

ULVAC

ULVAC, Inc.

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ULVAC REPORT 2016

CSR & Annual Report





Basic Corporate Philosophy

The ULVAC Group aims to contribute to the development of industries and science by comprehensively utilizing its vacuum and peripheral technologies through the mutual cooperation and collaboration of the Group companies.

Management Policies

- *Improvement of Customer Satisfaction*
- *A Free and Open Culture*
- *Innovative Production Technology*
- *Enhancement of Corporate Value*
- *Innovative Product Development*

Corporate Profile of the ULVAC Group

- **Name:** ULVAC, Inc.
- **Trademark:** ULVAC
- **Head Office:** 2500 Hagisono, Chigasaki, Kanagawa
- **Established:** August 23, 1952
- **Capital:** ¥20,873,042,500
- **Number of Employees:** Non-consolidated 1,148
Consolidated 5,886 (As of June 30, 2016)
- **Business Areas:** Development, manufacturing, sale and customer support for vacuum equipment, peripheral devices, vacuum components and materials for the display, solar cell, semiconductor, electronic, electric, metal, machinery, automobile, chemical, food product and medical product industries, as well as universities and research labs, and import and export of various equipment. Additionally, research guidance and technical advising on vacuum technologies in general.

Business Segments of the ULVAC Group

Vacuum equipment business

FPD and PV production equipment

- Liquid crystal display (LCD) production equipment
- OLED production equipment
- Roll Coater
- Solar cell production equipment

Semiconductor and Electronic device production equipment

- Semiconductor production equipment
- LED production equipment
- Electronic device production equipment

Major Vacuum Equipment

Sputtering equipment, vacuum evaporation equipment, CVD equipment, etching equipment, ashing equipment, ion implantation equipment, annealing equipment, etc.

Components

- Vacuum pumps
- Vacuum gauges
- Helium leak detectors
- Process gas monitor
- Thin film measuring equipment
- EB, RF and DC power generator
- Vacuum valve
- Deposition controller
- Vacuum transfer robots

Industrial equipment

- Vacuum heat-treating furnaces
- Vacuum melting furnaces
- Vacuum brazing furnaces
- Rare-earth magnet production equipment
- Vacuum freeze-drying equipment
- High-vacuum distillation equipment
- Automatic Leak Tester

Vacuum application business

Materials

- Sputtering target materials
- High-melting-point materials and production of components
- Nano metal inks

Others

- Surface analyzers
- Controllers
- Mask blanks

Editorial Policy

We have integrated the previous Annual Report and the CSR Report into this ULVAC REPORT. We consider this report to be an important communication tool to promote understanding of the ULVAC Group's operating results and CSR activities among our stakeholders.

■ Published:

November 2016

(Previous Japanese edition published in December 2015)

■ Guidelines Referenced:

ISO26000; 2010 (Guidance on social responsibility) first Edition

Report's Scope and Period

[Scope]

■ ULVAC Group

While the report covers the ULVAC Group as a whole, any portions for which the scope differs are indicated.

[Period]

■ Year ended June 30, 2016 (July 1, 2015 to June 30, 2016)

A portion of the report includes activities and initiatives from July 2016 onwards.

(Disclaimer)

Figures shown in tables and graphs in this report may not add up to the indicated total because of rounding. Some figures have been revised from previous years' data because the scope of reporting was expanded or calculating methods have been changed.

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ULVAC GROUP'S HISTORY

The spirit of the ULVAC Group, passed down over more than 60 years

Vacuum technology is now an indispensable part of a range of manufacturing processes.

As the world's only comprehensive vacuum products manufacturer, ULVAC provides products to industry and research institutions etc.

The DNA of young researchers with the ambition to "contribute to Japanese industry through vacuum technology" has been passed down to this day. ULVAC has been providing the latest technology to the world for more than 60 years.

The story of ULVAC's establishment - the 6 angels* and ULVAC -

* Referring to the individual investors who invest in, advise, and guide a venture business.

ULVAC was established in 1952, which was a year in which Japan was attempting post-war recovery and it was unimaginable that vacuum technology could form the basis for a business, let alone contribute to manufacturing.

ULVAC was established in that time period with the blessing of 6 angels, led by Konosuke Matsushita, who is known as the god of management and is the founder of Matsushita Electric Industrial Co., Ltd. (now Panasonic).

The 6 angels were moved by the devoted passion of young researchers such as Jin Imachi, Chikara Hayashi, and Hideo Shibata, who came together with the aim of "establishing vacuum technology in Japan and contributing to Japanese industry" and invested accordingly. These investments resulted in ULVAC (then Japan Vacuum Engineering Co., Ltd.).



Yoshijiro Ishikawa
President of Keifuku Electric Railroad Co., Ltd. and ULVAC's first president



Gen Hirose
President of Nippon Life Insurance Co.



Konosuke Matsushita
President of Matsushita Electric Industrial Co., Ltd.



Yoshio Osawa
Chairman of the board of J.Osawa Group Co., Ltd.



Aiichiro Fujiyama
Chairman of the Japan Chamber of Commerce and Industry



Tamesaburo Yamamoto
President of Asahi Breweries, Ltd.

1952~

- 1952 • Established Japan Vacuum Engineering Co., Ltd.
- Received first order for vacuum evaporation equipment to plate automotive parts from Hakkosha (now Ichiko Industries, Ltd.)
- 1955 • Opened Omori Plant and commenced domestic equipment production
- 1956 • Merged with Toyo Seiki Vacuum Research Corporation (1956) and expanded operations to become a comprehensive vacuum products manufacturer through the transfer of engineers from the Tokuda Manufacturing Co., Ltd. (1959)
- 1959 • Opened the Yokohama Plant

1960~

- 1960 • Developed successive large-scale vacuum devices for heavy industries, such as vacuum melting furnaces and vacuum distillation equipment
- 1964 • Established ULVAC's first overseas subsidiary in Hong Kong
- 1968 • Completed Chigasaki Head Office and Plant



1970~

- 1972 • Opened the Institute for Super Materials as ULVAC's first dedicated research facility
- 1975 • Received order from IBM for System 731, which was the world's first fully automated vacuum evaporation equipment



1980~

- 1986 • The MCH Series, which was the world's first multi-chamber sputtering equipment, received positive reviews from many semiconductor manufacturers



- 1988 • The SHD Series of hard disk manufacturing equipment was a global hit

Origin of the "ULVAC" trademark: Striving for the ultimate

1963

Executive Director Chikara Hayashi unveils the "ULVAC" trademark when it is first introduced



In the 1960s, as products developed by ULVAC began to contribute to Japanese industry bit by bit, more and more advanced vacuum technology became sought after.

The Company unveiled the "ULVAC" trademark in 1963, in order to clearly demonstrate the critical nature of the demands placed on vacuum technology. The name "ULVAC" is an abbreviation of "ULTimate in VACuum" (striving to be the ultimate in vacuums).

In 1969, the corporate name "Japan Vacuum Engineering Co., Ltd." was changed to "ULVAC Corporation" (currently "ULVAC, Inc.") and the Japanese corporate name was adapted in 2001, when the brand name "ULVAC" had become well-known by many users.

1990~

- 1990 • Opened the Fuji Susono Plant as a specialist semiconductor manufacturing equipment plant
- 1992 • Released the SMD series of single substrate film deposition equipment, which became the basis for ULVAC's FPD (flat panel display) business
- 1995 • Established a vacuum pump production center in China and a sales and service center in South Korea
- 2000~
- 2001 • Opened the Institute of Semiconductor and Electronics Technologies
- Changed company name to ULVAC, Inc.
- 2004 • Completed the new Chigasaki Head Office and Plant building aimed at development and trial manufacture of large liquid crystal display manufacturing equipment
- 2005~
- 2005 • Established a large-scale production center for large liquid crystal display manufacturing equipment in South Korea
- 2006 • Established a production subsidiary for large liquid crystal display manufacturing equipment in Taiwan
- 2007 • Opened the Chiba Tomisato Plant to handle development and production of materials
- Received order for a thin-film photovoltaic modules production turnkey line
- 2008 • Developed the Magrise mass-production system for rare-earth magnets and thin-film lithium rechargeable battery integrated mass-production technology as post-FPD businesses
- 2010~
- 2011 • Established the South Korea Institute for Super Materials in South Korea
- 2012 • Celebrated the Company's 60th anniversary
- 2014 • Established ULVAC VACUUM EQUIPMENT (SHANGHAI) CO., LTD. in China
- 2015 • Established the Future Technology Research Laboratory
- 2016 • ULVAC (SUZHOU) CO., LTD. began manufacturing production equipment for large displays

De-facto standard for sputtering equipment for flat panel displays (FPD)

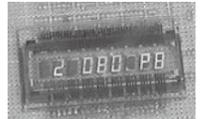
The continually evolving SMD Series

Since they first went on sale in 1992, ULVAC has boasted a market share of over 80% of the world's sputtering equipment for FPDs, and "SMD Series", which is a favorite of many customers, has continued to evolve along with the expansion of substrate glass sizes. In 2012, we exceeded 1,000 total units

The world's first liquid crystal display and ULVAC

1973

The world's first LCD calculator display



Transparent conductive film deposition equipment that contributed to the development of the liquid crystal display

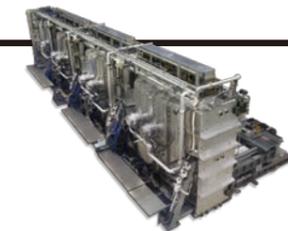


Electrical tabletop calculating device (calculator) is one of the great global hit products created by Japanese companies, and they made a tremendous contribution to Japan by allowing cutting-edge semiconductor and liquid crystal display manufacturing technology to take hold domestically.

In 1973, ULVAC perfected the transparent conductive film trial manufacture and production equipment, which was a key to the manufacturing process for the Sharp hit product ELSI MATE EL-805 LCD calculator. Leveraging this experience, ULVAC gained the top global share of display device manufacturing equipment for LCD flat-screen TVs.

2005~

- 2005 • Established a large-scale production center for large liquid crystal display manufacturing equipment in South Korea
- 2006 • Established a production subsidiary for large liquid crystal display manufacturing equipment in Taiwan
- 2007 • Opened the Chiba Tomisato Plant to handle development and production of materials
- Received order for a thin-film photovoltaic modules production turnkey line
- 2008 • Developed the Magrise mass-production system for rare-earth magnets and thin-film lithium rechargeable battery integrated mass-production technology as post-FPD businesses



Latest model "SMD-3400"

delivered. The latest model can accommodate super-large substrates, known as G10.5, which exceed 3 m in length. Going forward, we aim to do an even better job of meeting the needs of our customers.

We are aiming to increase our corporate value by harnessing the power of diverse human resources and expanding the range of and deepening integration activities.



Hisaharu Obinata
President and Chief Executive Officer

Looking back on the fiscal year ended June 30, 2016

Q1 Please tell us about the business environment and results for this consolidated fiscal year (year ended June 2016).

A1 WE ACHIEVED RECORD-HIGH PROFITS.

The electronics market, in which the ULVAC Group operates, saw a continuous trend toward higher-performance, thinner smartphones, but due to the declining growth of sales quantities, a general wariness toward capital investment was observed among electronic component manufacturers. LCD production equipment, on the other hand, benefitted from a concentration of active capital investment. Investment in organic LED also showed signs of improving, and maintained a higher level than in the previous fiscal year.

In this business environment, the consolidated results for the fiscal year ended June 30, 2016 showed a year-on-year increase in both orders received and net sales, with orders received amounting to ¥223.6 billion (a year-on-year increase of 22%), and net sales totaling ¥192.4 billion (a year-on-year increase of 7.0%). With regard to profit and loss, operating profit, ordinary profit and net income attributable to owners of parent all exceeded the targets under our initial plan at the beginning of the term, with an operating profit of ¥17.9 billion (a year-on-year increase of 60%), ordinary profit of ¥18.4 billion (a year-on-year increase of 47%) and net income attributable to owners of parent of ¥16.7 billion (a year-on-year increase of 88%).

In addition to achieving the above results, we also aimed to promote financial soundness, and were able to purchase and cancel all of our remaining class A classified stock (¥10 billion capital) in July 2015. Our balance sheet has slimmed down as a whole, but we shall continue to increase our equity ratio and strive to be a company capable of adapting to changes in the business environment. Based on our performance for the year ended June 2016, we have increased our dividend payments for the term by ¥20 compared to the previous fiscal year, and paid out ¥30 per share.

Consolidated Business Results (unit: billion yen)

	June 2015 Results	June 2016 Results	Year on year
Orders received	182.7	223.6	40.9 (+22%)
Net sales	179.2	192.4	13.3 (+7%)
Operating profit	11.1	17.9	6.7 (+60%)
Operating profit to net sales	6.2%	9.3%	
Ordinary profit	12.5	18.4	5.9 (+47%)
Ordinary profit to net sales	7.0%	9.5%	
Net income attributable to owners of parent	8.9	16.7	7.8 (+88%)

Q2 How do you rate your results for this consolidated fiscal year (year ended June 2016)?

A2 WE HAVE STRENGTHENED OUR PROFIT-EARNING CAPACITY BY IMPLEMENTING "FRONT LOADING*" AND PROMOTING GROUP-WIDE INTEGRATED MANAGEMENT.

"Front Loading" realizes trouble-free, stable manufacturing by gathering the knowledge that we have so far cultivated in the ULVAC Group, such as past manufacturing data and technical specifications, and ensuring that thorough precautions are already in place in the early stages of operations. By taking this approach to meticulously pursue quality in the early stages of operations, we have been able to prevent additional costs and significantly improve our profit-earning capacity. Furthermore, we designated the year ended June 2016 as the first year of Group-wide integrated management, and promoted efficient management particularly in our production departments. As a result, I believe we have been able to foster a sense of group solidarity that goes beyond the boundaries of each company, as well as integrate our Group's production framework. This has maximized our profit and pushed forward our efforts to create an organization conducive to accumulating advanced technologies within our company, and is another significant achievement.

Outlook for the fiscal year ending June 30, 2017 and progress of the medium-term management plan

Q3 Please tell us about the outlook for the fiscal year ending June 2017.

A3 BY ADAPTING TO CHANGES IN OUR EARNINGS ENVIRONMENT, WE FORECAST THE SAME STRONG LEVEL OF SALES AND PROFIT AS LAST YEAR.

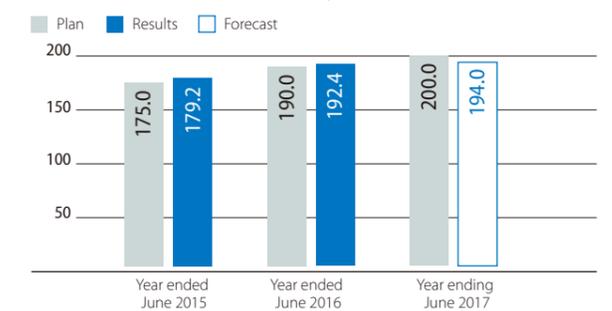
We expect future growth in the semiconductor and electronic component market, which includes 3D-NAND and non-volatile memory,

advanced electronic devices, power devices, and high-density mounting. In the industrial equipment market, we forecast a certain level of growth, but do not anticipate major growth, as the economy remains uncertain in China and emerging countries. In the FPD production equipment market, capital investment in organic LED is expected to increase, but investment in large TVs is expected to experience a temporary slowdown after having reached a peak in Fiscal 2015.

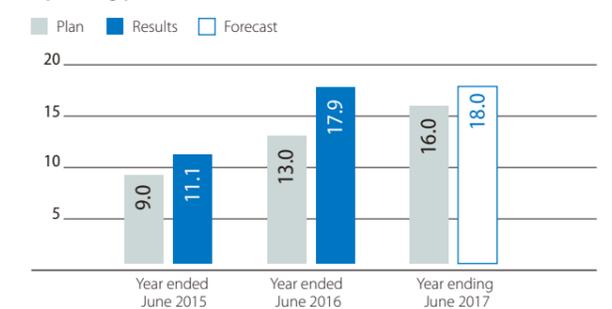
Even while our earnings environment becomes increasingly severe, due to such factors as the fierce cost competition caused by the strong yen, we will steadfastly respond to changes and grasp new opportunities. In the fiscal year ending June 2017, we anticipate orders worth ¥185.0 billion, net sales of ¥194.0 billion, operating profit and ordinary profit of ¥18.0 billion each, and net income attributable to owners of parent of ¥12.0 billion.

Progress of the medium-term management plan (from the year ended June 2015 to the year ending June 2017)

Net sales (consolidated) (unit: billion yen)



Operating profit (consolidated) (unit: billion yen)



* The plan figures are those that were announced in August 2014.

Q4 Please tell us about your efforts for the final year of the medium-term management plan.

A4 WE WILL PROMOTE EXPAND THE RANGE OF AND DEEPEN "INTEGRATION" ACTIVITIES IN ALL OUR DEPARTMENTS AND DELIVER COMPETITIVE, HIGH-VALUE-ADDED PRODUCTS TO THE WORLD.

As fiscal 2016 is the final year of our medium-term management plan, we are making every possible effort at this very moment to achieve the earnings we have projected. We set a policy of expanding the range of and deepening "integration" activities in fiscal 2016. Expanding the range of "integration" activities means all our departments, including the production departments as well as the

development, sales, and head office departments, will endeavor to promote integrated management, and will aim to improve efficiency and produce results as a integrated group. It also means we must depart from our conventional emphasis on sub-optimization and instead place priority on total optimization from a consolidated perspective and pursue the ultimate in efficiency. Deepening "integration" activities means gathering the wisdom of our Group companies in marketing, development, production, and field services, and creating and delivering new added value to the world. Due to the advancement of globalization and commoditization, the vacuum equipment industry faces severe cost competition today. To escape from this situation, we must develop a new lineup that offers greater added value and is more competitive than ever before. Thus, in Fiscal 2016, we have continued to work to create even higher added value by increasing capital investment in research and development and R&D budget.

