

Integrated Report

**2022**

## Management Philosophy of the Hamamatsu Photonics Group

We are convinced that light holds unlimited possibilities.

Known as photonics, light technology is fundamental to most markets with even further advancements underway. However, the nature of light is still yet to be fully revealed.

Every day, we strive to pursue the unknown and unexplored. Based on new technologies and knowledge exploring new opportunities, we create markets that contribute to a better society and a healthier planet.

We will continue to generously invest in both R&D and facilities, as well as expand our business and increase our corporate value.

People, technology and knowledge are the foundation of our success.

Together, we will advance and grow to the next level. We seek a collaborative spirit and learn from each other's strengths. Through this spirit, known as "Wa" 「和」 in Japanese, our endeavor is the continuous improvement of ourselves, united under one global entity.

### Mission

Our  
mission and promise

- Photon is our business -

**We dedicate our efforts to the advancements of science and technology for a better society and a healthier planet.**

### Vision

Our  
aspirations

**We will pursue unknown and unexplored areas to create new markets harnessing photonics technologies.**

### Values

Our  
values

**Challenge "We never stop trying."**

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## Integrated Report 2022

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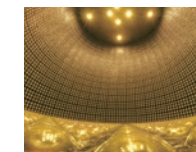
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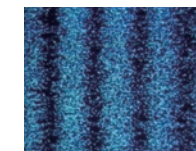
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#### Editorial Policy

The Integrated Report 2022 is a medium for sharing Hamamatsu Photonics' value creation story through both financial and non-financial information. The International <IR> Framework provided by the International Integrated Reporting Council (IIRC) and the Guidance for Integrated Corporate Disclosure and Company-investor Dialogue for Collaborative Value Creation provided by the Ministry of Economy, Trade and Industry were used as reference in preparing this integrated report. Our corporate website also includes even more extensive and detailed information. Please read the Integrated Report 2022 together with the information on our website.

#### Reporting Organization

The Integrated Report 2022 focuses on reporting of non-consolidated information about Hamamatsu Photonics K.K. The scope of the financial information encompasses 26 companies (as of September 30, 2022), including Hamamatsu Photonics K.K., 21 consolidated subsidiaries, and 4 entities accounted for using the equity method. From FY2021, the scope of non-financial information "Greenhouse Gases (Scope 1, 2)," "Water," and "Renewable energy" will include Hamamatsu Photonics K.K., domestic consolidated subsidiaries, and overseas manufacturing consolidated subsidiaries.

#### Reporting Period

The reporting period for this integrated report is FY2022 (October 2021 to September 2022).



<https://www.hamamatsu.com/jp/en.html>



Seize the Forelocks  
of the Goddess

Light  
to Electricity,  
Electricity  
to Light

What Can We Do  
with Light?

# The spirit of pursuing the unknown and unexplored - inherited from our predecessors

The origin of our company to engage in photoelectric conversion technology and the applied products to grow with the advancement of photonic technologies lies in the unyielding spirit to confront the unknown and unexplored realms.

Pursuing  
the Unknown  
and Unexplored

Photonics  
Technology  
Will Surely  
Help Society

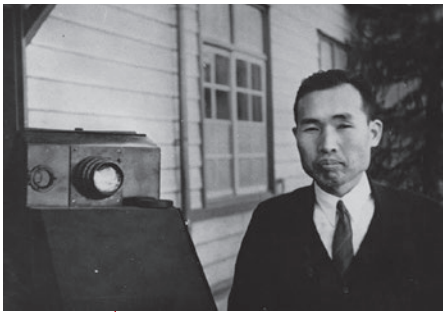
Make the World's  
Best Products

Professor Kenjiro Takayanagi, respectfully known as the “father of Japanese television.” A certain deity was involved in Takayanagi’s pursuit of the unknown. This deity was “Fortuna” - the goddess of fortune in Roman mythology. As told in these myths, Fortuna only had forelocks with no hair at the back of her head. One would have to be one-step ahead of her, wait for her to catch-up, and then turn around and seize her by her forelocks. When trying to develop technology to benefit society in the next ten or twenty years, we have to strive to go farther ahead than people think is necessary. That pioneering approach led to the success of the world’s first electronic television.



**1926** Prof. Takayanagi succeeded in receiving images on the world's first electronic cathode-ray tube. 「イ」 is derived from the “Iroha” order as the first character of the traditional Japanese syllabary. (The photograph is of the reproduction device.)

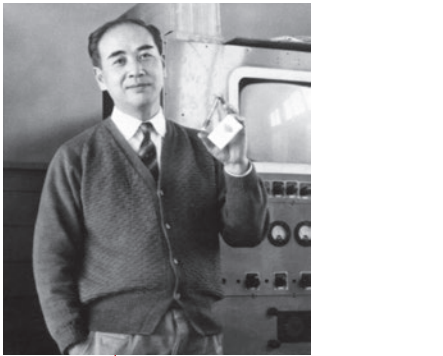
Prof. Takayanagi passed on his spirit to create things that did not yet exist in the world to his student, and our founding president Heihachiro Horiuchi and the second president Teruo Hiruma. Our entire company fully embodies this spirit. From almost the start of the company, Teruo Hiruma, who was mainly in charge of sales, encouraged everyone at Hamamatsu Photonics to make the world’s best products. He established a system to engage with the research industry and traveled around the world in an effort to develop markets. Teruo Hiruma inherited the ideals of Prof. Takayanagi and Heihachiro Horiuchi, and through his actions, our organization has grown into a world-class company.



**1935** Prof. Takayanagi and an Iconoscope Television Camera



**1960** Lecture by Teruo Hiruma



**1963** Heihachiro Horiuchi and the 1/2-Inch Diameter Vidicon



**1978** At the 25th anniversary ceremony for Hamamatsu TV Co., Ltd. (renamed to Hamamatsu Photonics K.K.), Heihachiro Horiuchi passed the baton of president to Teruo Hiruma. On the left, Prof. Takayanagi attended the ceremony as a guest.

1953 to 1972

From Founding to Product Development

Inheriting the spirit of Prof. Kenjiro Takayanagi, founder President Heihachiro Horiuchi established Hamamatsu TV Co., Ltd. with the second President Teruo Hiruma. The office building was a storehouse that had survived the flames of air raids. Even while confronting the difficulties of having few knowledgeable and skilled employees, acquiring expertise through literature and other materials, this new company took on the work with an unwavering spirit to “try before you say you can’t” toward a goal of making the world’s best products. The unique corporate climate of an “all researchers system” was created through the fun in each and every day even during the struggles at the time of our founding.

1973 to 1981

Expand New Applications from Analysis

The construction of a new factory put in place a production system. However, the impact of the oil shock, and the appreciation of the yen at that time, forced us to face the only financial deficit since the founding of our company. Analysis was the mainstay product application for the company at that time. However, we talked with customers about their challenges and developed 1/2-inch diameter head-on PMT. An opto-semiconductor for X-ray CT scanners then followed. This swept the optical sensor market for X-ray CT scanners and recovered our business performance. Thereafter, we developed other new products and generated new demand to expand applications from analytical and medical fields to industrial, academic, measurement and a wide range of other fields.

1982 to 1989

Establish Current Management Base through a Divisional System

To acquire advanced technology and expertise, and continue to drive superior planning and development capabilities, heightening the reputation of the company is indispensable in securing and cultivating excellent human resources. Therefore, we changed the name of the company to Hamamatsu Photonics K.K. and grew into a public company by officially registering on the over-the-counter stock market. As the corporate scale expanded and products diversified, we introduced a divisional system, which has become our current management base, to engage in business activities that can flexibly maneuver more efficiently, to adapt to the changing times.

1990 to 2008

A New Challenge to the Unknown and Unexplored Realms

A strong mentality to make the world’s best products is strengthened by our employees thanks to our work to establish superior technology and develop new products unified as a company. Furthermore, to achieve even more high-minded company goals, we had to take on challenges in the “unknown and unexplored realms” that bring about new research findings. As some specific fruits of these pursuits, we established the Central Research Laboratory, the Hamamatsu PET Diagnostic Center for validating the early detection of cancer and dementia, and the Graduate School for the Creation of New Photonics Industries for the education of human resources who aim to create new industries that use photonics technologies.

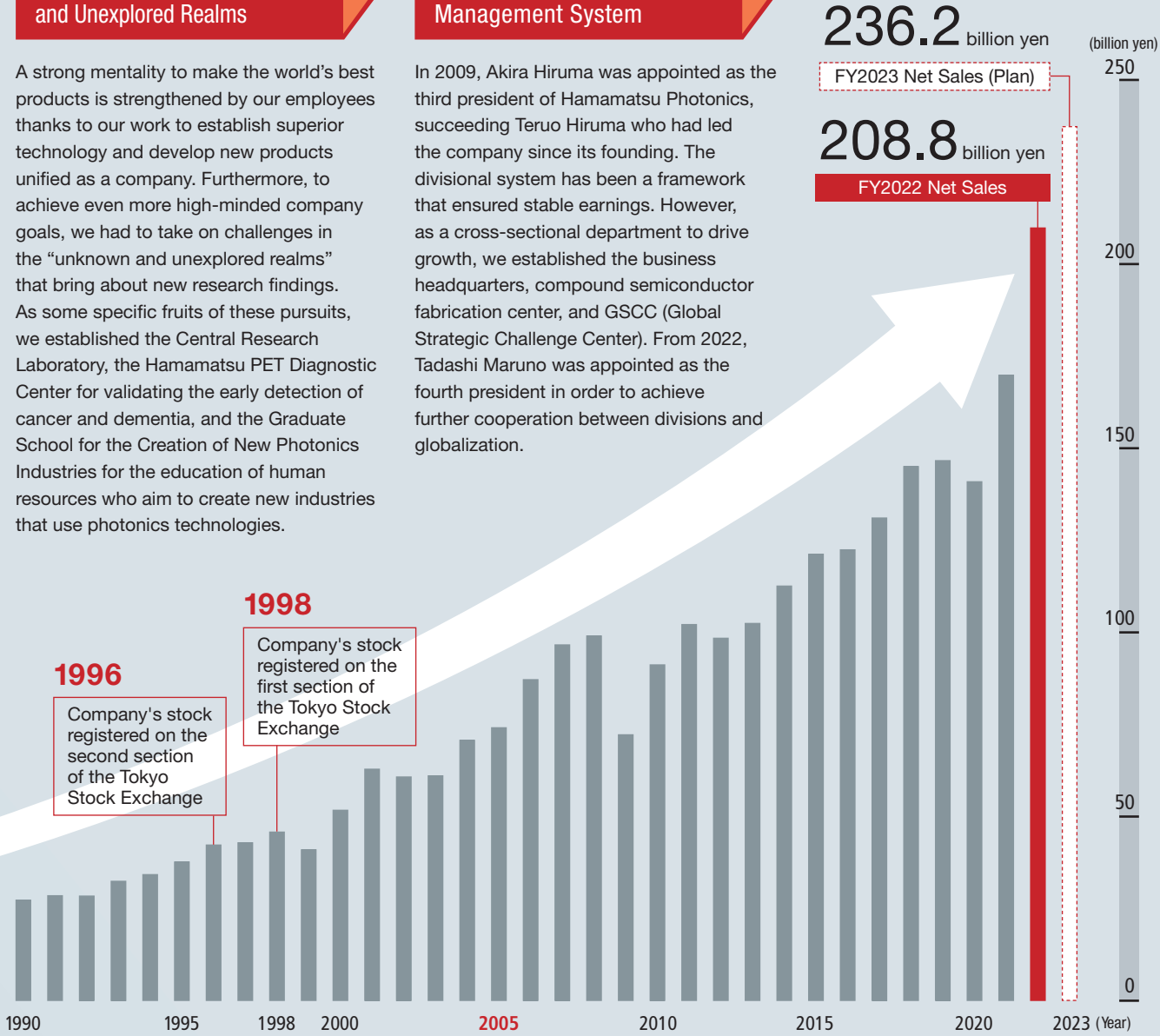
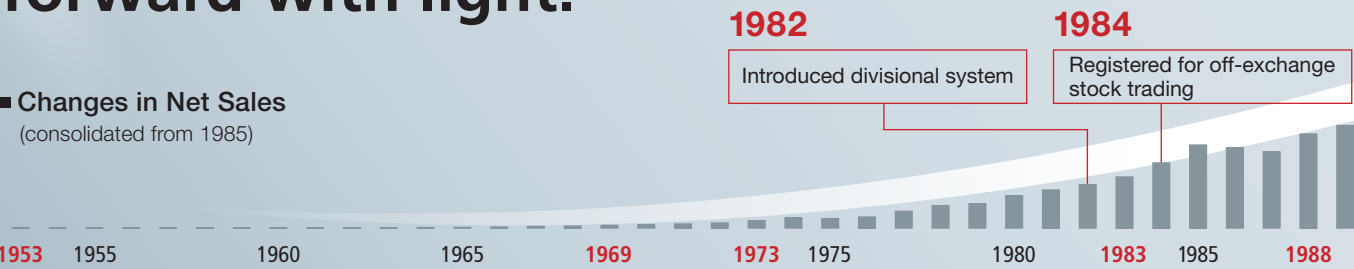
2009 and Beyond

Change in Management System

In 2009, Akira Hiruma was appointed as the third president of Hamamatsu Photonics, succeeding Teruo Hiruma who had led the company since its founding. The divisional system has been a framework that ensured stable earnings. However, as a cross-sectional department to drive growth, we established the business headquarters, compound semiconductor fabrication center, and GSCC (Global Strategic Challenge Center). From 2022, Tadashi Maruno was appointed as the fourth president in order to achieve further cooperation between divisions and globalization.

Since our founding, we have continued to pursue photonics technology and moved forward with light.

■ Changes in Net Sales (consolidated from 1985)



236.2 billion yen

FY2023 Net Sales (Plan)

208.8 billion yen

FY2022 Net Sales

1953

Established Hamamatsu TV Co., Ltd. (former name)



1969

Established an affiliated company in the USA



1973

Established a joint venture company in Europe



1983

Company name changed to Hamamatsu Photonics K.K.



1988

Established a joint venture company in China



2005

Established the Graduate School for the Creation of New Photonics Industries







**We will continue to contribute to the health and happiness of humankind by inheriting the spirit of Hamamatsu Photonics and significantly expanding the scale of the added value creation cycle.**

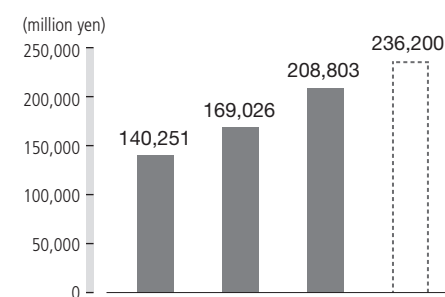
Representative Director and President

**Tadashi Maruno**

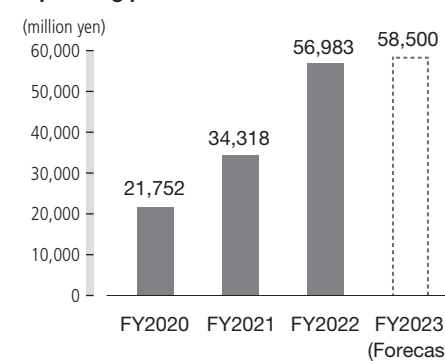
## Review of FY2022

In FY2022, the business environment was challenging due to the difficulty of procuring raw materials and soaring prices as a result of the resurgence of COVID-19, and the impact of the Russian invasion of Ukraine. Under these conditions, all employees did their best to overcome the challenges, and achieved net sales of 208.8 billion yen and an operating profit of 56.9 billion yen, the highest ever sales and profits for two consecutive years. One factor is that the tension between the United States and China has led each country to construct its own semiconductor supply chain. As a result, the market for semiconductor manufacturing equipment and inspection equipment expanded on both sides, and there was a significant increase in demand for our products used in such equipment. Furthermore, due to growing environmental awareness, the shift to electric vehicles has suddenly accelerated, and the demand for X-ray sources and detectors for lithium-ion battery inspection equipment has increased. Until now, lithium-ion battery manufacturing had relied on China. However, there is now procurement within each region; for example, batteries needed in Europe are now manufactured in Europe, and batteries needed in the United States are manufactured in the United States. This has led to increased demand. In relation to COVID-19, there has been a rapid increase in demand of products for DNA sequencers that confirm the genes of successive COVID-19 variants. Even amidst challenging conditions created by global tension and the COVID-19 pandemic, it was proven once again how useful our products are for society.

### Net sales



### Operating profit



## Inheriting the spirit of Hamamatsu Photonics

My name is Tadashi Maruno. I assumed the position of Representative Director and President of Hamamatsu Photonics K.K. in December 2022. Since joining our company as a new graduate, I have been immersed in the spirit of photonics for nearly 40 years. I would like to further develop our company's basic policies and activities without changing their orientation. Hamamatsu Photonics will celebrate its 70th anniversary this year. During the past 70 years, we have continued to pursue the realms of the unknown and unexplored. We have repeatedly applied the knowledge gained from this pursuit to optical devices and commercialized its development. These efforts are based on the belief that "Hamamatsu Photonics is more than just an electronic component manufacturer."

