

ULVAC

ULVAC  
VALUE REPORT

2018

ULVAC

真空

Management Planning Department

ULVAC, Inc.

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<https://www.ulvac.co.jp/en/>

Ultimate in Vacuum



**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**

- Improve Customer Satisfaction
- Innovations in Production Technology
- Development of Original Products
- Free and Open-minded Organization
- Enhancing Corporate Value

**Corporate Profile of the ULVAC Group**

**Name:** ULVAC, Inc.  
**Trademark:** ULVAC  
**Head Office:** 2500 Hagisono, Chigasaki, Kanagawa Prefecture, Japan  
**Established:** August 23, 1952  
**Capital:** ¥20,873,042,500  
**Number of Employees:** Non-consolidated 1,293  
 Consolidated 6,439 (As of June 30, 2018)  
**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 advice for 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 coaters
- Solar cell production equipment

**Semiconductor and electronic device production equipment**

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

**Components**

- Vacuum pumps
- Vacuum gauges
- Helium leak detectors
- Process gas monitors
- Thin-film measuring equipment
- EB, RF and DC power generators
- Vacuum valves
- Deposition controllers
- Vacuum transfer robots

**Industrial equipment**

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

**Vacuum Application Business**

**Materials**

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

**Others**

- Surface analyzers
- Controllers
- Mask blanks

**Major Vacuum Equipment**

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

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### Editorial Policy

We publish the ULVAC VALUE REPORT as a summary of our initiatives in the past year to achieve sustainable growth and enhancement of corporate value, our medium- to long-term vision, and our management approach.

We consider this report to be an important communication tool to facilitate stakeholders' understanding of our activities and deepen dialogue with them.

■ **Published:**  
November 2018 (Previous issue published in November 2017)

■ **Guidelines Referenced:**  
ISO26000: 2010 (Guidance on social responsibility) First Edition  
The International Integrated Reporting Framework, the International Integrated Reporting Council (IIRC)

### 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, 2018

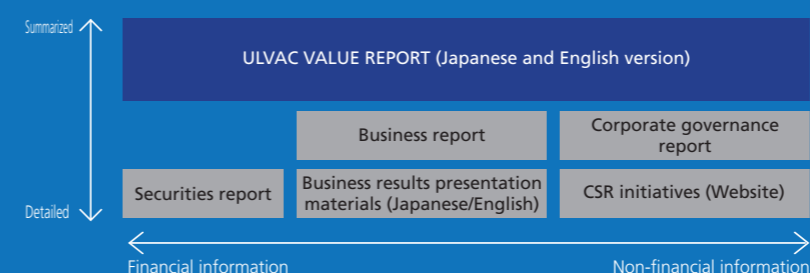
(July 1, 2017 to June 30, 2018, Fiscal 2017)

Some portions of the report include activities and initiatives from July 2018 onward.

#### <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.

### ULVAC's Communication Tools



We endeavor to achieve the optimum information disclosure by making various communication tools available to meet your needs.

To help you deepen your understanding of the ULVAC Group, our communication tools range from statutory disclosure documentation centering on information on financial closing to this report that offers non-financial information, such as social and environmental initiatives indispensable for creating corporate value, in addition to information on business activities, management strategies, and financial information. Please also refer to our website for the latest information.

# ULVAC's History

When ULVAC was founded back in 1952, vacuum technology had not yet entered widespread use in Japan. As a trailblazer, we championed vacuum technology by introducing new technologies to the market and addressing the needs of customers in diverse industries. ULVAC will continue tackling technological innovation to speed progress toward the "smart society" to which we aspire.

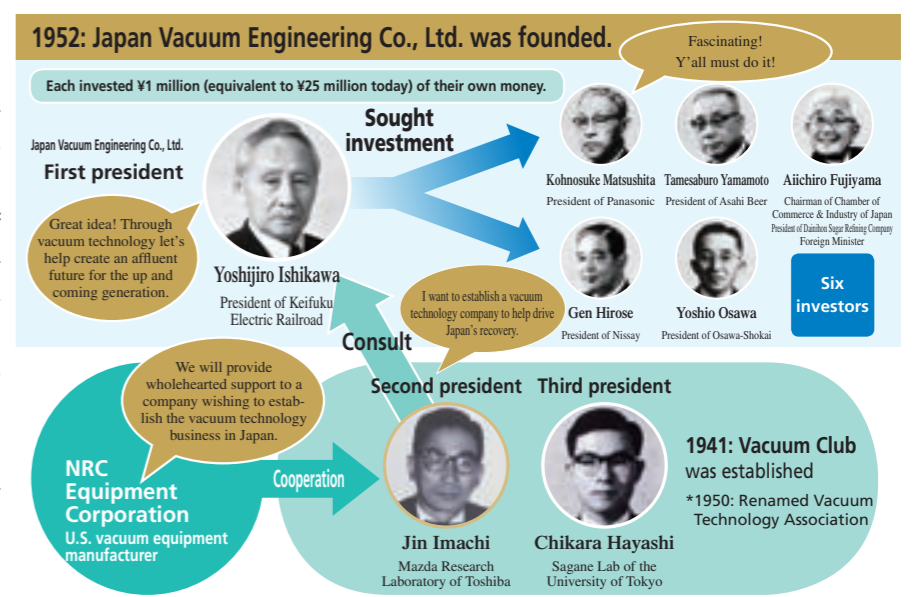
## Challenging new industrial sectors

Ever since its foundation, ULVAC has been refining its capability to flexibly manipulate vacuum technology. In step with the changing industrial structure, we have always boldly sought to develop new technologies while expanding application fields to include the production of automobiles, chemicals, pharmaceuticals, and food, metallurgy, as well as mass production of semiconductors and electronic devices, flat-panel displays, and organic light-emitting diode displays.

