operating Officer, and a salary increase of approximately 12% for each of our Senior Vice President of Global Sales and Service and our Senior Vice President of Business Units. These increases were based on the compensation data collected from our peer group.

*Annual Cash Incentive Compensation*

Our annual cash incentive compensation program consists of our shareholder-approved executive cash incentive plan, which is called the 162(m) Plan, and our annual cash incentive plan.

Pursuant to the terms of the 162(m) Plan, our Compensation Committee established an umbrella formula to determine aggregate funding for the plan based on the achievement of a specific, pre-determined Company financial performance goal. Under the umbrella formula, each Named Executive Officer was allocated a share of an incentive pool based on our adjusted operating income for the 2017 fiscal year (defined as GAAP operating income adjusted for restructuring charges, acquisition or divestiture related costs and the effect of acquisitions and divestitures). The Compensation Committee exercises negative discretion from this 162(m) pool by applying the goals of our annual cash incentive plan as described below.

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 2017 calendar year (i.e., base salary, including regular, holiday, vacation and sick pay, but excluding bonus payments). Bonus payouts in 2017 were based 80% on a Company financial performance objective and 20% on individual performance objectives for all Named Executive Officers other than our Chief Executive Officer, whose annual executive bonus was based entirely on Company financial performance.

In 2017, each Named Executive Officer was eligible to receive 50% of his target bonus attributable to the Company performance objective if the minimum threshold was achieved. If we had achieved our target results, each such Named Executive Officer would have been eligible to receive 100% of his target bonus attributable to

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the Company performance objective, up to a maximum of 200% for achievement in excess of the target results, with proportional payouts for performance between these levels. In the event the minimum threshold for the Company financial performance objective was not met, but would have been met but for the payment of these bonuses, then in such case a pro rata portion of the bonus would be paid to each such Named Executive Officer, but only to the extent that the Company financial performance objective after such payment was no less than the minimum Company financial performance objective.

In 2017, payouts for Company financial performance under the annual cash incentive plan were determined by multiplying a Named Executive Officer's Target Bonus Amount by the Company Performance Multiplier, each as discussed below. Target Bonus Amount is the amount determined by multiplying each Named Executive Officer's eligible earnings in 2017 by the Target Bonus Percentages determined by our Compensation Committee each year. When our Compensation Committee set 2017 annual executive compensation in early 2017, it did not approve any increases to Target Bonus Percentages for our Named Executive Officers.

Listed below is the 2017 Target Bonus Percentage for each Named Executive Officer.

<b>Named Executive Officer</b>	<b>2017 Target Bonus Percentage</b>
Gerald G. Colella	105%
Seth H. Bagshaw	80%
John R. Abrams	80%
John T.C. Lee	90%
Dennis L. Werth	75%

In 2017, the Company Performance Multiplier, which is a percentage, was based upon our achievement of adjusted operating income after bonus and excluding special items. Participants, other than Mr. Werth, would not receive any portion of their Target Bonus Amount tied to Company financial performance if such adjusted operating income (before the calculation of bonus) was less than the minimum threshold of \$175.0 million. The Company Performance Multiplier would be 50% of a Participant's Target Bonus Amount if such adjusted operating income was \$175.0 million, would be 100% if such adjusted operating income was \$245.2 million, and would be the maximum 200% if such adjusted operating income was \$367.9 million or more, with proportional payments for achievement in between these levels. In 2017, because our adjusted operating income, after bonus and excluding restructuring charges, acquisition and divestiture related costs and the effect of acquisitions and divestitures, was \$429.2 million, participants were eligible to receive 200% of their Target Bonus Amounts tied to Company financial performance under this formula. For Mr. Werth, the 2017 Company Performance Multiplier was based on the Light and Motion Division's achievement of adjusted operating income after bonus and excluding special items. Mr. Werth would not receive any portion of his Target Bonus if such adjusted operating income was less than the minimum threshold of \$51.2 million. The Company Performance Multiplier would be 50% of Mr. Werth's Target Bonus Amount if such adjusted operating income was \$51.2 million, would be 100% if such adjusted operating income was \$71.8 million, and would be the maximum 200% if such adjusted operating income was \$107.7 million or more, with proportional payments for achievement in between. In 2017, because the Light and Motion Division's adjusted operating income, after bonus and excluding restructuring charges, acquisition and divestiture related costs and the effect of acquisitions and divestitures, was \$116.4 million, Mr. Werth was eligible to receive 200% of his Target Bonus Amount under this formula.

In 2017, individual performance was measured using specific management by objective goals, or MBOs, that were aligned to our strategic objectives and priorities and each Named Executive Officer's business unit or function. Our Chief Executive Officer developed the MBOs for his direct reports with a focus on the measurable accomplishments

in their individual areas of responsibility that will benefit our shareholders over the long term.



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Listed below is a summary of each Named Executive Officer's performance against his 2017 MBOs.

**2017 Named Executive Officer MBOs under Annual Cash Incentive Plan****(20% of Target Cash Incentive)****Management by**

<b>Name</b>	<b>Objective Goals</b>	<b>Weight</b>	<b>Results</b>	<b>Achievement Level</b>
Seth H. Bagshaw	Improve 2017 Operating Model	25%	Exceeded financial metrics for 2017 Operating Model	200%
	Achieve Cash Conversion Cycle Improvements	25%	Repatriated \$120 million of international cash in a tax efficient manner	200%
	Achieve Integration and Synergy Objectives	25%	Increased cost synergy target in 2017 related to the acquisition of Newport Corporation and achieved revised cost synergy target ahead of schedule	200%
	Improve Information Technology Model	25%	Completed 2017 integration and information technology projects as scheduled	200%
John R. Abrams	Review Global Sales Team Structure to Promote Long-Term Growth	25%	Achieved restructuring goals of certain segments of global sales team	200%
	Develop New Service Product Offerings	25%	Developed and deployed certain new service product offerings	200%
	Deploy New Sales Model	25%	Developed and implemented new key sales function to drive growth in targeted area; achieved bookings goal for newly created vertical market; and created new position to evaluate third party distribution network and to optimize market coverage	200%
	Achieve Integration and Synergy Objectives	25%	Increased cost synergy target in 2017 related to the acquisition of Newport Corporation and achieved revised cost synergy target ahead of schedule	200%
John T.C. Lee	Improve 2017 Operating Model	25%	Exceeded financial metrics for 2017 Operating Model	200%
	Achieve Strategic Planning Goals	25%	Realized more than 50% revenue growth from strategic planning goals focused on certain products and regions	200%
	Drive New Product Releases	25%	Achieved multiple product releases for both Vacuum and Analysis and Light and Motion Divisions targeting core markets in semiconductor, laser	200%

Achieve Integration and Synergy Objectives	25%	microprocessing, electronic thin film and life and health sciences Increased cost synergy target in 2017 related to the acquisition of Newport Corporation and achieved revised cost synergy target ahead of schedule	200%
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**Table of Contents****2017 Named Executive Officer MBOs under Annual Cash Incentive Plan****(20% of Target Cash Incentive)****Management by**

<b>Name</b>	<b>Objective Goals</b>	<b>Weight</b>	<b>Results</b>	<b>Achievement Level</b>
Dennis L. Werth	Improve 2017 Operating Model	25%	Achieved 18% growth in sales and 67% growth in operating income in our Light and Motion Division in 2017	200%
	Achieve Strategic Planning Goals	25%	Achieved strategic planning goals relating to centralization of business functions within Light and Motion Division	100%
	Drive New Product Releases	25%	Drove the release of new products	100%
	Achieve Integration and Synergy Objectives	25%	Increased cost synergy target in 2017 related to the acquisition of Newport Corporation and achieved revised cost synergy target ahead of schedule	200%

Listed below are our Chief Executive Officers and other Named Executive Officers' earned cash bonus payouts based on the achievement of the Company performance metric weighted at 100% of target for Mr. Colella, and 80% of target and the individual performance objectives weighted at 20% of target for the other Named Executive Officers.

<b>Named Executive Officer</b>	<b>Company Financial Achievement</b>	<b>Individual Objective Achievement</b>	<b>Payment as a Percent of Target</b>	
			<b>Cash Payout</b>	<b>of Target</b>
Gerald G. Colella	200%	N/A	\$ 1,730,481	200%
Seth H. Bagshaw	200%	200%	\$ 783,076	200%
John R. Abrams	200%	200%	\$ 597,539	200%
John T.C. Lee	200%	200%	\$ 925,961	200%
Dennis L. Werth	200%	150%	\$ 616,587	190%

For 2017, our incentive pool was funded based on 20% of our adjusted operating income for the 2017 fiscal year (defined as GAAP operating income (operating income prepared in accordance with U.S. generally accepted accounting principles, or GAAP) adjusted for restructuring charges, acquisition or divestiture related costs and the effect of acquisitions and divestitures), but not to exceed \$10 million. Mr. Colella was allocated 30% of the incentive pool and the other Named Executive Officers were each allocated 14% of the pool. Our adjusted operating income for 2017 was \$336.0 million, which resulted in a bonus pool of \$10 million under the terms of the 162(m) Plan, of which \$4.7 million was distributed to our Named Executive Officers as described above.