ULVAC's mission and value creation

Q5 What are your thoughts concerning ULVAC's mission?

A5 I BELIEVE OUR MISSION IS TO CONTRIBUTE TO SOCIETY WITH CUTTING-EDGE TECHNOLOGY.

Companies are said to be a public instrument of society, and we are aware that we only exist because of society at large, so we work on the premise that we must be a company that is valuable to society. In addition, it is our utmost duty to contribute to society through the ULVAC Group's greatest strength, which is cutting-edge technology, while fulfilling our responsibility to all of our stakeholders.

Since our establishment in 1952, at ULVAC, we have dauntlessly challenged ourselves to create new value that is demanded by the times, seeking out the infinite possibilities of vacuums, and refining technology that freely manipulates vacuums, based on our corporate philosophy of "contributing to manufacturing and science through vacuum technology." In addition, a diverse range of fields utilize the vacuum technology that we have developed, including semiconductors, electronic components, flat-panel TVs, solar cells, automobiles, pharmaceuticals, food, and science, and it is a fundamental technology that is indispensable for the advancement of many industrial fields and science.

Q6 In what specific fields do you hope to contribute to society in the future?

A6 WE HOPE TO CONTRIBUTE TO SOCIETY IN THE FIELDS OF ENERGY AND IOT.

In recent years, global environmental problems and other such complex social issues have become prominent, and the fields in

which our Group's products and technology can contribute are expanding at a rapid rate.

Although we face various social issues, we aim to make a contribution in mainly two fields. One of these is the energy-saving and power generation field. Today, there is mounting concern about the depletion of energy sources due to the increasing population. We will use our Group's technology to solve this deepening social issue. Vacuum equipment is indispensable to the production of power devices, such as those that save energy by controlling large electrical currents, solid-state batteries that store electricity, and long-life, high-brightness LEDs. Various types of vacuum equipment are also used in the production process of solar cells, the representative solution to power generation. Thus, we will implement a priority energy project in the four areas of power devices, high-brightness LEDs, high-efficiency solar cells, and automotive related technology.

The second field that we will contribute to is the field related to advanced information technology. As we increasingly become a highly information-oriented society, represented by the acronym "IoT," we are focusing our efforts on four projects related to display-related technology, non-volatile memory, hyperfine wiring, and high-density mounting. We have also launched a project that involves electronic components and MEMS. MEMS technology is extremely important to the creation of communication devices and sensors that support the IoT age. With our Group's advanced processing technology related to these areas, we can make significant future contributions to our information-oriented society. By designating these two fields related to energy and information technology as priorities for our Group, we will aggressively promote technological development toward the realization of a rich and safe lifestyle for people all over the world.

Q7 Please tell us what values or principles your organization upholds.

A7 WE ARE BUILDING AN ORGANIZATION THAT EMBRACES DIVERSITY AND IS WORTH WORKING FOR.

The globalization of the economy has also taken down the barriers between nations with regard to human resources, and mutual understanding of different races, cultures and customs has become more important than ever before, such that each and every one of us is expected to be tolerant of diversity. In our Group, we have established measures for providing opportunities to make presentations and a system of awards that turn the spotlight on employees in all job categories, and have created a personnel system that values professionalism, for example, with respect for diversity. I believe having a system that rewards people who make great effort is the key to revitalizing both individuals and the organization. That is why we employ a system of management by objectives and evaluation systems that do not focus solely on results, but rather acknowledge and encourage employees' bold challenges to address difficult issues and initiatives to work as a team. We also take pride in our corporate culture, which is

characterized by flexible thinking and an open and dynamic spirit.

We believe human resources development is an essential element of our organization, and have implemented a variety of specialized programs for professional production related training, including education for manufacturing professionals, engineers, and designers, to ensure that our engineering skills is handed down to the next generation. In Fiscal 2015, we concentrated on establishing programs for instructor development and engineer education. In Fiscal 2016, we are now preparing an e-learning program for engineers, and we are pushing forward our plan to create an "ULVAC Academy."

We also promote working styles that allow our employees to maintain a good work-life balance, and are aiming to create workplaces that are employee-friendly. We have produced steady results by granting our employees annual paid leaves from the day they join our company, launching campaigns that encourage them to take spot-leaves, and implementing a host of other relevant measures. Another characteristic of our company is the high rate at which our female employees take parental leave and subsequently return to work. However, our efforts will not stop there. We will continue to take measures to further promote diversity in the future.

Q8 Please tell us about the kind of group ULVAC aspires to be.

A8 WE WISH TO CONTINUE TO BE A PRESENCE THAT CREATES NEW VALUE AND IS NEEDED BY SOCIETY.

I believe business management is about ensuring safety, quality and profits, in that order. Without safety and quality, we cannot expect to produce profit. If we merely pursue profit and neglect safety, we may meet with an accident somewhere down the line and inconvenience society. If we neglect quality, we stand to lose our customers' trust. Therefore, we must build a strong foundation of safety and quality before we can begin to pursue profit. This, I believe, is the essence of business management.

My aim is for us to continue to be a corporate group that creates new value in response to the times and is truly needed by society, by bringing together our manufacturing capability and the power of our employees who support it, and firmly rooting them in a corporate culture that places top priority on safety and quality. I will build a stable corporate structure that is conducive to expanding our business in a sustainable manner and continually increase our corporate value.

Q9 Lastly, please give a few words to your stakeholders.

A9 I WILL DEVOTE MYSELF TO OUR BUSINESS ACTIVITIES, WITH FEELINGS OF GRATITUDE ETCHED IN MY HEART.

Our company has faced countless difficulties over the years, but has overcome them all to grow into a leading company in vacuum technology. From our founding to the present, we have continued to exist thanks to our predecessors, who laid the foundation of the company, and to our stakeholders, who have supported us all the way. I wish to take this opportunity to express anew my sincerest gratitude to everyone. By further improving our channels of communication with you, I hope you will favor us with your understanding and walk alongside us as we forge our way into the future.

The sight of people working hard to do what they must, strikes the hearts of others around them, and naturally attracts support. The same is true of companies. I realize that unless each and every one of us makes every effort to deal with what lies in front of us, our company cannot expect to receive your understanding. Only by working faithfully, with enthusiasm, can we gain the support of people around us and realize our significance. Furthermore, to be recognized from outside the company for standing firm to this conviction will increase our corporate value.

Thus, we will make ongoing efforts to be a company that is needed by society, and ask for your continued support and cooperation.



ULVAC Group's Value Creation Flow

Contributing to the progress of society by tackling social issues through the provision of products and technology

Since ULVAC was established, we have dauntlessly challenged ourselves to create new value that is demanded by the times, seeking out the infinite possibilities of vacuums, and refining technology that freely manipulates vacuums.

We provide products and technologies that contribute to the solution of social issues through our three strengths of "research and development," "global networking," and "customer support," in order to respond to the needs of customers and the market. Furthermore, we will contribute to the progress of society through sustainable expansion and continual improvement in corporate value in order to be an institution that is valued by society.



ULVAC's Businesses

ULVAC has provided many products and technologies in a broad range of industries to meet the needs of our customers and the market. At present, ULVAC operates in 6 business areas.

Vacuum equipment business

FPD and PV production equipment

ULVAC is involved with a range of FPD*1 and PV*2 manufacturing technologies, and in addition to the development of production equipment, we provide global solutions through the development of materials.

*1 FPD: Abbreviation for "flat panel display"
*2 PV: Abbreviation for "photovoltaic," which refers to solar power generation

Main Products

FPD production equipment

- LCD production equipment
- OLED production equipment
- Roll Coater

PV production equipment

- Crystalline silicon solar cell production equipment
- Compound solar cell production equipment

Sputtering equipment, Vacuum evaporation equipment, CVD equipment, Ion implantation equipment, Encapsulation equipment for OLED, etc.

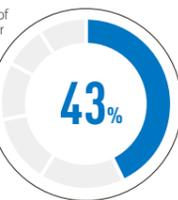
Product Use

- Thin-film deposition during the manufacture of LCD and OLED panels
- Luminescent layer deposition, etc., during the manufacture of OLED panels

- Thin-film deposition during the manufacture of solar cells
- Thin-film deposition for various types of films



LCD production equipment



OLED production equipment

Components

As a comprehensive vacuum product manufacturer, ULVAC is also dedicated to the development of components. ULVAC pursues cutting-edge vacuum technology while providing a wide variety of product lineup, from vacuum pumps and measurement and analysis equipment, to components, such as power generators for various types of deposition equipment and vacuum valves.

Main Products

- Vacuum pumps
- Vacuum gauges
- Helium leak detectors
- Process gas monitors
- Spectroscopic ellipsometers
- Stylus profilers

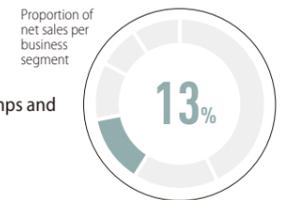
- EB, RF, and DC power generator
- Vacuum valves
- Deposition controllers
- Vacuum transfer robots

Main Customers

- FPD, semiconductor and electronic device manufacturers
- Vacuum equipment manufacturers
- The general manufacturing industry
- Research institutions, universities, and public agencies

Product Use

- Evacuation and pressure measurement of the vacuum chambers of vacuum equipment
- Evacuation of vacuum suction lines
- Testing for leaks from vacuums using He
- Analysis within vacuums



Leak detector

Cryo pump

Dry vacuum pump

Semiconductor and electronic device production equipment

Higher integration and higher performance are demanded at low cost for next-generation semiconductors and high-performance devices. ULVAC develops this type of hyperfine semiconductor and electronic device technology and delivers new technologies and products to the world, one after another, to support the progress of society.

Main Products

- Semiconductor production equipment
- LED production equipment
- Electronic device production equipment
- Optical film deposition equipment

Product Use

- Thin-film deposition during the manufacture of semiconductors, etc.
- Thin-film deposition and microfabrication, etc., during the manufacture of electronic devices.

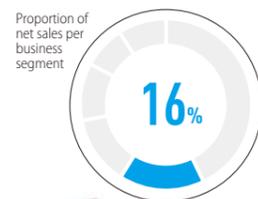
Sputtering equipment, vacuum evaporation equipment, CVD equipment, etching equipment, ashing equipment, ion implantation equipment, annealing equipment, etc.



Sputtering equipment for electronic devices



Sputtering equipment for semiconductors



Industrial equipment

ULVAC has a long history of producing vacuum equipment for industrial uses, and has been involved in this business sector since the 1950s, in the dawn of vacuum technology. Now, ULVAC leverages the fundamental technology that it has developed up to this point to provide a variety of solutions in a range of industries and sectors, such as automobiles, pharmaceuticals, and food.

Main Products

- Vacuum heat-treating furnaces
- Vacuum brazing furnaces
- Vacuum melting furnaces
- Rare-earth magnet production equipment
- Vacuum freeze-drying equipment
- Vacuum distillation equipment
- Automatic leak testers

Main Customers

- The heat treating industry
- Automotive parts manufacturers
- High performance magnet manufacturers
- Chemical manufacturers
- Pharmaceutical and food manufacturers

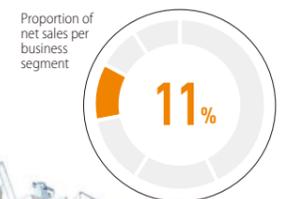
Product Use

- Heat treatment
- Vacuum brazing of heat exchangers for automobiles, etc.
- Vacuum melting and vacuum sintering for the manufacture of high-performance magnets
- Manufacture of freeze-dried food and pharmaceuticals



Vacuum melting furnace

Vacuum heat-treating furnace



Vacuum application business

Materials

ULVAC provides electronics materials, such as sputtering targets, for a range of manufacturing sectors. Also, in the high-performance materials sector, ULVAC provides integrated manufacturing and precision processing technology for titanium, tantalum, zirconium, and niobium, etc.

Main Products

- Sputtering target materials
- Production of high-melting-point active metal materials and components
- Nano-metal inks

Main Customers

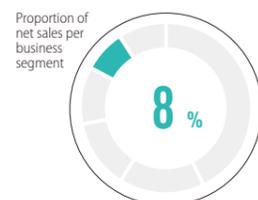
- FPD (LCD and OLED) panel manufacturers
- Semiconductor and electronic device manufacturers
- Research institutions, universities, and government agencies

Product Use

- Target materials for the deposition of thin films using the sputtering method
- Acceleration cavities for superconducting accelerators, etc.
- Wiring formation through the ink-jet method



Sputtering target materials for FPD production equipment



Analysis equipment, controllers, mask blanks, etc.

ULVAC provides technology derived from production equipment that utilizes vacuums to a range of different industrial sectors.

Main Products

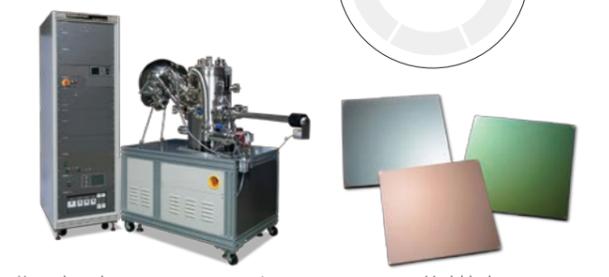
- Surface analyzers
- Mask blanks, etc.

Main Customers

- Research institutions, universities, and public agencies
- FPD, semiconductor, and photomask manufacturers

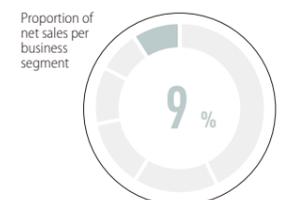
Product Use

- Analysis and observation of solid surface composition and properties
- Photomasks for lithography process when manufacturing FPDs and semiconductors



X-ray photoelectron spectroscopy equipment

Mask blanks





T E C H N O L O G Y T O P I C S

Energy problems are a social issue on a global scale.

ULVAC's vacuum technology also plays a role in energy saving and power generation.

We are working to achieve energy saving and power generation from two perspectives.

ULVAC's manufacturing equipment plays a role in the process of creating products that lead to energy saving and power generation

Vacuum equipment is essential for the manufacture of power devices, which are necessary for regulating heavy current, as well as long-life, high-brightness LEDs. Furthermore, many vacuum devices are used in the manufacturing process of solar cells, which are representative of power generation. Going forward, the roles that ULVAC vacuum equipment plays in order to produce highly energy-efficient and power-generating products will continue to expand. We are also devoting resources to future development by including the energy saving and power generation fields among the important areas for development, for the realization of safe and secure lifestyles.

P.16

Contributing to energy saving at our customers' factories

ULVAC contributes to reducing environmental impact and energy saving by providing deposition equipment and exhaust equipment that help save energy used at our customers' factories.

P.15

What do you think of when you hear about things that contribute to "energy saving"? Energy-saving devices such as high-brightness LED lamps and high-efficiency motors readily come to mind. In order to improve the fuel efficiency of motor vehicles, it is important to make them lighter. We have begun to implement measures such as introducing resin gasoline tanks and window panes, as well as creating lighter motors and batteries for electric and hybrid vehicles. Although you rarely notice them, power devices are essential to efficiently regulate electricity.

What about "power generation"? If you are thinking about clean energy sources, solar cells and wind power come to mind.

What is the common thread between all of these things? That's right. Vacuum technology is essential to the manufacturing process of all of these products that help achieve "energy saving and power generation".



ULVAC Manufacturing equipment that contributes to energy saving and power generation at our customers' factories

Manufacturing equipment

ULVAC's vacuum equipment is used extensively for manufacturing processes in a wide range of fields, such as LCD and organic EL displays for smartphones and large HD TVs, as well as semiconductors and electronic components, in addition to freeze-dried products, such as food and pharmaceuticals, and metal melting. We are also pursuing energy-saving features in our vacuum equipment, itself, in order to achieve energy saving at our customers' factories.



T E C H N O L O G Y T O P I C S

ULVAC components that contribute to energy saving and power generation at our customers' factories

Components



Power saving accessory for dry pumps

ECO-SHOCK ES4A

Dry vacuum pumps are devices that require a lot of power, even among production lines that utilize vacuums. Until recently, it was difficult to reduce the power consumption of dry vacuum pumps, which are regularly used to exhaust gas from load/unload chambers for vacuum equipment, and which use a significant amount of sealing gas. The "ECO-SHOCK ES4A" achieves a wide range of energy savings in this field, as well. It can even be fitted to dry vacuum pumps that have already been installed.



Freeze drying process monitoring system

DRYMONI

Freeze drying is a method of drying that involves freezing aqueous solutions or food and reducing the pressure to below the saturated vapor pressure at below-freezing temperatures to sublimate any water content. In addition to food products, it is often used to manufacture pharmaceuticals. Until now, it was standard practice for temperature to be measured by inserting a temperature sensor into the substance to be dried, and for a human operator to judge when the drying process was complete. Operators would often allocate excessive time for fear of leaving residual moisture, which caused time and energy to be wasted. With "DRYMONI", we have succeeded in creating a "visualization" of the drying process. This has been acknowledged in the pharmaceuticals industry, which has strict quality assurance requirements, leading to the fitting of "DRYMONI" to ULVAC vacuum freeze drying equipment. We also stock a standalone type that can be fitted to the precede model of equipment that has already been installed.