Inspired by the promise of the emerging "smart society" where electronics support and connect every industry and lifestyle, we are confident that our vacuum technology will be a key to the advance of the cluster of transformative technologies, including IoT, big data, artificial intelligence, and self-driving vehicles, that will underpin next-generation lifestyles.

## The story of ULVAC's foundation

At the time when Japan was engaged in post-war recovery, a group of talented young researchers and engineers gathered with the aim of "contributing to the revival of Japanese industry through vacuum technology." In 1952 six angel investors, impressed by the passion of these visionary young people, invested in the establishment of Japan Vacuum Engineering Co., Ltd., the forerunner of present-day ULVAC.



1952~

### Automotive



Reflectors for automobiles



Vacuum evaporation equipment

1960~

### Chemical/ pharmaceutical/food



Pharmaceuticals



High-vacuum distillation equipment for plasticizers

1962~

### Metal/steel



Special steel



100 kg-class vacuum induction melting furnace

1973~

### Liquid crystal display



LCD calculator display



Transparent conductive film deposition equipment

1975~

### Semiconductor



Computer

(Photo: Courtesy of IBM Archive)



System 731

1983~

### Electronic storage media



Compact discs



In-line sputtering equipment

1992~

### FPD



Flat-panel display



LCD production equipment

2016~

### OLED



OLED



OLED production equipment

## History

- 1952** Japan Vacuum Engineering Co., Ltd. was founded.
- 1955** Opened the Omori Plant in Tokyo to start manufacturing equipment in Japan.
- 1959** Opened the Yokohama Plant in Kanagawa Prefecture.
- 1964** Established the first overseas subsidiary in Hong Kong.
- 1968** Head Office/Plant completed in Chigasaki, Kanagawa Prefecture.
- 1969** Changed the company name in English to ULVAC CORPORATION to promote exports.
- 1971** Established a subsidiary in Hamburg, then West Germany, as a base for cultivating the western European market.
- 1972** Opened the Institute for Super Materials as ULVAC's first research facility.
- 1975** Opened the North American Office. Established a subsidiary in North America as a base for exports to the U.S.
- 1977** Established KYUSYU ULVAC CORPORATION (present-day ULVAC KYUSHU CORPORATION) in Kagoshima Prefecture to expand sales activities in the Kyushu area.
- 1982** Established a subsidiary in Taiwan. Established the Tsukuba Institute for Super Materials in Tsukuba Science City (present-day Tsukuba City), Ibaraki Prefecture.
- 1983** Opened the Beijing Office in China.
- 1987** Established ULVAC TOHOKU, Inc. in Aomori Prefecture to strengthen production of large-scale equipment.
- 1990** Opened the Fuji Susono Plant in Shizuoka Prefecture, as a plant dedicated to semiconductor production equipment.
- 1995** Established a vacuum pump production base in China. Established a subsidiary in South Korea.
- 2001** Changed the company name to ULVAC, Inc.
- 2002** Established a subsidiary in Singapore.
- 2003** Established a base for full-scale production and field support in China.
- 2004** Listed on the First Section of the Tokyo Stock Exchange. New buildings of the Head Office/Plant (Chigasaki, Kanagawa Prefecture) completed.
- 2005** Established a large-scale production base for large LCD production equipment in South Korea. Established a subsidiary in Thailand. Established R&D bases in South Korea and Taiwan. Established a subsidiary in Malaysia.
- 2006** Established a production subsidiary for large LCD production equipment in Taiwan.
- 2007** Established a base in India.
- 2010** Relocated the Chiba Institute for Super Materials to the Tomisato Industrial Park in Chiba Prefecture to enhance R&D.
- 2011** Established the South Korea Institute for Super Materials to enhance R&D in South Korea.
- 2015** Established the Future Technology Research Laboratory in Tsukuba, Ibaraki Prefecture.
- 2016** Began manufacturing production equipment for large displays in China.
- 2018** Celebrated the 50th anniversary of the completion of the Head Office/Plant (Chigasaki, Kanagawa Prefecture).

1952

1960

1970

1980

1990

2000

2005

2010

2018

# ULVAC's Businesses

Across a wide range of industries, ULVAC is a source of numerous products and technologies that meet the needs of our customers and the market.

At present, ULVAC operates businesses in six areas.

## Net sales by business segment (amount and %)

### Vacuum Application Business

¥32.6 billion 13%

### Vacuum Equipment Business

¥216.7 billion 87%

### Others

¥17.4 billion



X-ray photoelectron spectroscopy equipment

### Materials

¥15.2 billion



Sputtering target materials for FPD production equipment

### Industrial equipment

¥23.7 billion

With a long history of producing vacuum equipment for industrial use, ULVAC has been involved in this business sector since the emergence of vacuum technology in the 1950s. Leveraging the fundamental technology it has developed so far, ULVAC currently provides various solutions across wide-ranging industries, including the automotive, pharmaceutical, and food industries.