For 2018, the Compensation Committee made the following two changes to our annual cash incentive program:

The first change was in response to the recent passage of the Tax Cuts and Jobs Act, or the Tax Act, that was signed into law in December 2017 and the resulting overhaul of Section 162(m) of the Internal Revenue Code of 1986, as amended, or Section 162(m). Prior to the Tax Act, Section 162(m) generally disallowed a

tax deduction to public companies for compensation in excess of \$1 million per person paid to a company's chief executive officer and the next three most highly-paid executive officers, excluding the chief financial officer. Historically, qualified performance based compensation was not subject to the deduction limit so long as certain requirements were met. Our Compensation Committee structured our annual cash incentive compensation so that it met these requirements. With the Tax Act's elimination of the performance-based compensation exception to the deduction limitation, the Compensation Committee simplified the structure of our annual cash incentive compensation program. They eliminated the umbrella structure such that our top-level 162(m) Plan was removed, leaving in place our underlying annual cash incentive plan.

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The second change was the removal of the individual performance component of our annual cash incentive plan so that all executive officer annual bonuses would be based entirely on Company performance. Although for the prior two years the Compensation Committee had included individual performance objectives in our annual cash incentive plan, the Compensation Committee concluded that the best way to achieve the highest level of performance was for every executive officer to be singularly focused on the same Company financial performance objectives. As a result, individual performance objectives were eliminated from the 2018 annual cash incentive plan.

With the exception of these two changes, the design of our 2018 annual cash incentive program is similar to 2017. For all Named Executive Officers other than Mr. Werth, Company performance will be measured using the same financial metric as in previous years – non-GAAP operating income after bonus and excluding special items. For Mr. Werth, Company performance will continue to be measured using Light and Motion Division’s achievement of non-GAAP operating income after bonus and excluding special items.

Our Compensation Committee has the authority to make other cash bonus awards to our Named Executive Officers as it deems appropriate. No other cash bonus awards were made to our Named Executive Officers in 2017.

*Long-Term Equity Incentive Compensation*

When our Compensation Committee set 2017 annual executive compensation in early 2017, it awarded the following time-based and performance-based RSUs to our Chief Executive Officer and our other 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	Number of		Grant Date Value of	
	Performance-Based RSUs(1)	Performance-Based RSUs(1)	Time-Based RSUs	Time-Based RSUs
Gerald G. Colella	\$ 1,500,000	22,156	\$ 1,500,000	22,156
Seth H. Bagshaw	\$ 600,000	8,862	\$ 600,000	8,862
John R. Abrams	\$ 300,000	4,431	\$ 300,000	4,431
John T.C. Lee	\$ 500,000	7,385	\$ 500,000	7,385
Dennis L. Werth	\$ 350,000	5,169	\$ 350,000	5,169

(1) Grant date value of performance-based RSU award and corresponding number of RSUs assuming 100% achievement. Achievement is capped at 150%.

With respect to performance-based RSUs, our goal is to select a Company financial performance metric that best aligns with our Company objectives. Recently, including in 2017, our Company financial performance metric for performance-based RSUs has been adjusted cash flow from operations (defined as net income plus depreciation, amortization and non-cash stock-based compensation and excluding special items set forth in Section 9(c)(i) through (xiv) of our 2014 Stock Incentive Plan) set at varying revenue levels. We believe this financial metric is an appropriate indicator of how well we manage the operations of our Company.

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’ 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 are preferable to 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 of them than options, resulting in less dilution to shareholders' holdings.

In 2017, our Named Executive Officers would have forfeited all of their performance-based RSUs if our adjusted cash flow from operations was less than \$148.0 million at a revenue level of \$1.25 billion, or if such

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cash flow was less than \$355.5 million at a revenue level of \$2.0 billion (with intermediate adjusted cash flow minimum thresholds at different revenue levels in between). However, if we did achieve these adjusted operating cash flow threshold levels at the respective revenue levels identified, our Named Executive Officers would receive 50% of their target performance-based RSUs. If our adjusted cash flow from operations was at or above \$199.7 million at a revenue level of \$1.25 billion, or was at or above \$479.9 million at a revenue level of \$2.0 billion (with proportional thresholds in between), then our Named Executive Officers would receive the maximum of 150% of their target performance-based RSUs. Proportional payments would be made for adjusted cash flow achievements between the minimum and maximum levels. In 2017, because our revenue was \$1.9 billion and our adjusted cash flow was \$413.9 million, after excluding restructuring charges, acquisition and divestiture related costs and the effect of acquisitions and divestitures, and the effect of changes in tax laws, our Named Executive Officers received 121% 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 grants may be made throughout the year to provide an incentive to achieve a specific goal or to reward a significant achievement. Our Compensation Committee made one discretionary award in February 2017 to Dennis Werth. He was awarded additional time-based RSUs in February 2017 equal to 7% of his target performance-based equity compensation awarded in 2016, due to his strong performance following the Newport acquisition. These RSUs vest in three equal annual installments beginning February 15, 2018. Also in 2017, our Compensation Committee accelerated the vesting of a special performance-based RSU award granted in June 2016 to each of Messrs. Colella, Bagshaw, Abrams and Lee tied to the achievement of cost synergies from the Newport acquisition. These awards were scheduled to vest in two annual installments in June 2017 and 2018, provided specified cost synergies were achieved on each measurement date. Our Compensation Committee accelerated the vesting of these awards in full on May 11, 2017 after determining that more than 100% of the cost synergies had already been achieved.

***Supplemental Retirement Benefits***

We provide supplemental retirement benefits, including supplemental lifetime retiree medical benefits, to our current Chief Executive Officer and President, Mr. Colella, or, in the event of his death, to his spouse. These supplemental retirement benefits were designed to reward Mr. Colella's long service with us and to serve as a significant incentive for Mr. Colella to remain with us because these benefits will vest in full upon Mr. Colella maintaining his employment with us until age 62, with specified exceptions. Mr. Colella, who first joined our Company in 1983 as our Materials Planning and Logistics Manager, served in numerous capacities over the course of the next thirty plus years to ultimately become our Chief Executive Officer and President.

Since 2011, it has been our policy not to offer these types of retirement benefits to other Named Executive Officers. While these benefits were attractive elements to retain certain of our most senior executive officers historically, the elimination of these benefits more closely meets our objective to align executive compensation with Company financial performance.

***Newport Deferred Compensation Plan***

In connection with the Newport acquisition in April 2016, we assumed Newport's Deferred Compensation Plan. Historically, Mr. Werth has made elections to defer a portion of his compensation into this plan. He did not make such an election in 2015 for 2016 compensation. In 2016, Newport employees who were eligible to participate in the plan

were not permitted to make an election for the deferral of any of their salaries in 2017 but did have the opportunity to make an election to defer their 2017 annual incentive compensation to the extent earned and paid in 2018. Mr. Werth elected to defer 100% of his 2017 annual incentive compensation. No further elections will be permitted under this plan.



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### ***Perquisites***

We offer certain perquisites to our Named Executive Officers to allow executives to focus on corporate strategy and enhancing shareholder value and to provide competitive pay packages. These perquisites include car payments, company paid health and life insurance, reimbursement of certain out-of-pocket healthcare costs, golf club memberships, financial planning benefits and executive physicals. We believe offering these benefits is important to maintaining a competitive position in attracting and retaining key personnel and these benefits are consistent with market practices.

### ***Severance and Change-in-Control Provisions***

Each of our Named Executive Officers is entitled to certain payments and benefits in the event his employment terminates under specified circumstances as described in the applicable agreement. In exchange for these payments and benefits, each Named Executive Officer, other than Mr. Werth, whose agreement is governed by California law, is restricted from competing with the Company during and following his termination of employment for a twelve-month period. In addition, RSU agreements with our Named Executive Officers, or in Mr. Werth's case, solely with respect to certain of his RSU agreements, 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. The severance and change-in-control provisions are designed to be competitive in the marketplace, to provide security for our Named Executive Officers in the event that we are acquired and his respective position is impacted and to provide an incentive for the Named Executive Officer 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 Mr. Colella upon his becoming Chief Executive Officer and President in January 2014. The terms of Mr. Colella's employment agreement reflect his role as the leader of our Company and the experience he brought to the position having served more than 30 years at MKS. For a detailed discussion of the material terms of Mr. Colella's 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. For a detailed discussion of the material terms of these executive 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.

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Since October 2014, the Compensation Committee has engaged Meridian as its compensation consultant. The Compensation Committee determined that the engagement of Meridian as a compensation consultant did 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 are applicable 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:

Members of the Board of Directors shall own an amount of stock of the Company with a value equal to at least 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 an amount of stock of the Company with a value equal to at least three times his or her annual base salary (excluding any bonus, award or special compensation).

Other Named Executive Officers shall own an amount of stock of the Company with a value equal to at least 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.