ULVAC's vacuum technology supports energy saving and power generation

Solar cell

Solar cells are representative of renewable energy, and in addition to mega solar projects, we are also working to increase the uptake of solar cells for general household use. In order to achieve higher power-generation performance, we are engaging in a range of initiatives to improve conversion efficiency.

Between the 1980s, when solar cells were emerging, and now, ULVAC has been involved with the manufacture of solar cells in a number of different ways. We will continue to contribute to the superior performance of solar cells through vacuum deposition equipment and ion implantation equipment.

- In-line type sputtering system : SCH Series
- In-line type PE-CVD system : CCV Series
- In-line type Cat-CVD system : CIV Series
- Ion implantation system : PVI Series



Ion Implantation system PVI-3000

Next-generation automobiles

Although we are now seeing many environmentally friendly hybrid cars and EVs (electric vehicles), initiatives aimed at producing next-generation automobiles, such as improving fuel efficiency, are ongoing. One of these initiatives is to make vehicles lighter. We expect a dramatic improvement in the lightness of vehicles by using polycarbonate (PC) resin for side and rear windows.

ULVAC will contribute to the lightening and reduction in fuel consumption of next-generation automobiles by coating the resin glazing with a hard film and providing PE-CVD equipment to improve abrasion resistance.

- PE-CVD system : for mass production of PC resin glazing : ULGLAZE Series
- Rare earth magnet mass production system : Magrise Series



PE-CVD system ULGLAZE Series

High-brightness LEDs

The move away from fluorescent lamps and incandescent lamps to LED has been continuing at offices and homes, and is emblematic of efforts to save energy. Furthermore, the use of LED lights has been expanding for applications such as outdoor usage, including billboards, and for automobile headlights.

ULVAC will contribute to the manufacturing process of various types of LEDs, from conventional to high-brightness, through deposition equipment such as vacuum evaporation and sputtering, as well as PE-CVD equipment, and etching equipment.

- Dry etching system : NE Series
- Sputtering system : SIV Series
- Vacuum evaporation system : ei Series



Vacuum evaporation system ei Series

Power devices

When supplying electricity to household appliances, trains, and automobiles, etc., it is necessary to convert the electricity to the correct voltage and frequency, and power devices regulate this. In order to handle higher voltages, minimize energy loss, and increase the speed of conversion, there is a trend toward creating products that use new materials such as SiC and GaN in place of the conventional Si.

With our vacuum deposition equipment, etching equipment, and ion implantation equipment, etc., ULVAC will contribute to the production process of power devices that use new materials as well as conventional Si.

- Sputtering system : SRH Series
- Ion implantation system : SiC IH Series
- Etching system : NE Series



Ion implantation system IH Series



Research and Development

Sustainably creating value from a medium to long-term perspective

The ULVAC Group provides products and materials around a core of vacuum technology, which is indispensable in a range of sectors. In the future, we will continue to contribute to the advancement of society by seeking out revolutionary and advanced technologies to respond to actual and potential needs and producing products and technologies with high added value around a core of vacuum technology.



Product creation at the source of responding to market needs and profits

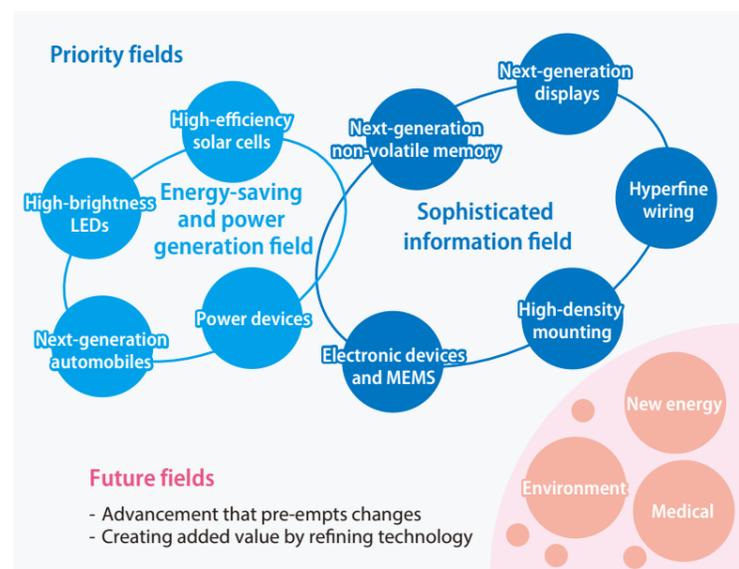
ULVAC contributes to the shaping of a safe and prosperous society by investigating vacuum technology and creating new value that will be needed in the future.

Important areas	- Key technologies for growing and developing fields - Technological solutions to deepening social issues
Sophisticated information field	Next-generation displays (High-definition displays and flexible displays)
	Next-generation non-volatile memory (high capacity and low power consumption memory) and hyperfine wiring
	Electronic components, MEMS (devices and sensors to support the IoT), and high-density mounting
Energy-saving and power generation field	High-efficiency solar cells, high-brightness LEDs, power devices, and next-generation automobiles

Nine important areas

Working towards a prosperous and safe lifestyle

In order to leverage ULVAC's strengths, we have designated nine areas as "important areas" and we are dedicating ourselves to development in these areas. Furthermore, we are conducting development and enhancement in each area through the cooperation of the marketing manager (CPM), design and cost reduction manager (CDM) and the technology manager (CTM).



Development institutions

Planting the seeds of long-term growth by establishing a new Future Technology Research Laboratory

We are establishing a global development structure that includes the overseas arms of the group in addition to the domestic arm.

We are differentiating our technology by speeding up development through unification, as well as innovative technology, and technological fusion at each company.

Furthermore, in addition to development and operation in our designated important areas to conduct product development to ensure short to medium-term profits, we have established and commenced operation of the Future Technology Development Laboratory in order to sow the seeds for the long term future, in 10 or 20 years.

ULVAC's Research and Development Structure (as of July 2016)



ULVAC Group's Global Intellectual Property

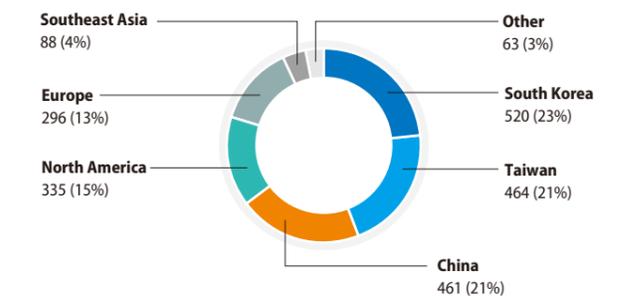
With regard to ULVAC's intellectual property rights, we are mainly applying for patents in countries in which ULVAC has many sales, and the number of foreign patents held as of June 30, 2016 totaled approximately 2,200, which is an increase over last year. In particular, the ratio of patents held in Asian countries and regions, such as Korea, China, and Taiwan, has increased, accounting for approximately 70% of all patents.

In recent years, development of improved equipment and unique products that meet the requirements of our customers and businesses in different countries has become common, as we have established overseas development centers that conduct process development and equipment development, and intellectual property applications outside of Japan have increased accordingly. Therefore, we have appointed patent managers in Korea, China, Taiwan, and the US, allowing us to understand and manage the state of affairs for intellectual property at each group company through periodic situation reports. Furthermore, we hold periodic meetings, exchange information concerning the promotion of knowledge and effective utilization of intellectual property rights, and promote the protection of the whole Group through intellectual property rights.

In Japan, we promote effective patent applications, mainly for strategic priority products, based on marketing information. We make effective and high-quality foreign patent applications, giving consideration to their relationship with our business plan.

Going forward, we will promote the enhancement of global intellectual property rights.

Overseas patents held by area (as of June 30, 2016)



Global Network

Solution networks that support global industrial development

We are building sales and service networks that are optimized for each region, not only in Japan, but throughout the Group's 49 companies with a focus on North America and Asia. Vacuum technology is one of the key technologies for many other cutting edge technologies, and will be increasingly required for a wide range of industries and growth fields in the future.

As the world's largest comprehensive vacuum products manufacturer, we conduct everything from research and development, through to manufacture, sales, and customer support. Looking forward, we will continue to support the advancement of the world's industries through vacuum technology.

ULVAC Group

ULVAC, Inc.

ULVAC Group Companies in Japan

- ULVAC TECHNO, Ltd.
- ULVAC KYUSHU CORPORATION
- ULVAC TOHOKU, Inc.
- ULVAC KIKO, Inc.
- ULVAC EQUIPMENT SALES, Inc.
- ULVAC CRYOGENICS INCORPORATED
- ULVAC-PHI, Inc.
- TIGOLD CORPORATION
- ULVAC COATING CORPORATION
- NISSIN SEIGYO Co., LTD.
- ULVAC Human Relations, Ltd.
- SHINKU CERAMICS CO., LTD.
- FINE SURFACE TECHNOLOGY CO., LTD.
- Reliance Electric Limited
- SHOWA SHINKU CO., LTD.

Overseas ULVAC Group Companies

- **North America**
 - ULVAC Technologies, Inc.
 - Physical Electronics USA, Inc.
- **Europe**
 - ULVAC GmbH
- **China**
 - ULVAC (CHINA) HOLDING CO., LTD.
 - ULVAC (NINGBO) CO., LTD.
 - ULVAC (SUZHOU) CO. LTD.
 - ULVAC Orient (Chengdu) Co., Ltd.
 - ULVAC Automation Technology (Shanghai) Corporation
 - ULVAC Tianma Electric (Jingjiang) Co., Ltd.
 - ULVAC Vacuum Furnace (Shenyang) Co., Ltd.
 - ULVAC (Shanghai) Trading Co., Ltd.
 - ULVAC Materials (Suzhou) Co., Ltd.
 - ULVAC Opto-electronics Thin Film Technology (Shenzhen) Co., Ltd.
 - ULVAC CRYOGENICS (NINGBO) INCORPORATED
 - ULVAC NONFERROUS METALS (NINGBO) CO., LTD.
 - ULVAC Research Center SUZHOU Co., Ltd.
 - Hong Kong ULVAC Co., Ltd.
 - ULVAC VACUUM EQUIPMENT (SHANGHAI) CO., LTD.



Customer Support

ULVAC CS Solutions focuses all of the Group's knowledge

We provide global customer support to keep our customers satisfied after purchase of equipment, from installation of equipment to operation, field support, evaluation, analysis, provision of materials and parts, and maintenance etc. of vacuum pumps etc. In the future, in order to respond appropriately to the demands of diversification and sophistication, we will pursue value-adding service focusing all of our knowledge, such as our unique technology, service, and know-how, in order to support our customers' production activities in a manner that meets their needs. Furthermore, by using information about our customers' needs as feedback for development of new equipment, we are able to produce even more sophisticated vacuum technology and service.

Equipment maintenance service

By valuing close communication with our customers, we are able to achieve rapid service.

• Global CIP (continuous improvement program)

This service is for the purpose of providing our overseas customers, in addition to our domestic customers, with effective usage techniques, and improvements in yield rate and productivity over many generations for the equipment they are already using.

• Factory outsourcing (FOS)

We conduct support for the operation and maintenance of equipment and facilities, as well as the ordering of parts, selection of equipment, and process development, by contract, dispatch or personnel transfer.

• Rejuvenation, precision cleaning, and resource recovery

We aim for overall cost reductions through extension of component life and the cleaning cycle, and recovery of valuable materials etc. Based on our extensive knowledge of vacuum equipment as a whole, we propose the optimal surface treatment and cleaning for your needs.

Component maintenance

• Pump maintenance

We maintain components such as vacuum pumps.

• JCSS vacuum gauge calibration service

ULVAC is an MRA/JCSS* accredited calibration laboratory in the pressure (vacuum gauges) category.

*JCSS (Japan Calibration Service System): Calibration laboratory accreditation system under the Measurement Act
*International MRA (mutual recognition agreement)

Components and consumables

We achieve high-quality, swift, and reliable delivery through in-house manufacture of components.

Analysis service

We conduct an analysis service using the ULVAC Group's analysis and evaluation equipment.

Second-hand sales and purchase

We sell, purchase, refurbish, relocate, import and export, etc., second-hand products, ranging from components to production equipment.

Training service

We conduct a training service for ULVAC products (equipment, vacuum pumps, and components).





Keon-Chang Lee

ULVAC, Inc.
(*Seconded from ULVAC KOREA, Ltd.)
Institute of Semiconductor and
Electronics Technologies
Research Office No. 1,
Research Division No. 4

Manabu Gibo

ULVAC, Inc.
Institute for Super Materials,
Research Office No. 2,
Research Division No. 2

Choong-Ryul Paik

ULVAC, Inc. Managing Executive
Officer
(Supervisor of Development)
Concurrently serving as President of
ULVAC KOREA, Ltd.

Junki Nagakubo

ULVAC, Inc.
Future Technology Research
Laboratory
Nano Functional Materials
Research Office

Tomomi Oohashi

ULVAC, Inc.
Research and Development
Division, Analysis Center
Materials Evaluation
Research Office

* Positions and departments are correct as of the time of the roundtable discussion.

Unlocking new possibilities through the "integration" of research and development

ULVAC is constructing a research and development structure that aims for sustainable value creation, from short to medium-term product development to developing seeds for the future. Furthermore, we have established overseas development sites, and are promoting research and development through global collaboration throughout ULVAC. On this occasion, the Managing Executive Officer supervising development, Choong-Ryul Paik, along with 4 researchers from the Research and Development Division, the Institute for Super Materials, the Institute of Semiconductor and Electronics Technologies, and the Future Technology Research Laboratory, gathered to share their thoughts about a variety of topics, including the future of ULVAC.

A diverse exchange hints at the answers

Moderator: Although it is easy to say research and development, research can actually take many different forms. What tasks do you engage in on a day-to-day basis?

Nagakubo: I work at the Future Technology Research Laboratory (FTRL). Our mission is to develop new materials and processes aimed at 10 or 20 years in the future. Our job is to conduct research and development with the aim of entering the fields of new materials, new energy, and the environment.

Gibo: In my case, my task is to create products that lead to securing profits in the short to medium-term. I am in charge of the development and launch of sputtering equipment for next-generation displays at the Institute for Super Materials (ISM). Compared to Mr. Nagakubo's field of basic research, my position is more involved with manufacturing and specifically responding to the demands of customers.

Lee: The Institute of Semiconductor and Electronics Technologies (ISET) is also involved with product development. I have come here on secondment from ULVAC KOREA, Ltd., and have been involved with the development of the CVD*1 and ALD*2 processes, which are

important semiconductor film deposition technologies.

Oohashi: I work at the Research and Development Division (R&D), and I am involved with analysis, which is slightly different from what the rest of you do. My role is to respond to the range of requests for analysis directed to us by other departments. Although my involvement is indirect, I am involved in a wide range of products and technologies.

Gibo: ISM sends you a lot of requests for analysis, doesn't it? We communicate regularly to consult or receive proposals for methods of analysis.

Oohashi: We also participate in development meetings. We not only analyze what is in front of us, but we also consider it important to collect information concerning what is currently being developed. Sometimes it is difficult for us to participate due to the high number of requests for analysis, but we would like to remain close, in order to be part of a unified ULVAC team.

Paik: I also came from ISM, so I have a lot of memories of this. Once we had received the results of an analysis that we had requested, the most important thing was to reflect on whether the results were as we expected, and if they weren't, work out exactly how they differed. When I received an analysis report, I would often be introduced to materials that I didn't know about, so I think that interaction with the people at the Analysis Center is a valuable opportunity to exchange useful information.

Lee: That's very true. At one point, when an experiment did not go as planned, I consulted with the people from the Analysis Center, and they provided advice from a completely unexpected perspective, which allowed me to take the first step toward solving the problem. It taught me that when it comes to research and development, we mustn't get caught up in what is directly in front of us, but rather, it is important to exchange opinions with a variety of people.

Gibo: I also had an experience in which I had unexpected results, and I was unable to discover the cause, no matter how hard I tried, but analysis helped me to find a clear answer. Breaking your thought patterns, such as by listening to the opinions of people from different fields, really helps you make discoveries. Sometimes mistakes and



Institute of Semiconductor and Electronics Technologies **Keon-Chang Lee**

misunderstandings can lead to new discoveries, so I would like to embrace a range of challenges.

Oohashi: Apart from that, once you have mulled over the problem as thoroughly as you can, it can be good to switch your brain over to something completely different. Sometimes you can make use of your realizations in another task.



Research and Development Division **Tomomi Oohashi**

Nagakubo: When I am stuck, I value returning to basic principles of Physics. In the case of FTRL, it is not uncommon for us to conduct research that has never been engaged in at ULVAC, so there are times when our experience is insufficient to solve the problems that we face. In those instances, we are instructed by the head of the laboratory to consider the results of the work we have performed in terms of what they mean from the perspective of physics, and we do our best to share and discuss the data.

Paik: Although we are all involved with research and development, there are many different fields of research and types of researchers. Mr. Nagakubo is the type of researcher who examines physical concepts. He thinks about things from the perspective of principles, while clearly stating the processes and reasoning that he uses. On the other hand, chemists and engineers do things slightly differently. They think about how to achieve the required results, particularly in the development of materials. There are some things that they will be unable to explain using theory and empirical assumptions, for example. Also, mankind evolved from hunter-gatherers to an agricultural people, and this is also indicative of types of researcher. In recent times, agricultural-type researchers, where success is built by following processes, have been increasing in number. However, we also need hunter-type, who judge whether there is anything of value to be garnered through their experience and intuition, in research and development. The ideal organization is one that gathers a range of different types and leverages their strengths to produce results.