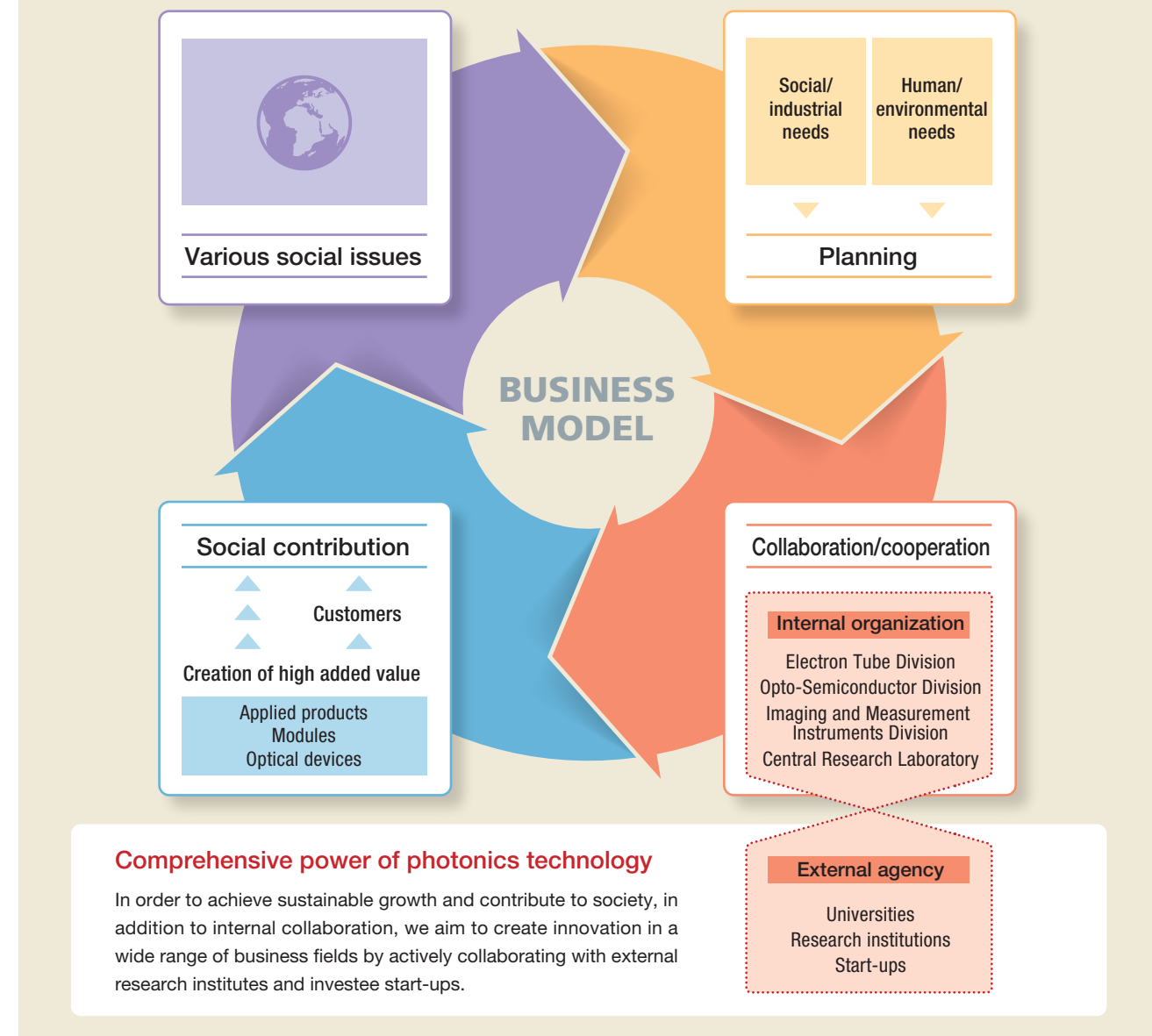
The structure of the applied photonics industry is in an inverted pyramid shape. Optical devices are positioned at the bottom. The size and fields of modules, systems, services, and industries grow as we move upward. From our position at the bottom, in other words from the origin, we are proud to support industries that utilize photonics. Without the optical devices that we provide, industries that utilize photonics would not exist. We are also proud of our contributions to the development of science and technology. For example, we supplied

the neutrino detector that led to the receipt of a Nobel Prize and the optical sensors used in experimental equipment that confirmed the existence of the Higgs boson. Light has infinite possibilities, so I believe that industries utilizing photonics will continue to expand. Our main mission is to contribute to the advancement of science and technology, the realization of a more affluent society and environment, and the health and happiness of humankind by expanding industries that use photonics. In addition, most of our development projects utilize a bottom-up approach, and we have a culture of learning from failures. Passing on the spirit of photonics is the most important issue in cultivating human resources at Hamamatsu Photonics, and it leads to the creation of our existence and corporate value. We will make sure it is fully inherited by the younger generation.

## Significantly expanding the scale of the added value creation cycle

How have industries that use photonics developed so far, and how will they develop in the future? The answer to this question is summarized in the “added value creation cycle.” Hamamatsu Photonics is composed of four segments: electron tubes, opto-semiconductors, imaging and measurement instruments, and lasers. Each segment builds close relationships with customers by listening to and ascertaining customer needs, making plans, investing in prototype development, and supplying products. In order to clearly satisfy customer needs, it is extremely important for Hamamatsu Photonics to have its own production lines. Customization through internal production leads to high-added value for devices and modules. Until now, we have repeated this cycle for each segment. However, from now on, we will further strengthen the cycle and provide even higher value-added products by enhancing collaboration among segments and anticipating social and industrial needs that customers have not yet noticed. This is an extremely important cycle for our company to achieve sustainable growth, and I believe that our business activities themselves contribute positively to society. In order to respond to social and industrial needs through these segments, the Central Research Laboratory is engaged in research and development that anticipates human and environmental needs 10 or 20 years into the future. One example is laser fusion, which is a form of green power generation for the future. Although this technology is said to be 30 or 40 years in the future, we have already been pursuing research on related technologies for nearly 20 years. I believe that the research and development of high-power lasers, which will be essential when laser fusion reactors are commercialized, is ahead of the times, especially concerning environmental efforts. Another example is the Hamamatsu PET Diagnostic Center which we established in 2003. Teruo Hiruma, the second president of our company, once stated the following: “From our base in the Western region of Shizuoka Prefecture, I want to spread PET diagnosis and contribute to humanity by eliminating death from cancer.”

## Added Value Creation Cycle



Personally, I was touched by this statement. PET diagnosis also enables early detection of dementia. I believe that we are ahead of the times in terms of countermeasures against dementia, which has become a major social issue in recent years.

## Future Focus Points

From now on, an even higher level of collaboration among divisions and the Central Research





Laboratory will be important to anticipate and respond to the needs of society, industry, humankind, and the environment. We have established CVC (Corporate Venture Capital) to achieve an even higher level of anticipation for needs that are key to the future. By supporting venture companies and working with them to examine cutting-edge fields, we can anticipate needs that no one has noticed before. Furthermore, sending our human resources to study the entrepreneurial process together and provide feedback within Hamamatsu Photonics is also useful for cultivating human resources and arousing the venture spirit within our company. We will also establish an internal venture system and aim to make Hamamatsu Photonics itself a pioneer in anticipating needs. Our company believes the opto-semiconductor business will continue to grow in the future. In particular, demand related to LiDAR, a remote sensing technology that uses light, and is indispensable for autonomous driving, will grow. We believe the success or failure of this business will be a turning point for future growth. Rather than focusing on mass production, low profit, and high sales, we aim to supply the world's first high-value-added products; for example, modules that integrate receiving and emitting light. Moreover, in a wide range of light detection applications, such as opto-semiconductor products and high-value-added products, we will meet various market demands with both photomultiplier tube sensors which maintain a high-profit margin. Until now, we have cultivated our technology internally. However, when considering the speed of change, we now believe in the option of M&A for bringing in the necessary technology from outside the company. Through initiatives including M&A, we would like to expand the scale of our laser segment to be on par with the other three segments.

## For Sustainable Growth

We will achieve sustainable growth by actively searching for and anticipating needs, and then commercializing and providing our findings. To accomplish this, it is important to create an environment that enables robust use of the added value creation cycle, and it is necessary to address issues both inside and outside our company. First of all, an important internal effort is to develop human resources. Since Hamamatsu Photonics deals with a wide range of products and industries, we do not have a company-wide program for the cultivation of human resources. However, our company has a culture of learning from failure, and there are numerous opportunities for employees to grow by actively taking on challenges. I always tell people not to be afraid of failure. Moving forward, we will further promote collaboration between divisions and globalization by changing our management system. Through this transformation, we will provide more growth opportunities than ever before, so I hope that our employees will actively embrace challenges. Furthermore, Hamamatsu Photonics' activities focus on engineering, a sector with few women. However, we recognize the importance of building an environment where women can fulfill an active role. Each division has a project to promote the active participation of women, and female leaders are working with consultants to create an ideal working environment. We are also working to create an environment in which marriage or parenthood does not interfere with careers. In terms of environmental initiatives, we believe that climate change countermeasures will continue to be an important issue. Last year, some of our factories were damaged by a large typhoon. Consequently, we recognize abnormal weather as an immediate risk. We continue to promote and deepen our analysis of risks, opportunities and financial impact based on the Task Force on Climate-related Financial Disclosures (TCFD) recommendations. Additionally, aiming for carbon neutrality, we are strengthening our efforts such as joining RE100, which aims to conduct business activities with 100% renewable energy for the entire group. We are also promoting green procurement and efforts to reduce our carbon footprint. To achieve sustainable growth, we must always remember the mindset of challenging unknown and unexplored realms and the pride of contributing to the development of science and technology by supporting industries that utilize photonics. We will continue to value this mindset and contribute to the realization of a world where harmony, collaboration, and co-creation can be achieved through photonics technology.



Hamamatsu Photonics aims to maintain the high ethical standards of each and every employee, to contribute to society and humankind through photonics technology, and to grow and develop as a robust and trusted company. We consider the Ten Principles of the United Nations Global Compact to be the basis of these aims and will continue to support those principles.

Business

Founding



September 29, **1953**

A group led by our first president Heihachiro Horiuchi founded Hamamatsu TV Co., Ltd.

Consolidated net sales



**208.8** billion yen

Consolidated net sales have approximately tripled during the 20 years since FY2002.

Profit attributable to owners of parent



**41.2** billion yen

Increased by 64.8% compared to FY2021.

Global

Overseas sales ratio



**75.3** %

The breakdown is  
Europe 21.4%, North America 26.1%,  
Asia 27.7%, and Japan 24.7%.

Number of consolidated employees



**5,491** employees

Increase of 212 employees compared to FY2021.

Number of overseas organizations



**23** sites

The breakdown is 13 sites in Europe, the Middle East,  
and Africa, 3 sites in the United States,  
and 7 sites in Asia.

Features

Number of intellectual property rights held



**8,160** rights

The number of applications for registration  
in FY2022 was 738.

Capital investments



**20.4** billion yen

Increased by 57.3% compared to FY2021.

R&D expenses



**11.2** billion yen

Decreased by 0.9% compared to FY2021.

Sustainability

Amount of greenhouse gas emissions



**57,504** t-CO<sub>2</sub>

3.2% reduction compared to FY2021.

Ratio of female managers



**3.2** %

0.4% increase compared to FY2021.

Consecutive certification



Certification of “2023 Health and  
Productivity Stock” and “2023 Excellent  
Health and Productivity Management  
Corporation (White 500)”

First time as a Health and Productivity Stock  
Sixth consecutive year from 2018 as White 500



Hamamatsu Photonics promotes the cycle of creating social value with photonics technology.



# Photon is our business

We dedicate our efforts to the advancements of science and technology for a better society and a healthier planet.

INPUT

Human capital

Yaramaika (Let's Give It a Try) Spirit,  
A Mind of "Wa," All Researchers System

Number of employees .....5,491 employees

Ratio of overseas employees ..... Approx. 20 %

Financial capital

Profitability management by  
division (small group), stable cash flow  
generation capability

Total assets .....366.1 billion yen

Cash and deposits .....125.9 billion yen

Manufacturing capital

Centralized production sites,  
collaboration system for sales/  
manufacturing/development

Capital investments .....20.4 billion yen

Manufacturing sites .....9 sites

Intellectual capital

Pursuing performance to  
its farthest boundaries

R&D expenses .....11.2 billion yen

Research themes ..... Approx. 200 themes

Social capital

Building co-creation relationships  
with customers, industry-academic  
-government partnerships

Business partners--Approx. 10,000 companies

Natural capital

Efforts based on basic  
environmental policy

Energy consumption  
(crude oil equivalent) .....36,290 kl

BUSINESS MODEL

Added Value Creation Cycle

Various social issues

Planning

Social/ industrial needs

Human/ environmental needs

BUSINESS MODEL

Social contribution

Customers

Creation of high added value

Applied products  
Modules  
Optical devices

Collaboration/cooperation

Internal organization

Electron Tube Division  
Opto-Semiconductor Division  
Imaging and Measurement Instruments Division  
Central Research Laboratory

External agency

Universities  
Research institutions  
Start-ups

Refer to page 11 for details.

Vision

Our aspirations

We will pursue unknown and unexplored areas to  
create new markets harnessing photonics technologies.

Values

Our values

Challenge "We never stop trying."

OUTPUT

Segment performance

Electron Tube segment

Net sales .....82.5 billion yen

Operating profit .....32.9 billion yen

Opto-semiconductor segment

Net sales .....96.8 billion yen

Operating profit .....35.2 billion yen

Imaging and Measurement Instruments segment

Net sales .....26.6 billion yen

Operating profit .....8.2 billion yen

Performance by industry

Medical-bio instruments 79.4 billion yen

Industrial instruments 69.9 billion yen

Analytical instruments 21.2 billion yen

Academic research 10.3 billion yen

Measurement instruments 9.5 billion yen

Transportation instruments 5.3 billion yen

OUTCOME

Human capital

Average years of service (years) .....16.0 years

Turnover rate .....2.1 %

Financial capital

Net sales .....208.8 billion yen

Operating profit .....56.9 billion yen

Operating profit ratio .....27.3 %

Manufacturing capital

High-performance, High-quality Products  
that Meet Global Needs

Intellectual capital

Number of patents held .....6,973 rights

Social capital

Contribution to healthcare, such as preventing  
the spread of infectious diseases

Contribution to semiconductor manufacturing

Natural capital

Amount of GHG emissions .....57,504 tons  
(down 3.2% YoY)

Amount of water used .....879,000 m³  
(up 6.5% YoY)



# Pursuing the Unknown and Unexplored

Hamamatsu Photonics contributes to the advancement of science and technology through cutting-edge academic research projects.

Photo: Inside Super-Kamiokande. This neutrino observatory is equipped with 11,129 20-inch photomultiplier tubes.

## Searching for Neutrinos and Proton Decay: Super-Kamiokande

20-inch diameter photomultiplier tubes

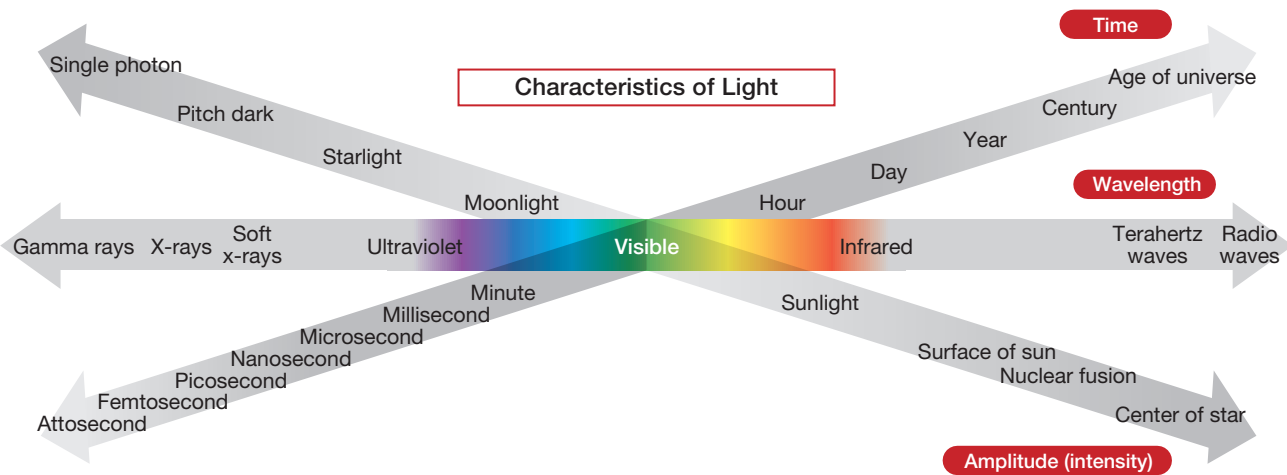
On February 23, 1987, Kamiokande Neutrino Observatory made a historic achievement: the first observation of neutrinos from a supernova. This once-in-a-lifetime opportunity, triggered by a supernova 160,000 light-years away, was captured by Hamamatsu Photonics photomultiplier tubes (PMTs). With a diameter of 20 inches, these PMTs are the largest in the world. Through continuing and relentless technological advancement, our PMTs contributed to the discovery of neutrino oscillation in 1998 in the current high-performance Super-Kamiokande (see photo). In the Hyper-Kamiokande Project, slated for completion in 2027, our PMTs are expected to contribute to observation of proton decay as well as further advances in neutrino research.



# What is “Light”?

Always striving to reveal the infinite  
and hidden potential of “light.”

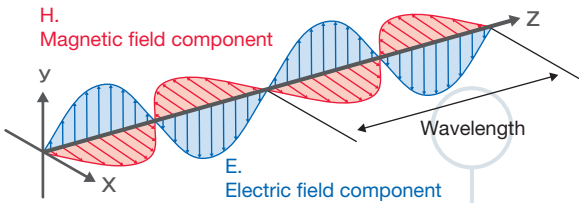
Due to its nature, light shows us various worlds, sometimes even mystical ones.  
Light is involved in many of the landscapes and familiar phenomena that we take for granted.  
However, these are only a very few of the possibilities of light. There are still many mysteries to be solved.



## Column

### “Light” is an electromagnetic wave

Electromagnetic waves are waves of electric fields and magnetic fields that oscillate in directions that are perpendicular to the direction of travel and perpendicular to each other. Light from the light fixtures that brighten a room and radio waves for televisions, mobile phones, wireless networks, etc., are all types of electromagnetic waves. The distance that an electromagnetic wave travels while an electric field (magnetic field) oscillates for one cycle is called a wavelength. The difference in this wavelength produces different colors visible to the human eye, and also brings various characteristics and properties to light and radio waves. All of us skillfully exploit its characteristics and properties.