We adopted the Stock Ownership Guidelines in 2013 and they provide for a phase-in period over five years to achieve the respective ownership goals. We modified these guidelines to increase the threshold for directors from four times the annual retainer to five times effective for 2018.

#### ***Clawback Policy***

Our Clawback Policy, which is applicable to incentive-based compensation (specifically our cash incentive plan and our performance-based RSUs) that is awarded to Named Executive Officers, provides that in the event we are required to prepare an accounting restatement due to 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 Named Executive

Officers (or such former Named Executive Officers) under the accounting restatement for any such incentive-based compensation during the three-year period preceding the restatement.

*Prohibition on Hedging and Pledging*

Our Insider Trading Policy prohibits any of our directors or employees from engaging in transactions involving financial instruments that 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.

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***Impact of Accounting and Tax on Executive Compensation***

*Impact of Code Section 162(m)*

Prior to the Tax Act that was signed into law in December 2017, Section 162(m) generally disallowed a tax deduction to public companies for compensation in excess of \$1 million per person paid to a company's chief executive officer and the next three most highly-paid executive officers other than the chief financial officer. Certain compensation, including qualified performance-based compensation, was not subject to the deduction limit so long as certain requirements were met. The Tax Act eliminates this performance-based compensation exception to the deduction limitation and expands the definition of employees to include the chief financial officer. Certain grandfathered performance-based compensation remains exempt from the deduction limit so long as such compensation was deductible in a company's 2017 fiscal year or was outstanding on November 2, 2017 pursuant to a binding written agreement which has not since been modified, and certain other requirements have been met. In general, however, for fiscal years beginning after December 31, 2017, all compensation (other than grandfathered compensation) in excess of \$1 million paid to the specified executives will not be deductible.

For the Company's 2017 fiscal year, the Compensation Committee structured awards to executive officers under the Company's annual cash and equity performance-based incentive compensation programs so that cash bonuses and performance-based equity awards qualified for the performance-based compensation exemption under Section 162(m). With the elimination of this exemption with respect to future performance-based awards, the Compensation Committee will be reviewing the Tax Act, and its application and impact on our Company's compensation programs; however, the Compensation Committee reserves the right to use its judgment to authorize compensation payments which may be in excess of the Section 162(m) deduction limit when the Compensation Committee believes such payments are appropriate and are in the best interests of our shareholders. The Compensation Committee believes that shareholder interests are best served by not restricting the Compensation Committee's discretion and flexibility in structuring compensation programs, even though such programs may result in non-deductible compensation expenses.

*Impact of ASC 718*

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 instruments, 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,

Elizabeth A. Mora, Chair

Peter R. Hanley

Rick D. Hess

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The following table sets forth the aggregate amounts of compensation earned by our Named Executive Officers in the years ended December 31, 2017, 2016 and 2015:

Name and Principal Position	Year	Salary (\$)	Bonus (\$)	Stock Awards (\$)	Non-Equity Incentive Plan Compensation (\$)	Change in Pension Value and Non-qualified Deferred Compensation (\$)	All Other Compensation (\$)	Total (\$)
Gerald G. Colella, Chief Executive Officer and President (principal executive officer)	2017	\$ 824,038	-	\$ 3,000,000	\$ 1,730,481	\$ 2,824,538	\$ 63,664	\$ 8,442,721
	2016	\$ 757,731	-	\$ 2,700,000	\$ 1,018,390	\$ 2,038,038	\$ 62,855	\$ 6,577,014
	2015	\$ 673,077	-	\$ 2,050,000	\$ 767,308	\$ 1,979,663	\$ 57,936	\$ 5,527,984
Seth H. Bagshaw, Sr. Vice President, Chief Financial Officer and Treasurer (principal financial officer)	2017	\$ 489,423	-	\$ 1,200,000	\$ 783,076	N/A	\$ 62,365	\$ 2,534,864
	2016	\$ 456,707	-	\$ 1,230,000	\$ 520,280	N/A	\$ 67,448	\$ 2,274,435
	2015	\$ 424,038	-	\$ 850,000	\$ 362,553	N/A	\$ 58,982	\$ 1,695,573
John R. Abrams, Sr. Vice President of Global Sales and Service	2017	\$ 373,462	-	\$ 600,000	\$ 597,539	N/A	\$ 64,013	\$ 1,635,014
	2016	\$ 323,654	-	\$ 525,000	\$ 342,814	N/A	\$ 52,010	\$ 1,243,478
	2015	\$ 299,038	-	\$ 300,000	\$ 209,250	N/A	\$ 47,303	\$ 855,591
John T. C. Lee, Sr. Vice President and Chief Operating Officer	2017	\$ 514,423	-	\$ 1,000,000	\$ 925,961	N/A	\$ 68,601	\$ 2,508,985
	2016	\$ 455,882	-	\$ 950,000	\$ 467,781	N/A	\$ 71,000	\$ 1,944,663
	2015	\$ 424,038	\$ 3,000 <sup>(5)</sup>	\$ 650,000	\$ 362,553	N/A	\$ 70,108	\$ 1,509,699
Dennis L. Werth, Sr. Vice President of Business Units <sup>(6)</sup>	2017	\$ 432,692	-	\$ 728,908	\$ 616,587	N/A	\$ 58,696	\$ 1,836,883
	2016	\$ 277,115	-	\$ 1,204,400	\$ 274,284	N/A	\$ 18,030	\$ 1,773,829

(1)

Represents the 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 grant date fair values of awards are set forth in Note 16 to our consolidated financial statements, which are included in our Annual Report on Form 10-K filed with the SEC on February 28, 2018. The amounts under the Stock Awards column do not reflect the amount of compensation actually received by the Named Executive Officer during the fiscal year.

Approximately 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 2017, 2016 and 2015, respectively, or 2017 and 2016 in the case of Mr. Werth: Mr. Colella: \$3,750,000, \$3,300,000 and \$2,575,000; Mr. Bagshaw: 1,500,000, \$1,495,000 and \$1,075,000; Mr. Abrams: \$750,000, \$625,000 and \$375,000; Dr. Lee: \$1,250,000, \$1,150,000 and \$812,500; and Mr. Werth: \$903,908 and \$1,329,400. Based on the achievement against the performance metric, the actual value of the RSUs awarded in 2017 was as follows: Mr. Colella: \$3,315,000; Mr. Bagshaw: \$1,326,000; Mr. Abrams: \$663,000; Dr. Lee: \$1,105,000; and Mr. Werth: \$802,408. Based on the achievement against the performance metric, the actual value of the RSUs awarded in 2016 was as follows: Mr. Colella: \$3,060,000; Mr. Bagshaw: \$1,389,000; Mr. Abrams: \$585,000; Dr. Lee: \$1,070,000; and Mr. Werth: \$1,201,900. Based on the achievement against the performance metric, the actual value of the RSUs awarded in 2015 was as follows: Mr. Colella: \$2,291,500; Mr. Bagshaw: \$953,500; Mr. Abrams \$334,500; and Dr. Lee: \$724,750.