Vacuum melting furnace

### Components

¥32.8 billion

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 range of product lines, extending from vacuum pumps and measurement/analysis equipment, to components, such as power generators for various types of deposition equipment and vacuum valves.



Cryopump



Leak detector



Dry vacuum pump

### FPD and PV production equipment

¥108.5 billion

As befits a company involved in a range of FPD and PV manufacturing technologies, ULVAC not only develops production equipment but also offers solutions worldwide that leverage its development of advanced materials.



LCD production equipment



OLED production equipment

### Semiconductor and electronic device production equipment

¥51.6 billion

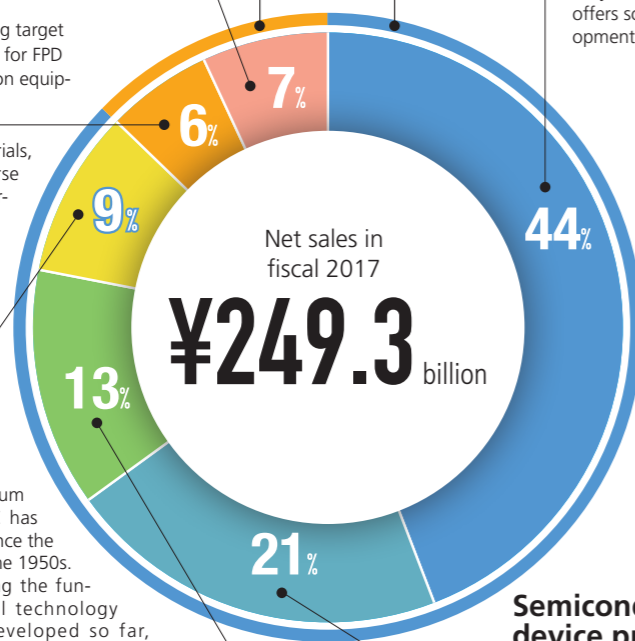
Higher integration and higher performance at lower cost are demanded for next-generation semiconductors and other high-performance devices. Based on its development of super-miniaturization technologies for such semiconductors and other electronic devices, ULVAC delivers a stream of new technologies and products to the world that underpin the progress of society.



Sputtering equipment for electronic devices



Sputtering equipment for semiconductors



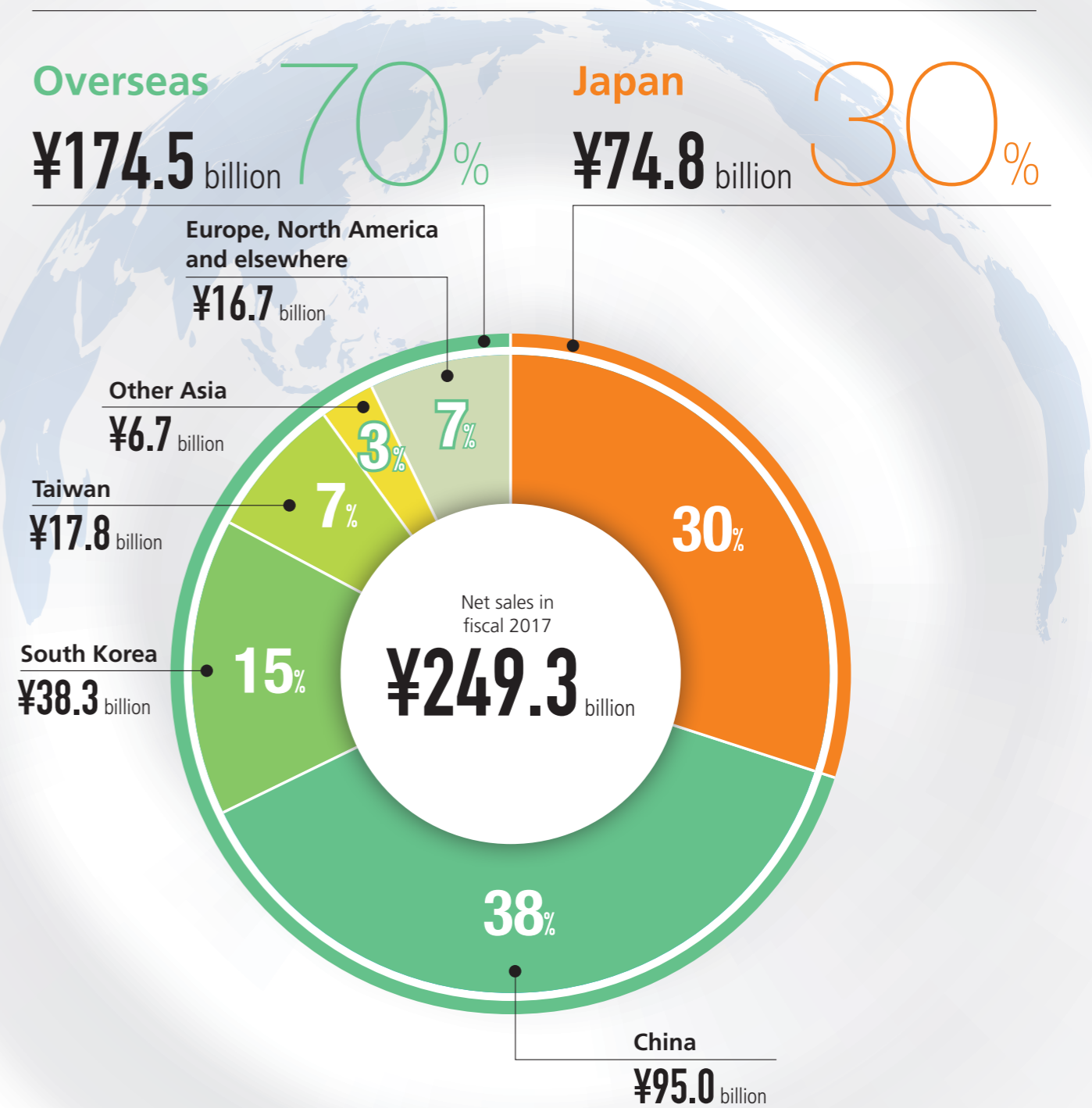
## Net sales by region (amount and %)