The length of one wave cycle is between respective peaks and valleys. Wavelength is expressed using units of nanometers (nm, one-billionth of a meter) and micrometers (μm, one-millionth of a meter).

### Let's look at various wavelengths of light

	Light of different wavelengths					
	Gamma rays	X-rays	Ultraviolet	Visible	Infrared	Radio waves
Wavelengths range from those shorter than the size of an atom to those as long as a skyscraper's height	Less than 0.01 nm	0.01 nm to 10 nm	10 nm to 400 nm	400 nm to 700 nm	700 nm to 1 mm	1 mm to 10 km or more
Size comparison of wavelength						
Examples of usage in daily life						

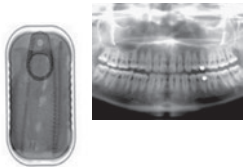
#### Gamma rays

Gamma rays are high-energy electromagnetic waves emitted by atomic nuclei in an excited state. When gamma rays are irradiated into matter, high-speed electrons are generated and act on the surrounding matter. These characteristics are utilized for sterilization and cancer radiation therapy.



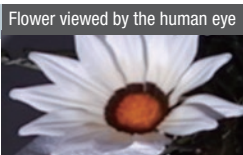
#### X-rays

X-rays have a wavelength of about 0.01 nm and possess a strong ability to penetrate objects. X-rays are used for medical X-ray photography to see inside of the body, quality inspection at factories, etc.



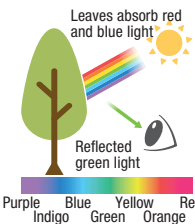
#### Ultraviolet rays

Ultraviolet rays on the short wavelength side of visible light are invisible to the human eye, but can be seen by birds and insects. As shown in the photograph on the right, insects can see a dark pattern in the center of flower petals, even though it appears to be patternless to the human eye. It is believed that this ability enables insects to locate and fly to nectar.



#### Visible light

Visible light is light in the wavelength range of approximately 400 nm to 700 nm. The human eye can perceive light in this range. The reason why plant leaves appear green when exposed to sunlight is that the substances contained in the leaves absorb blue and red light, and only the green light is reflected and enter our eyes.

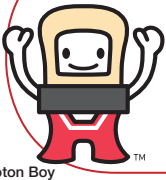


#### Infrared

Infrared rays are light (electromagnetic waves) with a wide wavelength range of 700 nm to 1 mm. Infrared rays are further subdivided into near-infrared rays, middle-infrared rays, and far-infrared rays. Near-infrared light, which is close to visible light, is used in everyday applications such as remote controls for AV equipment and home appliances, and communication between mobile terminals. Infrared rays are also emitted from any heat source (something possessing heat). For example, the human body has a temperature of about 37°C and constantly emits far-infrared rays with a wavelength of around 10 μm. Ear thermometers and thermography measure body temperature by measuring this infrared radiation.



If you would like to learn more about light, please visit “Photon Terrace.”



Photon terrace™

<https://photonterrace.net/en/>

Photon Terrace

Search



Photon Boy



What we can do now to illuminate the future.

Hamamatsu Photonics uses the results of our accumulated research to apply photonics technology and products to various fields. We contribute to a wide range of products, from everyday equipment to cutting-edge research equipment.

ENVIRONMENT

Air quality monitoring

Photonics technology is applied to the monitoring and measurement of air pollution. Hamamatsu Photonics photodetectors contribute to improving the accuracy of various environmental monitoring, from monitoring atmospheric radiation levels and industrial exhaust gases to measuring fine particles such as PM2.5 that are difficult to detect.



▲ Deuterium lamp



▲ InAsSb photovoltaic detectors

Water quality test

Photonics technology is applied to the component analysis of all types of water, from industrial wastewater to sea, river, pool water and other types of water in daily life. To find minute components in water, the light source must be highly stable and the detector must be highly sensitive.



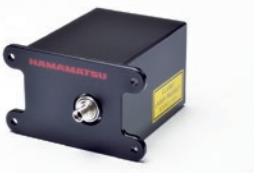
▲ Xenon flash lamp



▲ Photomultiplier tube

Plastic recycling

Thorough sorting of plastics and removal of foreign substances are required for material recycling, which recycles waste plastics as materials for new products, and chemical recycling, which converts waste plastics into oil or gas through chemical reactions. Hamamatsu Photonics offers a lineup of products for sorting equipment.



▲ FTIR engine



ENVIRONMENT



SEMICONDUCTOR

Semiconductor manufacturing

With the recent spread of IoT and telework, the amount of data has grown and the speed of communication has increased. In turn, this has accelerated the miniaturization and higher integration of semiconductor devices. Through laser dicing technology and other photonics technologies, Hamamatsu Photonics provides comprehensive support for the manufacturing process of high-value-added semiconductor devices.



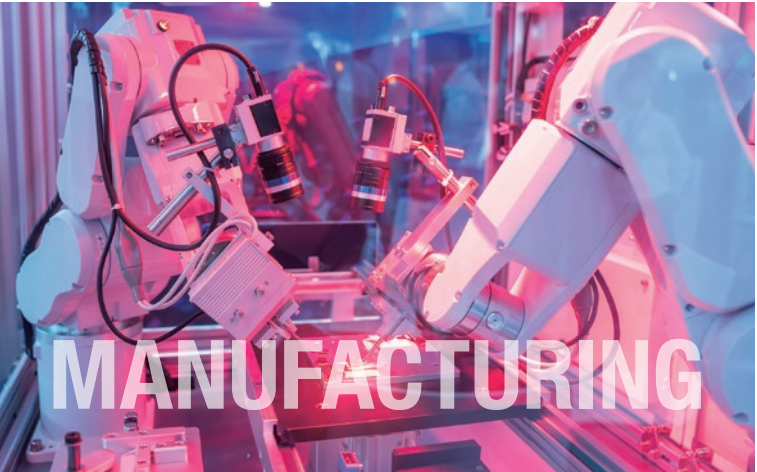
▲ Stealth Dicing Engine™ System

Semiconductor inspection

In order to ensure the quality of semiconductor chips, high reliability is required for inspections performed in each process. Hamamatsu Photonics provides the light sources, sensors, and cameras that are incorporated into the inspection equipment that fulfills this important role. We also provide equipment that detects failure points inside semiconductors.



▲ Laser-driven plasma light source (LDLS)



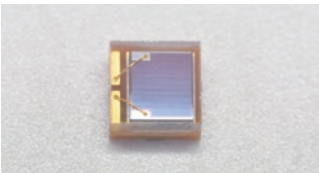
MANUFACTURING



AUTOMOTIVE

LiDAR

LiDAR is type of remote sensing technology that measures the distance by irradiating the object with a laser beam and capturing the reflected light with an optical sensor. This makes it possible to ascertain the distance, shape, and positional relationship of surrounding cars, pedestrians, buildings, etc., with high accuracy. As a result, this technology is attracting attention for applications such as autonomous driving and automated guided vehicles.



▲ MPPC®

Lithium-ion battery inspection

The use of automotive secondary batteries is increasing in conjunction with the spread of electric vehicles and hybrid vehicles. The safety of these batteries is also attracting attention. Hamamatsu Photonics products are used in the process of checking components and internal defects in secondary batteries, thereby contributing to improved safety.



▲ Microfocus X-ray source

MANUFACTURING

Encoders

Many motors are used in the joints of industrial robots such as machine tools. In order to accurately control robots, it is necessary to accurately detect the rotation speed and angle of those motors. Optical rotary encoders that combine LEDs and photodiodes are widely used for these purpose.



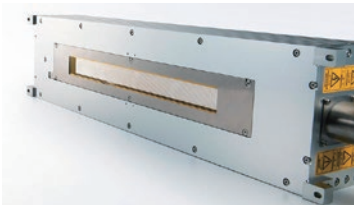
▲ Photo IC for encoder

UV printing/EB printing

UV (ultraviolet) light sources and EB (electron beam) light sources contribute to faster printing speeds and higher quality through ink drying, matte processing, static electricity countermeasures, etc. Photonics technology is also attracting attention in high value-added printing, such as migration countermeasures and decorative effects.



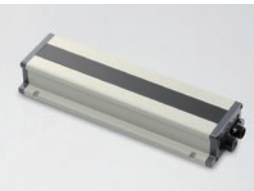
▲ LC-L5G (linear irradiation type UV-LED light source)



▲ FLAT EXCIMER (Excimer lamp light source)

Food inspection

X-rays and infrared light are used to inspect for remaining bones in meat and fresh fish, foreign substances such as insects and metal pieces, package sealing failures, and the contents of paper-packed beverages, etc. Hamamatsu Photonics' light sources and detectors are used in inspection processes to ensure the safety and security of food.



▲ X-ray line scan camera



What we can do now to illuminate the future.

MEDICAL

Dental diagnosis

Image sensors and scintillators are applied to X-ray imaging equipment for dental diagnosis. High-quality X-ray images of teeth and jaws can be obtained, thereby contributing to accurate diagnosis. There are various methods such as panoramic imaging, CT that can perform whole head imaging, and CR using a fluorescent screen.



▲ X-ray flat panel sensor

X-ray CT

X-rays are used to obtain cross-sectional images of the human body and three-dimensional images for examining the body. By improving the sensitivity of detectors, Hamamatsu Photonics contributes to lower radiation exposure during tests and higher resolution of acquired images.



▲ X-ray Si photodiode array

Blood tests

A detector with an optical sensor is used to capture the information held by cells contained in blood in the form of transmitted light or fluorescence. This contributes to the diagnosis of diseases and determination of treatment effects. Hamamatsu Photonics supplies compact, high-precision optical devices for inspection equipment, thereby contributing to the spread of point-of-care testing (POCT).

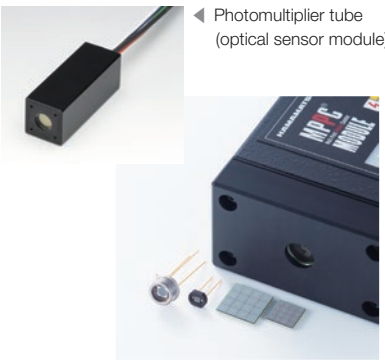


▲ Photomultiplier tube module



PCR tests

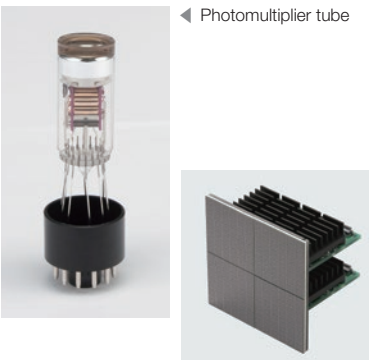
PCR is an acronym for "polymerase chain reaction," which rapidly amplifies the DNA to be measured and enables highly sensitive measurement. In addition to research fields, PCR test is widely applied to infectious disease inspection, criminal investigation, food inspection, etc.



▲ MPPC®, MPPC module

PET diagnosis

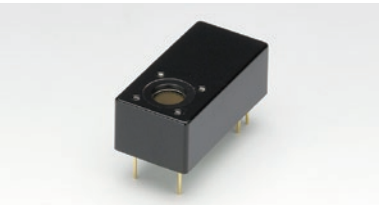
PET is an acronym for "positron emission tomography," which uses radiopharmaceuticals to examine the function of the whole body. It is used for early detection of cancer and also for brain function tests.



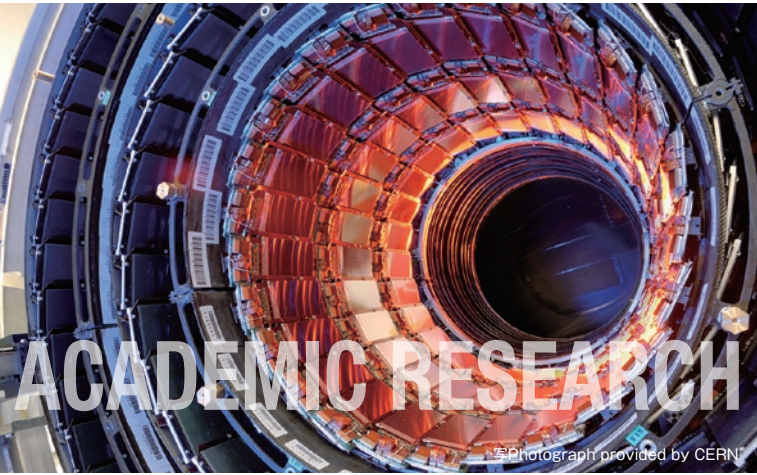
▲ MPPC module

Flow cytometer

Hundreds of thousands of cell per second can be analyzed by measuring cells while flowing them in liquid. The number, size, life/death, normality/abnormality, etc., of blood constituent cells can be determined. This technology is applied to a wide range of fields, such as leukemia and cancer diagnostic assistance, clinical research, and research for regenerative medicine.



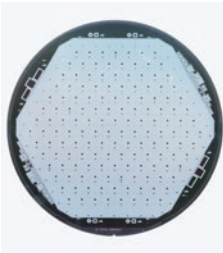
▲ Photomultiplier tube module



ACADEMIC RESEARCH

LHC (Large Hadron Collider)

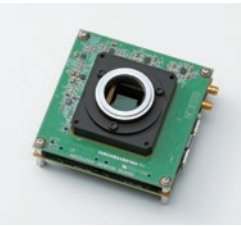
CERN (European Organization for Nuclear Research) conducted a proton-proton collision experiment at the LHC and confirmed the existence of the Higgs boson. Our sensors were adopted to detect the particles generated by the experiment. We are currently developing and mass-producing new detectors for the upcoming High-Luminosity Large Hadron Collider (HL-LHC) project.



▶ 8-inch pixel array detector for HL-LHC

DNA sequencer

A device that automatically analyzes the arrangement of the four types of bases that compose DNA. An optical sensor detects fluorescence from DNA with high sensitivity and identifies the type of base. Through their high sensitivity and high-speed response, Hamamatsu Photonics' photodetectors contribute to the improvement of high performance, processing capacity, and processing speed in equipment.

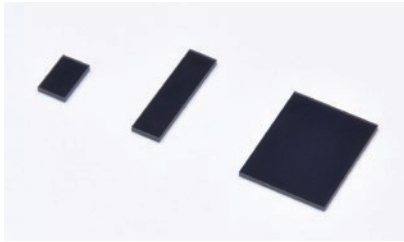


▶ Scientific CMOS camera

DAILY LIFE

Touchless display

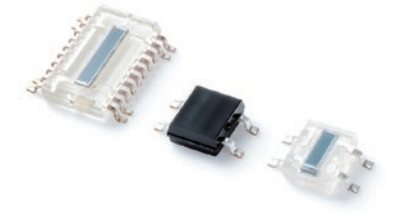
Touchless display allows users to operate a screen without contact. There are increasing needs for touchless displays in hospitals and other facilities which are used by an unspecified number of people and which require consideration for hygiene. Hamamatsu Photonics offers products for non-contact switches that detect the position of a finger when it approaches the screen.



▲ Distance image sensors

Robot vacuum cleaner

A robot vacuum cleaner runs automatically while measuring the position of walls and furniture, as well as the distance to surrounding obstacles. The principles of TOF and triangulation using light are applied to measurement of distance. The technology used includes infrared LEDs, PSDs (Position Sensitive Detectors), image sensors, etc.



▲ PSDs (Position Sensitive Detectors)



# Electron Tube Division

## Electron Tube segment

Hamamatsu Photonics supplies a wide range of fields (medical-bio, industry, academic research, etc.) with ultra-high-sensitivity optical sensors such as phototubes and photomultiplier tubes using vacuum technology for which we have accumulated experience since our founding, as well as electron tube devices such as imaging instruments, light sources, and X-ray sources. We will contribute to society by pursuing the ultimate performance that only Hamamatsu Photonics can achieve.

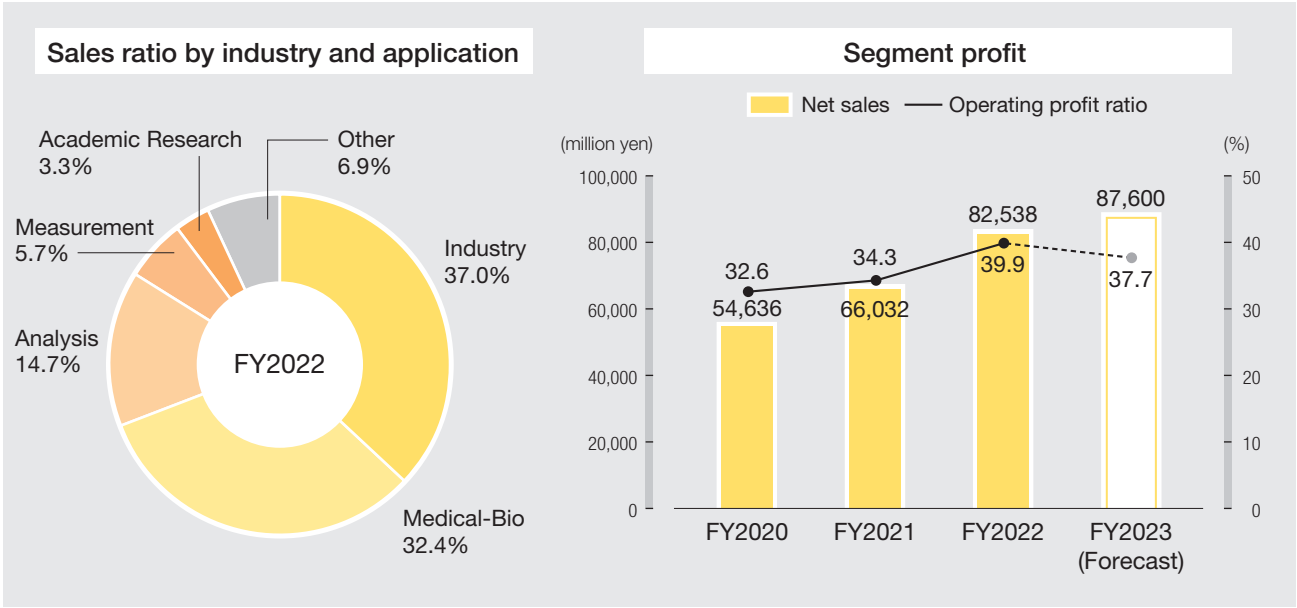
Hisaki Kato  
Division Director, Electron Tube Division



### Review of FY2022

In the industrial field, in conjunction with the expansion of EV (electric vehicle) production and the global spread of 5G, sales of microfocus X-ray sources for non-destructive inspection increased mainly in Asia, such as for automotive battery inspection and circuit board inspection. Furthermore, due to brisk global investment in semiconductor equipment, sales have increased for Stealth Dicing Engines that cut silicon wafers at high speed and with high quality, photomultiplier tubes for semiconductor inspection equipment, and light sources.