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- (2) Except for Mr. Abrams for 2015 and Mr. Werth for 2016, for 2017, 2016 and 2015, each Named Executive Officer's annual cash performance bonus was calculated based on a specified target percentage of his eligible earnings for the relevant plan year, called a Target Bonus Amount. The threshold bonus payout was 50% of this Target Bonus Amount and the maximum payout was 200% of this Target Bonus Amount, with proportional payouts for performance between these levels. For 2017 and 2016, bonus payouts were based 80% on a corporate financial performance objective and 20% on individual performance objectives, except for our Chief Executive Officer, whose annual cash performance bonus was based entirely on Company financial performance. Except for Mr. Abrams for 2015 and Mr. Werth, Company financial performance was based on the achievement of adjusted operating income for the 2017, 2016 and 2015 fiscal years (defined as GAAP operating income adjusted for restructuring charges, acquisition related costs and impairment charges related to acquisitions). Individual performance was based on specific management by objective goals that were aligned with the Company's strategic objectives and priorities. For 2017, the Target Bonus Amount for each of the Named Executive Officers was equal to that Named Executive Officer's eligible earnings for 2017 multiplied by the following percentages: Mr. Colella 105%; Mr. Bagshaw 80%; Mr. Abrams 80%; Dr. Lee 90%; and Mr. Werth 75%. For 2016, the Target Bonus Amount for each of the Named Executive Officers was equal to that Named Executive Officer's eligible earnings for 2016 multiplied by the following percentages: Mr. Colella 105%; Mr. Bagshaw 80%; Mr. Abrams 80%; and Dr. Lee 77.5%. In 2015, the percentages for the Named Executive Officers were: Mr. Colella 100%; Mr. Bagshaw 75%; and Dr. Lee 75%. For 2017, we paid a bonus of 200% of the Target Bonus Amount tied to Company financial performance and an average of 188% of the Target Bonus Amount tied to individual performance. For 2016, we paid a bonus of 128% of the Target Bonus Amount tied to Company financial performance and an average of 183% of the Target Bonus Amount tied to individual performance. Prior to 2016, annual cash performance bonuses were based entirely on Company financial performance. For 2015, we paid a bonus of 114% of the Target Bonus Amount for each Named Executive Officer. Mr. Abrams' annual cash performance bonus in 2015 was tied to an annual commission plan and contributions toward the Company's improved profitability in 2015. For 2015, his commission-based cash incentive target was set at 75% of his base salary based on a bookings goal of \$824.9 million. For 2015, we paid a bonus of 93% of Mr. Abrams' target annual incentive compensation. Mr. Abrams achieved 88% of his commission-based cash incentive target based on bookings of \$790.3 million. For 2017, Mr. Werth's cash performance bonus terms were substantially similar to the terms for all other Named Executive Officers except that his Corporate Financial performance metric was adjusted operating income for the Light & Motion Division (defined as GAAP operating income adjusted for amortization of intangibles, restructuring charges, and the effect of synergies resulting from the acquisition of Newport). For 2016, Mr. Werth was eligible to earn a bonus under a Newport executive bonus plan covering the first half of 2016, which we paid in accordance with its terms. The amount equaled 91.3% of his base salary for the first half of 2016, or \$109,572. For the second half of 2016, Mr. Werth's cash performance bonus terms were substantially similar to the terms for all other Named Executive Officers except that his Target Bonus Amount was equal to 75% of his eligible earnings for the second half of 2016, his performance metric was adjusted operating income for the Light & Motion Division for this six month period (defined as GAAP operating income adjusted for amortization of intangibles, restructuring charges, and the effect of synergies resulting from the acquisition of Newport) and 100% of his bonus was based on this financial metric. For the second half of 2016, we paid Mr. Werth a bonus of 106% of his Target Bonus Amount, or \$164,712. For more information about the annual cash incentive plan, including the maximum bonus opportunity for each, please see Executive Compensation Compensation Discussion and Analysis Elements of Compensation Annual Cash Incentive Compensation.
- (3) Our employment agreement with Mr. Colella provides for supplemental retirement benefits. For 2017, 2016 and 2015, the amount listed represents the actuarial increase in present value from the prior fiscal year.

- (4) For Mr. Colella: with respect to 2017, this amount was comprised of \$16,329 for car related expenses, \$6,630 for golf membership, \$24,871 for company paid health and life insurance, \$5,784 for reimbursement of out-of-pocket healthcare costs, \$1,950 for his executive physical and \$8,100 for 401(k) matching contributions; with respect to 2016, this amount was comprised of \$16,664 for car related expenses, \$6,470 for golf membership, \$26,869 for company paid health and life insurance, \$2,952 for reimbursement of

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out-of-pocket healthcare costs, \$1,950 for his executive physical and \$7,950 for 401(k) matching contributions; with respect to 2015, this amount was comprised of \$16,115 for car related expenses, \$6,470 for golf membership, \$25,621 for company paid health and life insurance, \$1,780 for reimbursement of out-of-pocket healthcare costs, and \$7,950 for 401(k) matching contributions. For Mr. Bagshaw: with respect to 2017, this amount was comprised of \$9,349 for car related expenses, \$6,630 for golf membership, \$30,786 for company paid health and life insurance, \$4,500 for reimbursement of out-of-pocket healthcare costs, \$3,000 for his executive physical and \$8,100 for 401(k) matching contributions; with respect to 2016, this amount was comprised of \$10,560 for car related expenses, \$6,470 for golf membership, \$33,229 for company paid health and life insurance, \$4,500 for reimbursement of out-of-pocket healthcare costs, \$2,850 for his executive physical, a discretionary gift card award of \$1,000 plus a tax gross up of \$889 and \$7,950 for 401(k) matching contributions; with respect to 2015, this amount was comprised of \$8,862 for car related expenses, \$6,470 for golf membership, \$31,200 for company paid health and life insurance \$4,500 for reimbursement of out-of-pocket healthcare costs, and \$7,950 for 401(k) matching contributions. For Mr. Abrams: with respect to 2017, this amount was comprised of \$14,157 for car related expenses, \$6,630 for golf membership, \$30,626 for company paid health and life insurance, \$4,500 for reimbursement of out-of-pocket healthcare costs, and \$8,100 for 401(k) matching contributions; with respect to 2016, this amount was comprised of \$11,791 for car related expenses, \$31,529 for company paid health and life insurance, a discretionary gift card award of \$500 plus a tax gross up of \$240 and \$7,950 for 401(k) matching contributions; with respect to 2015, this amount was comprised of \$10,199 for car related expenses, \$29,154 for company paid health and life insurance and \$7,950 for 401(k) matching contributions. For Dr. Lee: with respect to 2017, this amount was comprised of \$13,239 for car related expenses, \$6,630 for golf membership, \$36,132 for company paid health and life insurance, \$4,500 for reimbursement of out-of-pocket healthcare costs, and \$8,100 for 401(k) matching contributions; with respect to 2016, this amount was comprised of \$13,634 for car related expenses, \$6,470 for golf membership, \$38,446 for company paid health and life insurance, \$4,500 for reimbursement of out-of-pocket healthcare costs, and \$7,950 for 401(k) matching contributions; with respect to 2015, this amount was comprised of \$13,516 for car related expenses, \$6,470 for golf membership, \$37,672 for company paid health and life insurance, \$4,500 for reimbursement of out-of-pocket healthcare costs, and \$7,950 for 401(k) matching contributions. For Mr. Werth: with respect to 2017, this amount was comprised of \$8,400 for car related expenses, \$33,696 for company paid health and life insurance, \$4,500 for reimbursement of out-of-pocket healthcare costs, \$4,000 for company paid financial planning services and \$8,100 for 401(k) matching contributions; with respect to 2016, this amount was comprised of \$4,200 in car related expenses and \$13,830 for company paid health and life insurance that we paid since he joined our Company in April 2016. Reimbursement of out-of-pocket health care costs is capped at \$4,500 annually. Mr. Colella was reimbursed \$5,784 in 2017 for such costs, however, \$1,284 of which related to out-of-pocket healthcare costs incurred in 2016 but submitted for reimbursement in 2017.

- (5) This discretionary cash award of \$3,000 was given to Dr. Lee in recognition of his contributions to the Office of the Chief Technology Officer.
- (6) Mr. Werth joined the Company on April 29, 2016 in connection with the Company's acquisition of Newport Corporation.

**CEO Pay Ratio**

We are required by Section 953(b) of the Dodd-Frank Act and Item 402(u) of Regulation S-K to disclose the ratio of our median employee's annual total compensation to the annual total compensation of our principal executive officer.

The purpose of this new disclosure is to provide a measure of the equitability of pay within our Company. We believe our compensation philosophy and process yield an equitable result for all of our employees. During 2017, our principal executive officer was our Chief Executive Officer and President, Gerald Colella. For 2017, the combined annual total compensation for Mr. Colella was \$8,442,721, and for our median employee was \$64,024, resulting in a pay ratio of approximately 132:1.

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In accordance with Item 402(u) of Regulation S-K, we identified the median employee as of December 18, 2017 (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 2017, and (C) the accounting value of any equity granted during 2017, and (ii) ranking this compensation measure for our employees from lowest to highest. This calculation was performed for all employees, excluding Mr. Colella, 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 2017 average exchange rates as of December 18, 2017.

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 Table in Fiscal Year 2017**

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 Awards: Number of Shares of Stock or Units(4)	Grant Date Fair Value of Stock Awards(5)
		Threshold (\$)	Target (\$)	Maximum (\$)	Threshold (#)	Target (#)	Maximum (#)		
Gerald G. Colella	N/A 2/15/2017	\$ 433,125	\$ 866,250	\$ 1,732,500	11,078	22,156	33,234	22,156	\$3,000,000
Seth H. Bagshaw	N/A 2/15/2017	\$ 196,000	\$ 392,000	\$ 784,000	4,431	8,862	13,293	8,862	\$1,200,000
John R. Abrams	N/A 2/15/2017	\$ 150,000	\$ 300,000	\$ 600,000	2,215	4,431	6,646	4,431	\$ 600,000
John T. C. Lee	N/A 2/15/2017	\$ 231,750	\$ 463,500	\$ 927,000	3,692	7,385	11,078	7,385	\$1,000,000
Dennis L. Werth	N/A 2/15/2017	\$ 168,750	\$ 337,500	\$ 675,000	2,584	5,169	7,754	5,596	\$ 728,908

- (1) This column shows the date of grant for all equity awards granted in 2017.
- (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 2017 is reported under the Non-Equity Incentive Plan Compensation column in the Summary Compensation Table for 2017. See Footnote 2 to the Summary Compensation Table for 2017 for details on the terms of the annual cash incentive plan.
- (3) Except as otherwise noted, these RSUs vest in equal annual installments over three years beginning in February 2018, subject to achievement of performance criteria established in 2017.
- (4) These RSUs vest in equal annual installments over three years beginning in February 2018.
- (5) Reflects the combined grant date fair value of performance-based RSUs at the target achievement level and time-based RSUs. The fair value was \$67.70 per share for RSUs awarded on February 15, 2017.

