

Park Systems

The Leading Innovator
of Nanoscale Microscopy and Metrology Solutions

Company Overview





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About Park Systems

Park Systems Corporation is the industry leader in manufacturing nanoscale microscopy and metrology solutions. Its comprehensive range of products includes atomic force microscopy (AFM), white light interferometry (WLI), nano-infrared spectroscopy (NanoIR), and imaging spectroscopic ellipsometry (ISE) systems. The company's commitment to excellence has resulted in the development of several groundbreaking innovations, including True Non-Contact Imaging, 3D metrology, and fully automated AFM systems that are able to cater to both research and industrial needs. Park Systems products offer extensive application potential within the fields of scientific research, nanoscale engineering, semiconductor fabrication, display, advanced packaging, and quality assurance. The company's ongoing dedication has earned Park Systems the status of the most preferred choice for nano-metrology products among the leading semiconductor companies, renowned scientific research universities, and national labs.

Unleashing the Potential of Imagination

Driven by its vision to become the world's leading nanometrology solutions provider for scientific and technological progress, Park Systems endeavors to develop new possibilities for the underexplored world of nano science and technology. It also empowers its customers to push the boundaries of scientific research, engineering development, and semiconductor fabrication, display, advanced packaging, thereby contributing to advancements that collectively shape a better future.

Key Facts at a Glance

Park Systems achieved a compound average growth rate (CAGR) of 30% between 2015 and 2022, securing its position as the global leader in AFM, according to the Global Atomic-Force Microscopy, Market Report 2023 released by QYResearch*. The company currently has a sales network spanning over 30 countries with 500+ employees, with more than 37% of them engaged in R&D.

Revenue compounded growth

30%

FY2015 - FY2022

R&D investment

37%

Manpower of headcount

AFM market share*

#1

2022 Global AFM market leader

Market capitalization

>1.3 trillion

Currency in KRW (July 19, 2023)

Global network

63 countries

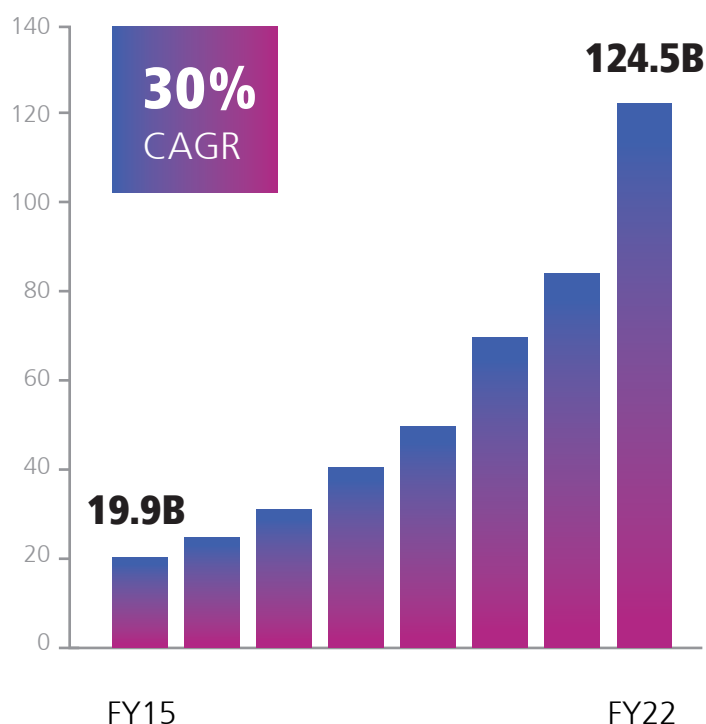
14 Direct offices

Recognition

Forbes Asia's 200

Named to Forbes Asia's 200 listing in 2020/2023

Revenue (KRW-Billion)