### Overseas

¥174.5 billion 70%

### Japan

¥74.8 billion 30%

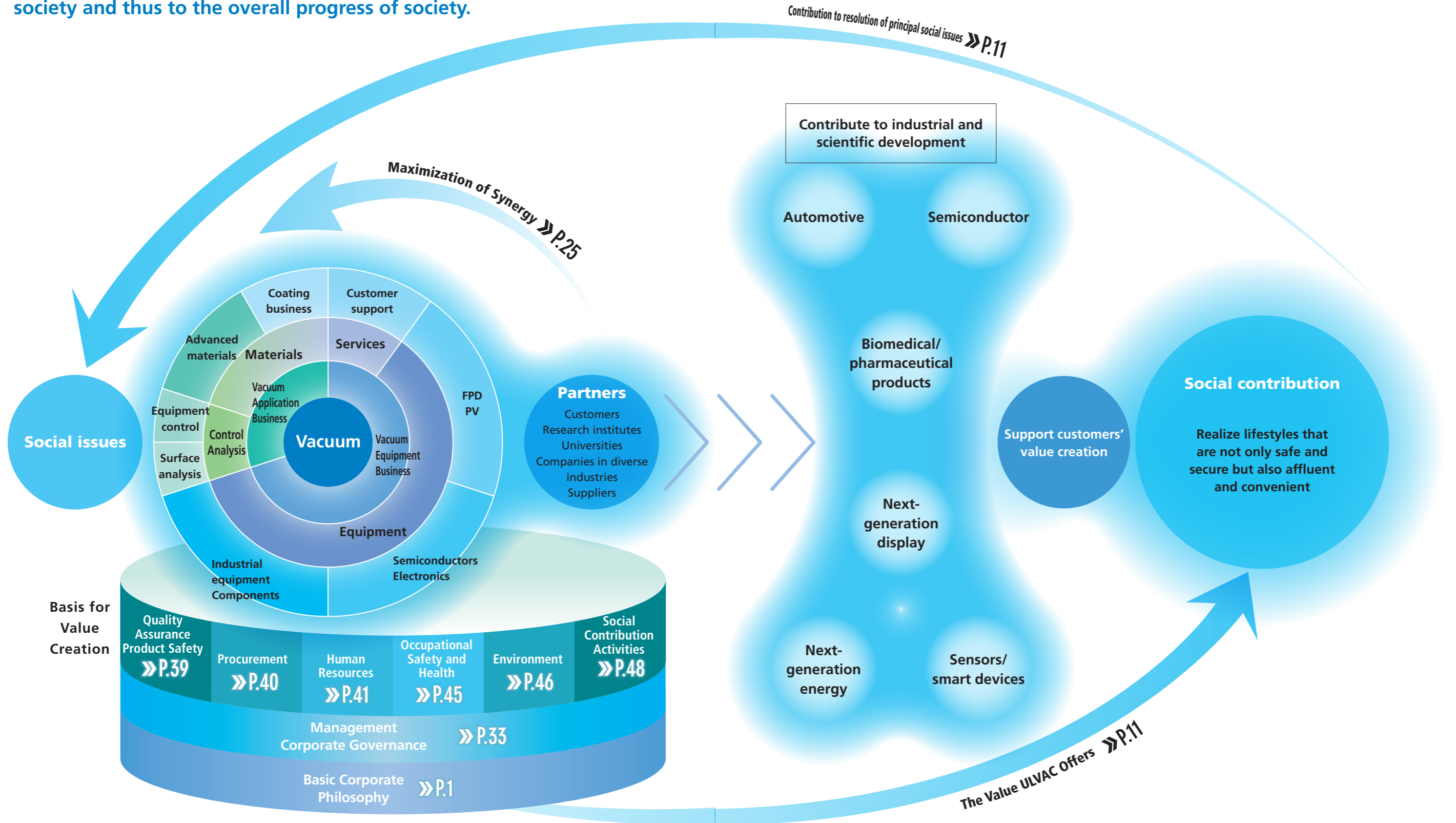


# ULVAC's Value Creation <Process>

As a comprehensive vacuum products manufacturer, ULVAC offers solutions that contribute to the resolution of issues confronting society and thus to the overall progress of society.

Vacuum technology is at the heart of industrial and scientific development.