*1 CVD = Chemical Vapor Deposition: A type of deposition technology that utilizes chemical reactions.

*2 ALD = Atomic Layer Deposition: A type of deposition technology that deposits a thin film at an atomic level.

Actively promote contact with customers, and contribute from their perspective

Moderator: I suppose you gain knowledge from experience, too. Is there anything else you are working toward?

Paik: The thing that teaches us the most is our relationship with our customers. We gain a lot by going to our customers and directly finding out what kind of research they are conducting and what they require from us.

Oohashi: I sometimes receive urgent requests for analysis from the equipment manager regarding problems that have occurred at our customers' sites. If the person in charge of the equipment needs help, that means a customer also needs help. I feel a great sense of relief when we are able to quickly conduct analyses and convey the results, which lead to a discovery of the cause of the problems. Analysis for the evaluation of the performance of equipment is necessary to achieve customer satisfaction. Although we do not deal with customers directly, I am proud that we are able to make a contribution to them.

Lee: As a process developer, there are many ways in which I can make contributions to customers. For example, the other day I conducted an evaluation of the membrane characteristics of a metal film that uses a new material. The results showed that the membrane characteristics were better than those of the product being developed by the customer, which led to the customer requesting that we continue our development. I hope that I am able to actively participate in the solution of issues that customers struggle with, from the perspective of a researcher, so that we are able to solve them together, allowing both companies to grow.

Paik: It was actually customers that led me to become a researcher. The needs of the customer are the seeds of our business. I hope that all of you youngsters have as much contact with customers as possible and maintain a high level of motivation for your research and development work.



Managing Executive Officer, Supervisor of Development **Choong-Ryul Paik**

The challenge to become the best in the world and our hopes after integration

Moderator: Please tell us about your opinions concerning the outlook going forward and how you envision ULVAC in the future.

Oohashi: First, it is necessary to deliver high-value products and technologies to the world in the current market. However, it is also essential to embrace new challenges. Research and development can cover a wide range of fields, and they should not be thought of as a single entity. It is important to undertake research and development in a balanced fashion, even though that is hard to sum up in a single sound bite.



Future Technology Research Laboratory **Junki Nagakubo**

Nagakubo: I would like to be involved with manufacturing equipment for key parts that are used in growing markets, such as robotics and artificial intelligence. It would be ideal to secure our position at the top of our niche, and for ULVAC to be a company that top researchers think of as a desirable place to work.

Gibo: I believe that, at present, ULVAC is not fully utilizing its research and development and its technological capabilities. I strongly feel the need to achieve integration, which has been a topic for the whole company, such as by making sure that we are all on the same page and increasing ties between departments.

In addition, I think that there are many opportunities for ULVAC's businesses to be involved with producing world-leading products. In order to produce cutting-edge technology and products, both equipment and materials are indispensable. It is my dream to be able to proudly declare that ULVAC is involved with the production of the world's best products because of its technology.

Paik: I would like to strengthen the solidarity within ULVAC by continually embracing new challenges and fostering bonds that go beyond individual organizations. The fact that we have research and development centers around the world is one of ULVAC's unique strengths. ULVAC has research and development centers in four

overseas locations – Korea, America, Taiwan, and China. These are all areas in which our customers are expanding their businesses. We must effectively leverage these research and development centers in order to be able to respond swiftly and appropriately to the varied needs of customers around the world. As Mr. Gibo said, it is important for us to come together as a company and proceed with unification to stay ahead of the pack in the future. Based on our Open R&D strategy, we hope to ensure a diverse research and development structure.

Shifting to a global focus and pursuing dynamic research and development

Moderator: Finally, please give us your messages for the young researchers who will bear the expectations of the next generation.

Lee: The benefit of working at ULVAC is the many opportunities to work alongside people from countries all around the world. I am currently in Japan on secondment, and there are many people within my department with overseas work experience. Improving individuals' skills leads to the development of the company, and also improves personal satisfaction. I hope to further improve my ability to understand other cultures, view things from the perspectives of others, and empathize with others.

Oohashi: ULVAC provides an environment in which we can freely challenge ourselves, irrespective of our gender or academic record. In other words, it is important to have the ability to think and act for yourself. Without doubt, you will develop specialist knowledge and skills through your day-to-day work. I would like us to be a group of people who actively challenge ourselves.



Institute for Super Materials **Manabu Gibo**

Gibo: Research and development is a job that involves creating something new. Naturally you need the will to challenge yourself, but you also need to thoroughly conduct risk analysis and other procedures. If you are able to do both of these things, you will be able to contribute to a broad range of areas at ULVAC. Also, when conducting research and development, trivial things often lead to new doors being unlocked, so I also value a sense of curiosity and fun.

Nagakubo: ULVAC is a company where people are able to challenge themselves if they have the vision to contribute to the world through research and development or to make certain products. Also I aim to produce results from research and development that lead the younger generation to have dreams for the future, without forgetting to apply myself diligently.

Moderator: Thank you very much for joining us today.

Moderator
Senior Manager, Corporate Communications & IR Team,
Management Planning Division, ULVAC, Inc.

Noriaki Suzuki

Message

After the Roundtable Discussion

Choong-Ryul Paik

Since fiscal 2015, we have promoted a policy of integrating development, and merging, selecting and concentrating technology at an even higher level, under the slogan of "Open R&D." Going forward, we will expand and deepen our integration by strengthening solidarity throughout the ULVAC Group, such as by introducing management systems to further improve the speed and efficiency of development, integrating the development, sales, and manufacturing departments, and discovering development items that will form the pillars of ULVAC's business in the future. At this roundtable discussion, I felt everyone's strong enthusiasm for research and development. In order to succeed at research and development, selecting the right theme is

extremely important, and in order to do that, each department must produce many proposals. Going forward, I would like to increase the opportunities to engage in discussion with young researchers at the company. Also, it is my hope that you will all become global citizens. At present, overseas orders and sales account for more than half of ULVAC's total orders and sales. In 10 years' time, the ratio of overseas orders and sales may jump to 70% or 80%. I would like you to experience foreign countries while you are still young, and apply yourself diligently to your research, working closely with customers and other researchers from around the world.

I expect great things from our young researchers.

Initiatives to Achieve Integrated MONODZUKURI

Since Fiscal 2015, the ULVAC Group has engaged in developing strategies to increase production efficiency under the theme of moving from "vitalization to integration to become 'One ULVAC.'"

By improving work efficiency in the next process through "Front Loading"^{*1} activities, by identifying all risks before work is conducted, such as technical reviews before orders are received, through simulations and inspections, and considering responses to them, we limit instances of nonconformity and greatly increase quality. By integrating with our domestic production assignees, we have streamlined our design organizations and conducted optimal positioning, and we have greatly increased overall production efficiency by enhancing the upstream portion of our production processes.

"Front Loading" activities will be the source of our profits, so from Fiscal 2016 onward, we will ensure that "Front Loading" is more thoroughly implemented, while increasing the efficiency of the activities themselves.

Furthermore, with regard to procurement of parts, we have promoted sharing of procurement information with domestic manufacturing assignees and the introduction of an electronic procurement system, while also achieving a reduction in the number of hours spent on procurement, as well as a reduction in printing expenses and communication expenses.

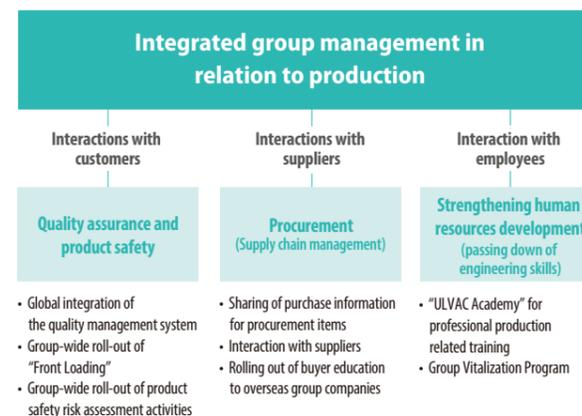
We have also introduced this procurement system at overseas production sites, and by sharing procurement data, we are gradually implementing centralized production cost management and understanding the production costs for each location.

With regard to the professional development of the personnel who support MONODZUKURI we have conducted professional production related training, such as manufacturing professional training, and promoted instructor development, as well as the uptake of training worldwide, in order to be able to pass down our engineering skills to the next generation. Furthermore, we have prepared for the launch of the "ULVAC Academy", which begins with the launch of e-Learning.

Handing down engineering skills to the next generation has always been an issue for manufacturers. We aim to improve engineering skills for everyone on site, not just technicians, and we are promoting training to this end.

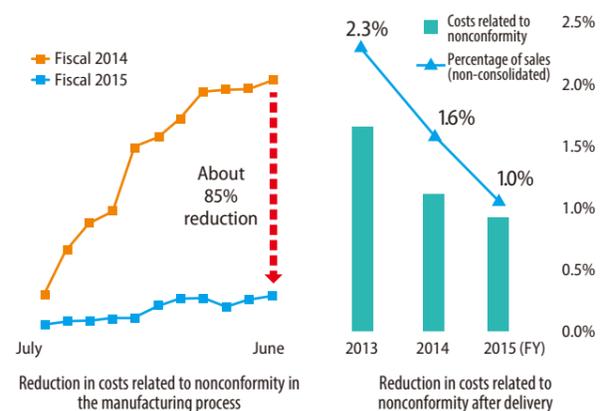
^{*1} "Front Loading" refers to accelerating the work process by placing extra load (loading) on the initial phase of work (front). Doing this allows us to work out any issues in the early stages and produce higher quality.

Integrated group management in relation to production



Results of "Front Loading" activities

In order to enhance "Front Loading" activities, we are creating engineering and skills-based links between our sales department, technology department, design department, and manufacturing department, as well as sharing our experience, know-how and related information and data. We are also putting effort into activities to reflect each of our successes in our upstream development and design processes. Looking forward, we will implement training and up-skilling with direct control over our overseas quality assurance members to deliver ULVAC quality that meets the needs of globalization throughout the world. In Fiscal 2015, we were able to make quality improvements through activities that create quality through "Front Loading" and greatly contribute to improvements in the earnings structure.



Interactions with Customers

Quality assurance and product safety

The ULVAC Group is engaging in initiatives to meet customer expectations for high-quality and safe "ULVAC quality" products through quality assurance activities, centered around "Front Loading".

ULVAC Group Quality Policy

"Product quality assurance strengthens our customers' confidence in ULVAC." The ULVAC group is committed to elaborate ULVAC quality through "Front Loading" in development and to offer products and services with needs from all parts of the world, and keep developing as the customers' everlasting partner.

Action Policies

- We comply with all rules and procedures.
- We do not deliver any nonconforming products to the next process.
- We observe delivery times leading to the next process.
- We commit to the production budget.

Quality Management System

The ULVAC Group has a integrated quality management system

We maintain ULVAC quality for the ULVAC Group's products by strictly managing and evaluating conformity with the usage policy of the ULVAC trademark.

In Fiscal 2016, which is the final year of our 3-year plan, we will aim for further improvements in quality of the products of each company in the ULVAC Group, and aim to merge the ISO 9001 certification of 37 group companies, as well as promoting "integration" of the quality management system.

The ULVAC Group's quality management system



At the next stage, each company in the ULVAC Group is proceeding with implementation of the 2015 edition of ISO 9001, with the aim of realizing an effective quality management system that is unified with our business activities, which is the intent of the ISO9001:2015.

Product Safety

Ensuring a corporate culture that values safety and quality above all else

We have been promoting the implementation of risk assessment activities, company-wide product safety education, and SA^{*1} development at ULVAC and throughout the Group. Also, personnel with SA qualifications conduct an assessment of the adequacy of product safety through risk assessment at each stage, from confirmation of specifications through design and manufacture, centered around activities to "produce quality through "Front Loading". The results are then used as items for confirmation in the design review (DR0 - DR5) and quality inspections at each stage. ULVAC's product safety initiatives such as these received the Mukaidono Safety Awards^{*2} encouragement prize, having been evaluated as contributing to the improvement, progress, and spread of safety for MONODZUKURI.

Going forward, we will continue to promote SA development throughout the group, and hope to increase customer satisfaction by contributing to safe and secure MONODZUKURI.



^{*1} SA (Safety Assessor) qualifications are based on a third-party assessment of mechanical safety knowledge and ability under international safety standards. They are granted under the auspices of the Nippon Electric Control Equipment Industries Association (NECA), and certified by Japan Certification Corporation (JC).

^{*2} This prize is named after Dr. Mukaidono, a professor emeritus at Meiji University, who received the Prime Minister's Commendation on Contributors to Public Safety. It is granted to organizations or individuals for contributions to the improvement, progress, and spread of safety in the MONODZUKURI industry.

Interactions with Suppliers

Procurement (supply chain management)

The ULVAC Group values communication with our suppliers, based on the following Basic Procurement Policy, in order to create a system for consistently providing products and services that satisfy the quality, price, and delivery schedule sought by customers. Based on solid relationships of trust, we build partnerships and contribute to the progress of society throughout the entirety of our supply chain.

The ULVAC Group Basic Procurement Policy

1. Compliance with laws and regulations

- The ULVAC Group conducts its corporate activities lawfully and in accordance with regulations, social norms, and public decency.
- We fully comply with the relevant laws and regulations.

2. Maintaining and promoting fair and free competition

- We maintain and promote fair, impartial, and free competition among our business partners regardless of the country in which they are located.
- We do not take advantage of our business partners by demanding unfair transactions.

3. Healthy and good relationships with business partners and affiliates

ULVAC enforces strict security measures with regard to individuals who share in or gain unfair enrichment in commercial transactions inside or beyond the Group. Our directors and employees carry out appropriate decision making and exercise moderation to avoid damaging the Group's reputation.

4. Advancing global procurement

- We optimize our components procurement from worldwide sources, while always keeping pace with our global business operation.
- Based on our international perspective, we cooperate with our business partners in different countries to procure superior components, technologies, and services.

5. Advancing green procurement

- ULVAC recognizes that protecting the global environment is one of the momentous challenges posed to all humankind. In all its business operations, we contribute the technologies that we have developed or will develop on behalf of environmental conservation for the development of an affluent society on a more livable Earth.
- We promote environmentally-conscious procurement by developing green procurement standards.

Active Communication

We exchange information with our suppliers 4 times per year in order to achieve a range of communication. Information is exchanged at "Kyoeikai" (supplier meetings) (3 times/year) and Operations Briefing Meetings (once/year).



At "Kyoeikai", we mainly allocate time to explaining our production plans and confirming future production load. At Operations Briefing Meetings, explanations of our business are given by the President of ULVAC, and the main purpose of these meetings is to facilitate an understanding of ULVAC's current state of affairs and future outlook. In addition, we present awards to suppliers that have greatly contributed to QCD and production technology.



Buyer Education

In order to enable conversation at the same table as our suppliers, we have begun rolling out buyer education, titled "Improving Cost Price Calculation Ability" and "Using Analysis Tools to Analyze Prices," at our overseas group companies.

In Fiscal 2015, introductory training was conducted at ULVAC KOREA, Ltd., ULVAC TAIWAN Inc., and ULVAC (SUZHOU), CO., LTD. Going forward, we will further develop education and promote the procurement activities that support manufacturing as a integrated ULVAC Group.

Voice of Supplier

We have a long-running relationship with ULVAC, and our dealings extend back around 50 years, to the time of the Yokohama Factory. ULVAC pursues thorough cost management, and by working with us and exerting influence on its departments, ULVAC has enabled us to implement value chain engineering proposals that we would not have been able to achieve on our own. Thanks to the fair and just transactions that are ULVAC's goals, we are able to engage in fair, just, and free competition as suppliers.



Shinji Kinno Section Chief
Atsugi Office, Kanto Co., Ltd.,

Interaction with Employees

Strengthening Human Resources Development (Achieving ideal form for each person)

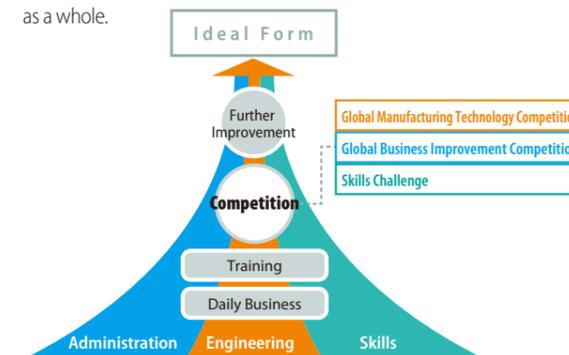
It is essential to enhance our MONODZUKURI, while also strengthening human resources development for the staff that supports them. In addition to the employee training conducted by the Personnel Department, we have established the Production Training Planning Center in the Advanced Manufacturing Division, and we are driving professional engineering training forward.

"ULVAC Academy" for Professional Production Related Training

We have set up the ULVAC Academy as a training institution, under the concept of "providing the necessary training materials for ULVAC's production to those who need them, and creating an environment to facilitate learning for the entire Group." We aim to increase the expertise of each person through manufacturing professional training, engineering and design training, etc., while also conducting instructor development and the passing down of engineering skills. We will set up portals, such as e-Learning, gather education resources and engineering materials there, and open these resources throughout the Group.

ULVAC Group Vitalization Program

Diversity (having human resources with different ways of thinking and from different cultures) stimulates and vitalizes organizations. We will conduct vitalization with the aim of achieving ideal form for each individual. We then aim to share the results throughout the Group and utilize them to achieve ideal form for individuals, departments, companies, and the group as a whole.