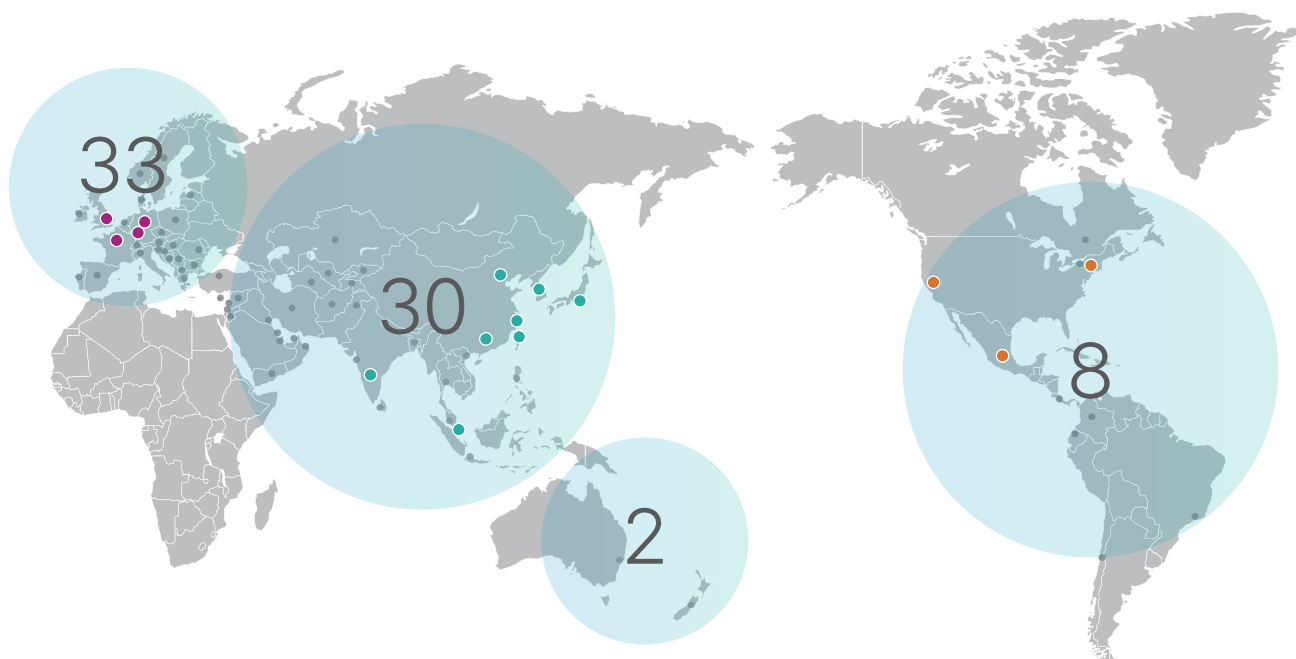
Financial Highlights

Fiscal Year Ends	Dec 31, 2022	currency in KRW
Revenue	124.52B	
Revenue Growth (YoY)	46%	
Operating Profit	32.65B	
Operating Profit Growth (YoY)	86%	

Global Presence

73 Countries, 16 Direct Offices

Park Systems boasts a significant global sales network, with offices and partners spanning in the Americas, Europe, Asia, and Oceania.



Americas

Park Systems Inc.
Santa Clara, California

Park Systems Applications Center
Burlington, Massachusetts

Park Systems Microscopy S.A. de. C.V.
Mexico City, Mexico

Europe

Park Systems Europe GmbH
Mannheim, Germany

Park Systems Accurion GmbH
Göttingen, Germany

Park Systems France SARL
Paris, France

Park Systems UK Ltd.
Nottingham, United Kingdom

Park Systems Lyncée Tec SA
Lausanne, Switzerland

Asia

Park Systems Corp.
Suwon, Korea

Park Systems Japan Inc.
Tokyo, Japan

Park Systems Pte. Ltd.
Singapore

Park Systems Pvt. Ltd.
Bangalore, India

Park Systems Beijing Office
Beijing, China

Park Systems Shanghai Office
Shanghai, China

Park Systems Guangzhou Office
Guangdong, China

Park Systems Taiwan Co. Ltd.
Zhubei City, Taiwan

Grand Opening of New Application Centers

The Park Shanghai Application Center in China is located in the core area of Hongqiao Business District, covering a total area of nearly 500 square meters, equipped with advanced technologies. It provides comprehensive technical support to customers from pre-purchase research to after-sales application needs.

The Park East Regional Application Lab in the US was opened on Northeastern University's 14-acre innovation campus in Burlington, Massachusetts. The new facility is located on Boston's Route 128 high-tech corridor, 15 miles north of the city in Building V, a new \$70 million, mixed-research building with 40,000+ square feet available for co-located university, industry, and government research partners.



New Application Center in Shanghai



New Eastern Regional Applications Lab at Northeastern University in Boston

Empowering Innovation Across Nanotechnology Industries

Park Systems specializes in providing cutting-edge solutions for a diverse range of industry fields.