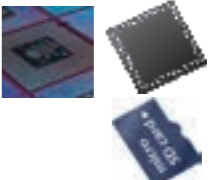


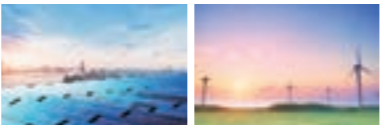





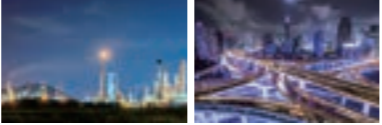


As a comprehensive manufacturer of products utilizing vacuum technology, ULVAC seeks to maximize synergy throughout the Group, encompassing diverse business fields and formats, while strengthening collaboration with partners to offer high-value-added solutions that contribute to the resolution of issues confronting society and moreover facilitate the realization of lifestyles that are not only safe and secure but also affluent and convenient.



# ULVAC's Value Creation <The Value ULVAC Offers>

We are committed to realizing a society that is not only safe and secure but also affluent and convenient by offering value utilizing vacuum technology, which is indispensable for industrial and scientific development.

We will continue helping to resolve social issues in cooperation with our customers through the provision of products and solutions to them.

Social issues	Market opportunities	ULVAC's business activities						Main value offered by the business	Customers and their products	Contribution to resolution of principal social issues*	
		Priority domains	ULVAC's six business areas								
			FPD and PV production equipment	Semiconductor production equipment	Electronic device production equipment	Industrial equipment	Components				Materials
<ul style="list-style-type: none"> <li>Establishment of global network infrastructure and the smart society, progress of 5G and IoT</li> </ul>	<ul style="list-style-type: none"> <li>Aspiration for the progress of all industries and technological innovation</li> <li>Diversification of semiconductor and electronic device applications and needs</li> <li>Trend toward devices with smaller size, more speed, larger capacity and lower power consumption</li> </ul>	<b>Realization of the smart society</b> Self-driving, agriculture, healthcare, virtual currency, etc. 	See >> P.28				See >> P.31	See >> P.32	Response to new semiconductor and electronic device fields and needs by applying vacuum deposition and other technologies and R&D of cutting-edge processes through collaborative creation with customers	FPD, semiconductors, electronic equipment and devices manufacturers  <b>Semiconductors: Memory, logic</b> 3D-NAND, PCRAM, CPU, etc. 	Contribution to realization of an advanced, convenient, safe and secure, global society 
		<b>Fundamental technology for realization of the smart society</b> IoT, cloud, AI, robots, big data, drones 	See >> P.27			See >> P.29					
<ul style="list-style-type: none"> <li>Environmental issues, such as global warming and climate change</li> <li>Global energy issues due to dependence on finite resources</li> </ul>	<ul style="list-style-type: none"> <li>Progress of renewable and low-carbon energy systems</li> <li>Improvement in energy conversion efficiency</li> </ul>	<b>Energy management, next-generation energy</b> 					See >> P.30		Enhancement of performance of solar cells and power devices by vacuum deposition, ion implantation and other technologies	Solar cell manufacturers, battery manufacturers, etc.  <b>Energy: Heat generation, power storage, conversion</b> Solar cells, all-solid-state batteries, power devices, magnets for wind turbines 	Contribution to creation of a sustainable society by power generation, energy storage, and energy saving 
<ul style="list-style-type: none"> <li>Food safety and security, population explosion and sharp increase in demand for food in emerging countries, increase in food loss</li> <li>Longevity, needs and progress of health promotion and healthcare</li> </ul>	<ul style="list-style-type: none"> <li>Longer preservation of food and pharmaceuticals, volume reduction</li> </ul>	<b>Healthcare, life innovation</b> 							Longer life and volume reduction of freeze-dried food, powder vaccines, drugs, etc. by vacuum freeze drying and other technologies	Food manufacturers, pharmaceutical manufacturers, etc.  <b>Foodstuffs, pharmaceuticals: Freeze drying</b> Freeze-dried foods, emergency provisions, supplements, powder vaccines, etc. 	Contribution to human health, the future of medicine, and realization of a sustainable society with minimal food loss by means of safe and secure foods and pharmaceuticals 
<ul style="list-style-type: none"> <li>Aging of infrastructure in developed countries</li> <li>Development of industrial infrastructure in emerging countries</li> <li>Wider gap between rich and poor</li> </ul>	<ul style="list-style-type: none"> <li>Development of safe, secure and comfortable infrastructure</li> </ul>	<b>Construction, social infrastructure, mobility</b> 							Enhancement of performance of industrial materials and response to new materials by applying vacuum heat treatment and other technologies	Chemical and materials manufacturers, steelmakers, transportation equipment manufacturers, etc.  <b>Industrial materials: Heat treatment</b> Glass building materials, industrial materials, materials for transportation equipment, etc. 	Contribution to creation of a sustainable society that is safe and secure and comfortable 

\*Indicates relationships with the United Nations' Sustainable Development Goals (SDGs).