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Name	Option Awards				Stock Awards(1)			Equity Incentive
	Number of Securities Underlying Unexercised Options (#)	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 Awards: Number of Unearned Shares, Units or Other Rights That Have Not Vested	Equity Incentive Awards: Market Payout Value of Unearned Shares, Units or Other Rights That Have Not Vested(2)			
	Exercisable	Unexercisable	Option Exercise Price (\$)	Option Expiration Date	(#)	(\$)	(#)	(\$)
Gerald G. Colella					21,670(4)	\$ 2,047,824	33,234(6)	\$3,140,694
					53,382(5)	\$ 5,044,622		
					22,156(6)	\$ 2,093,796		
Meth H. Bagshaw					9,016(4)	\$ 852,073	13,293(6)	\$1,256,278
					22,858(5)	\$ 2,160,135		
					8,862(6)	\$ 837,518		
John R. Abrams					3,164(4)	\$ 299,032	6,646(6)	\$ 628,139
					9,232(5)	\$ 872,466		
					4,431(6)	\$ 418,759		
John T.C. Lee					6,854(4)	\$ 647,730	11,078(6)	\$1,046,898
					18,464(5)	\$ 1,744,863		
					7,385(6)	\$ 697,932		
Dennis L. Verth	10,313	-	\$ 22.39	05/20/20	5,169(6)	\$ 488,552	7,754(6)	\$ 732,829
	8,858	-	\$ 29.80	05/19/21	427(6)	\$ 40,352		
	4,910	2,456(3)	\$ 31.13	05/19/22	2,456(7)	\$ 232,092		
					8,094(8)	\$ 764,889		
					2,928(9)	\$ 276,726		
					10,823(9)	\$ 1,022,825		

- (1) All stock awards in the above table are RSUs. Except as otherwise noted below, all RSUs vest in three equal annual installments. The annual vesting date is February 15th or the next business day if February 15th is not a business day. RSUs listed in Equity Incentive Plan Awards column were also subject to the achievement of performance criteria.

- (2) The values were calculated based on the closing price of our Common Stock on December 29, 2017 of \$94.50 per share.
- (3) Consists of stock-settled stock appreciation rights that were awarded on May 19, 2015, which had not vested as of December 31, 2017. Such awards will vest on March 31, 2018.
- (4) Grant date is February 17, 2015.
- (5) Grant date is February 16, 2016.
- (6) Grant date is February 15, 2017.
- (7) Grant date is May 19, 2015. The remaining RSUs will vest on March 31, 2018.
- (8) Grant date is May 31, 2016.
- (9) Grant date is May 31, 2016. The remaining RSUs vest in two annual installments as follows: 30% on February 15, 2018 and 50% on February 15, 2019.

**Option Exercises and Stock Vested in Fiscal Year 2017 Table**

Name	Option Awards		Stock Awards	
	Number of Shares Acquired on Exercise (#)	Value Realized on Exercise (\$)	Number of Shares Acquired on Vesting (#)(1)	Value Realized on Vesting \$(2)
Gerald G. Colella			77,935	\$5,382,614
Seth H. Bagshaw			37,136	\$2,581,994
John R. Abrams			13,613	\$ 957,421
John T.C. Lee			26,815	\$1,855,597
Dennis L. Werth	7,207(3)	\$699,364(4)	12,890	\$ 878,330



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- (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) Reflects the number of shares acquired upon the exercise of stock-settled stock appreciation rights before the surrender of shares in satisfaction of tax withholding obligations.
- (4) Reflects the value realized upon the exercise of stock-settled stock appreciation rights before satisfaction of tax withholding obligations.

**Retirement and Post-Employment Tables*****Pension Benefits***

Pursuant to an employment agreement, we provide supplemental retirement benefits to Mr. Colella or, in the event of Mr. Colella's death, to his spouse. These supplemental retirement benefits are designed to reward Mr. Colella's long-term service with us and to serve as a significant incentive for Mr. Colella to remain with us. In addition, these benefits are designed to provide for supplemental retirement benefits that are not available under our Company-wide employee benefits due to regulatory limitations on benefit accruals.

The benefits vest upon (a) Mr. Colella reaching both (i) specified ages, and (ii) 25 years of service with us, in each case while employed with us, or (b) Mr. Colella's earlier death, disability, termination without cause (as defined in his employment agreement) or a qualifying termination in connection with a change-in-control (as defined in his employment agreement), and are forfeited in the event of termination for cause. When vested, the benefits provide for a lump sum payment of an aggregate amount calculated in accordance with actuarial tables, payable not sooner than six months after the date of termination (except in the case of death or disability). The actuarial calculations include assumptions for decreased benefit continuation for Mr. Colella's surviving spouse in the event of Mr. Colella's death. The supplemental retirement benefits are not subject to any deduction for social security or other offset amounts. The benefit amount is based upon the final average compensation, which is equal to the average of Mr. Colella's three highest years of compensation (salary plus bonus) during the 10 years prior to Mr. Colella's year of retirement (or other qualifying termination). The benefits for Mr. Colella are currently vested at 90% and will be 100% vested at age 62.

The table below sets forth the present value as of December 31, 2017 of the accumulated benefits under Mr. Colella's supplemental pension arrangement. None of our other Named Executive Officers are eligible for supplemental retirement benefits.

<b>Name</b>	<b>Plan Name</b>	<b>Number of Years Credited</b>	<b>Present Value of Accumulated Benefit (\$)(2)</b>	<b>Payments During the Last Fiscal Year (\$)</b>
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		<b>Service (#)(1)</b>		
Gerald G. Colella	Supplemental Retirement Benefits under Employment Agreement	25	\$14,304,761	-
Seth H. Bagshaw	N/A	N/A	N/A	N/A
John R. Abrams	N/A	N/A	N/A	N/A
John T.C. Lee	N/A	N/A	N/A	N/A
Dennis L. Werth	N/A	N/A	N/A	N/A

(1) Maximum number of years credited is 25.

(2) Present value of accumulated benefit is calculated using the same assumptions we used for financial reporting purposes. The calculations use a discount rate of 2.0%, a maturity value rate of 2.75% and salary increases of 3.0% per annum and the mortality table described in IRS Notice 2008-85 for the valuation year. This is the same mortality table that is specified in Internal Revenue Code Section 417(e)(3) for minimum

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lump sum payments for qualified pension plans. Mr. Colella was vested in 90% of the amount set forth above as of December 31, 2017.

***Non-Qualified Deferred Compensation***

The table below sets forth certain information relating to Mr. Werth's participation in Newport Corporation's Deferred Compensation Plan during the year ended December 31, 2017, including (i) the aggregate dollar amounts of interest and other earnings accrued on Mr. Werth's account and (ii) the total balance of Mr. Werth's account as of December 31, 2017. In 2017, Mr. Werth did not make any contributions to, or withdrawals or receive distributions from, the Deferred Compensation Plan, and we did not make any contributions to the plan on behalf of Mr. Werth. We assumed this plan in connection with the Newport acquisition. No other Named Executive Officer is eligible to participate in this plan. In 2016, Newport employees, including Mr. Werth, who were eligible to participate in the plan were not permitted to make an election for the deferral of any of their salaries in 2017 but these employees, including Mr. Werth, did have the opportunity to make an election to defer their 2017 annual incentive compensation to the extent earned and paid in 2018. Mr. Werth elected to defer his 2017 annual incentive compensation of \$616,587, which was paid in February 2018. We expect that no further elections will be permitted under this plan.

Name	Executive Contributions in Last Year (\$)	Registrant's Contributions in Last Year (\$)	Aggregate Earnings in Last Year(1) (\$)	Aggregate Withdrawals/ Distributions (\$)	Aggregate Balance at Last Year End(2) (\$)
Dennis L. Werth	-	-	\$42,980	-	\$ 299,009

(1) The aggregate earnings in 2017 consisted of market-based earnings on all compensation deferred under the plan based on the performance of the measurement funds selected by Mr. Werth. Mr. Werth did not receive any above-market or preferential earnings on amounts deferred under Newport's Deferred Compensation Plan and, accordingly, no such amounts have been reported in the Summary Compensation Table included in this proxy statement.

(2) The aggregate balance of Mr. Werth's account as of December 31, 2017 consists of amounts contributed to the plan in prior years in the form of deferrals of salary, bonus and/or non-equity incentive compensation.

**Potential Payments Upon Termination or Change-in-Control**

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 employment had terminated on December 31, 2017, under the circumstances set forth below.

***Mr. Colella***

On October 22, 2013, in connection with Mr. Colella's appointment as Chief Executive Officer and President, we entered into a new employment agreement with him, effective as of January 1, 2014, which we refer to as the Employment Agreement. Below is a summary of the material terms of Mr. Colella's Employment Agreement.