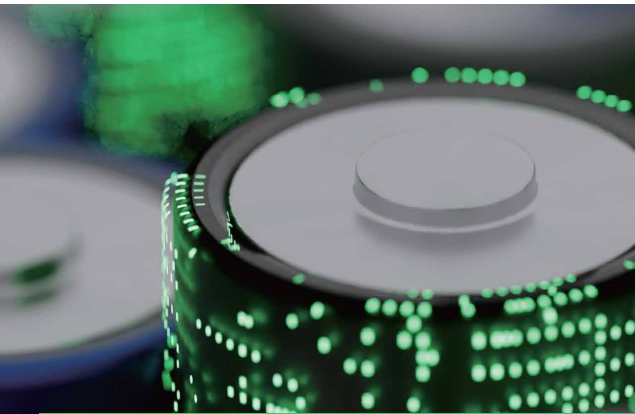
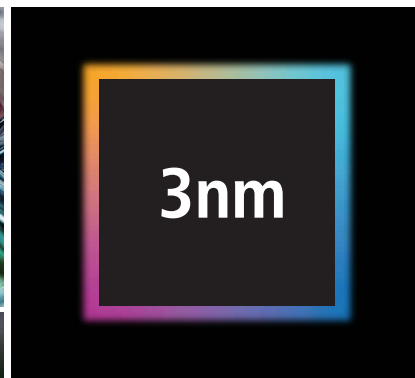
With its expertise in nanometrology, Park Systems offers precise measurement and characterization techniques that drive innovation and advancement in these sectors.

Material Science & Chemistry

Investigating the structure and properties at the nanoscale aids in understanding and designing nanomaterial characteristics. At academic and research institutions, nanometrology is widely used in scientific research, surface analysis, and various fields like physics, chemistry, material sciences.

Electrical & Semiconductor

The measurement and evaluation of electrical properties at the nanoscale, including electrostatic force interactions, surface charges, conductivity, and electrostatic capacitance, hold the key to the quality assurance, control and performance of each individual device.



Nano-Convergence

Nano-convergence includes the development of nanomaterials and nanostructures. Investigating material structures at the atomic level contributes to the enhanced development of efficient nanomaterials, facilitating their widespread use in diverse sectors.



Energy & Battery

High-resolution analysis of battery material structures and comprehension of ion and charge transfer mechanisms contribute to the enhancement of battery performance and acceleration of charge-discharge rates. Investigation into catalytic and chemical reaction mechanisms occurring during energy conversion and storage processes further supports the development of more efficient energy conversion pathways.



Life Science & Medicine

In the pharmaceutical and biotechnology industries, nanometrology is used for drug delivery, biomolecular analysis, and the study of biological systems at the nanoscale, including proteins, DNA, cells, and tissues.



Courtesy NASA/JPL-Caltech

Key Products and Services

Material Science & Chemistry

The versatility of Park AFMs allows them to serve as the optimal nanometrology solutions within the materials science and chemistry fields, wherein nanometrology is employed to characterize the properties and behavior of nanoscale materials and molecules. With the capability to characterize materials' electrical, magnetic, mechanical, and morphological properties, Park AFMs offer specialized operating modes that empower materials researchers to advance their understanding and control of nanoscale behavior. They also enable chemistry scientists to scale up their research on the chemical composition, structure, and reactivity of nanoparticles, nanocomposites, and other nanoscale materials.

- **Research and Surface Analysis**
- **Nano Infrared Spectroscopy**



Thin Film Characterization

Park's Imaging Spectroscopic Ellipsometers combine the benefits of spectroscopic ellipsometry and optical microscopy in a single device. The integration of the two technologies creates a unique metrology tool that redefines the limits of both spectroscopic ellipsometry and polarization-contrast microscopy. The enhanced spatial resolution of Parks Imaging Spectroscopic Ellipsometers expands ellipsometry into new areas of microanalysis, microelectronics, and bio analytics.

- **Imaging Spectroscopic Ellipsometry**



Semiconductor & Display

With a full line of automated AFMs for semiconductor fabrication metrology, device failure analysis and other industrial applications, Park Systems possesses a portfolio that is ready to meet the needs of the semiconductor and display industry—precise measurement and control of nanoscale structures that are crucial for device fabrication and performance optimization. Park AFM solutions allow engineers to take highly accurate, repeatable and complete measurements, thereby increasing the manufacturing efficiency and resulting quality of production.