# ULVAC's Value Creation <Source of Value>

## Research & Development

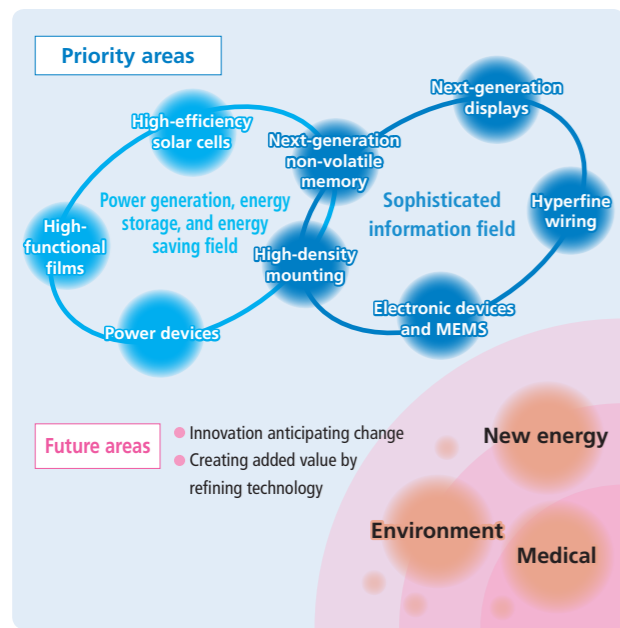
### Ongoing value creation from a medium- to long-term perspective

ULVAC has long been a source of vacuum-technology-based products and materials indispensable for wide-ranging industries. With vacuum technology at the heart of everything we do, we will continue to promote innovative, pioneering R&D capable of addressing actual and potential needs and create high-added-value products and technologies, thus contributing to the progress of society.

### Eight priority areas

—Toward affluent and safe lifestyles

We have designated eight priority areas for development. Furthermore, we are pursuing 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).

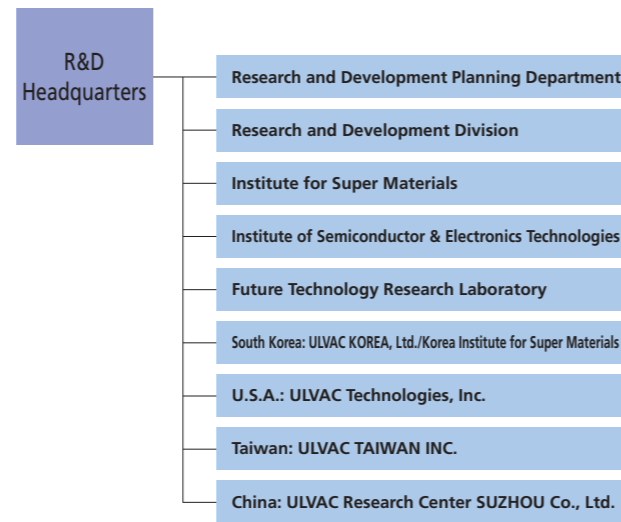


### R&D Organizations

ULVAC has a global R&D structure in place. Through integration of the Group's R&D organizations, we are accelerating R&D while endeavoring to create differentiated technologies by capitalizing on technological innovation and fusion of technologies.

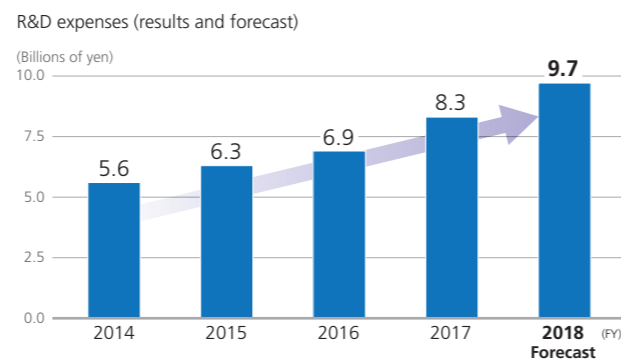
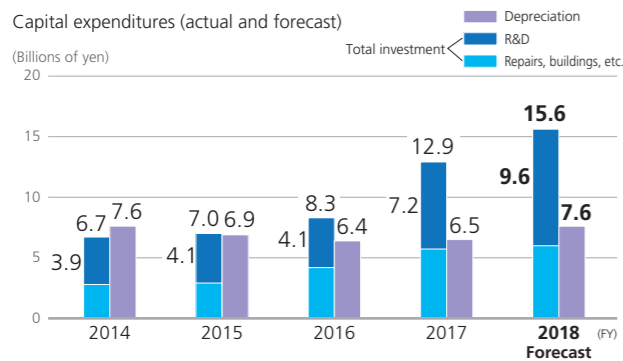
Furthermore, while conducting product development to ensure short- to medium-term profits through development and business operations in our designated priority areas, the Future Technology Research Laboratory is sowing the seeds for the long term, with a time horizon of 10 to 20 years.

ULVAC's R&D Structure (as of July 2018)



### Capital Expenditures and R&D Expenses (Actual and Forecast)

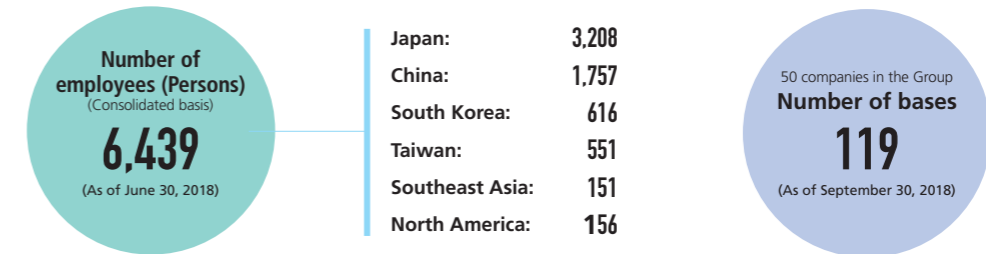
R&D investments (capital expenditures for R&D and R&D expenses) are expected to continue increasing. Active development is expected to lead to future growth, along with efforts in next-generation displays/ logic, next generation non-volatile memory.