Under the Employment Agreement, in addition to his base salary, Mr. Colella is eligible to participate in the Company's annual cash incentive compensation program, with a targeted goal of 100% (which was subsequently increased by our Compensation Committee to 120%) of base salary subject to meeting performance goals to be determined by our Compensation Committee, and long-term equity incentive plan, subject to meeting vesting and/or performance goals to be determined by our Compensation Committee. Mr. Colella's employment term is month-to-month, with termination upon 30 days' notice by either party, or upon death, disability, or at the Company's election if Mr. Colella fails to perform his duties or commits any other act constituting cause (as defined below).

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In the event Mr. Colella's employment is terminated by the Company without cause, he is entitled to a one-year continuation of each of the following: base salary, payment of any annual cash incentive plan bonus earned for the prior calendar year but not yet paid, reimbursement for premiums he pays (if any) for continuation of life insurance if he elects the Company's group life insurance conversion feature, and payment for continuation of medical, dental or vision insurance. Payment of such benefits is conditioned upon execution of a release by Mr. Colella and his full compliance with the restrictive covenants described below.

In the event Mr. Colella's employment is terminated due to death or total disability, or Mr. Colella voluntarily terminates his employment (other than for good reason as defined below within two years of a change-in-control (as defined in his Employment Agreement)), we will pay his base salary accrued through the last date of employment, plus any annual cash incentive plan bonus earned for the prior calendar year, but not yet paid.

In the event Mr. Colella's employment is terminated without cause or is terminated by Mr. Colella for good reason, in either case upon or at any time within two years following a change-in-control, Mr. Colella will receive a lump sum payment equal to 36 months of his base salary and 36 months of the target bonus amount, payment of any annual cash incentive plan bonus earned for the prior calendar year, but not yet paid, and continued participation in the Company's medical, dental, vision and life insurance plans for 36 months. 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. Colella on an after-tax basis of the greater amount, taking into account all applicable taxes, including the penalty tax. Mr. Colella is not entitled to any gross-up payment for any such excise tax due on such payments.

The Employment Agreement requires Mr. Colella to return all or a portion of any incentive pay, and any severance payments computed by reference thereto, for the performance period(s) in which his termination of employment occurs and any performance period ending within the 36 month period prior to his termination of employment, if it is later determined that these awards were calculated on the basis of inaccurate information that results in a restatement of our financial statements, or for other required reasons.

The Employment Agreement provides that Mr. Colella may not, during the term of his employment and for a period of one year after termination of employment (or two years in the event Mr. Colella terminates his employment other than for good reason), (i) engage in any competitive business or activity, (ii) work for any person who was our executive, officer or agent, or establish any business or partnership with such person that is competitive to the Company, (iii) give, sell or lease any competitive services or goods to any of our customers, or (iv) have any material financial interest in or be a director, officer, partner, executive or consultant to, or exceed specified shareholding limitations in, any of the Company's competitors.

Mr. Colella is also subject to non-solicitation restrictions. During the term of his employment and for a period of two years after termination, Mr. Colella may not solicit any customer to become a customer, distributor or supplier of any other person or entity or to cease doing business with the Company; or solicit or hire any of our executives, officers or agents to terminate such person's employment or engagement with the Company or to work for a third party.

In addition, the Employment Agreement continues to provide Mr. Colella with the same supplemental retirement benefits he was entitled to before his appointment as Chief Executive Officer and President. The benefits vest (a) upon Mr. Colella reaching both (i) specified ages, and (ii) 25 years of service with the Company, in each case while employed by the Company, or (b) upon his earlier death, disability, termination without cause (cause is defined as a conviction for the commission of a felony, material breach of any employment or other agreements between the executive and the Company, or willful failure by the executive to perform his material responsibilities to the

Company) or a qualifying termination for good reason within three years of a change-in-control (as defined in the agreement), and are forfeited in the event of termination prior to vesting as described above, termination for cause or upon violation of the noncompetition, nondisclosure, or nonsolicitation provisions contained in the Employment Agreement. When vested, subject to his execution of and compliance with a customary release, the supplemental retirement benefit provides for a lump sum payment to Mr. Colella

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(or in the event of his death, his spouse) of an aggregate amount calculated based upon actuarial assumptions, payable not sooner than six months after the date of termination (except in the case of death). The benefit amount is determined based upon the actuarial equivalent value of an annuity equal to 50% of Mr. Colella's final average compensation, which is equal to the average of his three highest years of compensation (salary plus bonus) during the 10 calendar years prior to the year of retirement (or other qualifying termination). The actuarial calculations include assumptions for decreased benefit continuation (determined as a 50% survivor annuity) for Mr. Colella's surviving spouse in the event of Mr. Colella's death. As of December 31, 2017, Mr. Colella was vested at 90%, and he will be vested at 100% at age 62. In the event that any payment under the supplemental retirement benefit would subject Mr. Colella to any excise tax, interest or penalties imposed under Internal Revenue Code Section 4999, we have agreed to make Mr. Colella gross-up payments for such amounts.

In addition, subject to his execution of and compliance with a customary release, Mr. Colella will receive retiree medical benefits for life, in the event he (i) retires by at least age 62, (ii) is terminated without cause or terminates his employment for good reason, in each case within three years after a change-in-control, or (iii) terminates employment due to death or disability. Mr. Colella (or his surviving spouse) would pay an annual contribution of \$1,500, and, in the event of his retirement before age 65, would pay a decreasing percentage of the costs of the benefit (from 30% to 10%) until he reaches age 65. The retiree medical benefit is coordinated with any continuation of medical benefits described above to avoid duplication of benefits.

Mr. Colella's RSU agreements provide for the full acceleration of vesting of all shares (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 two years following a change-in-control (as defined in the applicable agreements), and also provides for the 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.

For purposes of the foregoing description of Mr. Colella's benefits under his Employment Agreement, *cause* means that he has refused to perform the services required of him under his employment agreement or has failed or refused to comply with any of the covenants in the employment agreement, or any of the following: (i) willful or gross neglect of his duties, (ii) material breach of his employment agreement or of any of the rules, regulations, policies or procedures of the Company, or material violation of the Company's code of conduct, (iii) commission of a felony or other act of material dishonesty, including but not limited to fraud, embezzlement, misappropriation of Company property, moral turpitude, or breach of fiduciary duty that could possibly have a material adverse effect on the Company, (iv) unlawful use of controlled substances on the Company's premises or while performing his duties and responsibilities or indictment related to the commission of any criminal act, (v) failure or refusal to reasonably cooperate with any Company investigation or government/regulatory authority having jurisdiction over the executive and the Company, or (vi) engaging in willful or gross misconduct which is materially injurious to the Company, financially or otherwise, or the Company's reputation.

Under Mr. Colella's RSU agreements, *cause* means conviction for the commission of a felony, willful failure by the executive to perform his responsibilities to the Company, or willful misconduct by the executive.

Subject to compliance with certain procedural requirements, *good reason* under both the Employment Agreement and Mr. Colella's RSU agreements 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 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.



**Table of Contents****Potential Payments Upon Termination or Change-in-Control Table Gerald G. Colella**

The following table sets forth the estimated benefits that Mr. Colella would have been entitled to receive upon termination of his employment effective December 31, 2017:

Termination	Cash Severance		Value of Accelerated Unvested Equity	Benefits Continuation	Acceleration of Pension Benefits(1)	Gross up of I.R.C. Golden Parachute Excise Tax Resulting from Change-in-Control(2)	
	Base Salary	Bonus					
Termination Without Cause	\$825,000	N/A	N/A	\$24,871(3)	\$15,214,567	N/A	\$15,214,567
Termination	N/A	N/A	\$11,280,038(4)	-	\$13,693,111	N/A	\$13,693,111
Termination	N/A	N/A	\$11,280,038(4)	\$299,055(5)	\$7,607,284	N/A	\$11,280,038(4) + \$299,055(5) + \$7,607,284
Termination	N/A	N/A	\$11,280,038(4)	\$615,261(5)	\$15,214,567	N/A	\$11,280,038(4) + \$615,261(5) + \$15,214,567
Termination Within 24 Months Following a Change-in-Control:							
Termination by the Company Without Cause	\$2,475,000	\$2,598,750	\$11,280,038(6)	\$635,061(7)	\$15,214,567	\$354,762	\$2,475,000 + \$2,598,750 + \$11,280,038(6) + \$635,061(7) + \$15,214,567 + \$354,762
Voluntary Resignation for Good Reason	\$2,475,000	\$2,598,750	\$11,280,038(6)	\$635,061(7)	\$15,214,567	\$354,762	\$2,475,000 + \$2,598,750 + \$11,280,038(6) + \$635,061(7) + \$15,214,567 + \$354,762
Termination Within 24 Months and 36 Months Following a Change-in-Control:							
Termination by the Company Without Cause	\$825,000	N/A	N/A	\$621,861(8)	\$15,214,567	-	\$825,000 + \$621,861(8) + \$15,214,567
Voluntary Resignation for Good Reason	N/A	N/A	N/A	\$615,261(5)	\$15,214,567	-	\$615,261(5) + \$15,214,567

- (1) This amount represents the present value of the accelerated amount of the accumulated benefit under the Supplemental Retirement Benefits. See also the description under Pension Benefits above.
- (2) For purposes of assessing whether Mr. Colella would be liable for an excise tax under Section 4999 of the Internal Revenue Code on parachute payments (and in turn entitled to a gross-up payment), the calculations assume that if Mr. Colella was terminated within 24 months following a change-in-control, the vesting of the target number of his unvested performance-based RSUs and all of his unvested time-based RSUs would be accelerated. Upon a change-in-control, we agreed to reimburse Mr. Colella for excise taxes under Section 4999 solely with respect to his pension benefits.
- (3) Reflects our cost for continuation of life insurance, medical, dental and vision coverage for 12 months following involuntary without cause termination, assuming the termination occurred on December 31, 2017.