- Wafer Processing
- Mask Repair
- Advanced Packaging
- Flat Panel Display



Active Vibration Isolation

Environmental disturbances such as vibrations and acoustic noise can highly affect your research and production process. Therefore, Park Systems advanced active vibration isolation systems are absolutely key for conducting reliable and precise measurements, while operating sensitive instrumentation.

- Active Vibration Isolation
- Acoustic Enclosures



Important Milestones

1982 - 1996

The advent and commercialization of AFM

In 1985, Sang-il Park, the CEO of Park Systems, was a PhD student and integral member of Professor Calvin Quate's team at Stanford, which invented the atomic force microscopy (AFM) together with the researchers at IBM.

In 1988, Dr. Park upon his graduation took this technology out of the lab and founded Park Scientific Instruments (PSI), where it pioneered the commercialization of AFM. After releasing a series of AFM products that were sold into both academia and industry, PSI was acquired by Thermo Spectra in 1997.

1997 - 2007

The next generation AFM and Park Systems

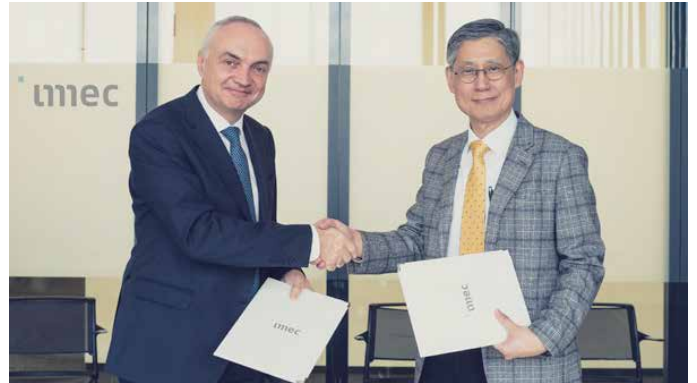
Recognizing the potential of AFM, Dr. Park returned to South Korea and founded Park Systems (prev. PSIA) with a vision to develop the next generation AFM that would solve the shortcomings of conventional systems—the monolithic scanning architecture that produced bowed images, and crosstalk phenomena that generated data artifacts—and make True Non-Contact AFM a reality.

Furthermore, Park Systems developed the industrial AFM systems and succeeded in selling them to the world's largest data storage makers. This provided a platform for the subsequent development of automated AFM for the semiconductor market.

2008 - 2015

Market lead and the IPO

Park Systems grew rapidly through the introduction of new AFM series, and expansion of the product lines. It provided the most comprehensive line of AFMs from research desktop to fully automated AFM systems integrated with robotic arms.



Signing of the 2nd Joint Development Project (JDP) with imec

Park Systems signed the first and second joint development projects (JDP) with imec, a world-leading R&D and innovation hub in nanoelectronics and digital technologies. These collaborations were aimed to enhance developments toward next-generation in-line AFM metrology solutions. The company signed the first JDP in 2015, through which it officially joined and established itself as a member of imec's Industrial Affiliation Program (IIAP). Through the JDPs, the two organizations developed the new AFM metrology solutions for the wafer semiconductor sector and supplied 200 in-line AFM units to major semiconductor production lines worldwide.

The company received AA ratings from two separate financial agencies on advanced technologies, becoming the first company to be listed on the KOSDAQ in 2015.

2016 - 2023

Accelerated growth

Park Systems has accelerated its growth through expanded geographical coverage by adding new regional headquarters in Germany, UK, France, Singapore, India, China, Taiwan and Mexico, in addition to Korea, Japan and the US.

Moreover, the successful penetration of its AFM systems into semiconductor fabs, and subsequent domination of this market has catapulted Park Systems onto the position of the world's leading AFM manufacturer. In 2020, Forbes recognized Park Systems as the emerging top 200 companies under \$1 Billion in Asia.

In 2022, Park Systems expanded its business portfolio by acquiring Accurion GmbH, a Germany-based company that develops and manufactures imaging spectroscopic ellipsometers (ISE) and active vibration isolations (AVI).



Celebrating the Merger and Acquisition of Accurion GmbH
with Grand Ceremony



The pursuit of long-term growth opportunities places Park Systems at the forefront of innovation, boasting a comprehensive suite of automated AFMs meticulously tailored to cater to diverse needs. In the dynamic semiconductor and display sector, where precision reigns supreme, Park AFMs play a pivotal role in semiconductor fabrication metrology, device failure analysis, and various industrial applications. The significance of nanometrology in optimizing device fabrication and performance cannot be understated, and Park Systems stands poised to lead in this critical aspect.