## Global Network

### Sales & service networks offering solutions to support industrial development worldwide

Deploying the capabilities of the Group's 50 companies, we have established sales & service networks optimized for each region, such as Japan, the United States, Europe and Asia. Vacuum technology, one of the keys for many other cutting-edge technologies, will be increasingly required for a wide range of industries and growth fields in the future.

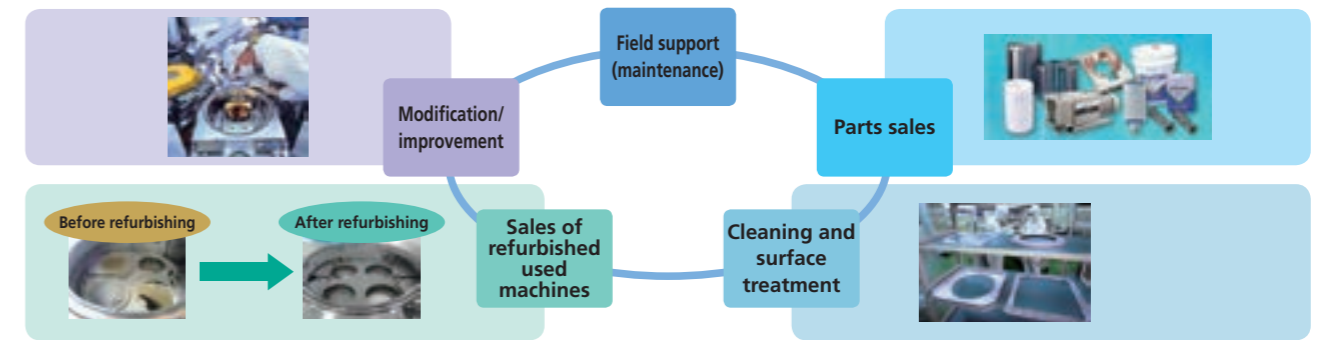


## Customer Support

### ULVAC CS Solutions pool the Group's knowledge

We are pursuing outstanding service by pooling the knowledge we have cultivated, including original technologies and service knowhow.

Our customer support network (71 bases in 14 countries) in Japan and around the world underpins our customers' production operations in a manner that meets their needs throughout the lifecycle. We offer comprehensive maintenance service covering components and make proposals for improvement and refurbishment covering customers' processes. Furthermore, by using information on customer needs as feedback for the development of new equipment, we aim to offer even more sophisticated vacuum technologies and service.



### Equipment maintenance service

Emphasizing close communication with our customers, we offer timely service.

- Global CIP (continuous improvement program) This service informs customers of effective usage techniques while also offering improvements in yield rate and productivity over many generations for the equipment they are already using.
- Factory outsourcing (FOS)

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

### Component maintenance

- 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 provide maintenance of 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 manufacturing of components.

### Analysis service

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

### Sale and purchase of pre-owned equipment

We sell, purchase, refurbish, relocate, import and export pre-owned products, ranging from components to production equipment.

### Training service

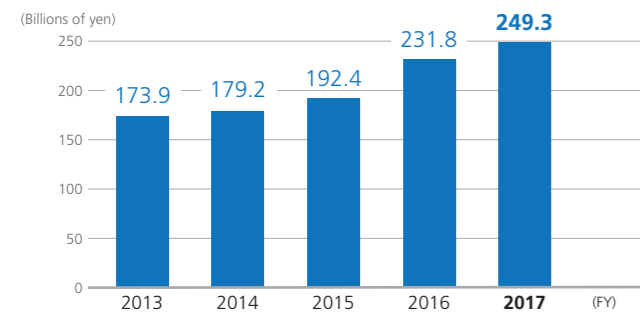
We provide training services for ULVAC products (equipment, vacuum pumps and components).



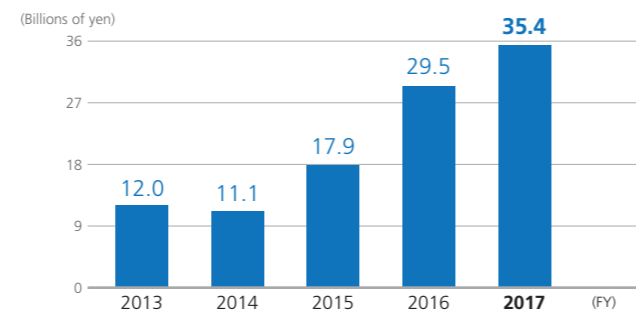
# Consolidated Financial and Non-financial Highlights