- (4) Upon retirement (as defined in the RSU agreements), 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, 2017 and assumes the target number of unvested performance-based RSUs vested.
- (5) This amount represents the estimated present value of retiree health benefits, in each case assuming the termination occurred on December 31, 2017.
- (6) The unvested time-based RSUs fully vest and the target number of unvested performance-based RSUs vest.
- (7) This amount represents the estimated present value of retiree health benefits, \$615,261, plus our cost for continuation of life insurance for 36 months following termination of employment, \$19,800, assuming the termination occurred on December 31, 2017.
- (8) This amount represents the estimated present value of retiree health benefits, \$615,261, plus our cost for continuation of life insurance for 12 months following termination of employment, \$6,600, assuming the termination occurred on December 31, 2017.

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**Table of Contents*****Other Named Executive Officers***

Following our acquisition of Newport in April 2016, we entered into new employment agreements with Messrs. Bagshaw, Abrams, Lee and Werth, each dated as of August 1, 2016. Under these employment agreements, in addition to his base salary, the executives are eligible to participate in the Company's annual cash incentive compensation program. These employment agreements provide for terms that are at-will, with termination upon death, disability, or at our election if the employee fails to perform his 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 base salary for a period of at least 30 days after the notice of such termination or resignation is delivered. In addition to the benefits described in the previous sentence, in the case of Mr. Werth, the Company has agreed to reimburse him for any premiums he pays during the 30 days following the notice of his resignation or termination for continuation of life insurance, should he elect to exercise the conversion feature, if any, of the Company's group life policy then in effect and for the premiums, if any, for such medical/dental insurance as Mr. Werth may then receive should he elect continuation under the federal COBRA program. Additionally, in the event that we terminate the executive's employment without cause, each executive is entitled to a lump sum payment equal to the greater of: (i) six months of his base salary, or (ii) two weeks of his base salary for each year of his prior service to the Company. If Mr. Werth's employment is terminated without cause, his one-time special RSU award that he received in connection with the Newport acquisition to compensate him for forfeiting certain rights to certain severance payments and benefits that he was entitled to under his Newport severance agreement, which we refer to as his Waiver Award, will become vested in full (if not already fully vested) as of the effective date of such termination.

In the event that any such executive'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) each executive is entitled to: (i) a lump sum payment equal to one and one-half times his 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 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 addition, Mr. Werth's Waiver Award will become vested in full (if not already fully vested) as of the effective date of such 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 Messrs. Bagshaw, Abrams, Lee and Werth, as the case may be, on an after-tax basis of the greater amount, taking into account all applicable taxes, including the penalty tax. Messrs. Bagshaw, Abrams, Lee and Werth are not entitled to any gross-up payment for any such excise tax due.

The employment agreements of Messrs. Bagshaw, Abrams and Lee contain non-competition provisions that provide that each executive 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, each of Messrs. Bagshaw, Abrams and Lee may not, during the term of employment and for one year 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 MKS 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 the executive officer had material dealings in the performance of his duties within the period two years prior to his termination. Mr. Werth is subject to a

non-solicitation agreement; however, because Mr. Werth is based in California, he is only subject to the restrictions set forth in Section (i) above (excluding the prohibition against hiring) as the other restrictions are not enforceable under California law.

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The RSU agreements for each of Messrs. Bagshaw, Abrams and Lee, and the RSU agreements evidencing 2017 grants to Mr. Werth, or the 2017 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 each of Messrs. Bagshaw, Abrams and Lee, and the 2017 RSU Agreements for Mr. Werth 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 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 half of the target annual equity grant value is subject to performance criteria. The employment agreement for Mr. Werth provides for full acceleration of vesting of his Waiver Award if he is terminated without cause or resigns with good reason within 24 months following a change-in-control (as such terms are defined in his employment agreement). The RSU agreements evidencing 2016 grants to Mr. Werth, or the 2016 RSU Agreements, including his Waiver Award, 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 death or disability.

For purposes of the foregoing description of benefits under the employment agreements with Messrs. Bagshaw, Abrams, Lee and Werth, 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 Messrs. Bagshaw, Abrams, Lee and Werth, 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 base salary as in effect on the date hereof or as the same may be increased from time to time during the term of the applicable employment agreement, or (iii) the Company changes such executive's principal place of work to a location more than 50 miles from such executive's current principal place of work.

Under the RSU agreements for Messrs. Bagshaw, Abrams and Lee and the 2017 RSU Agreements for Mr. Werth, cause and good reason are the same as defined under Mr. Colella's RSU agreements.

**Table of Contents****Potential Payments Upon Termination or Change-in-Control Table Other Named Executive Officers**

The following table sets forth the estimated benefits that each Named Executive Officer, other than Mr. Colella, would have been entitled to receive upon termination of his employment effective December 31, 2017:

Termination Circumstance	Cash Severance		Value of	Benefits	Total
	Base Salary	Bonus	Accelerated Unvested Equity	Continuation	
<b>Involuntary Without Cause Termination:</b>					
Seth H. Bagshaw	\$ 285,833	-	-	-	\$ 285,833
John R. Abrams	\$218,750	-	-	-	\$ 218,750
John T. C. Lee	\$300,417	-	-	-	\$ 300,417
Dennis L. Werth	\$262,500	-	\$ 1,022,825(1)	\$ 2,866(2)	\$ 1,288,191
<b>Within 24 Months Following a Change-in-Control:</b>					
Seth H. Bagshaw	\$ 980,000	\$ 784,000	\$ 4,687,245(3)	\$ 61,572(4)	\$ 6,512,817
John R. Abrams	\$562,500	\$ 450,000	\$ 2,009,017(3)	\$ 45,940(4)	\$ 3,067,457
John T. C. Lee	\$772,500	\$ 695,250	\$ 3,788,457(3)	\$ 54,197(4)	\$ 5,310,404
Dennis L. Werth	\$675,000	\$ 506,250	\$ 2,040,282(3)	\$ 50,543(4)	\$ 3,272,075
<b>Death or Disability:</b>					
Seth H. Bagshaw	-	-	\$ 4,687,245(5)	-	\$ 4,687,245
John R. Abrams	-	-	\$ 2,009,017(5)	-	\$ 2,009,017
John T. C. Lee	-	-	\$ 3,788,457(5)	-	\$ 3,788,457
Dennis L. Werth	-	-	\$ 3,081,898(5)	-	\$ 3,081,898
<b>Retirement:</b>					
Seth H. Bagshaw	-	-	-(6)	-	-
John R. Abrams	-	-	-(6)	-	-
John T. C. Lee	-	-	-(6)	-	-
Dennis L. Werth	-	-	\$ 1,017,456(6)	-	\$ 1,017,456

- (1) The unvested time-based RSUs subject to Mr. Werth's Waiver Award fully vest.
- (2) Assumes Mr. Werth elects the conversion feature of the Company's group life insurance policy in effect as of December 31, 2017 and continuation under the federal COBRA program, and reflects reimbursement of any premiums for continuation of life insurance and for medical/dental insurance paid during the 30 days following the notice of his resignation or termination.
- (3) In the case of Messrs. Bagshaw, Abrams and Lee, the unvested time-based RSUs fully vest and the target number of unvested performance-based RSUs vest. In the case of Mr. Werth, the unvested time-based RSUs awarded in 2017 fully vest and the target number of unvested performance-based RSUs awarded in 2017 vest as well as the unvested time-based RSUs subject to Mr. Werth's Waiver Award.

- (4) Reflects our cost for continuation of life insurance, 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, 2017.
- (5) Upon death or disability, RSUs for Messrs. Bagshaw, Abrams and Lee fully vest, subject to achievement of any remaining performance criteria. With respect to Mr. Werth, upon death or disability, RSUs awarded in May 2016 and February 2017 fully vest, subject to achievement of any remaining performance criteria. The stated value assumes the death or disability occurred on December 31, 2017 and assumes the target number of unvested performance-based RSUs vested.
- (6) Upon retirement (as defined in the RSU agreements), RSUs for Messrs. Bagshaw, Abrams and Lee, and RSUs for Mr. Werth awarded in 2017, fully vest, subject to achievement of any remaining performance criteria. However, Messrs. Bagshaw, Abrams and Lee did not meet the requirements for retirement as of December 31, 2017. Mr. Werth's 2016 RSU agreements do not provide for acceleration of vesting upon retirement.