Outlook 2025 and 2030

Long-term growth opportunities

Park Systems remains dedicated to perpetual advancement, consistently refining its product roadmap to align with the evolving industrial landscape. Through strategic acquisitions and equity investments, the company has consistently bolstered the synergy within its product offering. Furthermore, Park Systems is committed to enhancing its capabilities through mergers and acquisitions, with a focus on companies that offer clear potential product and value synergies.



The convergence of Park Systems's advanced nanometrology portfolio with the demands of the semiconductor and display sectors strategically positions the company to harness enduring growth opportunities.

Park Systems will build a new headquarters office by 2026 and expand its production plant by 2027 in the suburbs of Seoul, South Korea. The new production plant will be built in the Yongin Semiconductor Cluster which will grow into the world's largest semiconductor cluster, a strategic region that SK Hynix created with an intention for the betterment of communication. As the number of orders for Park Systems products soared due to the diversification of industrial atomic force microscopy systems, the company plans to expand production capacity, accommodate large-scale new equipment such as AFM for display processes, and internalize key parts through mergers and acquisitions.



New Headquarters Office



New Production Facilities

Message from CEO

Park Systems stands at the forefront of nanometrology, with a one-of-a-kind focus on meticulous measurement and analysis at the nanoscale. We believe the foundations of revolutionary technology are laid in the unseen realm of nano – a belief that drives every aspect of our business approach.

Our pioneering technology and unwavering commitment to excellence have solidified our position as the industry leader and the largest AFM company worldwide. This relentless pursuit of technological supremacy has fueled remarkable growth evidenced by a robust global presence and an average compounded annual growth rate of approximately 30%. As we continue to achieve milestones, our vision has grown to resonate with an ever-wider audience.

We strive to empower scientists and engineers across the globe to push boundaries of their research, engineering, and semiconductor fabrication, enabling them to observe and study phenomena at nanometer scales, delving deeper into the atomic and molecular intricacies that drive breakthroughs. A culture of innovation and excellence thrives within Park Systems, as we equip organizations with the means to harness the boundless potential of nanoscale materials and devices.

Our strong commitment to growth is led by a desire to bring accessible and tailored solutions to our partners and clients. This commitment can be seen in our expanding business scope and solutions, which now includes a diverse range of measurement and analytical equipment. It also guides our approach to strategic acquisitions, such as the company's acquisition of Accurion GmbH (now Park Systems Accurion Division). Along with groundbreaking product launches like Park NX-Mask and Park NX-IR, these moves mark significant strides toward broadening our capabilities and exploring uncharted frontiers.