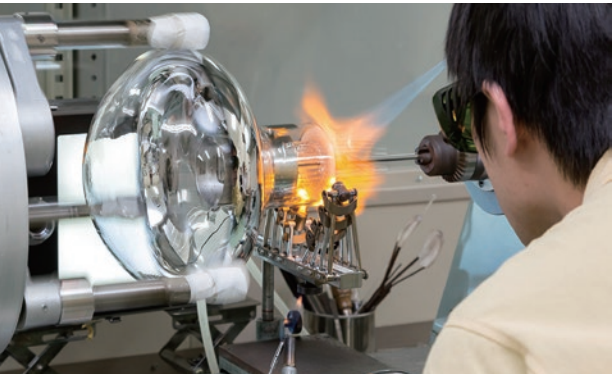
In the medical field, sales of photomultiplier tubes for flow cytometers and other laboratory testing equipment increased both in Japan and overseas. Although there were problems such as insufficient production capacity for microfocus X-ray sources, for which demand is rapidly expanding, net sales were 82.5 billion yen (up 25.0% YoY) and operating profit was 32.9 billion yen (45.5% YoY), setting new record highs for net sales and operating profit.



### Growth Strategy

The most recent issue is the inability of our production to meet the needs of our customers, as demand for microfocus X-ray sources is expected to increase due to the global expansion of electric vehicles (EVs). We plan to start operation of a new factory building in FY2023. We will continue to strengthen cooperation with our subsidiaries and actively make capital investments aimed at building a production system that can meet the increasing demand for microfocus X-ray sources. The establishment of new business pillars is necessary for medium- to long-term growth. The Electron Tube Division places great importance on pursuing the unknown and unexplored. In addition to the photomultiplier tube sensor that is our representative product, we offer a wide variety of products that have developed markets, such as light sources and applied products. Based on technologies (vapor deposition, vacuum, laser applications, etc.) that we have accumulated over many years, Hamamatsu Photonics will continue to pioneer new markets by developing products that anticipate customer needs and social/environmental needs. Although we work in a niche field, we are expanding the market and achieving growth as a top company with technology and products indispensable to clients all over the world. Through further refinement of the underlying technologies

we have built up over long years in business over a medium- to long-term period, we intend to start up a new business in the quantum field. To achieve steady growth, we will need product development capabilities in-line with customer development speeds, not only for this new challenge but also in other areas. We collaborate with internal and external universities and research institutions including our Central Research Laboratory. Improving technical ability within our division is crucial as well, and the participation of design teams, technical teams outside of the framework of each department, in development is one initiative for this purpose. Since the design teams already possess the technology, their participation speeds up the process with the goal of sharing technology and improving employee skills.





# Solid State Division

## Opto-semiconductor segment

The Solid State Division is pursuing the possibilities of photonics technology in the semiconductor field. We provide optical sensors that can detect a wide range of light from gamma rays and X-rays to far-infrared light, as well as light emitters and applied products including circuit designs in a wide range of fields (medical-bio, industrial, analysis, in-vehicle, academic, etc.). We will constantly introduce the latest technology such as MEMS to meet diversified and sophisticated needs.

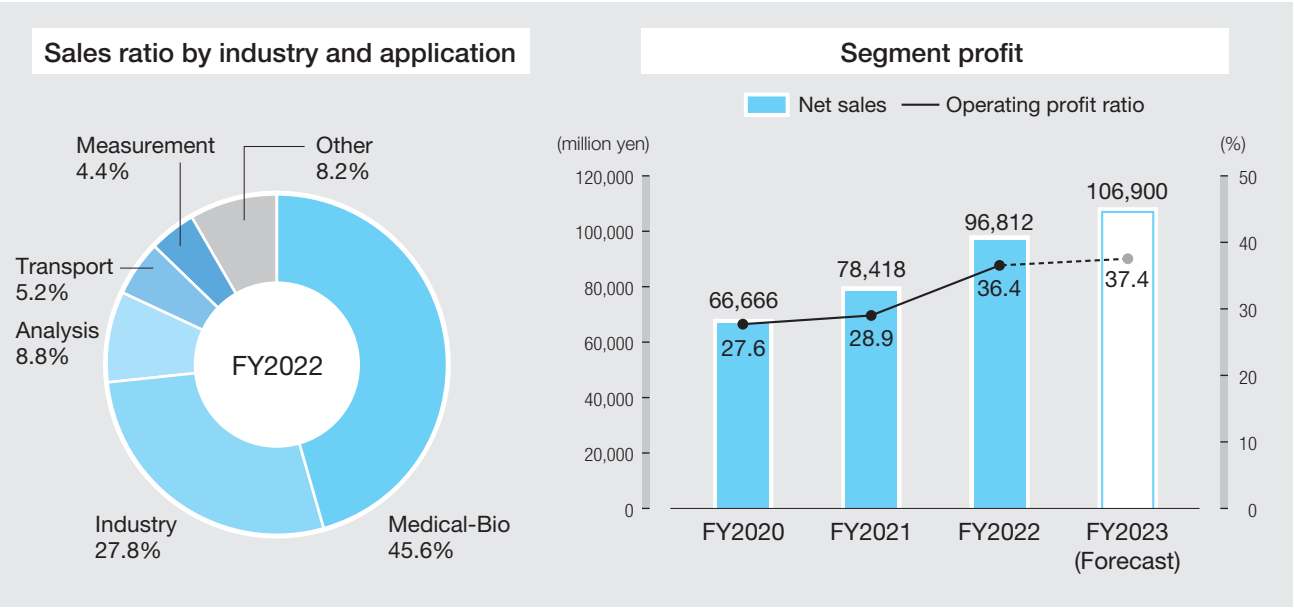
Takayuki Suzuki  
Division Director, Solid State Division



### Review of FY2022

Sales of image sensors and other products for semiconductor manufacturing and inspection equipment increased as a result of rising global demand for semiconductors. Sales also increased for photo ICs, photodiodes and LEDs in FA fields, such as controls for industrial robots, etc. In the medical field, sales of silicon photodiodes for X-ray CT and MPPC for PET increased due to continued growth in demand both in Japan and overseas. Although we were unable to meet

customer needs due to the rapid expansion of demand in the medical field and the industrial field centered on semiconductors and to the difficulty in obtaining materials, net sales were 96.8 billion yen (up 23.5% YoY) and operating profit was 35.2 billion yen (up 55.5% YoY). This set new record highs for net sales and operating profit.



### Growth Strategy

The Solid State Division has established its own headquarters system in order to expedite decision-making. We have three headquarters for future-oriented technology development, product development, and manufacturing. We have established an environment that facilitates mutual understanding while promoting the delegation of authority. One of the major innovations in the opto-semiconductor industry was the introduction of the MEMS process. As a result, the range of applications has expanded, and the room for growth by the Solid State Division has expanded significantly. Our important mission is to meet the custom needs of customers in different fields. In order to respond to new markets, we will continue to focus on improving our technological backbone, such as MEMS. LiDAR, which is a measurement technology that is attracting attention for autonomous driving, is a growth field for which we have particularly high expectations. Modularization technology that integrates advanced sensor technology and detected information processing is required. We are responding by developing and introducing new technology. We are also aiming to expand sales of X-ray flat panel sensors for non-destructive inspection. We will further increase added value by combining the

Electron Tube Division's microfocus X-ray source, which already boasts a large share in the battery inspection field, with the Solid State Division's flat panel sensor. The cultivation of human resources is also important for future growth. We established a headquarters system and improved the organization. Currently, we are working on three further improvements. The first is promoting the active participation by women. We have formed a team and been working on this issue for the past three years. Since there are few women in science-related companies, we believe it is important to create an environment in which women can fulfill an active role. The second is personnel mobility. We have established a new personnel group working to increase mobility. As part of employee career plans, we have started transfer for the purpose of training; i.e., transferring employees to other departments for a certain period of time. The third is education. In order to respond to customization requests from customers, it is essential to create a plan together with the customer. At the same time as being a professional in photonics technology, it is necessary to be a generalist familiar with a wide range of technologies. Moving forward, we will continue to grow by enhancing our ability to make proposals while promoting initiatives that emphasize human capital, and by contributing to the creation of products needed by society.

# Systems Division

## Imaging and Measurement Instruments segment

The Systems Division develops and manufactures system products that integrate light detection technology, imaging technology, and image processing and measurement technology, with the optical devices manufactured by the Electron Tube Division and the Solid State Division as key components. By leveraging a product development system that can accurately meet customer needs, we provide essential products in the three fields of imaging, medical, and semiconductors.

Fumio Iwase  
Division Director, Systems Division



### Review of FY2022

In the Systems Division, sales of digital cameras increased not only in the life sciences and biotechnology fields, but also in physical fields such as quantum and astronomy due to the launch of new products. There were also increased sales for DNA testing conducted overseas. Additionally, sales of pathology digital slide scanners continued to increase in Europe, and sales of semiconductor failure analysis equipment also remained strong both in Japan and overseas, mainly in Asia.

Some of the products of the Systems Division have as many as 10,000 parts, and although it was difficult to obtain materials, net sales were 26.6 billion yen (up 23.8% YoY) and operating profit was 8.2 billion yen (up 55.2% YoY), setting new record highs for net sales and operating profit.

### Growth Strategy

The Systems Division provides system products essential to three main fields: imaging, medical care, and semiconductors. We will expand our offerings further in the future with products to support the needs of each market.

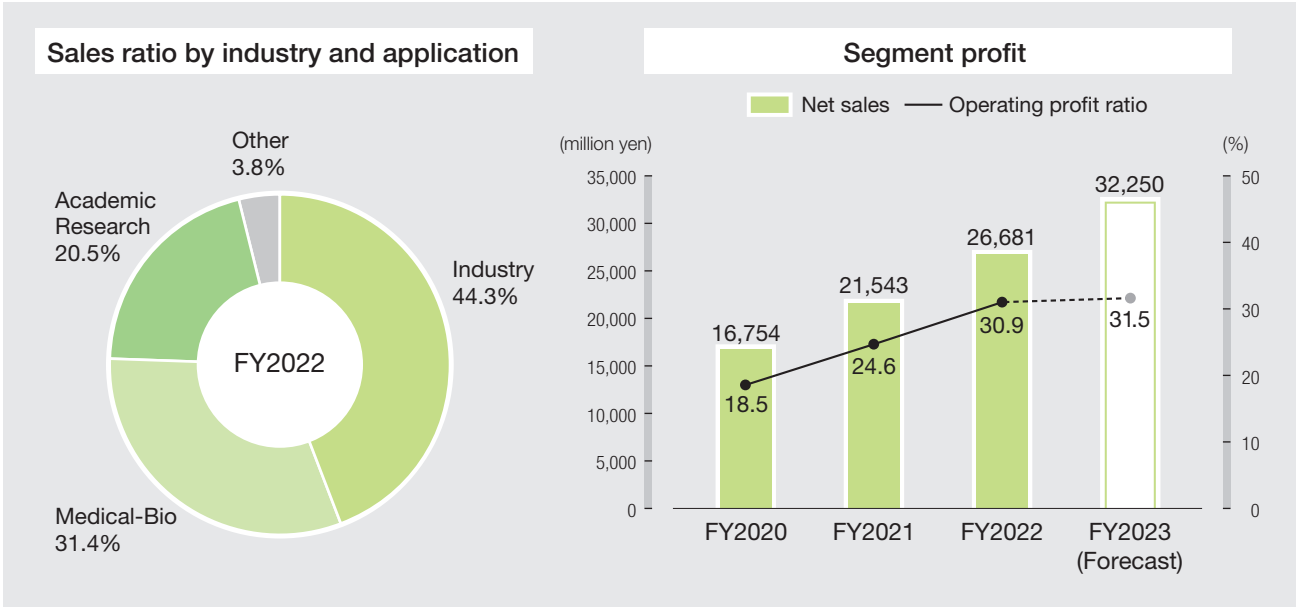
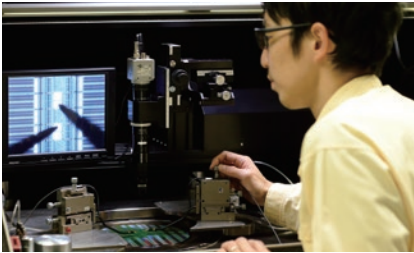
Our slide scanners have achieved particularly impressive results in pathological diagnostics, and they also have great potential for expansion to a variety of other diagnostic uses outside of pathology due to the development of various analysis uses. We will develop new products tailored to these analysis and diagnosis uses, securing new markets. In the semiconductors field, global dispersion of manufacturing is progressing as a result of US-China friction and supply chain globalization, causing increased demand for failure analysis systems for semiconductor devices. Our new building was completed last year, and we are using our increased production capabilities to meet this demand. In order to keep up with the continuing miniaturization and processing sophistication of semiconductors as well, we are proactively developing and introducing new semiconductor failure analysis systems.

Since we believe it is also essential for us to break into new growth fields which will become future pillars for our business, we are starting new development projects which gather together development supervisors across

varying specializations. In addition, we are proactively expanding the software technology business which we have been engaged in for more than 30 years now. At the same time, we are enhancing our maintenance business, with a focus on large equipment.

Cooperation with other divisions, local subsidiaries, and related companies is essential for our next leap forward. This division combines key components from other divisions to create high-value-added systems products, and it also plays the role of a pivot between divisions facilitating cooperation. In our cooperation with local subsidiaries, we started up the specialized prototype design organization, "Rapid Design Group," within our US sales subsidiary in 2016, and we are enhancing these kinds of local business cooperation efforts globally. Human capital is becoming increasingly important, and in our Systems Division, we established a technician training program about 10 years ago which has been in operation ever since. Currently, this program is being

used as a base for expansion to company-wide personnel training initiatives.





# Central Research Laboratory

## Basic and Applied Research

The roots of R&D at the Central Research Laboratory lie in Professor Kenjiro Takayanagi's words: "Use science and technology to realize things that are useful to the world." Based on a firm understanding of the possibilities of photonics technology as implied in these words, we are conducting research on various photonics technologies, while never forgetting to anticipate needs and create new businesses.

Haruyoshi Toyoda  
Director, Central Research Laboratory



### Review of FY2022

We developed spatial light control technology for high-precision and high-throughput laser processing as a project commissioned by the Cabinet Office's SIP (Strategic Innovation Promotion Program). Furthermore, as a project led by young researchers, we have developed mid-infrared, infrared, and terahertz semiconductor lasers. In the medical field, we have developed a PET scanner for scanning the patient's head while standing, which is a more natural position.

In terms of patents and papers which serve as guidelines for the activities of researchers and research institutes, we have applied for nearly 100 patents. With the cooperation of our intellectual property department, we maintain an extremely high level of registration rates. We also actively publish papers, some of which lead to joint research.

### Growth Strategy

No one knows what society will look like in 10 or 20 years, including the development of science and technology. Even amidst such conditions, we recognize the importance of collecting information on cutting-edge research on light, understanding what can and cannot be done, and identifying and implementing the themes we should research.

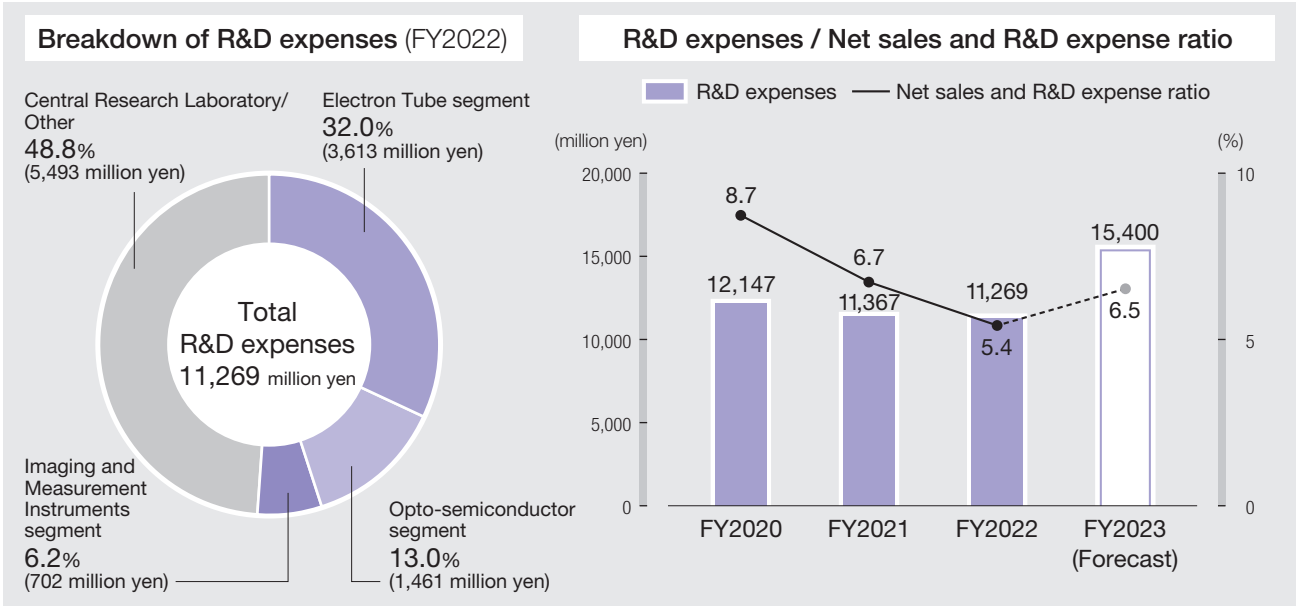
For that purpose, the Central Research Laboratory not only engages in internal research and development, but also take measures such as dispatching employees to domestic and overseas research institutions in order to strengthen joint research with outside parties and collaborate with overseas research institutions.