Table of Contents**EQUITY COMPENSATION PLAN INFORMATION**

The following table provides information about the securities authorized for issuance under our equity compensation plans as of December 31, 2017:

Plan Category	Number of securities	Weighted-average	Number of securities
	to be issued upon exercise of outstanding options, warrants and rights (a)	exercise price of outstanding options, warrants and rights (b)	remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a)) (c)
Equity compensation plans approved by security holders	1,226,286(2)	\$ 28.62(3)	16,580,416(4)
Equity compensation plans not approved by security holders	-	-	-
<b>Total</b>	<b>1,226,286(2)</b>		<b>16,580,416(4)</b>

- (1) When we acquired Newport, we assumed: (i) all restricted stock units granted under any Newport equity plan that were outstanding immediately prior to the effective time of the acquisition and as to which shares of Newport common stock were not fully distributed in connection with the closing of the acquisition and (ii) all stock appreciation rights granted under any Newport equity plan, whether vested or unvested, that were outstanding immediately prior to the effective time of the acquisition. Such restricted stock units were converted automatically into restricted stock units with respect to 360,674 shares of our Common Stock, which we refer to as the Assumed RSUs, and such stock appreciation rights were converted automatically into stock appreciation rights with respect to 899,851 shares of our Common Stock, which we refer to as the Assumed SARs. An additional 59,626 restricted stock units, which were issued under Newport's equity plans and have vested in accordance with the applicable award agreements, were deferred by the awardees under Newport's Deferred Compensation Plan at the time of vesting and were converted automatically into restricted stock units with respect to 36,599 shares of our Common Stock. As of December 31, 2017, 12,255 shares of our Common Stock were held in the Deferred Compensation Plan for the benefit of such awardees.
- (2) As of December 31, 2017, the number of shares reflected in column (a) consists of: (i) Assumed SARs with respect to an aggregate of 282,907 shares of our Common Stock, (ii) Assumed RSUs with respect to 73,467 shares of our Common Stock and (iii) RSUs representing the right to receive an aggregate of 869,912 shares of our Common Stock upon vesting, all of which were issued under our 2014 Stock Incentive Plan.



- (3) The weighted average exercise price represents the base value of all outstanding Assumed SARs. All outstanding RSUs were awarded without payment of any purchase price.
  
- (4) This number includes 14,548,013 shares available for issuance under our 2014 Stock Incentive Plan and 2,032,403 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.

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**OTHER MATTERS**

The Board of Directors does not know of any other matters which may come before the 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.

**Electronic Voting**

If you own shares of Common Stock of record, you may vote your shares over the Internet at [www.proxyvote.com](http://www.proxyvote.com) or telephonically by calling 1-800-690-6903 and by following the instructions on the Notice or proxy card. Proxies submitted over the Internet or by telephone must be received by 11:59 p.m. Eastern Time on May 8, 2018.

If 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 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 also 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.

**We hope that shareholders will attend the Annual Meeting. Whether or not you plan to attend, we urge you to vote your shares over the Internet or by telephone, or complete, date, sign 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 Annual Meeting and your cooperation will be appreciated. Shareholders who attend the Annual Meeting may vote their stock personally even if they have previously sent in their proxies.**

**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 2019 Annual Meeting**

Proposals of shareholders intended to be presented at the 2019 Annual Meeting of Shareholders must be received by us at our principal office in Andover, Massachusetts not later than November 28, 2018 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 2019 Annual Meeting is not advanced by more than 20 days or delayed by more than 60 days from the

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anniversary date of the 2018 Annual Meeting, shareholders will need to give us appropriate notice at the address noted above no earlier than January 9, 2019 and no later than February 8, 2019. 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.

By Order of the Board of Directors,

RICHARD S. CHUTE

Secretary

March 28, 2018

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**Important Notice Regarding the Availability of Proxy Materials for the 2018 Annual Meeting:** The Annual Report, Notice & Proxy Statement are available at [www.proxyvote.com](http://www.proxyvote.com).

**MKS INSTRUMENTS, INC.**

**2018 Annual Meeting of Shareholders**

**May 9, 2018 10:00 AM**

**This proxy is solicited by the Board of Directors.**

The undersigned shareholder of MKS Instruments, Inc., a Massachusetts corporation (the Company), hereby acknowledges receipt of the Notice of 2018 Annual Meeting of Shareholders and Proxy Statement, each dated March 28, 2018, and hereby appoints Gerald G. Colella, Richard S. Chute and Kathleen F. Burke, and each of them acting singly, proxies and attorneys-in-fact, with full power to each of substitution, on behalf and in the name of the undersigned, to represent the undersigned at the 2018 Annual Meeting of Shareholders of the Company to be held on May 9, 2018 at 10:00 AM, Eastern Time, at MKS Instruments, Inc., 2 Tech Drive, Suite 201, Andover, MA 01810, and at any adjournment or postponement thereof, and to vote all shares of Common Stock which the undersigned would be entitled to vote if then and there personally present, on the matters set forth on the reverse side, and, in their discretion, upon any other matters which may properly come before the meeting.

Your Internet or telephone vote authorizes the named proxies to vote the shares in the same manner as if you marked, signed, dated and returned your proxy card. If you vote the shares over the Internet or by telephone, please do not return your proxy card.

**UNLESS VOTING THE SHARES OVER THE INTERNET OR BY TELEPHONE, PLEASE DATE, SIGN AND MAIL YOUR PROXY CARD IN THE ENVELOPE PROVIDED AS SOON AS POSSIBLE.**

**Address change/comments:**

*(If you noted any Address Change and/or Comments above, please mark corresponding box on the reverse side.)*

**Continued and to be signed on reverse side**

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MKS Instruments, Inc.  
2 Tech Drive  
Suite 201  
Andover, MA 01810

**ELECTRONIC DELIVERY OF FUTURE PROXY MATERIALS**

If you would like to reduce the costs incurred by our Company in mailing proxy materials, you can consent to receive all future proxy statements, proxy cards and annual reports electronically via e-mail or the Internet. To sign up for electronic delivery, please follow the instructions below to vote using the Internet and, when prompted, indicate that you agree to receive or access proxy materials electronically in future years.

**VOTE BY INTERNET [www.proxyvote.com](http://www.proxyvote.com)**

Use the Internet to transmit your voting instructions and for electronic delivery of information up until 11:59 P.M. Eastern Time on May 8, 2018. Have your proxy card in hand when you access the website and follow the instructions to obtain your records and to create an electronic voting instruction form.

**VOTE BY PHONE 1-800-690-6903**

Use any touch-tone telephone to transmit your voting instruction up until 11:59 P.M. Eastern Time on May 8, 2018. Have your proxy card in hand when you call and then follow the instructions.

**VOTE BY MAIL**

Mark, sign and date your proxy card and return it in the postage-paid envelope we have provided or return it to Vote Processing, c/o Broadridge, 51 Mercedes Way, Edgewood, NY 11717.

TO VOTE, MARK BLOCKS BELOW IN BLUE OR BLACK  
INK AS FOLLOWS:

KEEP THIS PORTION FOR YOUR RECORDS

DETACH AND RETURN THIS PORTION ONLY

**THIS PROXY CARD IS VALID ONLY WHEN SIGNED AND DATED.**

**The Board of Directors recommends you vote FOR the following:**

1. The election of the two nominees listed below as Class I Directors, each to serve for a three-year term:

**Nominees**

01 Gerald G. Colella

02 Elizabeth A. Mora

FOR ALL

WITHHOLD ALL

FOR ALL EXCEPT

To withhold authority to vote for any individual nominee(s), mark **For All Except** and write the number(s) of the nominee(s) on the line below.

**The Board of Directors recommends you vote FOR the following proposal:**

2. The approval, on an advisory basis, of executive compensation.

**For                      Against                      Abstain**

**The Board of Directors recommends you vote FOR the following proposal:**

3. The ratification of the selection of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the year ending December 31, 2018.

**For                      Against                      Abstain**

**This proxy, when properly executed, will be voted in the manner directed by the undersigned shareholder. If no direction is indicated, this proxy will be voted FOR the election of each of the two (2) nominees listed above as Class I Directors of the Company, FOR proposals 2 and 3, and, as said proxies deem advisable, in their discretion, on such other matters as may properly come before the meeting.**

For address change/comments, mark here:

(see reverse for instructions)

Please indicate if you plan to attend this meeting:                      **Yes**                      **No**

Please sign exactly as your name(s) appear(s) on this card. When signing as attorney, executor, administrator, or other fiduciary, please give your full title. Joint owners should each sign personally. All holders must sign. If a corporation or partnership, please sign in full corporate or partnership name by authorized officer.

Signature [PLEASE SIGN WITHIN Date  
BOX]

Signature (Joint Owners)

Date