1. Global Manufacturing Technology Competition

Each group company*1 presented reports on the theme of "A reformation in MONODZUKURI with integrated ULVAC Group: Promoting "Front Loading" and improving our field capabilities." There were many different activities to address the issues facing the various companies, such as improving product



design and manufacturing processes, the "Front Loading" approach, improving work procedures and jigs at the manufacturing site, and ensuring safety. The measures presented also showed the success of cross-company cooperation. The discussions at the competition were an opportunity to open our minds through interaction.



Gold Medal
Michito Hirayama
No.1 Measurement Instruments Department
Components Division
ULVAC, Inc.



*1 13 companies from 6 countries participated in 15 themes.

2. Global Business Improvement Competition

Reports were given*2 on the results of activities being conducted while searching for opportunities to implement improvements in daily tasks, on the theme of "Creating new added value by implementing small improvements: Work improvements as an integrated group." This was a great opportunity for people in a wide range of fields, such as personnel, accounting, general administration, finance, sales, environment safety and health, IT, and design management to find out how each contributes to the group's management and operations. After the competition, some companies got together to hold study meetings for future reference, and although this is only the second time we have held this competition, we have seen it lead to group-wide initiatives.



Gold Medal
Lianhua Jin
Finance Department
ULVAC (CHINA) HOLDING Co., Ltd.



*2 13 companies from 6 countries participated in 18 themes.

3. Skills Challenge

The Skills Challenge is conducted for the purpose of promoting the sharing and handing down of skills, and fostering a renewed awareness of the importance of field skills for the operation of global manufacturing businesses. In it, people compete using the skills that they have developed in their workplaces, setting ever-higher goals for themselves. Representatives from each company*3 gathered in Japan to participate in the competition between young employees of manufacturing departments. Through competition, participants became aware of the issues they were facing, and showed us all how manufacturing, manufacturing engineering, and service improve the ULVAC brand, while using the experience to further hone their skills in the future.



*3 12 people from 11 companies in 6 countries participated.

Professional and Organizational Development

We are concentrating on increasing the abilities of each individual, while vitalizing organizations in order to build a value creation business model.

Furthermore, we aim to invest in organizations and personnel that enable the ULVAC Group as a whole to contribute to society from a global perspective.

Seeking an Organization that Ensures Rewarding Job Experiences

— **Vitalize the Individuals and Organization of ULVAC**

We understand that a system whereby employees who make great efforts are rewarded properly is the basis for vitalization of both people and organizations. We are proceeding with continuous review of each of our rules and systems using the keyword of “reasonableness.” At the

Responding to the results of the Employee CSR Awareness Survey

At ULVAC, we promote CSR activities, stating the goals of our yearly initiatives aimed at stakeholders.

In Fiscal 2015, we conducted the Employee CSR Awareness Survey for employees between June 13 and June 17, 2016.

same time, we are aggressively conducting transfer of authority to create an environment where each employee can fulfill their responsibilities with passion and ambition as a full participant, with the desire to make ULVAC the best it can be and what it should be.

— Management of objectives and evaluation systems

We are constructing a system that values the flexible generation of ideas and open and the dynamic corporate culture that is essential to a development company. We are expressing our vision at each level and putting energy into the management and evaluation of goals using clear benchmarks, as well as implementing a system that more highly values boldly attempting to solve difficult issues and tackling tasks as a team, rather than merely focusing on results.

— Self-reporting system

We have a system for each person to develop their own career plans and share them with their superiors and the Company once per year. Rotations are conducted taking into account the wishes of the person concerned.

— Diverse education programs

Education plans are developed based on the ULVAC Basic Policy for Human Resource Development. We are actively pursuing targeted education, in addition to providing a range of programs to encourage individual growth, such as the level education system, various types of skill training, OJT, and support for self-development, so that all employees are able to actively engage with skills development.

In particular, as globalization has progressed in recent years, we have enhanced pre-transfer training for staff stationed overseas. Also, we have been promoting active participation by group companies in the level education system, which raises the overall skill level and provides opportunities to deepen communication.

— Hiring and utilization of human resources

We are increasing the hiring of new graduates in order to maintain an appropriate age composition of employees. Furthermore, employees who have reached the age of retirement can make use of our elderly employee scheme to contribute to the passing on of skills and knowhow.

— Future issues and initiatives

We are conscious of the fact that development of the next generation and rotation of personnel are essential for the achievement of further organizational vitalization. We will encourage diversity-conscious exchanges between personnel, including at domestic and overseas group companies, and work to achieve flexible organizational management, while giving consideration to the balance of specialists and generalists.

We will analyze employee expectations and satisfaction with the activities they perform, provide feedback regarding each activity, and work to improve the quality of CSR activities.



ULVAC Basic Policy for Human Resource Development

We are conscious that the most important resources for corporate vitality and competitiveness are the personnel and the organizations in which they work. We are conducting the following HR development, based on our corporate philosophy and basic management policy

1. Human resources who respect other individuals, trust each other and fulfill their responsibilities
2. Human resources who can see the true nature of each issue and create revolutionary technologies and projects with passion and tenacity
3. Human resources who are full of aspirations to improve themselves and take voluntary actions to achieve goals
4. Human resources who have a global perspective and aim to take leadership in exploring the world

Aiming to achieve a work-life balance

— Creating workplaces that are conducive to work

At ULVAC, we aim for employees to have both meaningful work and a fulfilling lifestyle.

In Fiscal 2015, we increased the maximum number of days of accumulated paid leave from 30 days to 40 days in order to create a system in which employees could feel more secure in their work.

■ Features of the system

- We grant annual paid leave from the date joining ULVAC
- We conduct spot leave promotion activities to enable all employees to take paid annual leave at least once every 6 months
- We are continuing our selective summer leave system
- We personnel management person in charge at each department and closely manage overtime worked
- We have implemented optional staggered work hours and flex time policies
- We have “no overtime” days

Furthermore, with regard to promoting diversity, in recent years, female employees have had a particularly high rate of taking parental leave and returning to their position. Although we have few female employees, in the Fiscal 2015, 2 of them took parental leave and 3 returned to work. This is a 100% rate of return.

Fiscal year	Commencement of parental leave	Return to work (conclusion of parental leave)
2015	2	3
2014	2	6
2013	7	2

Notable support systems

- Parental leave (may be extended up to a year and a half)
- System of shorter work hours for childcare
- Leave to nurse sick or injured child
- Family care leave

Voice of Employee

Takae Fujiwara

Sales Administration
Corporate Sales & Marketing Division I

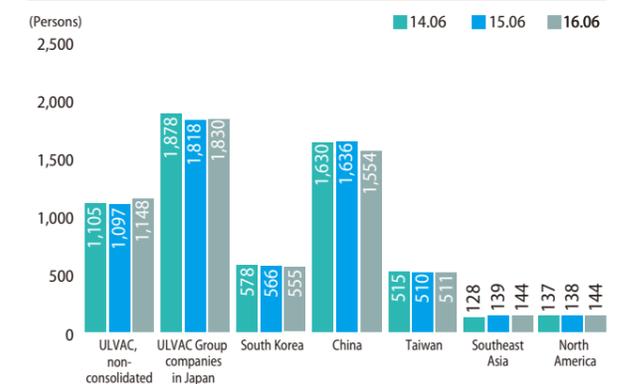


Obtaining parental leave

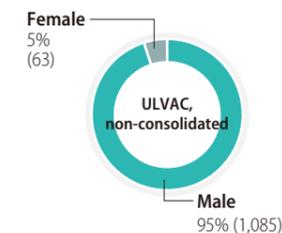
After taking maternity leave, I was also granted 1 year and 3 months of parental leave. I have now returned to the same workplace as before I took leave, and I make use of the system of shortening morning and afternoon working hours by one hour each. While I was on leave, my position was covered by my superiors and my colleagues. Even after returning to work, I am unable to work overtime because I have to pick my child up from preschool. However, I feel that my colleagues and superiors look after me generously, such as by following up on any work that remains after I leave.

HR data

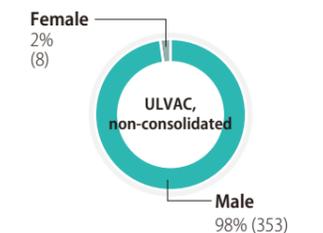
■ Number of employees of the ULVAC Group (by country)



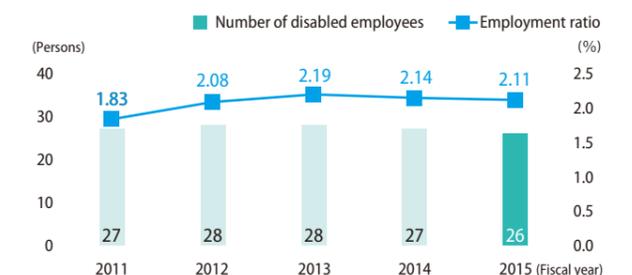
■ Gender ratio in employees (non-consolidated)



■ Gender ratio in management positions (non-consolidated)



■ The number and percentage of disabled employees



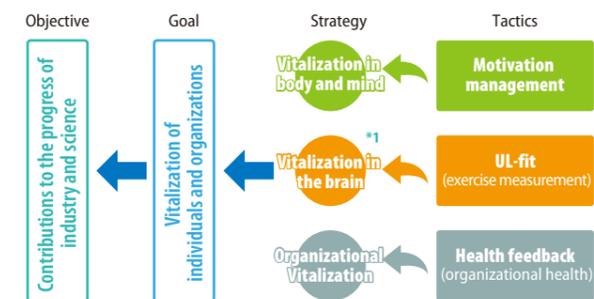
Supporting the MONODZUKURI of ULVAC by Promoting Employees' Health

With the vision of "Vitalizing the Individuals and Organization of ULVAC," the Health Promotion Office takes the initiative in promoting employees' health so that they can work to achieve the highest possible productivity, thereby supporting the MONODZUKURI operations of ULVAC.

Contributing to the Progress of Industry and Science with Vitalization in Body and Mind

In order to contribute to the progress of industry and science, ULVAC believes that it is not only important to prevent illness for employees, but to encourage vitalization in body and mind while working.

Health initiatives at ULVAC



Voluntary health initiatives

Since Fiscal 2012, ULVAC has conducted various types of health training. Employees attend on a voluntary basis, with a total of 1,313 participants in self-care training (for all employees) and 386 participants in line-care training (for management personnel).

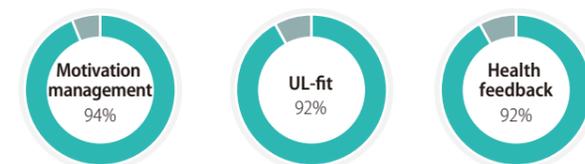
Since Fiscal 2015, we have introduced motivation management to encourage vitalization in body and mind, and exercise measurement (UL-fit) to encourage vitalization in the brain. Participants have praised these programs.



After UL-fit

*1 Promoting vitalization by balancing the brain's neurotransmitters through regular exercise.

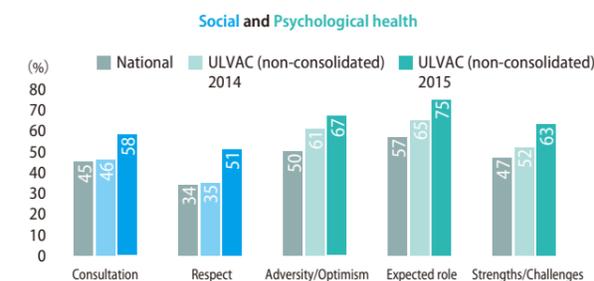
Employee satisfaction (ratio of respondents who indicated that they were satisfied on the post-training survey)



Organizational vitalization initiatives

At ULVAC, we collect responses to psychological and social questions, which are included in the interview items of health checks, at an organizational level, and use them as an indicator of organizational health, in order to vitalize organizations as well as individuals. The health promotion office provides the results as feedback to departments that request them, and management personnel from each division and department then use the results to engage in strategic workplace vitalization initiatives (Health feedback). As a result of these initiatives, organizational health improved in Fiscal 2015 over Fiscal 2014.

Organization health (ratio of respondents who indicated "good")



Occupational physician's comments

Participation in and understanding of health training at ULVAC has been gradually increasing, and as an occupational physician, I have felt the increased awareness of health from both management personnel and general employees. It has been particularly striking that not only Health Promotion Office, but management, Personnel department, Corporate Environment, Safety and Health department, General Administration department, and the health and safety managers of each department have cooperated to lay the groundwork to promote self-management of health by employees. Going forward, we would like to make efforts in a range of areas to integrate all group companies, in order for each employee to be able to engage in health promotion activities even more independently.

Occupational Safety and Health

The ULVAC Group positions "Safety first" as the fundamental principle of business operations. As such, we endeavor to secure safety in products and services used by our customers, as well as during work in our customers' factories, and ensure a lively working environment in which employees can work in good physical and mental health, by operating our Occupational Safety and Health Management System (OSHMS) with a focus on risk assessment.

ULVAC's Safety and Health Initiatives

To ensure the safety and health of our customers and employees

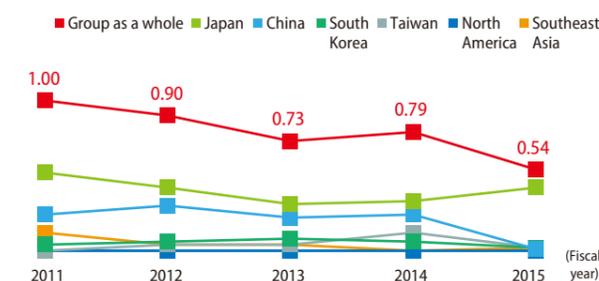
To ensure the safety and good health of its customers and employees, the ULVAC Group regularly holds meetings of the Global Safety Committee, which are joined by representatives from the Group companies to determine the Group policies on occupational safety and health and ensure that they are laterally spread, thereby promoting integrated safety and health efforts of ULVAC on a Group-wide basis. Each Group company operates the OSHMS system, which involves management review by the president or the director in charge of safety and health activities and risk assessment by each employee to ensure company-wide involvement in safety and health management efforts from the top management to field workers. We received an encouragement award in the Director General of the Kanagawa Labor Bureau's Health and Safety Awards, for an attitude and activities that attempt to eliminate work-related accidents as a integrated group.



ULVAC Group Safety Management System



Frequency ratio of occupational accidents throughout the ULVAC Group



This graph shows the rate of work-related accidents in the entire ULVAC Group for each fiscal year, indicating the value for Fiscal 2011 (as of June 2012) as 1.00. In Fiscal 2015 (as of June, 2016), the rate of work-related accidents decreased by 46% compared to Fiscal 2011.

Activity Case Study 1: ULVAC Service Safety Education

The ULVAC Group conducts health and safety training based on the SEMI (semiconductor equipment and materials international) standards for all workers who undertake on-site work, such as manufacturing and development, in order to ensure the safety of employees. Workers who have not yet received training are forbidden from engaging in on-site work.



ULVAC COATING CORPORATION : High-pressure gas handling training

SHOWA SHINKU CO., LTD. : on-site safety instruction

Activity Case Study 2: First Aid Course

Disasters and accidents that have occurred around the world, such as the Kumamoto Earthquake, have raised global awareness of the importance of local disaster prevention. The companies of the ULVAC Group not only undertake basic drills, such as ensuring safety, evacuation, and initial firefighting, but they conduct disaster drills, giving consideration to the location of each company and environment in which it operates. At the Chigasaki Plant, we are contributing to local disaster prevention measures, such as by concluding an agreement with the city to contribute to provide our premises to local residents as evacuation centers. In addition, we conducted basic life support (BLS) instructor training in order to ensure health and safety. In a single year, we trained 59 instructors, and we now have approximately 400 people capable of providing basic live support because of the instruction provided to colleagues by these instructors within their designated areas during disaster drills.

There has been great interest shown by group companies, including those located overseas, and the scope of these activities is ever increasing.



ULVAC SINGAPORE PTE LTD : Fire drill

ULVAC, Inc. : Disaster drill (All participants experienced using an AED)

Initiatives for the Global Environment



Environmental management

The ULVAC Group provides products that allow customers to feel that they have made environmental contributions based on our environmental policy of "Develop products that contribute to energy saving, resource saving and environmental conservation." Furthermore, we are ensuring thorough management and saving of energy consumption and waste emissions and conducting activities with the purpose of minimizing environmental impact.

The ULVAC Group possesses a global production system that is focused on the Asian region, yet has expanded broadly to regions such as Europe and America. It is essential that we share information within the group and swiftly carry out instruction from top management etc. We are working to unify the ISO14001 certification currently held by each company, and strengthen group governance.

The ULVAC Group will continuously reduce the environmental impact through its products.

Environmental Philosophy

ULVAC Group takes on one of major issues for everyone around the world, which is to conserve and protect the global environment. We will consider environmental conservation in all aspects of our business activities and will contribute to develop a better place to live and an enriched society.

Environmental Policy

Develop products with a goal to save energy, reduce the use of natural resources and contribute to the conservation of our environment.

- ① ULVAC Group products/Final products
- ② ULVAC Group manufacturing process

Initiatives to reduce the cost of energy consumed

Hideto Sasao

General Administration Department



Activities for the reduction of electricity purchasing costs and "visualization of electricity" usage through group integration

Until now, ULVAC has reduced contract demand through steady electricity usage reduction activities. Specifically, we have promoted improved awareness in each employee, in addition to conducting initiatives, such as increasing the spaces between lights, changing lighting in clean rooms to LED, fixing increased temperatures for air conditioners, operating clean room air conditioners at intervals, and shifting the operation of large-scale equipment to nights and holidays, while giving thorough consideration to the effects on corporate activities and employees.