Currently, the Central Research Laboratory divides research and development by categorizing themes into five fields: 1) optical information processing and measurement, 2) health and medical care, 3) bio photonics, 4) Photonics material, and 5) energy. In the energy field, laser nuclear fusion has been attracting attention in recent years. We continue research and development while developing high-power semiconductor lasers, and participate in Cabinet Office projects. Additionally, while constantly considering how photonics technology can contribute to the world over a long span of 10 or 20 years, we are also conducting research in advanced fields such as spatial light control

technology and quantum simulators.

In the field of health and medical care, we developed a PET scanner for cancer screening in 2003, and started cancer screening at the Hamamatsu PET Imaging Center. Currently, we have accumulated data on more than 1,000 people, and we want to utilize this data for early diagnosis of cancer and dementia. We will also conduct research and development with an eye on the future of such health care.

Additionally, we are working to strengthen collaboration between our Central Research Laboratory and business divisions. The spatial light control technology used in our Stealth Dicing Engine was developed by the Central Research Laboratory. This technology has brought about superior business development in the dicing process of semiconductor wafers. Moreover, we are proceeding with research and development of new optical device technologies such as surface-emitting lasers with built-in photonic crystals and quantum cascade lasers.





# Sustainability of Hamamatsu Photonics

## Philosophy

As a corporation that contributes to society through photonics technology, Hamamatsu Photonics recognizes that harmony with the environment, society, and the economy is the most important issue, and we aim to realize a sustainable society for a future where an optimal balance is maintained among the Earth, people, and all living things.

## Our concept of Sustainability

Hamamatsu Photonics recognizes our business partners, customers, employees, shareholders, and local communities as stakeholders. We share our forward-looking stance with these stakeholders throughout our entire company and disclose it outside of our company. Of course, our company alone cannot sustainably improve social activities, and it is not sufficient for our company to grow on our own. Instead, we want to improve the corporate value of our company while working to raise the level of society as a whole by collaborating with many stakeholders.

Additionally, our products are widely used in industries related to human life, the environment, and safety, as well as businesses that contribute to the development of social infrastructure by using advanced technology. We believe that we have a responsibility to stably and sustainably supply products.

In recent years, issues related to the environment, human rights, labor, fair trade, and BCPs have become increasingly claimed globally. We regard these issues as important matters, and consider and respond to the development of environmentally conscious products, the creation of an environment that protects the human rights of workers and makes it easier to work, and what we can do to eliminate illicit trade. Specific details of these items are disclosed on the Company's website, including figures.

# ENVIRONMENT

## Policies

### 1 Providing environmentally friendly products

Manage chemical substances contained in products, as well as develop and provide products that contribute to environmental improvement and reduce the burden throughout the product life cycle.

### 3 Protection of the environment, prevention of pollution

Address energy saving, global warming prevention, waste reduction, sustainable resource use, chemical management, biodiversity protection, conserving water and preventing pollution.

### 5 Continual improvement of environmental management system

Make efforts to improve our environmental performance by the continual improvement of our environmental management system, through the evaluation of the environmental impact at regular intervals.

### 2 Actions to address environmental activities

Encourage all our employees to take environmentally friendly actions, achieving our environmental goals based on the identification of risks and opportunities that can influence our business activities, products and services.

### 4 Compliance of environmental regulations

Comply with domestic and international legal requirements, individual agreements and other requirements to which we subscribe voluntary.

### 6 Promoting environmental communication

Promote environmental consciousness and friendly communication with stakeholders and our employees by widely disclosing environmental information both internally and externally.

# Conservation of biodiversity

## Endorsement of Declaration of Biodiversity by Keidanren and Action Policy

Hamamatsu Photonics endorsed the Declaration of Biodiversity by Keidanren and Action Policy (October 2018 revised edition) in January 2020. We are also listed as a supporting corporation/organization in the Initiative based on the Declaration of Biodiversity by Keidanren announced in June 2020.

## TOPICS

### Cleanup activities supporting the Hamamatsu Biodiversity Strategy

As part of its efforts to preserve biodiversity, Hamamatsu Photonics participates in and publicizes the Hamamatsu Biodiversity Strategy, conducting environmental maintenance activities around its business locations and elsewhere in the city and prefecture. We participate in activities such as the annual Lake Hamana Cleanup Campaign, thereby maintaining biodiversity in the region to preserve a flourishing natural environment for the future. In the 75th period (FY2022), there were activities that were canceled or scaled down due to the impact of COVID-19. In addition to taking measures against COVID-19, we conducted 12 cleaning activities around the office. 421 employees participated a total of six times in activities including the Hamamatsu City Corporate Exhibition Flower Bed in front of Hamamatsu Station, the KALA Project to improve seawalls on the Enshunada coast, and the above-mentioned Lake Hamana Cleanup Campaign.



Lake Hamana Cleanup Campaign (2022)



Toyoda River Cleanup Activities (2022)



Planting trees on seawalls

### Happy Memorial Trees

As part of its activities to promote biodiversity and raise awareness in greening, in October 2011 Hamamatsu Photonics began distributing Happy Memorial Trees to employees who bought a house or were married. To further encourage employees to grow trees at home, in October 2014 we expanded the program to include employees who enrolled a child in primary school. This program has proven valuable in raising environmental awareness among employees and their families. The photos shown on the right were provided by employees in commemoration of tree planting. To date, 1,095 employees have used the Happy Memorial Trees program since it began until the 75th period (FY2022). Hamamatsu Photonics is committed to the beautification, maintenance, and management of the environment. We plant trees on the grounds of each business location and create green curtains that flourish in summer.



Green curtain in summer



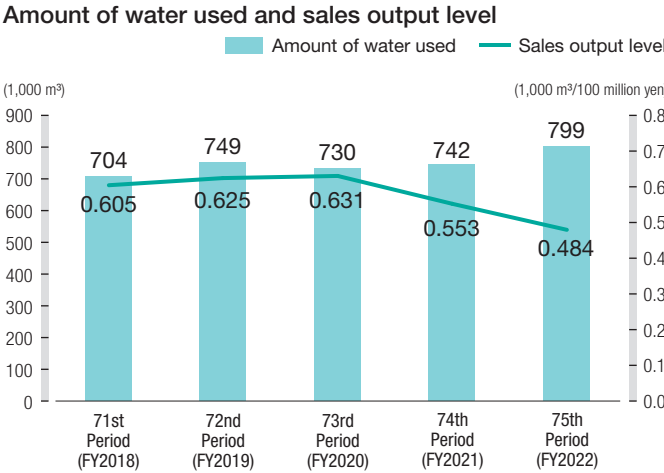
Photographs celebrating planting the Happy Memorial Tree



Water resources

Hamamatsu Photonics works to achieve the medium- to long-term goal of a 10% reduction in water use per unit of net sales in comparison with the 73rd period (FY2020) by the 83rd period (FY2030), as well as the short-term goal of a 1% reduction in water use per unit of net sales in comparison with the previous period. The results for the 75th period (FY2022) were a 23.3% reduction compared to the 73rd period (FY2020), and a 12.5% reduction compared to the previous period, thereby achieving the target.

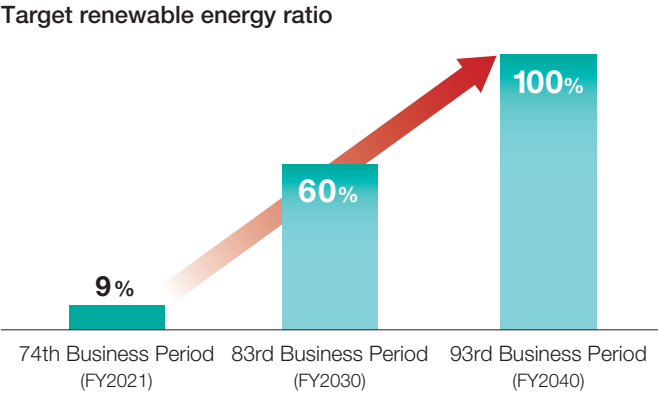
We recognize the importance of water resources and are dedicated to reducing our use, as well as recycling the water we do use. In addition to in-house water-saving activities, we have introduced a system in which half of the water resources used for pure water production are covered by recycled water at the Main Factory, realizing the reuse of approximately 200,000 m³ of water resources annually.



We recognize “addressing climate change issues” as a key challenge. We will strengthen our efforts and promote information disclosure based on the TCFD recommendations to achieve the Long-Term Vision of Global Warming Countermeasures set in March 2020, and the certified SBT targets. To reduce greenhouse gas emissions throughout the value chain, we will promote energy conservation in our group companies, actively introduce renewable energy, reduce greenhouse gas emissions from non-energy sources, and develop and provide low-carbon products. We will continue to contribute to the realization of carbon neutrality through collaboration in the value chain; for example, being engaged in the reduction of greenhouse gases at our major suppliers.

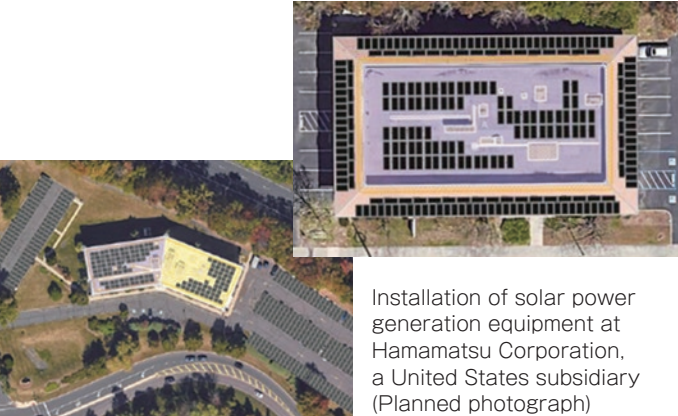
Joining RE100

Hamamatsu Photonics have joined RE100, an international initiative with the goal of ensuring 100% renewable energy sources in business operations, on October 3, 2022. We aim to use 100% renewable energy for the electricity used in our group's business activities by 2040.



Introduction plan for renewable energy

As a specific measure for carbon neutrality, we will convert all electricity used at our domestic sites (approx. 124 GWh/year) to renewable energy starting in October 2022. This will result in a reduction of approximately 55,000 tons of carbon dioxide per year. In addition, we are planning to introduce self-consumption solar power generation facilities (total power generation capacity: approx. 1.1 MW) and green power certificates at our overseas subsidiaries. We will continue to promote group-wide measures moving forward.



TOPICS

Water risk evaluation and countermeasures

Since 2016, Hamamatsu Photonics has participated in and provided responses to the CDP Water Security (formerly known as CDP Water), a questionnaire which is part of an international disclosure program on corporate water risk. Hamamatsu Photonics also use the water-risk evaluation tool WRI Aqueduct to evaluate water risks of all production sites both in Japan and overseas. As of January 2023, we have confirmed that all domestic production sites and research sites have no significant water risks. We plan to continue conducting risk evaluation going forward.

In addition to water-risk evaluation using WRI Aqueduct, we also evaluate flood risk at production sites and research sites in Japan with local hazard maps such as Hamamatsu City Disaster Prevention Maps and Ibaraki Digital Map. As a result, we found that there was a risk of flooding at the Shingai Factory near the Tenryu River. Therefore, in the new building No. 2 of Shingai Factory that was completed in August 2020, we took measures against flood damage, such as installing waterproof walls and buoyancy flip-up waterproof plates.



Installation of buoyancy flip-up waterproof plates and waterproof walls

Disclosure based on TCFD Recommendations

In August 2020, we announced our support for the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) and analyzed the risks, opportunities, and financial impacts of climate change on our business. We are pleased to disclose on our homepage some of the results of this study based on the TCFD recommendations.

Contributing to the achievement of carbon neutrality  
—Joining the international initiative RE100 and plans to introduce renewable energy—

A future where an optimal balance is maintained among the Earth, people, and all living things - Hamamatsu Photonics Group aims to make this dream a reality through research into “light” which is the source of all matter.

TOPICS

Adoption of Shizuoka Green Electricity by Chubu Electric Power Miraiz

We endorse and adopt the Shizuoka Green Electricity service, which emits zero CO<sub>2</sub> and is sold by Chubu Electric Power Miraiz Co., Inc. This will contribute to the reduction of CO<sub>2</sub> emissions by using electricity generated at a renewable energy power plant located on a river in Shizuoka Prefecture as part of the electricity for our sites in Shizuoka Prefecture.

- Please refer to the following website for information on Shizuoka Green Electricity. (in japanese)  
[https://miraiz.chuden.co.jp/business/electric/menu/co2\\_free/shizuoka/](https://miraiz.chuden.co.jp/business/electric/menu/co2_free/shizuoka/)
- Please visit the Hamamatsu Photonics website for information on our environmental efforts.  
<https://www.hamamatsu.com/jp/ja/our-company/sustainability-and-csr/environment.html>





S O C I A L

Health management

Basic policy

Hamamatsu Photonics pursues the unknown and unexplored. By leveraging photonics technology to establish new industries and reach for the world’s highest levels of manufacturing excellence, we build corporate value and contribute to society and humanity.

Hamamatsu Photonics recognizes that people, technology, and knowledge are the foundation of our management. Therefore, in order to achieve our goals, it is important for each and every employee to strive to improve through their daily work and discover what only they can do. Furthermore, we must develop competitive technology based on the knowledge and needs for creation of the optical industry in which our company is engaged. Based on a mind of “Wa,” we must cultivate a corporate culture that allows us to demonstrate comprehensive strengths that are greater than the sum of our individual abilities. This can only be achieved if each and every employee is healthy both physically and mentally. We consider investment in maintaining and improving the physical and mental health of our employees to be an essential part of corporate management, and we will actively promote this investment.

Employees are the foundation of management and assets of our company. In order to ensure that all employees can continue to work energetically for a long time while balancing work and family, simply implementing measures by internal professional staff is insufficient; instead, we must also engage in comprehensive and planned measures by collaborating with related organizations such as health insurance associations. Moreover, we will lead to the implementation of the next measures based on the verification of the effects.



Human capital

Basic policy

We believe each one of our employees fulfills a major role in pursuing the unknown and unexplored, leveraging photonics technology to establish new industries, and improving corporate value. In other words, one of the foundations of management is “people.” This idea is clearly stated in our Management Philosophy.

Specific efforts

Educational and training programs

At Hamamatsu Photonics, our consistent perspective is that shop-floor experience provides far better learning opportunities than studying at a desk.

This conviction informs the approach we take in training new, career-track employees. These employees spend their first six months with Hamamatsu Photonics circulating among the Electron Tube Division, Solid State Division, Systems Division and Central Research Laboratory for training. In the process, trainees learn our style of working, acquire basic knowledge and build personal networks within our company. We also offer a total of about 20 courses ranging from courses to introduce the products of each business division and learn specialized knowledge to courses that are useful in daily life. Our employees serve as instructors.

	2022
Employee training expenses (total)	133 million yen
Training expenses per employee	34,371 yen

Promotion of diversity and inclusion

Basic policy

Diversity and inclusion refers to the concept of celebrating diverse human resources and allowing them to demonstrate their abilities. Diversity of human resources has a wide range of meanings, including gender, age, nationality, the presence or absence of disabilities, and working styles. This is an important concept from the viewpoint of countermeasures against labor shortages and productivity improvement. Therefore, Hamamatsu Photonics is promoting this initiative.

Specific efforts

Ensuring work-life balance

Hamamatsu Photonics understands that, to fulfill a dynamic role in the affairs of our company, each employee depends on a solid foundation of family and community life. That is why the Company works hard to secure the work-life balance employees need. We confer with the labor union as needed to undertake measures such as the following.

- To eliminate excessive work hours, work hours of employees are not only overseen by management but are also confirmed at labor-management conferences.
- Every Wednesday is designated as a no-overtime day.
- Managers are provided with appropriate training.
- When an employee’s overtime seems excessive, managers engage in dialogue with that employee and arrange for interviews with an appropriate professional, such as an industrial physician or public health nurse.

Women’s active participation

Hamamatsu Photonics believe that an active role for women in the workplace can be defined as a state in which women can work with peace of mind long-term without leaving the Company due to factors such as childbirth, childcare, and nursing care, while making the most of their abilities and fulfilling their responsibilities in the right jobs. Supported by this commitment, we believe women will play increasingly vital roles in the Company’s success, bringing positive value to its long-term business performance.

As a specific measure, Kashiko Kodate, an outside director, presented seminars on Hamamatsu Photonics’ childcare support system to raise employees’ awareness of the importance of work-life balance.





Supply chain management

Basic policy

Today's corporations need to promote corporate social responsibility (CSR) activities and to manage and reduce sustainability risks, not only within their own companies or groups, but also throughout their entire supply chain. To this end, we have prepared the “Hamamatsu Photonics Supply Chain CSR Promotion Guidelines” to help our suppliers understand our Basic CSR Policy and promote CSR activities. These guidelines describe our basic policy that supersedes the contents of our previous CSR promotion guidebook.