Sincerely,

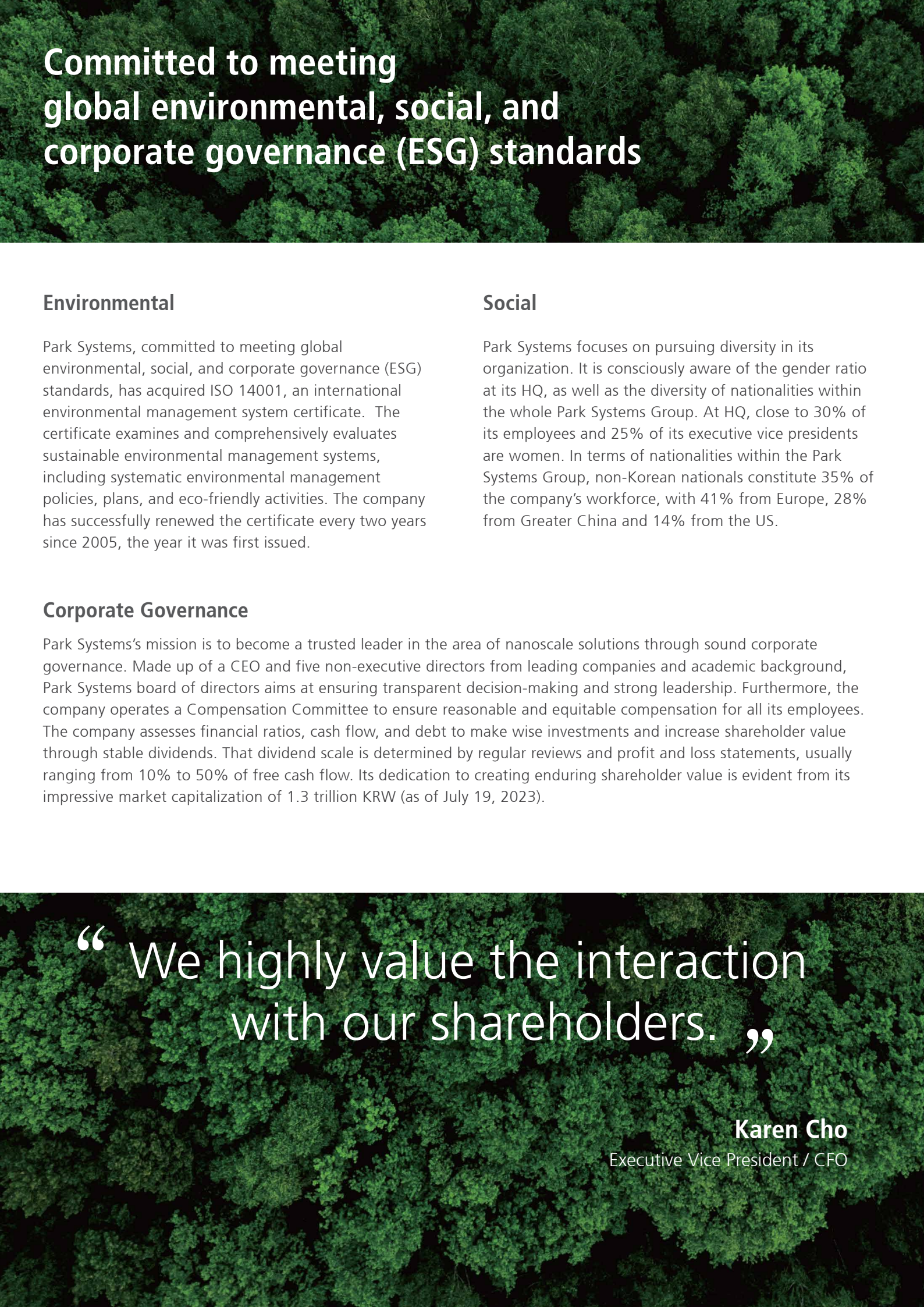


“ Park Systems is committed to bringing you the most advanced nanoscale microscopes through continuous investments in Research and Development, pushing the envelope of the nano-world possibilities. ”

A handwritten signature in black ink that reads "Sang-il Park". The signature is written in a cursive, flowing style.

Sang-il Park

Founder, Chief Executive Officer and Chairman



Committed to meeting global environmental, social, and corporate governance (ESG) standards

Environmental

Park Systems, committed to meeting global environmental, social, and corporate governance (ESG) standards, has acquired ISO 14001, an international environmental management system certificate. The certificate examines and comprehensively evaluates sustainable environmental management systems, including systematic environmental management policies, plans, and eco-friendly activities. The company has successfully renewed the certificate every two years since 2005, the year it was first issued.

Social

Park Systems focuses on pursuing diversity in its organization. It is consciously aware of the gender ratio at its HQ, as well as the diversity of nationalities within the whole Park Systems Group. At HQ, close to 30% of its employees and 25% of its executive vice presidents are women. In terms of nationalities within the Park Systems Group, non-Korean nationals constitute 35% of the company's workforce, with 41% from Europe, 28% from Greater China and 14% from the US.

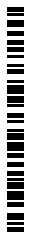
Corporate Governance

Park Systems's mission is to become a trusted leader in the area of nanoscale solutions through sound corporate governance. Made up of a CEO and five non-executive directors from leading companies and academic background, Park Systems board of directors aims at ensuring transparent decision-making and strong leadership. Furthermore, the company operates a Compensation Committee to ensure reasonable and equitable compensation for all its employees. The company assesses financial ratios, cash flow, and debt to make wise investments and increase shareholder value through stable dividends. That dividend scale is determined by regular reviews and profit and loss statements, usually ranging from 10% to 50% of free cash flow. Its dedication to creating enduring shareholder value is evident from its impressive market capitalization of 1.3 trillion KRW (as of July 19, 2023).

“ We highly value the interaction with our shareholders. ”

Karen Cho

Executive Vice President / CFO



Enabling Nanoscale Advances

KANC 15F, 109, Gwanggyo-ro, Suwon, Korea Tel.+82-31-546-6800

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