Since the electricity deregulation for general households in April 2016, it has become possible to reduce energy costs through comprehensive electricity contracts with Chiba, Kanagawa, and Shizuoka. For the second phase, we held a Joint Electricity Consideration Meeting, which was attended by the electrical chief engineers and managers in order to promote the Group's integration efforts. As a result of this meeting, it was decided to adopt a policy of expanding the scope of the comprehensive contract by including the Aomori site. We are promoting activities to purchase electricity in a manner that is advantageous to each locality. We began our activities in factories that use a large amount of electricity; however, going forward, we will integrate small- and medium-scale factories.

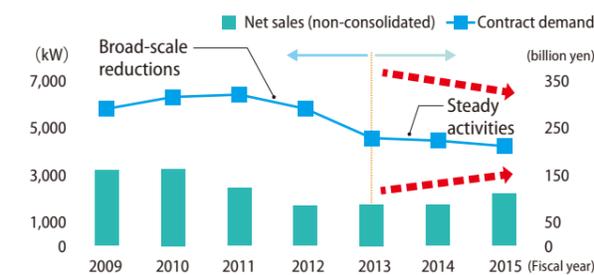
Furthermore, by monitoring the operation of factory equipment in

real time and through visualization of electricity, and providing this information to customers, we hope to be able to correctly understand the electricity usage of the equipment to be installed by our customers. We will promote further group integration and further increase employee awareness of reducing electricity usage.



Joint Electricity Consideration Meeting
Attended by representatives of 3 companies from 5 locations

Contract demand and net sales (Chigasaki Headquarters and Factory)



*Sales increased in Fiscal 2015; however, contract demand reduced.

Product energy-saving initiatives

Norihiro Suzuki

Development Division, Development Section No. 1, ULVAC KIKO, Inc.



ULVAC KIKO, Inc. manufactures and sells small vacuum pumps.

At this point, we have developed three types of energy-saving diaphragm vacuum pumps.

We have achieved a 70-72% reduction in energy usage compared to conventional models by changing the motor specifications to a brushless DC motor and reducing shaft seals through the use of magnet coupling. (DAU-20DC)

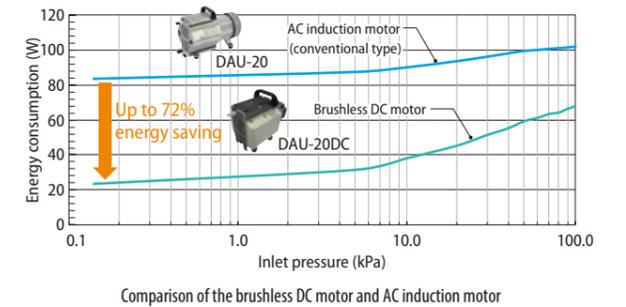
Furthermore, we have achieved energy savings of up to 50% for regions of 1 kPa or under in pressure, compared to conventional models, by reducing internal residual gas. (RDA-500H)

Going forward, we will promote improvements and enhancements in order to continue to satisfy the demands of our customers.



DAU-20DC

Saving energy through the adoption of DC motors



Environmental Activities in Fiscal 2015

The ULVAC Group is conducting energy-saving activities with the target of reducing energy costs by 10% in the 5 years from Fiscal 2013. This fiscal year, we achieved a reduction in energy (electricity) consumption of 0.8% over last fiscal year. We believe that the total reduction of 1.1% that we have achieved since the year before last indicates that an awareness of energy conservation is gradually taking hold at ULVAC Group companies.

However, waste emissions increased by approximately 6.5% over the previous fiscal year. The cause of this increase is thought to be the

increase in production volume, etc., during this period. We achieved our target landfill percentage, which was the ULVAC Group standard of 3% or below with the final disposal rate falling to 2.9% from 3.7% in the previous fiscal year. We are seeing the effects of limiting the amount of landfill disposal of international group companies. Furthermore, our rate of recovery of valuable materials was 26%, which continues the level trend of recent years. Recovery of valuable materials is also important from the perspective of material recycling, which is a valuable resource, and we will continue to promote it throughout the group.

Performance data

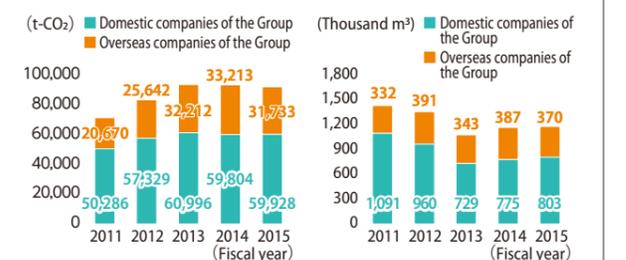
Material Balance

	INPUT	OUTPUT
Electricity use	157,819 thousand kWh	CO ₂ emissions 91,661 t-CO ₂ (Emitted by use of electricity, gas and fuel)
Gas usage	LPG: 70 t LNG: 632 t City gas: 1,513 thousand m ³	
Fuel use volume	Heavy oil: 304 kL Kerosene: 20 kL Diesel oil: 193 kL	Total volume of waste emissions The total recycled amount accounted for 7,072 t of the 7,286 t of waste emissions. The landfill amount was 214 t.
Water use volume	1,172 thousand m ³	
Packaging materials	1,295 t	Final disposal rate 2.9%

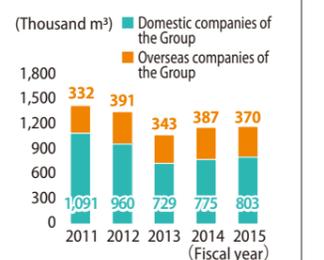
* The above data is based on the data from 34 Group companies in Japan and overseas.

* The volume of packaging materials is based on the data from 26 Group companies in Japan and overseas.

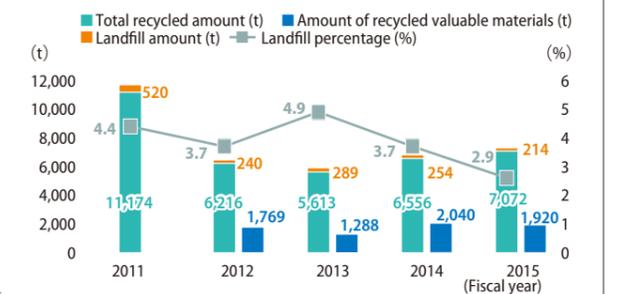
Transition of CO₂ emissions



Transition of water use volume



Waste



Interactions with Local Communities

ULVAC's Social Contribution Activities

We are promoting global social contribution activities rooted in local regions and cultures based on the ULVAC Group's Basic Policy for Social Contribution Activities.

The ULVAC Group has long been involved in a wide range of social contribution activities around the world. In 2013, We set out a basic policy and priority subjects for social contribution activities in order to the growing awareness of the importance of corporate social contributions.

In line with the policy, we will continue to contribute to regional and international communities by effectively using the technologies and human resources of the ULVAC Group to solve various social issues.

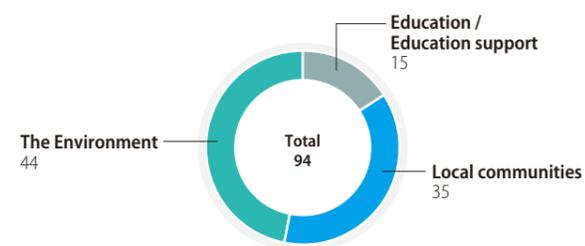
Basic Policy for Social Contribution Activities

Based on its corporate philosophy of contributing to the growth of industry and science with innovative, cutting-edge technologies, the ULVAC Group provides distinctive technological innovations globally and implements initiatives for solving various social problems by using ULVAC's technologies and human resources.

Priority subjects



Number of social contribution activities conducted by the ULVAC Group in Fiscal 2015



Activity Case Study 1 Holding vacuum demonstration classes and factory tours (ULVAC, Inc.)

ULVAC, Inc., conduct vacuum demonstrations, mainly for local public institutions, such as elementary schools, and hold factory tours. In Fiscal 2015, 300 people participated in a tour of the Chigasaki Headquarters and Factory. Going forward, we will continue to work to conduct dialogue with local residents, while deepening their understanding of ULVAC, and to contribute to the development of the next generation and local communities through vacuum demonstrations and factory tours.



Activity Case Study 2 Parking lot security for the Malaysian "Bon Odori" festivities (ULVAC MALAYSIA SDN. BHD.)

In July 2016, ULVAC MALAYSIA SDN. BHD. (UMY) participated in "Bon Odori" festivities held by the Japan Club of Kuala Lumpur, Malaysia, and supported by the Selangor State Government, by acting as volunteer parking lot security staff. 18 UMY staff members supported the world's largest "Bon Odori" event, which had 36,000 participants, through such activities as guarding the parking lot and directing traffic around the venue, together with other member companies of "Sansui-kai", which is a subcommittee of the Japanese Chamber of Trade and Industry, Malaysia. We are contributing to the "Bon Odori" festival, which links the cultures of Malaysia and Japan, while deepening our exchanges with the local community.



Activity Case Study 3 Volunteer activities to assist with germination of rice seedlings in local villages (Ulvac Korea Precision, Ltd.)

Ulvac Korea Precision, Ltd., provided volunteer staff to farmers who were short on labor in Pyeongtaek, Gyeonggi Province. These volunteers provided support for rice farming in the areas surrounding the company, from preparing seedling trays to laying sheets in the fields.



Corporate Governance

The ULVAC Group works to ensure thorough corporate governance in order to increase corporate value in the medium to long term, based on our corporate philosophy of "contributing to manufacturing and science through vacuum technology." From this perspective, we will respect the interests not only of shareholders, but also of business relations, local communities, employees, and other stakeholders that are involved with our business activities. We will also value competitive and efficient operation, while ensuring strict compliance with laws and corporate ethics.

ULVAC's Management Structure and Operational Structure

ULVAC values agile and swift business judgment and decision-making, from the perspective of responding rapidly to the business conditions in which we operate, etc. For that reason, we have adopted the management structure of a company with a board of corporate auditors.

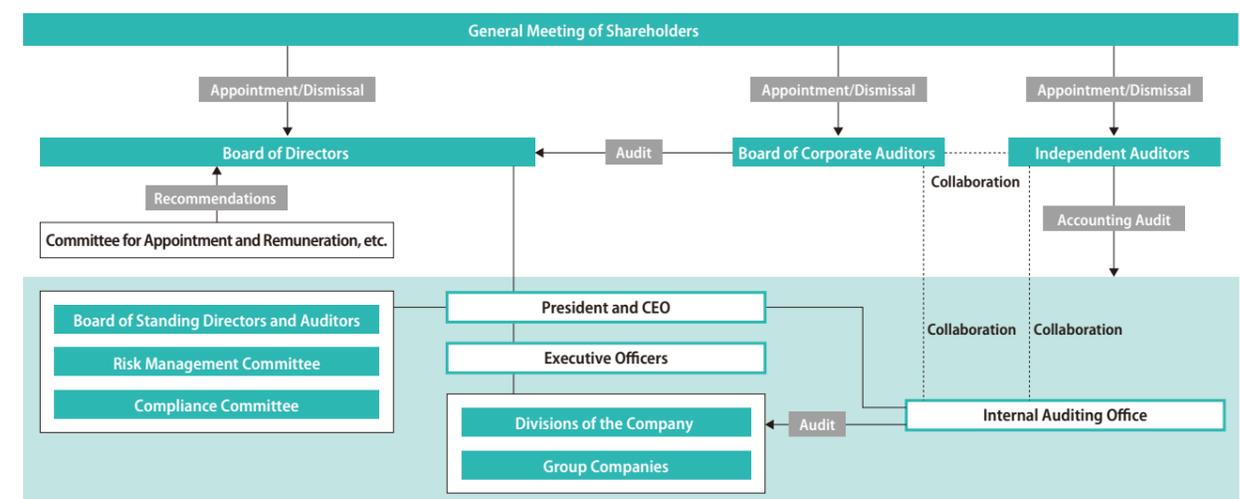
First, ULVAC has a Board of Directors, which is a decision-making body for important management issues. The Board holds regular meetings once each month, as well as ad-hoc meetings as necessary to ensure flexibility. The Board of Directors comprises 9 members, of whom 3 are external directors. 2 of the external directors are designated as independent external directors. Through this structure, ULVAC is not only able to make swift and efficient judgments concerning important management issues, but is also able to achieve fair, impartial, and highly transparent deliberation, as well as operational oversight. Next, with the introduction of an executive officer system, executive officers are engaged with executive functions, having been granted a certain

amount of responsibility and authority over their designated areas, based on delegation by the Board of Directors. Also, ULVAC has a Board of Standing Directors and Auditors, which comprises a total of 16 internal directors and executive officers. The Board of Standing Directors and Auditors holds regular meetings twice monthly, as well as ad-hoc meetings as necessary. Through this structure, we have achieved more flexible and swift business operations that are appropriate for a rapidly changing business environment, based on a clear expression of the responsibilities and authority of each executive officer.

In addition, ULVAC has a Board of Corporate Auditors, which performs auditing and oversight of management decision-making and business operations. The Board of Corporate Auditors comprises 4 members, of whom 2 are external auditors. 1 of the external auditors is designated as an independent external auditor. Furthermore, we ensure full auditing and supervisory functions through close links between corporate auditors and the Internal Auditing Division and independent auditors, whose independence is ensured, as well as through attendance and comments by corporate auditors at important meetings, such as meetings of the Board of Directors and the Board of Standing Directors and Auditors, and through regular meetings between the Internal Auditing Division and the President, etc. Through this structure, we have achieved rigorous, fair, impartial, and transparent auditing and supervisory functions, ensuring that each corporate auditor obtains sufficient information.

In addition, we have a Committee for Appointment and Remuneration, etc., for instances that require objective determination of important matters, such as the appointment and remuneration of directors and executive officers. The Committee for Appointment and Remuneration, etc., comprises 5 members, of which 3 are independent external directors or independent external auditors. Of the remaining 2 members, 1 is an external director. By having these kinds of advisory bodies for the Board of Directors, we are able to achieve fair, impartial, and highly transparent deliberations with regard to especially important management decisions, and increase the effectiveness of the Board of Directors.

ULVAC Management Structure (As of September 30, 2016)



Board of Directors and Auditors (End of September 2016)

Board of Directors



Hisaharu Obinata
President and Chief Executive Officer
Responsible for Internal Auditing Office



Akinori Bo
Director and Executive Vice President
Supervisor of Head Office Divisions



Mitsuru Motoyoshi
Director and Senior Managing Executive Officer
Supervisor of Affiliated Business Department,
General Manager of Global Business Strategy Headquarters



Setsuo Iwashita
Director and Senior Managing Executive Officer
General Manager of Management Planning Headquarters



Junki Fujiyama
Director and Senior Managing Executive Officer
Supervisor of Corporate Sales & Marketing, General Manager of Corporate Sales and Marketing Division 1



Hideyuki Odagi
Director and Managing Executive Officer
Supervisor of Manufacturing, General Manager of Advanced Manufacturing Division



Akira Mihayashi
External Director
President of Nissay Credit Guarantee Co., Ltd.



Norio Uchida
External Director
Outside Director of Nabtesco Corporation



Dr. Koza Ishida
External Director
Senior Advisor for HORIBA, Ltd.

Executive Officers



Masasuke Matsudai
Senior Managing Executive Officer
President of ULVAC TECHNO, Ltd.



Dr. Choong-Ryul Paik
Managing Executive Officer
Supervisor of Development



Hiroyuki Hirano
Executive Officer
Director of ULVAC Vacuum Furnace (Shenyang) Co., Ltd.



Dr. Kazuya Saito
Executive Officer
General Manager of Research and Development Planning Department and Institute for Super Materials



Akira Umeda
Executive Officer
General Manager of Business Planning Administration Department, Management Planning Headquarters



Ryou Matsumoto
Executive Officer
General Manager of Affiliated Business Department, Global Business Strategy Headquarter



Youichi Oohinata
Executive Officer
General Manager of Industrial Equipment Division



Kiyokazu Yanagisawa
Executive Officer
General Manager of Components Division



Shigemitsu Sato
Executive Officer
General Manager of FPD · PV Division



Yu Jer Tsai
Executive Officer
President of ULVAC TAIWAN INC.

Auditors



Seiichi Takahashi
Audit & Supervisory Board Member



Makoto Ito
Audit & Supervisory Board Member



Senshu Asada
External Audit & Supervisory Board Member
Lawyer



Kazumi Ohtsuka
External Audit & Supervisory Board Member

Compliance

ULVAC values compliance, and in addition to conducting awareness activities so that each person in the ULVAC Group acts with a spirit of compliance, we are establishing and operating a range of institutions and regulations to ensure more thorough compliance.

Establishment of a Corporate Code of Conduct

ULVAC has established a Corporate Code of Conduct comprising 18 items, conducted education, and distributed booklets to create a spirit of compliance, in order to ensure that the execution of the duties of officers and staff is compliant with the law and internal regulations, and fulfills our social responsibility as a corporation.



Compliance Education

ULVAC is working to create a spirit of compliance through awareness activities. As an element of this, we are conducting activities such as providing opportunities for regular and ad-hoc education and training.