As part of our CSR activities, we have also formulated a business continuity plan (BCP). We believe that formulating and promoting activities for the BCP is essential in fulfilling our responsibility to supply products to society.

For this reason, we are conducting questionnaire surveys to determine the current status of our suppliers in promoting CSR and BCP.

Specific efforts

Operation of Supply Chain CSR Promotion Guidelines

We started formulating guidelines in September 2011. We produced and distributed guidebooks in June 2012. We decided to monitor by questionnaire, and conducted the first questionnaire in July 2013. Next, we administered the second questionnaire in July 2019. Then, based on the updated guidelines, we administered the third questionnaire in July 2021. Moving forward, we plan to administer a questionnaire every other year. We also send guidelines to new suppliers and administer questionnaires.

Target suppliers

(Online questionnaire administered in July 2021)  
Questionnaires were sent to 1,849 suppliers and responses were received from 1,725 companies (93% response rate).

Whistleblowing system

We practice CSR procurement in accordance with our Basic CSR Policy.  
As part of this, we have set up a whistleblower contact point for suppliers.

Green procurement activities

As society became more interested in the environment and international environmental regulations were strengthened, Hamamatsu Photonics decided to formulate “Green Procurement Guidelines” and “Green Procurement Management Standard for Chemical Substances,” and to promote involvement in environmental concerns.

 Please visit the Hamamatsu Photonics website for more information on our supply chain.  
<https://www.hamamatsu.com/jp/en/our-company/sustainability-and-csr/social/supply-chain.html>

Social contribution

Basic policy


Hamamatsu Photonics regards its true goal as the discovery of scientific breakthroughs that benefit society. We are confident in achieving our goals if our employees bear in mind the importance of being of service to communities and society based on the photonics technology that is the meaning of our company's existence.

Specific efforts

Rikochallenge Summer of 2022

We support the Rikochallenge led by the Gender Equality Bureau of the Cabinet Office, and have participated in the initiative since 2019. In 2022, we participated in Rikochallenge for the third time and held a summertime event for female junior high and high school students. Rikochallenge is an initiative aimed at stimulating the interest of female junior-high and high school students in careers in science and engineering. In addition to conducting workshops that utilize the properties of light, we introduced the working styles of female science and technology employees, thereby helping to broaden the perspectives of female junior-high and high school students.




 Rikochallenge website (mostly in Japanese):  
[https://www.gender.go.jp/c-challenge/about\\_rikochalle/index.html](https://www.gender.go.jp/c-challenge/about_rikochalle/index.html)

The Graduate School for the Creation of New Photonics Industries

Japan has built the foundation for an economic empire by taking academic learning and technologies introduced from foreign countries and further developing and expanding applications for those technologies. As we moved into the 21st century, remarkable globalization has been taking place. We're now finding that we ourselves need to create new industries and cultures which we can then send out into the rest of the world. The Graduate School for the Creation of New Photonics Industries was established by Hamamatsu Photonics and other enterprises for the purpose of cultivating human resources capable of launching new industries that will focus on light and its infinite possibilities. Put differently, the founding of new industries itself is the foremost objective of education at the school.



 Please refer to the Hamamatsu Photonics website for details on our social contribution.  
<https://www.hamamatsu.com/jp/en/our-company/sustainability-and-csr/social/social-contribution.html>



Hamamatsu Photonics recognizes our business partners, customers, employees, shareholders, and local communities as stakeholders. We share our forward-looking stance with these stakeholders throughout our entire company and disclose it outside of our company.

Attitude toward society

- Prevent of all forms of corruption, including bribery and misconduct
- Develop new technology that contributes to society
- Respect the intellectual property of other companies
- Comply with environmental laws and regulations
- Create employment
- Implement measures to reduce environmental impact and environmental risks (prevent global warming, promote the 3Rs, manage chemical risk, etc.)
- Work to protect nature (including conservation of biodiversity)
- Invest management resources to solve issues for the self-reliance of local communities
- Pay attention to research ethics in research and development
- Respect human rights in accordance with international standards
- Contribute to development of local industry
- Respect local culture and customs
- Comply with laws and regulations in each country overseas

Attitude toward business partners

- Engage in fair transactions in compliance with the Subcontract Act
- Engage in ethical and fair purchasing activities
- Prevent illegal imports and exports
- Respect intellectual property rights
- Create awareness of our management philosophy and code of conduct
- Clarify procurement policies and procurement procedures
- Promote communication with business partners
- Strengthen collaboration/cooperation with business partners regarding environmental issues

Attitude toward employees

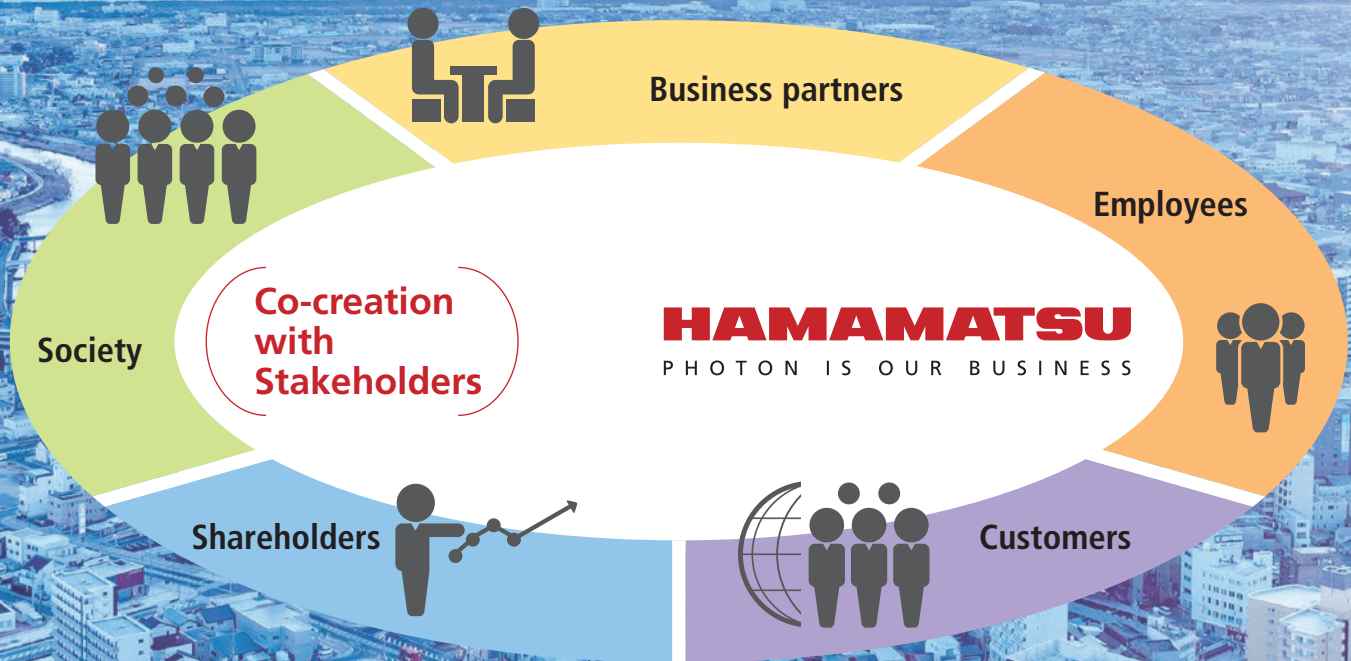
- Promote understanding of our corporate ethics and corporate code of conduct
- Disclose information on working conditions
- Promote internal communication between management and employees, and among employees
- Promote understanding for the handling of intellectual property rights (including trade secrets)
- Realize a safe workplace
- Appropriately manage working hours and prohibit overwork
- Promote understanding of safety and quality
- Establish a personnel system that enables diverse human resources to demonstrate their abilities
- Prohibit employment discrimination and ensure equal opportunity
- Enhance workplace safety and health, and employee health management
- Support skill development by employees
- Prohibit child labor and forced labor
- Respect human rights

Attitude toward shareholders

- Prevent insider trading
- Disclose information on corporate governance
- Engage in timely, appropriate, and accurate disclosure of financial and performance information
- Disclose CSR-related information
- Disclose information on risks
- Pay appropriate dividends
- Engage in better operation of the meeting of shareholders

Attitude toward customers

- Thoroughly implement business activities based on fair trade and fair competition
- Comply with relevant laws and regulations
- Promote communication with customers
- Protect personal information and privacy
- Provide high-quality and safe products and services
- Prevent customer information leakage, unauthorized access, etc.



Main means of dialogue  
with stakeholders

Society

- Contribute to society through business
- Engage in dialogue through economic organizations and industry groups
- Engage in social contribution activities (Research Foundation for Opto-Science and Technology, the Graduate School for the Creation of New Photonics Industries, Hamamatsu Medical Photonics Foundation)

Shareholders

- Hold meeting of shareholders
- Hold financial results briefings
- Hold IR-DAY (business information session)
- Conduct over 400 dialogues per year with shareholders and investors
- Disseminate information through the IR website

Customers

- Conduct daily sales activities
- Operate websites
- Exchange information at exhibitions, etc.
- Post on social media

Employees

- Provide information through in-house newsletter and intranet
- President's Message
- Hold club activities

Business partners

- Engage in procurement activities and administer questionnaires in accordance with the Basic CSR Policy and Hamamatsu Photonics Supply Chain CSR Promotion Guidelines





- Muneo Kurauchi

Audit & Supervisory Board Member  
(Outside)
- Yuji Maki

Audit & Supervisory Board Member  
(Outside)
- Michihito Suzuki

Audit & Supervisory Board Member  
(Standing)
- Akira Utsuyama

Audit & Supervisory Board Member  
(Standing)
- Kazuhiko Mori

Senior Executive Officer  
Chief of Finance and Accounting General  
Headquarters
- Ken Koibuchi

Outside Director
- Kazue Kurihara

Outside Director
- Takuo Hirose

Outside Director
- Takayuki Suzuki

Director  
Senior Managing Executive Officer  
Division Director,  
Solid State Division
- Hisaki Kato

Representative Director and  
Vice President  
Chief Operating Officer  
Division Director,  
Electron Tube Division
- Tadashi Maruno

Representative Director and President  
Chief Executive Officer
- Akira Hiruma

Representative Director and  
Chairman
- Kenji Suzuki

Director and Vice Chairman
- Kashiko Kodate

Outside Director

Executive Officers

Chief Executive Officer	Chief Operating Officer	Senior Managing Executive Officer	Managing Executive Officer	Managing Executive Officer	Senior Executive Officer	Senior Executive Officer	Senior Executive Officer
Tadashi Maruno	Hisaki Kato	Takayuki Suzuki	Naofumi Toriyama	Ken Nozaki	Kazuhiko Mori	Minoru Saito	Kazuya Suzuki
Executive Officer	Executive Officer	Executive Officer	Executive Officer	Executive Officer	Executive Officer	Executive Officer	
Hiroyuki Okada	Koichi Nagumo	Shuichi Osada	Haruyoshi Toyoda	Fumio Iwase	Shinji Ito	Masato Tsutsumizaki	

Skill Matrix

Name	Akira Hiruma	Kenji Suzuki	Tadashi Maruno	Hisaki Kato	Takayuki Suzuki	Kazuhiko Mori	Kashiko Kodate	Ken Koibuchi	Kazue Kurihara	Takuo Hirose	Akira Utsuyama	Michihito Suzuki	Yuji Maki	Muneo Kurauchi
Main Expertise/Experience	Corporate Management/Management Strategy	●	●	●	●	●	●	●	●	●			●	●
	Technology/R&D	●	●	●	●		●	●	●		●			
	Finance/Accounting					●							●	●
	Law/Compliance									●	●		●	●
	Global	●	●	●	●	●	●	●	●	●			●	●
	Sales/Marketing	●	●	●	●		●	●				●		
Gender	Male	Male	Male	Male	Male	Male	Female	Male	Female	Male	Male	Male	Male	Male



Corporate Governance

Basic concept

While continuing to maintain a positive corporate culture that contributes to improving the corporate value of the Group, we will realize effective corporate governance, and ensure that our company's decision-making is transparent, sound, prompt, and appropriate, thereby achieving sustainable growth and increased corporate value over the medium- to long-term.

Basic Policy on Corporate Governance

Hamamatsu Photonics has established the Basic Policy on Corporate Governance as the foundation of our corporate governance. Our Management Philosophy (see page 2) is set forth at the beginning of the Basic Policy. The Basic Policy on Corporate Governance is established and revised by the Board of Directors.

 **Basic Policy on Corporate Governance**  
[https://www.hamamatsu.com/content/dam/hamamatsu-photonics/sites/documents/01\\_HQ/01\\_hamamatsu/csr/kigyourinri\\_en.pdf](https://www.hamamatsu.com/content/dam/hamamatsu-photonics/sites/documents/01_HQ/01_hamamatsu/csr/kigyourinri_en.pdf)

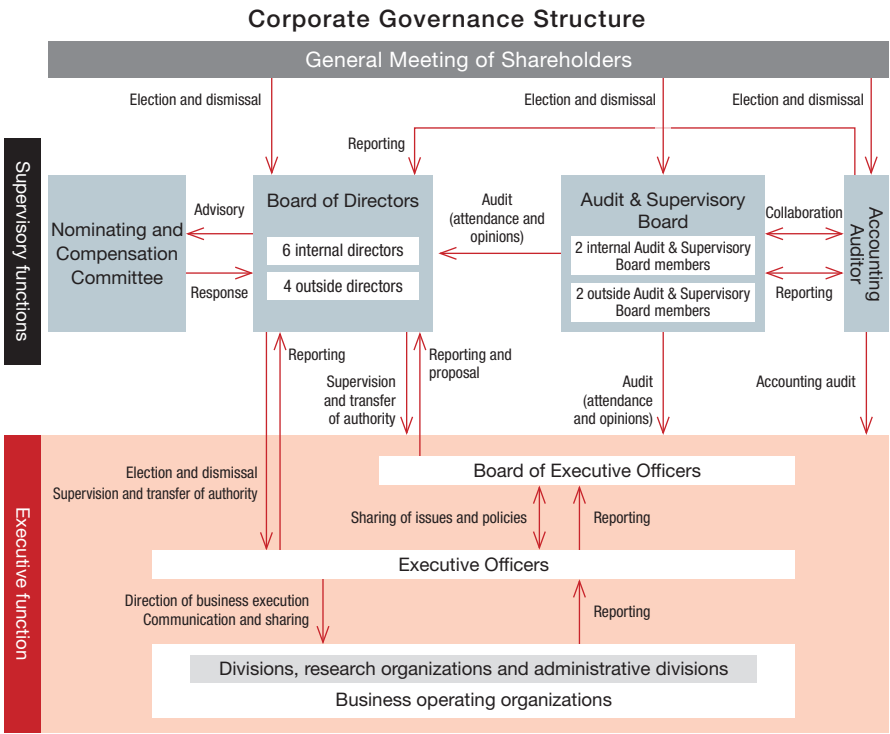
Specific activities/Strengthening of governance system

As a listed company, we are aware that we have a fiduciary responsibility to our shareholders, as well as accountability to various stakeholders such as business partners, suppliers, employees and local communities. We believe that governance is the most important factor in properly fulfilling our fiduciary responsibility and accountability, and improving our corporate value over the medium- to long-term. As such, we are continuously striving to strengthen and improve governance at Hamamatsu Photonics.

Basic System of Corporate Governance

We have adopted a company structure with an Audit & Supervisory Board. As of December 16, 2022, we have ten directors (four of whom are outside directors) and four Audit & Supervisory Board members (two of whom are outside Audit & Supervisory Board members).

Composed of two Audit & Supervisory Board members who are former employees and two outside Audit & Supervisory Board members, the Audit & Supervisory Board cooperates in its audits with external accounting auditors to ensure effectiveness. The reason for appointing former employees as Audit & Supervisory Board members is that they have inherited our corporate culture. For the continuing development of our company, it is necessary for Audit & Supervisory Board members to conduct audits on an independent, individual basis, informed by a thorough understanding of our corporate culture and operations. Therefore, Hamamatsu Photonics will continue to maintain the structure of a company with an Audit & Supervisory Board.



Increase of the number of outside directors

We increased the number of outside directors by one in December 2020 and another one in December 2021. As a result, as of December 31, 2022, there are six internal directors and four outside directors, with an outside director ratio of 40%. Outside directors supervise the Company from an outside perspective. In order to enhance the effectiveness of their supervision, we provide them with an overview of the Company as appropriate. In addition, by providing materials for the Board of Directors meeting three to four days before the date of the meeting, outside directors are given sufficient time to consider the content of the proposals.

Establishment of Nominating and Compensation Committee

We established the Nominating and Compensation Committee in July 2021. Our Nominating and Compensation Committee is formed on a voluntary basis and is positioned as an advisory body. The Nominating and Compensation Committee regulations stipulate that a majority of the Nominating and Compensation Committee members shall be outside directors and that we shall respect the reports of the Nominating and Compensation Committee. The nomination of director candidates and the amount of director compensation are ultimately determined by the Board of Directors. By ensuring fairness, transparency, and objectivity in decisions made by the Board of Directors, we are striving to gain further understanding and trust from the market.

Evaluation of the effectiveness of the Board of Directors

To ensure the effectiveness of the Board of Directors, we have been continuously evaluating the effectiveness of the Board of Directors since 2016. All directors and Audit & Supervisory Board members are subject to a five-point evaluation and a free-form descriptive questionnaire regarding the composition, operation and responsibilities of the Board of Directors. After tabulation, the results are reported at meetings of the Board of Directors and used as appropriate to improve the Board's operation. Since september 2020, we have outsourced the evaluation of effectiveness to a third party in order to increase transparency and objectivity.

Compensation scheme for directors

Hamamatsu Photonics requires directors to strive forward with a medium- to long-term perspective, rather than merely with a short-term mindset. Therefore, we see it appropriate to put fixed compensation at the base of the company's compensation scheme for directors. We have also introduced stock-based compensation with restrictions on transfer as part of the company's compensation scheme. The purpose of this is to encourage our directors to hold the company's stock on a long-term, stable basis, with the intention that they share the same perspectives as our shareholders and contribute to the sustainable growth of Hamamatsu Photonics' corporate value. The amount of individual remuneration for Directors is determined by the Board of Directors after consultation with the Nominating and Compensation Committee.

Compensation of Directors	
Fixed compensation: Within 60 million yen per month (within 10 million yen for outside directors)	Resolution passed at the 74th General Meeting of Shareholders held on December 17, 2021
Stock-based compensation with restrictions on transfer: Within 200 million yen annually (excluding outside directors)	Resolution passed at the 72nd General Meeting of Shareholders held on December 20, 2019
Compensation of Audit & Supervisory Board members	
Within 10 million yen per month	Resolution passed at the 74th General Meeting of Shareholders held on December 17, 2021



General meeting of Shareholders

The general meeting of shareholders convenes in mid- or late December every year for the fiscal year ending in September. Many shareholders attend the general meeting every year. We are taking the following measures to encourage broader participation and facilitate the exercise of voting rights.

Notice of convocation of the general meeting of shareholders is sent in writing three weeks or more before the general meeting and is disclosed even earlier on the company's website.

An electronic voting platform is established and forms for exercising voting rights are digitized to facilitate the exercise of voting rights by institutional investors. We also provide convocation notices in English.

Change of number of attendees at the general meeting of Shareholders	
December 2022	61 people
December 2021	39 people
December 2020	31 people
December 2019	531 people
December 2018	533 people

Matters concerning cross-shareholdings

Our policy regarding cross-shareholdings is to hold them to a minimum. Hamamatsu Photonics participates in cross shareholdings only when it considers, based on timely and appropriate judgment of business benefits and risks, that such cross-shareholdings contribute to the company's sustainable growth and the medium- to long-term enhancement of its corporate value.


The Board of Directors examines the medium- to long-term economic rationality and future prospects of major cross shareholdings and discusses the significance and rationality of said shareholdings.

Compliance

Basic concept

Guided by the Basic Policy on Corporate Governance, Hamamatsu Photonics has set forth the Basic Approach to Corporate Ethics and Compliance. This statement is posted on the Company's internal website so that all employees can familiarize themselves with it.

Our company is in the business of "light," and much about the nature of light remains unanswered. To pursue unknown and unexplored realms, each and every Hamamatsu Photonics employee must harbor a burning desire to know the truth. Since a company is the sum of the actions of its people, we expect of every employee a commitment to compliance and respect for human rights, as well as a determination to observe both the letter and the spirit of the law and international rules. By organizing itself as a corps of employees with a strong sense of ethics, Hamamatsu Photonics aims not only to secure stable management but also to grow and prosper as an enterprise that earns the trust of stakeholders.



**Basic Approach to Corporate Ethics and Compliance**  
[https://www.hamamatsu.com/content/dam/hamamatsu-photonics/sites/documents/01\\_HQ/01\\_hamamatsu/csr/kigyourinri\\_en.pdf](https://www.hamamatsu.com/content/dam/hamamatsu-photonics/sites/documents/01_HQ/01_hamamatsu/csr/kigyourinri_en.pdf)

Compliance Promotion System

At our company, the Legal Group of the General Affairs Division plays a central role in ensuring thorough awareness of the compliance system. We have introduced compliance audits by the Internal Audit Division. The division works to confirm and improve employee awareness through audits. It also confirms the enhancement and implementation of the compliance framework through interviews with managers in departments. Based on the results of compliance audits, the Internal Audit Division encourages departments and sections that have not taken up educational opportunities about compliance, whether within the company or from external providers, to pursue internal training. The Legal Group has created a framework for constantly providing compliance education.

Message from Outside Directors



**Kazue Kurihara**  
Outside Director

Standing at the reception desk of the Hamamatsu Photonics headquarters in front of Hamamatsu Station, there is a large panel with photographs of our factory at the time of its founding and related explanations. Research industry express the company's vision of "pursuing the unknown and unexplored, absorbing new knowledge, creating things that do not exist in the world, and creating things which were not possible," and having all researchers perform that vision. As a researcher in the field of physical chemistry, I have used Hamamatsu Photonics' products in every facet of my research. Every day, I realize that the vision introduced above makes it possible for Hamamatsu Photonics to maintain its reputation for reliable, cutting-edge equipment. The Central Research Laboratory is the foundation of the research industry. The laboratory conducts research in an extremely wide range of fields, from basic to applied. Activities like these are not being conducted anywhere else in the world. Hamamatsu Photonics is responding to the diverse needs of society by deepening our foundational research and on-site production technology. From 2023, the 70th anniversary of our founding, we will further promote company-wide collaboration under a new structure. Our goal is to make a leap toward the 100th anniversary of our founding. As a researcher, I believe that science supports technology and industry. I have been working based on the idea that universities should exist together with local communities. I would like to assist Hamamatsu Photonics in its aim to continue to create things that have never existed in the world, and to reach even higher heights as a company with a high degree of originality, from Hamamatsu.



**Takuo Hirose**  
Outside Director

When most people think of Hamamatsu Photonics, they think of Kamiokande's photomultiplier tubes. I used to think the same way. However, through my first term as an outside director, I have come to realize the existence of a strong optical technology infrastructure that supports R&D at Hamamatsu Photonics. I also felt the diversity and versatility of the company's products, as well as the strength and breadth of the development power being used in a wide variety of countries, industries, and corporations. Hamamatsu Photonics is known as a "technological nation" manufacturing company that bases its business on cutting-edge technology. I do not foresee the company making any significant changes to its business structure in the future. Conversely, in the chaotic world situation expressed by the acronym VUCA (volatility, uncertainty, complexity and ambiguity), as a corporation responsible to society, Hamamatsu Photonics is strongly expected to constantly review and upgrade its ESG and sustainability initiatives from the perspective of decarbonization and DX, and the effective governance system that enables such initiatives. In response to such requests, I myself have used my experience as a corporate legal attorney and an outside director to advise various companies. From the perspective of an outside director, I would like to contribute as much as possible to maintaining and strengthening the internal system with a good balance between offense and defense.



Consolidated performance indicators

	(unit)	FY2015	FY2016	FY2017
Net sales	Million yen	120,691	121,852	130,495
Cost of sales	Million yen	57,582	60,807	65,670
Selling, general and administrative expenses	Million yen	27,897	28,627	30,199
R&D expenses	Million yen	11,615	11,873	11,776
Operating profit	Million yen	23,596	20,544	22,849
Ordinary profit	Million yen	24,658	20,050	24,037
Profit attributable to owners of parent	Million yen	16,598	14,419	17,777
Capital investments	Million yen	14,338	9,315	13,572
Depreciation *Property, plant and equipment	Million yen	8,561	9,888	9,441
Cash flows from operating activities	Million yen	16,046	24,160	26,154
Cash flows from investing activities	Million yen	(17,057)	4,186	(13,198)
Cash flows from financing activities	Million yen	(4,878)	(15,413)	(5,707)
Cash and cash equivalents at the end of period	Million yen	45,556	53,595	63,385
Total assets	Million yen	226,179	217,300	239,331
Equity capital	Million yen	180,141	169,163	186,939
Working capital	Million yen	44,699	44,499	51,262
Number of shares issued	Thousands	167,529	167,529	167,529
Operating profit ratio	%	19.6	16.9	17.5
ROA	%	7.5	6.5	7.8
ROE	%	9.5	8.3	10.0

FY2018	FY2019	FY2020	FY2021	FY2022
144,338	145,912	140,251	169,026	208,803
70,385	71,916	71,774	85,631	96,421
33,857	35,520	34,577	37,709	44,128
12,830	13,071	12,147	11,367	11,269
27,263	25,403	21,752	34,318	56,983
28,088	26,277	22,692	34,648	58,879
21,222	19,918	16,523	25,053	41,295
14,221	17,412	20,337	12,982	20,427
10,261	10,950	11,758	12,402	12,354
23,579	30,875	23,321	39,913	45,126
(8,880)	(16,086)	(16,215)	(16,778)	(13,331)
(16,323)	(6,681)	(6,508)	(4,475)	(7,759)
61,824	68,521	68,773	90,008	123,065
244,914	259,694	271,615	301,676	366,177
193,317	202,957	212,680	236,522	280,563
59,031	60,254	63,901	72,172	91,445
165,011	165,011	165,027	165,041	165,052
18.9	17.4	15.5	20.3	27.3
8.8	7.9	6.2	8.7	12.4
11.2	10.1	8.0	11.2	16.0

Per share information

Profit	JPY	103.23	90.23	113.00
Dividends	JPY	34	34	34
Payout ratio	%	32.9	37.7	30.1

136.50	128.67	106.73	161.82	266.70
37	40	40	48	72
27.1	31.1	37.5	29.7	27.0

\*The results for FY2015 are calculated taking into account the 2-for-1 stock split executed in April 2015.

Non-financial data

	(unit)	FY2015	FY2016	FY2017
Average years of service Male	Years	16.1	16.2	16.2
Average years of service Female	Years	15.9	16.0	15.7
Average years of service Total	Years	16.1	16.2	16.1
Turnover rate	%	0.7	0.9	0.7
Maternity leave return rate	%	100.0	100.0	100.0
Greenhouse gases (Scope 1, 2)*	t-CO <sub>2</sub>	55,438	55,925	56,539
Water*	Thousand m <sup>3</sup>	748	724	703
Renewable energy*	kWh	0	0	7,188

FY2018	FY2019	FY2020	FY2021	FY2022
16.4	16.4	16.4	16.3	16.2
15.1	15.3	14.9	14.9	14.9
16.2	16.2	16.1	16.1	16.0
0.8	0.9	0.8	2.1	—
100.0	100.0	100.0	100.0	—
57,945	54,005	54,048	59,386	57,504
704	749	730	822	879
6,754	6,050,667	7,099,740	11,544,463	19,855,218

\*From FY2021, includes Hamamatsu Photonics K.K., domestic consolidated subsidiaries, and overseas consolidated manufacturing subsidiaries.



## Consolidated Balance Sheet

(Unit: million yen)

	As of Sep. 30, 2021	As of Sep. 30, 2022
<b>Assets</b>		
Current assets		
Cash and deposits	91,087	125,999
Notes and accounts receivable - trade	42,528	49,751
Securities	8,671	2,316
Merchandise and finished goods	9,106	11,458
Work in process	23,885	31,920
Raw materials and supplies	11,410	15,698
Other	5,622	9,120
Allowance for doubtful accounts	(193)	(227)
Total current assets	192,120	246,038
Non-current assets		
Property, plant and equipment	86,479	95,200
Intangible assets	4,853	5,359
Deferred tax assets	11,587	12,913
Investment property, net	242	197
Total non-current assets	109,556	120,139
Total assets	301,676	366,177
<b>Liabilities</b>		
Current liabilities		
Notes and accounts payable - trade	7,371	8,129
Electronically recorded obligations - operating	7,387	9,253
Short-term borrowings	3,507	4,799
Current portion of long-term borrowings	3,039	2,098
Income taxes payable	6,700	11,350
Provision for bonuses	5,814	7,926
Other	18,473	25,964
Total current liabilities	52,293	69,522
Non-current liabilities		
Long-term borrowings	3,240	4,630
Deferred tax liabilities	583	544
Retirement benefit liability	6,903	8,363
Other	1,084	1,212
Total non-current liabilities	11,811	14,751
Total liabilities	64,105	84,273
<b>Net assets</b>		
Shareholders' equity		
Share capital	35,008	35,048
Capital surplus	34,752	34,792
Retained earnings	185,206	217,195
Treasury shares	(20,797)	(20,798)
Total shareholders' equity	234,170	266,239
Accumulated other comprehensive income		
Valuation difference on available-for-sale securities	1,191	921
Deferred gains or losses on hedges	—	(274)
Foreign currency translation adjustment	1,592	15,344
Remeasurements of defined benefit plans	(431)	(1,666)
Total accumulated other comprehensive income	2,351	14,324
Non-controlling interests	1,048	1,340
Total net assets	237,570	281,904
Total liabilities and net assets	301,676	366,177

## Consolidated Statement of Income

(Unit: million yen)

	Fiscal year ended Sep. 30, 2021	Fiscal year ended Sep. 30, 2022
Net sales	169,026	208,803
Cost of sales	85,631	96,421
Gross profit	83,395	112,381
Selling, general and administrative expenses	49,077	55,398
Operating profit	34,318	56,983
Non-operating income	829	2,147
Non-operating expenses	499	251
Ordinary profit	34,648	58,879
Extraordinary income		
Gain on sale of non-current assets	67	27
Subsidy income	805	517
Gain on sale of investment securities	5	—
Reversal of reserve for loss on dissolution of employees' pension fund	164	—
Total extraordinary income	1,042	544
Extraordinary losses		
Loss on sales of non-current assets	0	3
Loss on retirement of non-current assets	70	302
Loss on tax purpose reduction entry of non-current assets	441	433
Impairment losses	351	—
Loss on valuation of investment securities	71	16
Total extraordinary losses	935	755
Profit before income taxes	34,755	58,668
Income taxes - current	10,393	17,843
Income taxes - deferred	(862)	(651)
Total income taxes	9,530	17,191
Profit	25,225	41,476
Profit attributable to non-controlling interests	171	181
Profit attributable to owners of parent	25,053	41,295

## Consolidated Statement of Comprehensive Income

(Unit: million yen)

	Fiscal year ended Sep. 30, 2021	Fiscal year ended Sep. 30, 2022
Profit	25,225	41,476
Other comprehensive income		
Valuation difference on available-for-sale securities	448	(269)
Deferred gains or losses on hedges	—	(274)
Foreign currency translation adjustment account	3,799	13,762
Remeasurements of defined benefit plans, net of tax	712	(1,234)
Share of other comprehensive income of entities accounted for using equity method	12	120
Total other comprehensive income	4,972	12,103
Comprehensive income	30,198	53,579
Comprehensive income attributable to		
Comprehensive income attributable to owners of parent	29,958	53,267
Comprehensive income attributable to non- controlling interests	239	312



## Consolidated Statement of Changes in Equity

(Unit: million yen)

Fiscal year ended Sep. 30, 2021	Shareholders' equity				
	Share capital	Capital surplus	Retained earnings	Treasury shares	Total shareholders' equity
Balance at beginning of period	34,964	34,708	166,357	(20,795)	215,234
Changes during period					
Issuance of new shares	44	44	—	—	88
Dividends of surplus	—	—	(6,203)	—	(6,203)
Profit attributable to owners of parent	—	—	25,053	—	25,053
Purchase of treasury shares	—	—	—	(1)	(1)
Net changes of items other than shareholders' equity					
Total changes during period	44	44	18,849	(1)	18,936
Balance at end of period	35,008	34,752	185,206	(20,797)	234,170

	Accumulated other comprehensive income						Total net assets
	Valuation difference on available-for-sale securities	Deferred gains or losses on hedges	Foreign currency translation adjustment	Remeasurements of defined benefit plans	Total accumulated other comprehensive income	Non-controlling interests	
Balance at beginning of period	742	—	(2,152)	(1,144)	(2,553)	834	213,515
Changes during period							
Issuance of new shares							88
Dividends of surplus							(6,203)
Profit attributable to owners of parent							25,053
Purchase of treasury shares							(1)
Net changes of items other than shareholders' equity	448	—	3,744	712	4,905	213	5,118
Total changes during period	448	—	3,744	712	4,905	213	24,055
Balance at end of period	1,191	—	1,592	(431)	2,351	1,048	237,570

(Unit: million yen)

Fiscal year ended Sep. 30, 2022	Shareholders' equity				
	Share capital	Capital surplus	Retained earnings	Treasury shares	Total shareholders' equity
Balance at beginning of period	35,008	34,752	185,206	(20,797)	234,170
Changes during period					
Issuance of new shares	40	40	—	—	81
Dividends of surplus	—	—	(9,306)	—	(9,306)
Profit attributable to owners of parent	—	—	41,295	—	41,295
Purchase of treasury shares	—	—	—	(0)	(0)
Net changes of items other than shareholders' equity					
Total changes during period	40	40	31,988	(0)	32,069
Balance at end of period	35,048	34,792	217,195	(20,798)	266,239

	Accumulated other comprehensive income						Total net assets
	Valuation difference on available-for-sale securities	Deferred gains or losses on hedges	Foreign currency translation adjustment	Remeasurements of defined benefit plans	Total accumulated other comprehensive income	Non-controlling interests	
Balance at beginning of period	1,191	—	1,592	(431)	2,351	1,048	237,570
Changes during period							
Issuance of new shares							81
Dividends of surplus							(9,306)
Profit attributable to owners of parent							41,295
Purchase of treasury shares							(0)
Net changes of items other than shareholders' equity	(269)	(274)	13,751	(1,234)	11,972	292	12,264
Total changes during period	(269)	(274)	13,751	(1,234)	11,972	292	44,333
Balance at end of period	921	(274)	15,344	(1,666)	14,324	1,340	281,904