Whistleblowing System

ULVAC has adopted a whistleblowing system. The system operates through the Internal Auditing Office, which is under the direct authority of the president and has guaranteed independence. The Internal Auditing Office also serves as the office for the Compliance Committee, and it is structured to give full consideration to confidentiality throughout the process of investigating the content of reports. This system does not prevent the person making the report from selecting other institutions or organizations within the Company as the destination for the report, and in those instances, the report will be handled as appropriate to the circumstances. Anonymous reports are also accepted, and the people making the reports are not treated unfavorably in any way.

After a whistleblower report has been received, the initial response is for the Compliance Committee to investigate the facts. This investigation is particularly mindful of fairness, and is conducted judiciously and thoroughly. If necessary, assistance may be sought from external experts, such as lawyers, and thorough interviews that are as wide-ranging as possible may be conducted and analyzed. Also, the president of the Company shall chair the Compliance Committee, and members of the Committee shall observe a strict duty of confidentiality when carrying out their duties.

Dealing with Acts of Violation

If it is deemed that a violation of laws or regulations has been committed based on the results of an investigation by the Compliance Committee, then the opinion of an external expert, such as a lawyer, may be sought as necessary, immediate shutdown or improvement measures will be implemented, and those who were involved with the violation will be dealt with after deliberation by the appropriate institution. In addition, the fundamental causes that brought about the violation are also studied to formulate effective measures for preventing recurrence.

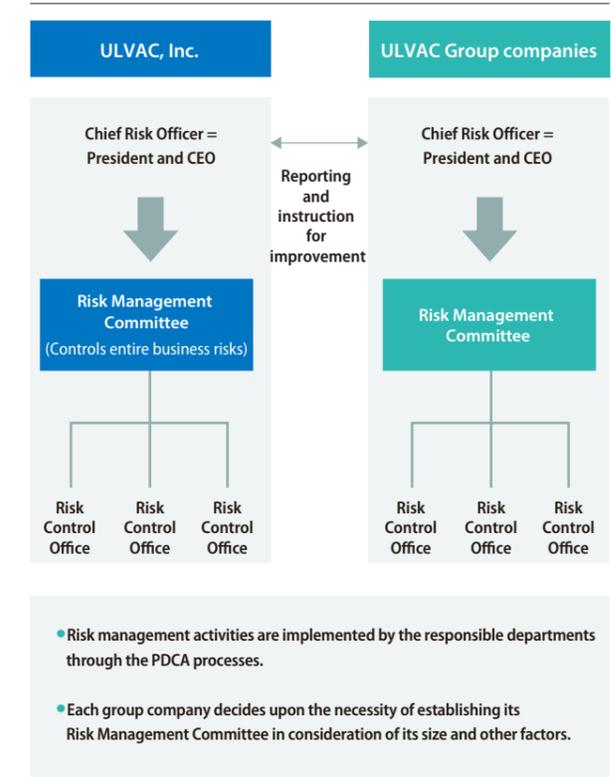
Risk Management

The ULVAC Group considers that responding to increasingly complex and diverse risk factors leads to the creation of governance structures that contribute to the fulfillment of legal requirements and the creation of internal control structures, and by extension, the medium- to long-term improvement of corporate value. We are expanding systems that can respond appropriately to risk factors through identification, classification, analysis, and evaluation, and we are working to increase corporate value by reflecting them in our management strategy.

Risk Management System

ULVAC has established rules related to our risk management system as a risk management initiative. We classify a broad range of risks from a number of different perspectives, and establish risk control offices for each risk classification. Furthermore, the risk control offices identify more specific risks and respond to them. We work to ensure that especially important information for the operation of the risk management system is gathered efficiently in these risk control offices. In addition, in order to share and evaluate information concerning the operation of the risk management system on a company-wide basis, we have a Risk Management Committee, which is chaired by the President, and mainly comprises the various risk control offices. The Risk Management Committee holds regular twice-yearly meetings as an umbrella organization for risk management, and it determines company-wide basic policy, monitors the state of management and administration, and considers any improvements that can be made, etc. Furthermore, initiatives at ULVAC are implemented at ULVAC Group companies as appropriate for the scale and business type of the company in question.

Risk Management System



CSR Activities for Fiscal 2015 and Targets for Fiscal 2016

Based on its corporate philosophy of contributing to the growth of industry and science with innovative, cutting-edge technologies, the ULVAC Group provides distinctive technological innovations globally and implements initiatives for solving various social problems by using ULVAC's technologies and human resources.

Stakeholders	Communication guidelines	Fiscal 2015 targets
Customers	With a high priority on a trusting relationship with customers, we engage in various efforts to enhance the quality and safety of our products.	<ul style="list-style-type: none"> Thoroughly implement the global integration certification (Phase 2) of ISO9000/14001. Promote group-wide roll-out of quality improvement items from the global management review. Promote group-wide roll-out of "Front Loading". Aim to reduce the ULVAC Group's product accidents to half the level of the previous fiscal year.
Suppliers	We strive to maintain and promote fair and appropriate transactions with our suppliers to help establish a secure relationship of mutual trust.	<ul style="list-style-type: none"> Continue the supplier BCP survey. Respond to the conflict minerals issue. <ul style="list-style-type: none"> Consider obtaining CFS certification. Periodically exchange information with suppliers. <ul style="list-style-type: none"> Ensure substantial content of supplier meetings. Visit major suppliers individually.
Shareholders and investors	We will endeavor to ensure the timely disclosure of business activities and financial information to promote communication with shareholders and investors.	Promote transmission of information, such as through technology seminars, while working to provide more interviews with institutional investors than in the previous fiscal year.
Employees	We will endeavor to provide employees with diverse working opportunities and an environment in which they can work in comfort and with a sense of security.	Provide the results of the CSR awareness survey as feedback to each department and endeavor to reflect them in initiatives.
		<ul style="list-style-type: none"> Continue interviews for the purpose of gathering opinions and sharing information related to HR (system, employment, and education). Promote initiatives for the development of next-generation leaders. Conduct activities aimed at preventing the aggravation of health conditions in conjunction with the ULVAC Health Insurance Association, in order to reduce health risks. Utilize the results of stress checks and promote activities for the purpose of organizational invigoration.
		<ul style="list-style-type: none"> Systematize the manufacturing professional training curriculum and begin instructor development. Continue global competitions, arising from the Global Manufacturing Technology Competition, the Global Business Improvement Competition, and the Skills Challenge; share initiatives, thoughts, and results related to manufacturing and engineering throughout the group; and vitalize interactions.
Environment	We will consider environmental conservation in all aspects of our business activities and will contribute to develop a better place to live and an enriched society.	Halve the number of occupational accidents in ULVAC Group compared to the previous fiscal year. * We will transfer product safety targets to the customer section from this fiscal year.
		Continue to promote the development of products that contribute to reducing the environmental burden. Example: <ul style="list-style-type: none"> Products with low energy consumption Products with less resource loading Products compatible with Restrictions of Chemical Substances in Products
		Continue to reduce the ULVAC Group's energy use to meet the 5-year target of a 10% reduction compared with fiscal 2013.
Local community	We will perform social contribution activities based on the practices and cultures of the countries and regions in which we operate.	Continue to pursue the creation of the ULVAC Pictorial Book of Nature Around Rice Fields, which introduces the creatures that live in the rice fields around Chigasaki as part of the Tanbo (Rice Field) Project. Create awareness of coexistence with the natural environment around Chigasaki and the ULVAC Tanbo (Rice Field) Project.
		Continue to introduce initiatives and promote activities to deepen understanding of ULVAC Group Companies' social contribution activities

⊙: Higher achievements than targeted ○: Targets achieved or proceeded as planned △: Effort required ×: Further effort required

Fiscal 2015 achievements	Self-assessment of the fiscal 2015 achievements	Fiscal 2016 targets	Reference page
<ul style="list-style-type: none"> Completed globally integrated ISO9000/14001 certification (phase 2). Promoted expansion of quality improvement items through the Global Quality Assurance Committee, which convenes twice yearly. Promoted group-wide roll-out of "Front Loading". Reduced the number of product accidents to the lowest level ever, even though this was only a reduction of 30% over the previous fiscal year. 	○	<ul style="list-style-type: none"> Thoroughly implement globally integrated ISO9000/14001 certification (phase 3). Promote systematization and group-wide roll-out of upstream process workflow for "Front Loading". Aim to reduce the number of the ULVAC Group's product accidents to half that of the previous fiscal year. Conduct risk assessment for 100% of equipment products by people with SA (Safety Assessor) qualifications. 	P26
<ul style="list-style-type: none"> Expanding and continuing checks of BCPs and the implementation of necessary measures for major suppliers. Materials division acquired CFS certification. Periodically exchanged information with suppliers. <ul style="list-style-type: none"> Held 3 mutual prosperity meetings, 1 operations briefing meeting, and individual visits. 	○	<ul style="list-style-type: none"> Continue legal compliance. Actively communicate with suppliers. <ul style="list-style-type: none"> Actively conducting new activities with the aim of growing together through coexistence and mutual prosperity. Continue buyer education. 	P27
Held 212 meetings for interviews with institutional investors those exceed the number of meetings conducted last fiscal year.	○	Promote information transmission, such as through technology seminars, while continuing to hold interviews with institutional investors.	-
Although awareness surveys continued to be conducted as in the previous fiscal year, feedback was insufficient.	△	Provide feedback on the previous fiscal year's results to each department and reflect them in the Fiscal 2016 survey.	P29
<ol style="list-style-type: none"> Conducted integrated personnel and general administration meetings, including group companies, and created a system for collecting and sharing opinions. Although the curriculum and content of next-generation leader development was considered, it has not yet been implemented. Activities aimed at preventing the aggravation of health conditions were conducted in conjunction with the ULVAC Health Insurance Association, and the number of employees at high risk of health issues, who had not been treated by a medical institution, was reduced by approximately 70%. Manager training was conducted for 98 people, utilizing the results of stress checks, and the level of activity increased in Fiscal 2015 over Fiscal 2014. 	<ol style="list-style-type: none"> ○ △ △ ⊙ 	<ul style="list-style-type: none"> Conduct education as part of next-generation leader development, having selected participants and determined specific content. Incorporate new ideas aimed at management and problem solving that are appropriate for the modern age in the existing level education system. Organize walking events using wearable devices and launch a personal health page to visualize healthcare-related information in conjunction with the ULVAC Health Insurance Association, in order to create an environment in which each employee plays a central role in the management of their health. Utilize the results of stress checks and launch activities for the purpose of organizational vitalization. 	P29-31
<ul style="list-style-type: none"> Determined "Ideal Form" with the Board of Department Managers, created an education system, and commenced education at selected departments. Held global competitions, arising from the Global Manufacturing Technology Competition, the Global Business Improvement Competition, and the Skills Challenge, and promoted group-wide information sharing and roll-out. 	○	<ul style="list-style-type: none"> Roll out "Front Loading" on a group-wide basis, complete the necessary specialist education system for it to be effective, and implement it. Continue global competitions, arising from the Global Manufacturing Technology Competition, the Global Business Improvement Competition, and the Skills Challenge, share initiatives, thoughts, and results relating to MONODZUKURI and engineering throughout the group, and further promote interactions. 	P28-29
As a result of conducting safety campaigns, such as promoting risk assessment for the entire ULVAC Group, the number of workplace accidents at the Group decreased by 32% over the previous fiscal year. At ULVAC alone, the record of no accidents continued, and the system of working to eliminate workplace accidents as a unified group received praise, so that ULVAC received a prize from the Director General of the Kanagawa Labor Bureau.	○	Aim to further reduce the number of ULVAC Group work-related accidents, even though they are already at a low level.	P32
ULVAC's business divisions and group companies released products with low energy consumption.	⊙	Continue to develop and release products to reduce environmental impact.	
Reduced the energy usage of the entire ULVAC Group in Fiscal 2015 by 10.6% from Fiscal 2013.	⊙	Reduce the ULVAC Group's energy use by 10% compared with the Fiscal 2013 in the next five years.	P33-34 P35
The Pictorial Book of Nature Around Rice Fields project was completed, as the listing of living creatures scheduled for inclusion ended, and delivery to intended recipients was judged to be finished.	○	Publicize the status of activities related to the Tanbo (Rice Field) Project throughout the year through SNS and raise awareness for ULVAC's Tanbo (Rice Field) Project as broadly as possible.	
Introduced ULVAC's social contribution activities both internally and externally through internal bulletins, ULVAC reports, and SNS, etc., and actively conducted activities that will lead to the development of the next generation, such as off-site vacuum experiment demonstrations.	○	Share information concerning each company's activities within the ULVAC Group, and introduce initiatives and promote activities to deepen understanding of social contribution activities.	P35

Financial Highlights

Millions of yen

FOR THE YEAR DATA	2012.06	2013.06	2014.06	2015.06	2016.06
Orders received	152,221	166,778	169,808	182,732	223,608
Net sales	196,804	163,351	173,878	179,174	192,437
Operating income (loss)	(6,384)	6,115	11,996	11,132	17,864
Income (loss) before income taxes	(33,704)	(565)	15,137	12,654	17,786
Net income (loss)	(49,984)	(3,807)	11,538	8,874	16,698
Capital expenditures	12,719	6,761	6,217	6,731	7,046
Depreciation	9,096	7,967	7,421	7,630	6,931
R&D costs	7,088	4,989	5,213	5,562	6,284

Millions of yen

YEAR-END DATA	2012.06	2013.06	2014.06	2015.06	2016.06
Total assets	249,651	243,289	230,791	242,348	219,561
Net assets/Shareholders' equity	41,187	59,436	72,238	84,928	78,032
Number of employees	6,981	6,579	5,971	5,904	5,886

(Yen)

PER SHARE DATA	2012.06	2013.06	2014.06	2015.06	2016.06
Net assets	751.00	806.38	1,040.23	1,398.66	1,477.29
Net income (loss)					
-Basic	(1,012.94)	(87.79)	223.18	172.73	338.37
-Diluted	—	—	165.62	148.48	—
Cash dividends	—	—	—	10.00	30.00

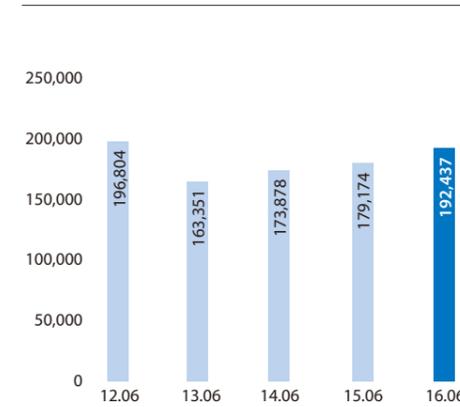
(%)

OTHER INFORMATION	2012.06	2013.06	2014.06	2015.06	2016.06
Net income / Average total assets (ROA)	—	—	4.9	3.8	7.2
Net income / Average shareholders' equity (ROE)	—	—	18.8	12.1	21.9
Shareholders' equity ratio	14.8	22.7	29.2	32.8	33.2

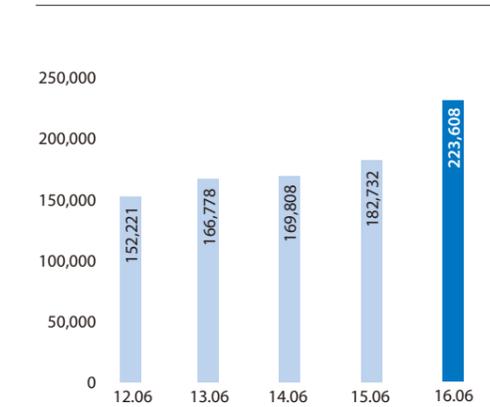
Disclaimer regarding forward-looking statements

Forward-looking statements of the company in this report are based on information available at the time these documents were prepared. ULVAC's customers in the flat-panel display (FPD), solar cells, semiconductor, and electronic parts industries face the challenge of the rapid pace of technological advances and fierce competition. Consequently, actual earnings may vary substantially from the projections included in this report due to a number of factors that could cause, directly or indirectly, performance to fluctuate. The factors that could cause results to differ materially from the statements herein include the world economy; fluctuations in the exchange rate; market conditions for flat-panel displays, semiconductors, and electric devices; and trends in capital investments.