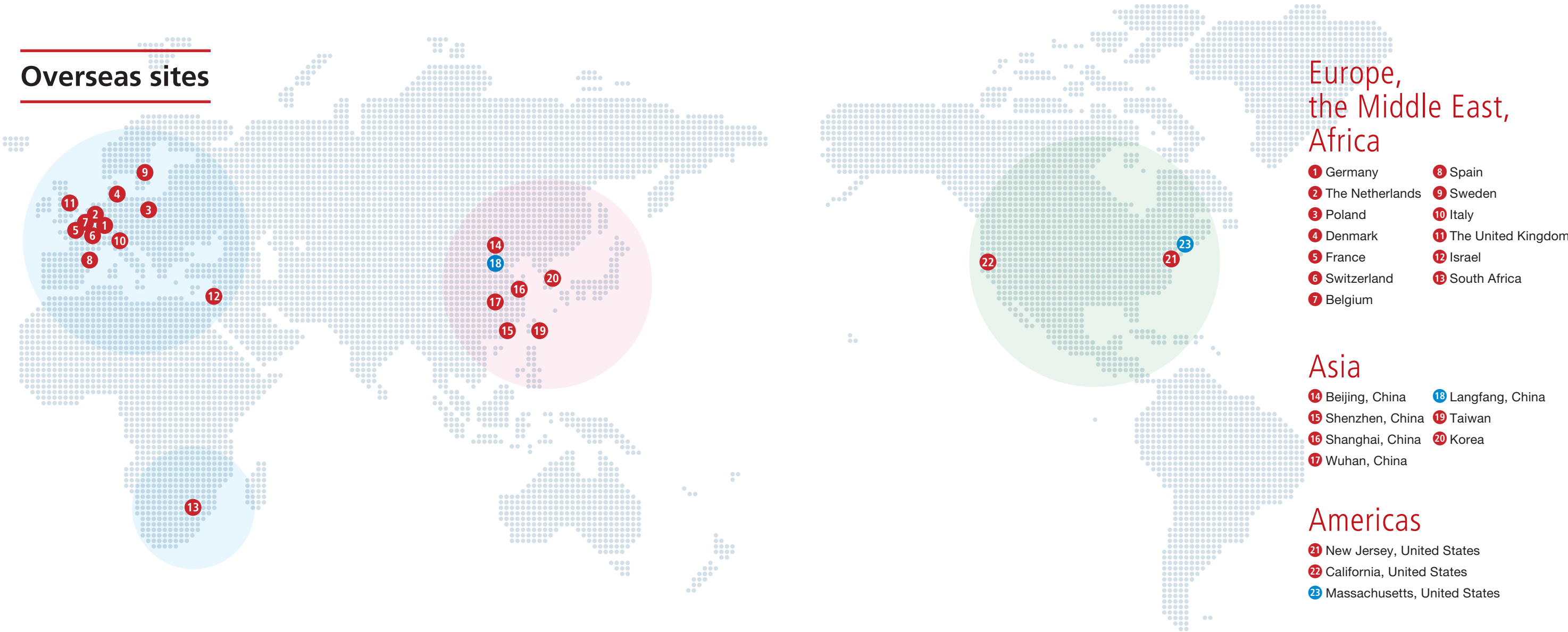
## Consolidated Statement of Cash Flows

(Unit: million yen)

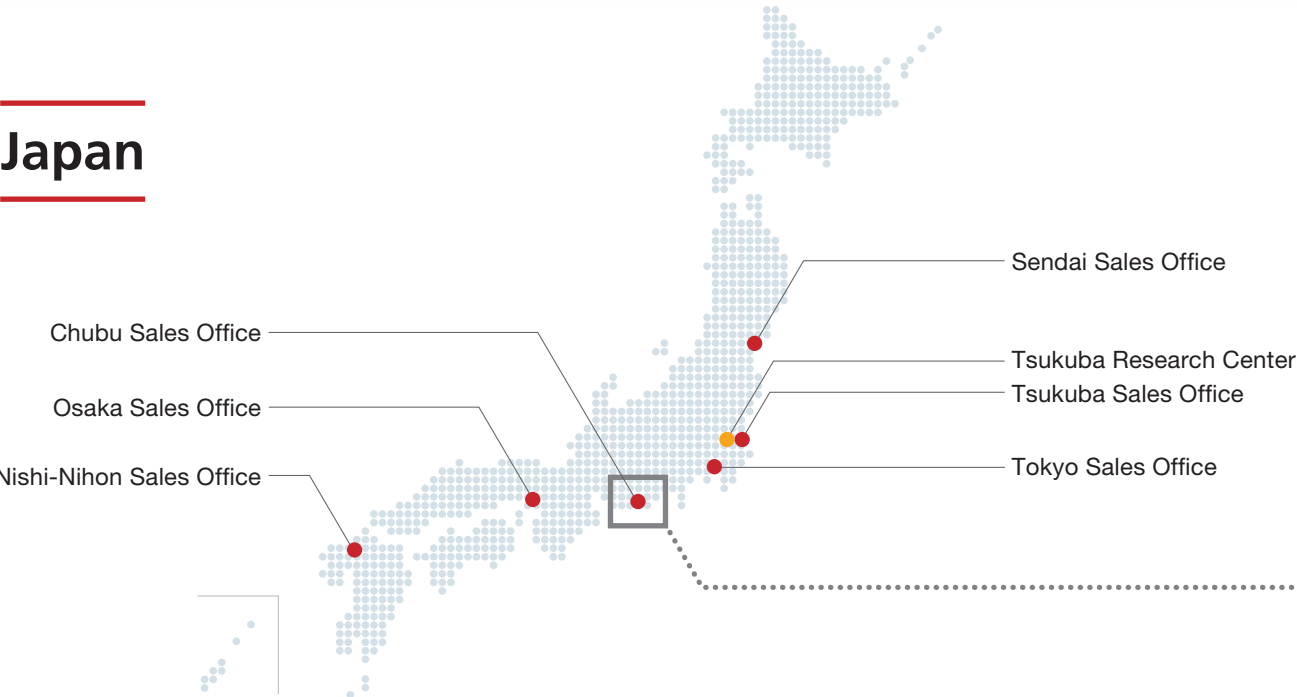
	Fiscal year ended Sep. 30, 2021	Fiscal year ended Sep. 30, 2022
Cash flows from operating activities		
Profit before income taxes	34,755	58,668
Depreciation	13,554	13,508
Impairment losses	351	—
Increase (decrease) in allowance for doubtful accounts	27	2
Increase (decrease) in provision for bonuses	1,279	1,971
Increase (decrease) in retirement benefit liability	(184)	(415)
Interest and dividend income	(252)	(280)
Interest expenses	53	82
Foreign exchange losses (gains)	(120)	(315)
Share of loss (profit) of entities accounted for using equity method	3	(194)
Loss (gain) on sale of property, plant and equipment	(67)	(24)
Loss on retirement of property, plant and equipment	70	302
Decrease (increase) in trade receivables	(8,961)	(2,483)
Decrease (increase) in inventories	17	(12,271)
Increase (decrease) in trade payables	1,621	(1,138)
Other, net	3,754	1,181
Subtotal	45,903	58,593
Interest and dividends received	252	280
Interest paid	(53)	(82)
Income taxes refund (paid)	(6,189)	(13,664)
Net cash provided by (used in) operating activities	39,913	45,126
Cash flows from investing activities		
Net decrease (increase) in time deposits	1,915	4,721
Purchase of securities	(1,290)	(1,494)
Proceeds from redemption of securities	1,290	1,494
Purchase of property, plant and equipment	(17,814)	(17,115)
Proceeds from sale of property, plant and equipment	120	60
Purchase of intangible assets	(882)	(887)
Other, net	(118)	(109)
Net cash provided by (used in) investing activities	(16,778)	(13,331)
Cash flows from financing activities		
Net increase (decrease) in short-term borrowings	2,006	1,310
Proceeds from long-term borrowings	—	3,543
Repayments of long-term borrowings	(69)	(3,094)
Dividends paid	(6,204)	(9,302)
Other, net	(208)	(215)
Net cash provided by (used in) financing activities	(4,475)	(7,759)
Effect of exchange rate change on cash and cash equivalents	2,576	9,020
Net increase (decrease) in cash and cash equivalents	21,235	33,056
Cash and cash equivalents at beginning of period	68,773	90,008
Cash and cash equivalents at end of period	90,008	123,065



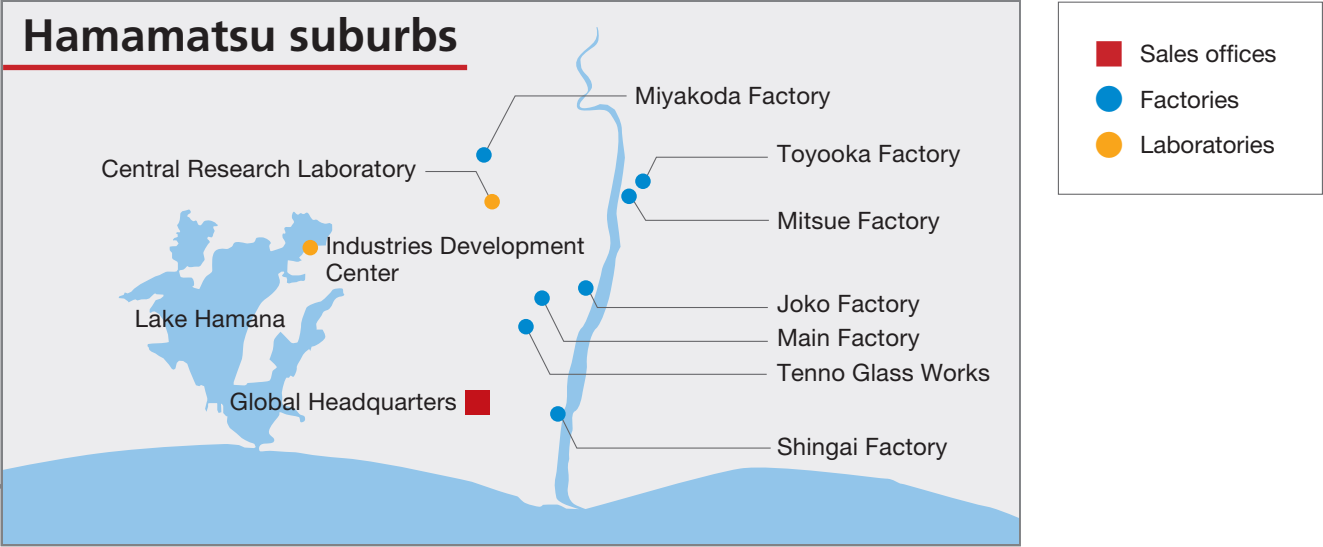
Overseas sites



Japan



Hamamatsu suburbs



Corporate Profile (as of September 30, 2022)

Company Name	Hamamatsu Photonics K.K.
Established	September 29, 1953
Global Headquarters	325-6 Sunayama-cho, Naka-ku, Hamamatsu City, Shizuoka Prefecture, 430-8587, Japan
Capital	35,048 million yen
Number of Employees	3,884 (Non-consolidated); 5,491 (Consolidated)
Main Product Lines	Photomultiplier Tubes, Imaging Devices, Light Sources, Opto-Semiconductor Devices, Imaging Processing and Measurement Systems
Net Sales (Consolidated)	208,803 Million Yen (FY2022)
Fiscal Year	October 1 to September 30 of the Following Year
General Meeting of Shareholders	December
Stock Listing	Prime Market of the Tokyo Stock Exchange
Securities Code	6965
Accounting Auditor	Ernst & Young ShinNihon LLC

Japan

Global Headquarters	Hamamatsu City, Shizuoka Prefecture
Factories	Main Factory, Shingai Factory, Tenno Glass Works, Joko Factory, Miyakoda Factory (All Located in Hamamatsu City); Toyooka Factory, Mitsue Factory (Both Located in Iwata City)
Sales Offices	Tokyo Sales Office, Sendai Sales Office, Tsukuba Sales Office, Chubu Sales Office (Hamamatsu City), Osaka Sales Office, Nishi-Nihon Sales Office (Fukuoka City)
Laboratories	Central Research Laboratory, Industries Development Center (Both in Hamamatsu City); Tsukuba Research Center (Tsukuba City)

Consolidated Subsidiaries

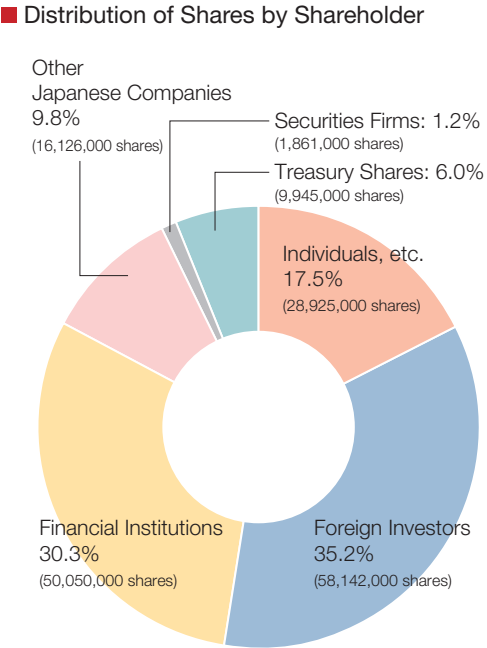
Japan	Overseas
Koso Corporation Takaoka Electronics Co., Ltd. Hamamatsu Electronic Press Co., Ltd. Iwata Grand Hotel, Inc.	<div>Americas</div> <div>Photonics Management Corp. Hamamatsu Corporation Energetiq Technology, Inc.</div> <div>Europe</div> <div>Photonics Management Europe S.R.L. Hamamatsu Photonics Europe GmbH. Hamamatsu Photonics Deutschland GmbH. Hamamatsu Photonics France S.A.R.L. Hamamatsu Photonics Italia S.r.l. Hamamatsu Photonics UK Limited Hamamatsu Photonics Norden AB</div> <div>Asia/Other</div> <div>Hamamatsu Photonics (China) Co., Ltd. Hamamatsu Photonics Taiwan Co., Ltd. Beijing Hamamatsu Photon Techniques Inc. Hamamatsu Photonics Korea Co., Ltd. Hamamatsu Photon Technology (Langfang) Co., Ltd. Hamamatsu Photonics Scientific Instrument (Beijing) Co., Ltd. Hamamatsu Photonics Israel Ltd.</div>

Stock Information (as of September 30, 2022)

Total Number of Authorized Shares (Common Stock)	500,000,000
Number of shares issued	165,052,729 (including 9,945,784 shares of treasury shares)
Number of Shareholders	22,934
Transfer Agent and Registrar	Sumitomo Mitsui Trust Bank, Limited

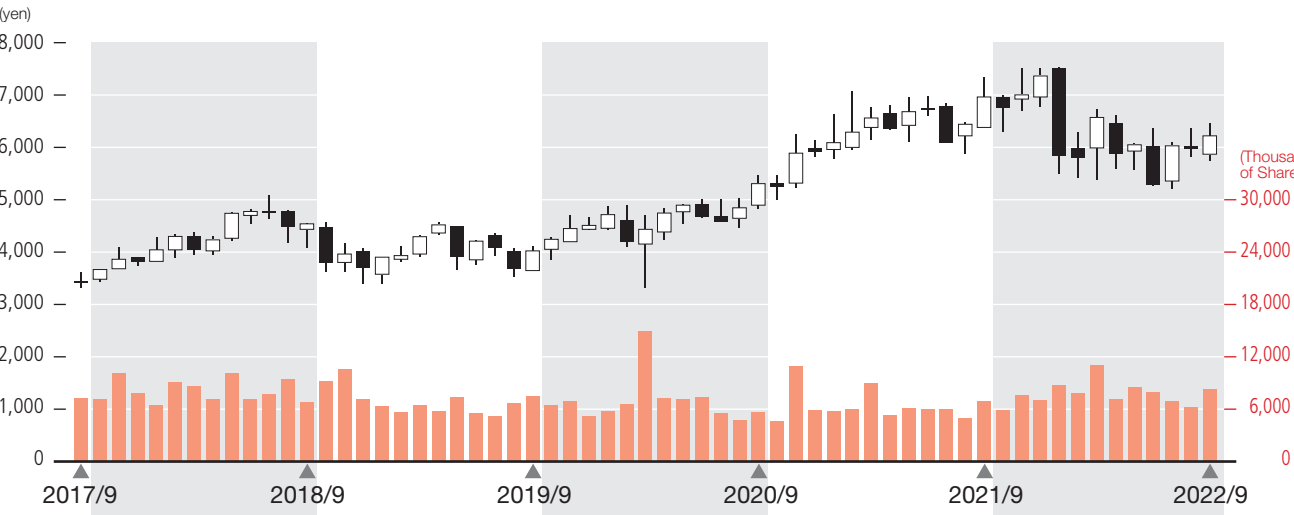
Main Shareholders	Shares Held	Percentage of Total Shares Outstanding
The Master Trust Bank of Japan, Ltd. (Trust Account)	28,945,300	18.7
Custody Bank of Japan, Ltd. (Trust Account)	8,646,200	5.6
Toyota Motor Corporation	8,400,000	5.4
Hamamatsu Photonics Employee Stock Ownership Association	4,108,174	2.6
SSBTC Client Omnibus Account	3,815,019	2.5
The Nomura Trust and Banking Co., Ltd. (Investment Trust)	2,917,800	1.9
State Street Bank West Client - Treaty 505234	2,595,587	1.7
JP Morgan Chase Bank 385635	2,557,500	1.6
JP Morgan Chase Bank 380072	2,371,500	1.5
RBC ISB S/A DUB Non Resident/Treaty Rate UCITS-Clients Account-MIG	1,869,600	1.2

Note: 1. The company holds 9,945,784 shares of treasury shares excluded from the shares of the major shareholders listed above.  
2. The percentage of total shares outstanding is calculated by excluding the treasury share. Units less than that shown above are rounded off.  
3. The number of shares issued increased by 10,888 shares as a result of the issuance of common stock as stock-based compensation with restrictions on transfer on January 14, 2022.



■ There is no information relevant to matters such as share options of the company.

■ Changes in Share Price and Yield



For information about this report, please refer to the links below.

Financial Information  
<https://www.hamamatsu.com/jp/en/investor-relations/financial-information.html>

Sustainability/CSR  
<https://www.hamamatsu.com/jp/en/our-company/sustainability-and-csr.html>

Product Information  
<https://www.hamamatsu.com/jp/en/product.html>





WEB

<https://www.hamamatsu.com/jp/en.html>



## HAMAMATSU PHOTONICS K.K.

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