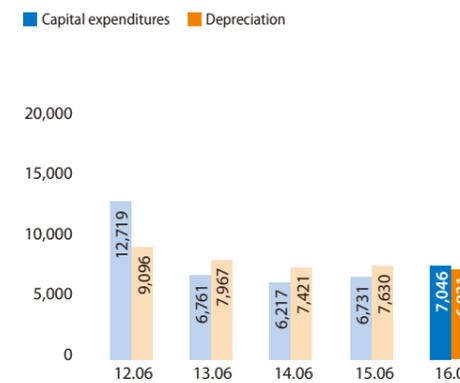
Net sales (Millions of yen)



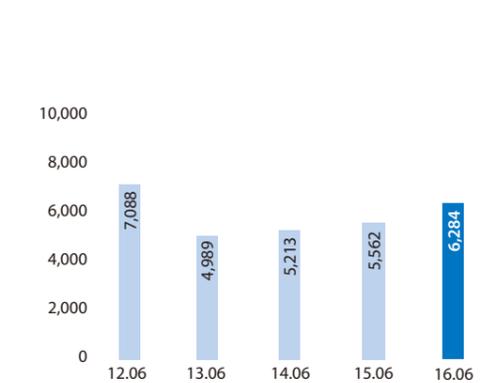
Orders received (Millions of yen)



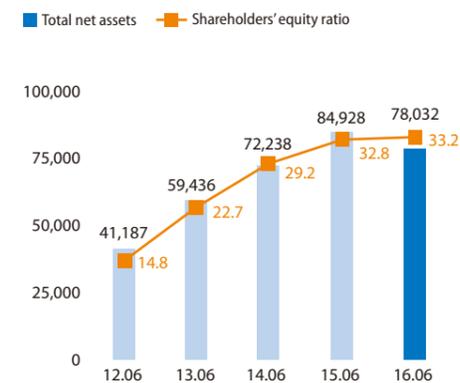
Capital expenditures/Depreciation (Millions of yen)



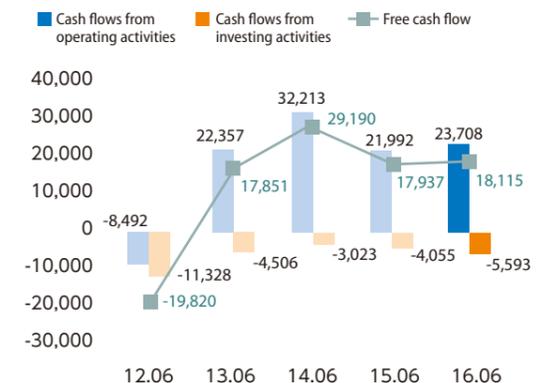
R&D costs (Millions of yen)



Total net assets (Millions of yen)/ Shareholders' equity ratio (%)



Cash flows (Millions of yen)



Analysis of Business Results

Business results for the current fiscal year

In the consolidated fiscal year under review, the Japanese economy continued its gradual recovery, with employment and the earnings environment continuing to improve in spite of a plateau in improvements in corporate earnings. In the United States, although capital investment and exports were on the weak side, economic recovery continued with increases in individual consumption and private housing investment. In Europe, although some divisions were weak, a gentle economic recovery continued, such as a reduction in the unemployment rate despite the continued high level of unemployment. In China, the economy began to gently slow, with a slowing of production growth, etc., in spite of a strong increase in consumption and the bottoming out of exports.

In the electronics market, in which the ULVAC Group operates, capital investment by electronic component manufacturers was

generally cautious due to reduced growth in the number of units sold, in spite of the continued advancement and slimming of smartphones. With regard to capital investment in LCD production equipment, active investment focused on this area, leading to positive results that exceeded those of the previous fiscal year.

As a result, orders received rose by 40.876 billion yen or 22.4% year on year to 223.608 billion yen, and sales rose by 13.263 billion yen or 7.4% year on year to 192.437 billion yen for the consolidated fiscal year under review. With regard to consolidated profit and loss, operating income rose by 6.731 billion yen or 60.5% year on year to 17.864 billion yen, ordinary income rose by 5.898 billion yen or 47.3% year on year to 18.373 billion yen, and net income attributable to owners of the parent rose by 7.824 billion yen or 88.2% year on year to 16.698 billion yen.

Vacuum Equipment Business

■ FPD and PV production equipment

With regard to FPD (flat panel display) production equipment, investment concentrated on small to medium LCD production equipment for mobile handsets and large LCD production equipment for TVs, and with the addition of investment in OLED display production equipment, both orders received and sales greatly exceeded those of the previous fiscal year.

■ Semiconductor and electronic device production equipment

With regard to Semiconductors, sputtering equipment and natural oxide film removal equipment for memories, with regard to electronic components, advanced device manufacturing equipment for mobile devices, those mainly contributed to orders received and sales; however, results fell below those of the previous fiscal year because of the effects of reduced production of electronic components due to reduced growth in sales of smartphone units and reduced capital investment for DRAM, as

well as the temporary postponement of investment in non-volatile memory production equipment.

■ Components

Markets steadied behind the FPD, semiconductor, electronic components, and automotive-related industries. Orders received exceeded those of the previous fiscal year, with a large order for cryo pumps received from overseas in the second half of the fiscal year; however sales remained on par with those of the previous fiscal year.

■ Industrial equipment

We recorded orders received and sales centered around vacuum heat treating furnaces for the production of automotive components; however, both fell below the level of the previous fiscal year, due to the effect of the economic slowdown in China, etc.

■ Others

Mask blanks and analysis equipment remained solid. In relation to mask blanks, there was increased demand for high-definition small and medium-sized panels for smartphones and in-vehicle semiconductors, while analysis equipment focused on the Asian market.

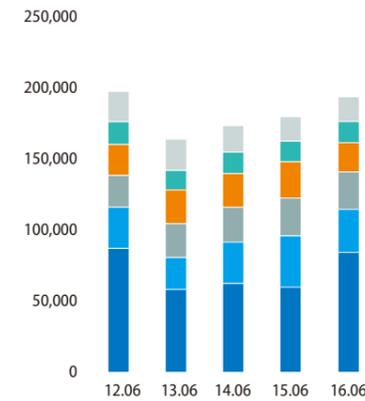
Vacuum Application Business

■ Materials

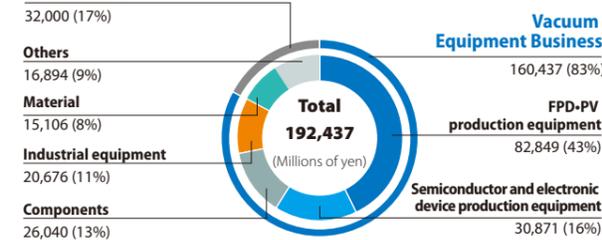
Orders were received for sputtering target materials for LCDs, mainly from Korean customers, etc., and both orders received and sales exceeded those of the previous fiscal year.

Net sales by business segment (Millions of yen)

■ FPD-PV production equipment ■ Semiconductor and electronic device production equipment ■ Components ■ Industrial equipment ■ Material ■ Others

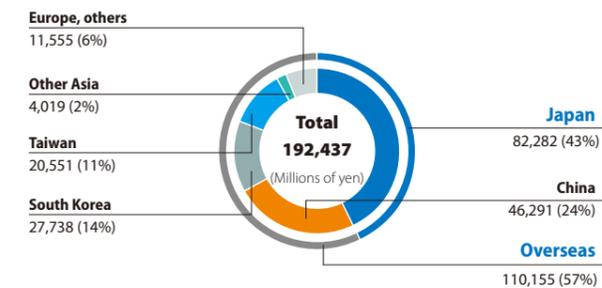
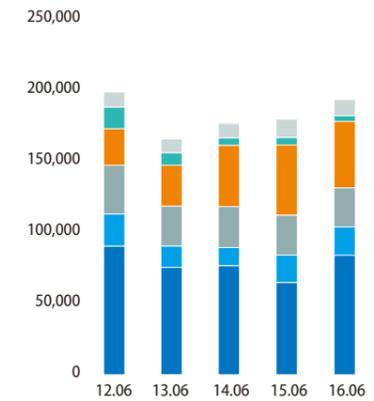


Vacuum Application Business



Net sales by region (Millions of yen)

■ Japan ■ Taiwan ■ South Korea ■ China ■ Other Asia ■ Europe, others



Stock Information (As of June 30, 2016)

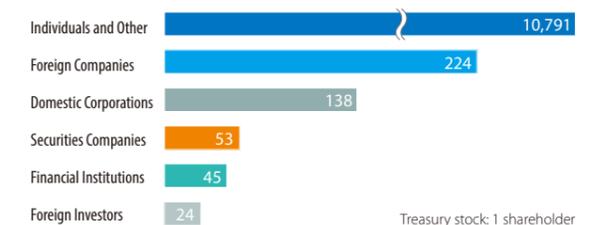
Total number of stocks authorized	100,000,000
Total number of stocks issued	49,355,938
Total number of shareholders	11,276

Major Shareholders

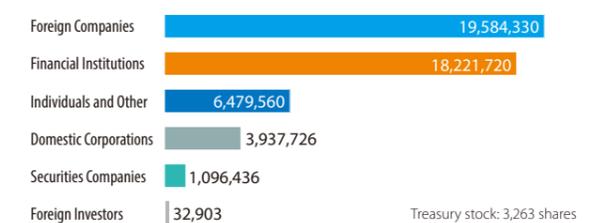
Shareholder's name	Number of shares (thousands)	Ratio of shareholding (%)
Japan Trustee Services Bank, Ltd. (Trust account)	3,703	7.50
TAIYO FUND, L.P.	3,244	6.57
Nippon Life Insurance Company	3,242	6.57
Mizuho Bank, Ltd.	1,916	3.88
Sumitomo Mitsui Banking Corporation	1,864	3.78
The Master Trust Bank of Japan, Ltd. (Trust account)	1,775	3.60
TAIYO HANEI FUND, L. P.	1,225	2.48
SAYCO Building Management Co., Ltd.	1,006	2.04
The Bank of Tokyo-Mitsubishi UFJ, Ltd.	910	1.84
Japan Trustee Services Bank, Ltd. (Trust account 9)	902	1.83

Note: Ratio of shareholding is calculated by the number of treasury stocks (3,263 stocks)

Number of Shareholders (Common Stock) total: 11,276 shareholders



Number of Shares Held (Common Stock) total: 49,355,938 shares



Consolidated Financial Statements

Consolidated Balance Sheets

(Unit: Millions of yen)

	Fiscal year ended June 30, 2015 (June 30, 2015)	Fiscal year ended June 30, 2016 (June 30, 2016)
Assets		
Current assets		
Cash on hand and in banks	62,684	45,713
Notes and accounts receivable, trade	56,684	57,958
Merchandise and finished goods	3,551	4,645
Work in process	18,685	16,808
Raw materials and supplies	9,897	8,009
Deferred tax assets	1,620	4,746
Other	5,264	6,356
Allowance for doubtful accounts	△482	△621
Total current assets	157,903	143,616
Fixed assets		
Property, plant and equipment		
Buildings and structures	81,341	78,132
Accumulated depreciation	△43,718	△44,765
Buildings and structures, net	37,623	33,367
Machinery, equipment and vehicles	67,281	63,885
Accumulated depreciation	△51,787	△50,194
Machinery, equipment and vehicles, net	15,494	13,690
Tools, furniture and fixtures	13,684	13,286
Accumulated depreciation	△12,390	△11,961
Tools, furniture and fixtures, net	1,294	1,325
Land	8,198	8,109
Leased assets	1,490	1,516
Accumulated depreciation	△923	△884
Leased assets, net	567	632
Construction in progress	2,487	3,252
Total property, plant and equipment	65,662	60,374
Intangible fixed assets		
Leased assets	166	112
Software	1,023	754
Other	3,436	3,051
Total intangible fixed assets	4,625	3,916
Investments and other assets		
Investment securities	4,718	4,035
Guarantee deposits	1,877	1,717
Deferred tax assets	1,766	1,924
Other	6,896	6,358
Allowance for doubtful accounts	△1,100	△2,379
Total investments and other assets	14,156	11,655
Total fixed assets	84,444	75,945
Total assets	242,348	219,561

(Unit: Millions of yen)

	Fiscal year ended June 30, 2015 (June 30, 2015)	Fiscal year ended June 30, 2016 (June 30, 2016)
Liabilities		
Current liabilities		
Notes and accounts payable, trade	33,816	35,303
Short-term borrowings	62,844	39,453
Lease liabilities	385	319
Accrued income taxes	1,392	2,039
Advances received	14,492	13,598
Deferred tax liabilities	52	11
Accrued bonuses for employees	1,931	2,206
Accrued bonuses for directors and corporate auditors	203	368
Accrued warranty costs	2,059	1,964
Provision for loss on contract	129	558
Other	9,976	10,331
Total current liabilities	127,277	106,150
Long-term liabilities		
Long-term debt	19,805	23,237
Lease liabilities	557	546
Deferred tax liabilities	1,590	1,399
Net defined benefit liability	6,715	8,711
Accrued pension and severance costs for directors and corporate auditors	394	319
Asset retirement obligations	333	336
Other	747	831
Total long-term liabilities	30,142	35,378
Total liabilities	157,420	141,529
Net Assets		
Shareholders' equity		
Capital stock	20,873	20,873
Capital surplus	16,435	4,582
Retained earnings	34,609	50,813
Treasury shares	△10	△10
Total shareholders' equity	71,908	76,258
Accumulated other comprehensive income		
Valuation difference on available-for-sale securities	718	130
Foreign currency translation adjustment	7,462	△667
Remeasurements of defined benefit plans	△718	△2,822
Total accumulated other comprehensive income	7,462	△3,359
Non-controlling interests	5,559	5,133
Total net assets	84,928	78,032
Total liabilities and net assets	242,348	219,561

Consolidated Statement of Income

(Unit: Millions of yen)

	Fiscal year ended June 30, 2015 (July 1, 2014–June 30, 2015)	Fiscal year ended June 30, 2016 (July 1, 2015–June 30, 2016)
Net sales	179,174	192,437
Cost of sales	135,710	141,314
Gross profit	43,464	51,122
Selling, general and administrative expenses		
Selling expenses	14,978	15,740
General and administrative expenses	17,353	17,518
Total selling, general and administrative expenses	32,331	33,259
Operating income	11,132	17,864
Non-operating income		
Interest income	181	113
Dividend income	310	251
Rent income	333	360
Foreign exchange gains	743	578
Insurance and dividends income	360	541
Share of profit of entities accounted for using equity method	128	299
Other	1,763	477
Total non-operating income	3,818	2,619
Non-operating expenses		
Interest expenses	1,038	797
Commission for syndicate loan	365	244
Loss on valuation of inventories	363	277
Other	710	793
Total non-operating expenses	2,475	2,110
Ordinary income	12,475	18,373
Extraordinary income		
Gain on sale of fixed assets	326	60
Reversal of impairment loss on fixed assets	-	241
Gain on sales of stocks of subsidiaries and affiliates	28	-
Total extraordinary income	354	301
Extraordinary losses		
Loss on disposal of fixed assets	176	749
Impairment loss	-	31
Loss on sales of investments in capital of subsidiaries and affiliates	-	109
Total extraordinary losses	176	888
Income before income taxes and minority interests	12,654	17,786
Current income taxes	3,183	3,892
Deferred income taxes	13	△3,433
Total income taxes	3,196	459
Net income	9,458	17,327
Net income attributable to non-controlling interests	584	629
Net income attributable to owners of parent	8,874	16,698

Consolidated Statement of Comprehensive Income

(Unit: Millions of yen)

	Fiscal year ended June 30, 2015 (July 1, 2014–June 30, 2015)	Fiscal year ended June 30, 2016 (July 1, 2015–June 30, 2016)
Net income	9,458	17,327
Other comprehensive income		
Valuation difference on available-for-sale securities	346	△588
Foreign currency translation adjustment	5,999	△8,781
Remeasurements of defined benefit plans, net of tax	672	△2,107
Share of other comprehensive income of entities accounted for using equity method	40	△36
Total other comprehensive income	7,056	△11,512
Comprehensive income	16,514	5,815
Comprehensive income attributable to:		
Owners of parent	15,427	5,877
Non-controlling interests	1,087	△63

Consolidated statement of cash flows

(Unit: Millions of yen)

	Fiscal year ended June 30, 2015 (July 1, 2014–June 30, 2015)	Fiscal year ended June 30, 2016 (July 1, 2015–June 30, 2016)
Cash flows from operating activities		
Income before income taxes and minority interests	12,654	17,786
Depreciation	7,630	6,931
Impairment loss	-	31
Increase (decrease) in allowance for doubtful accounts	271	1,520
Increase (decrease) in provision for bonuses	857	443
Increase (decrease) in net defined benefit liability	△176	△263
Increase (decrease) in provision for directors' retirement benefits	△301	△75
Increase (decrease) in provision for product warranties	348	69
Increase (decrease) in provision for loss on order received	△458	435
Interest and dividend income	△491	△364
Interest expenses	1,038	797
Subsidy income	△53	△151
Share of (profit) loss of entities accounted for using equity method	△128	△299
Decrease (increase) in notes and accounts receivable - trade	△7,626	△5,888
Decrease (increase) in inventories	4,354	△328
Increase (decrease) in notes and accounts payable - trade	3,740	3,844
Increase (decrease) in advances received	3,344	700
Increase (decrease) in accrued consumption taxes	297	162
Other	1,103	1,401
Sub total	26,403	26,750
Interest and dividend income received	539	429
Interest expenses paid	△1,043	△805
Income taxes paid	△3,907	△2,666
Net cash provided by (used in) operating activities	21,992	23,708
Cash flows from investing activities		
Payments into time deposits	△624	△1,950
Proceeds from withdrawal of time deposits	379	1,896
Purchase of property, plant and equipment and intangible assets	△5,846	△5,947
Proceeds from sales of property, plant and equipment and intangible assets	1,070	316
Loss on sales of investments in capital of subsidiaries and associates	-	△286
Proceeds from sales of shares of subsidiaries resulting in change in scope of consolidation	490	-
Subsidy income	207	293
Other	269	84
Net cash provided by (used in) investing activities	△4,055	△5,593
Cash flows from financing activities		
Net increase (decrease) in short-term loans payable	△3,972	△23,752
Proceeds from long-term loans payable	7,525	13,610
Repayments of long-term loans payable	△10,893	△9,196
Repayments of lease obligations	△387	△397
Cash dividends paid	△1,050	△491
Purchase of treasury shares	△5,811	△11,854
Dividends paid to non-controlling interests	△287	△368
Other	△20	-
Net cash provided by (used in) financing activities	△14,895	△32,448
Effect of exchange rate change on cash and cash equivalents	1,616	△2,474
Net increase (decrease) in cash and cash equivalents	4,658	△16,808
Cash and cash equivalents at beginning of period	57,012	61,670
Cash and cash equivalents at end of period	61,670	44,862