## Consolidated Financial Highlights

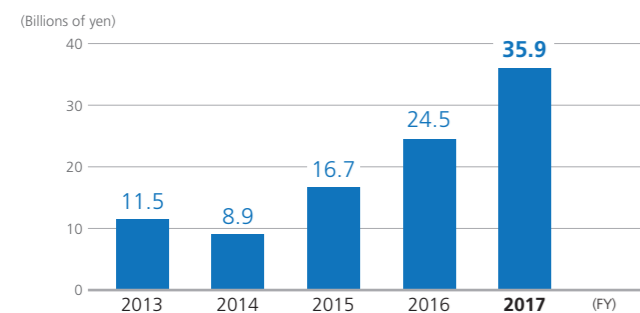
### Net sales



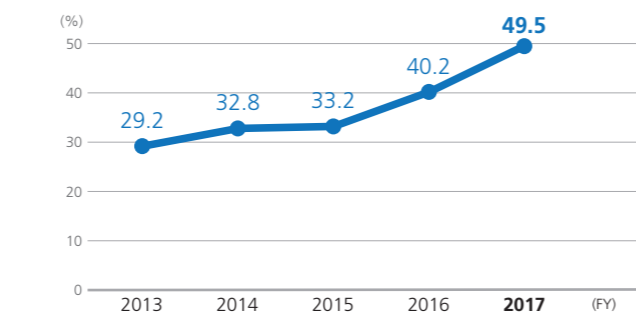
### Operating profit



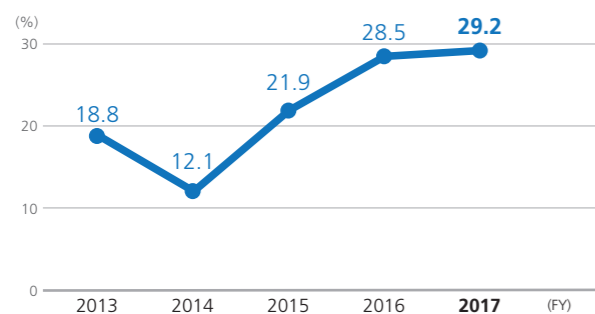
### Net income



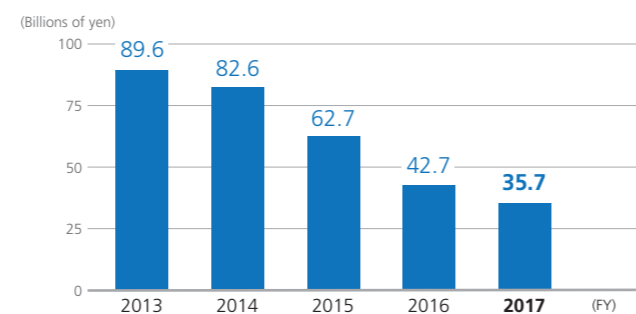
### Equity ratio



### ROE (Return on equity)

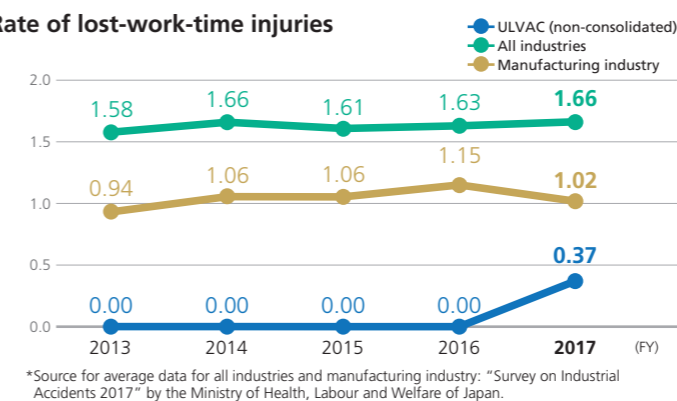


### Interest-bearing debt

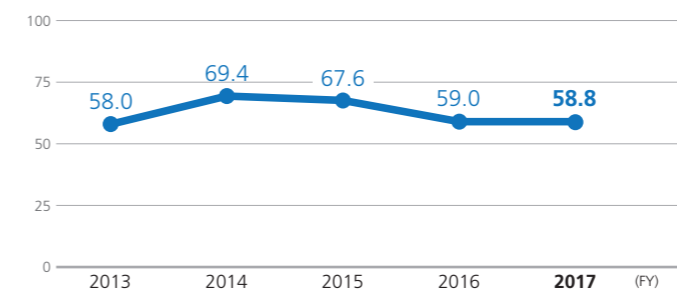


## Non-financial Highlights

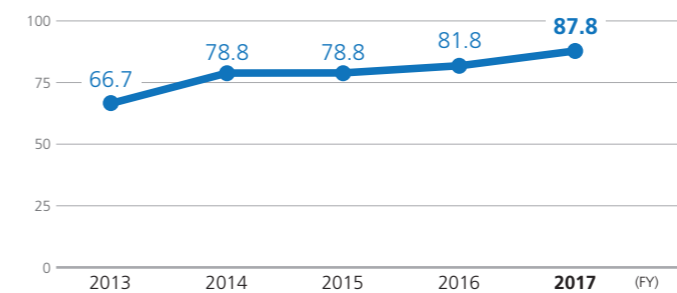
### Rate of lost-work-time injuries



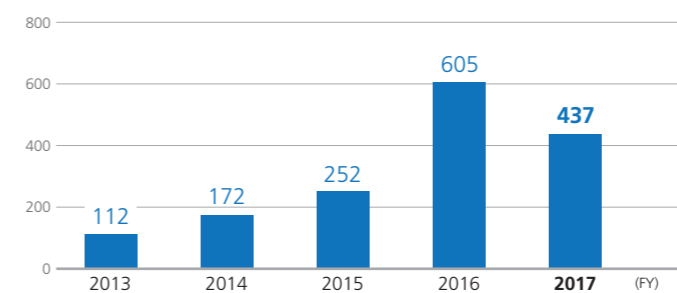
### Annual paid leave utilization rate (%)



### Localization ratio of presidents of overseas subsidiaries (%)



### Number of people participating in vacuum demonstration classes (Persons)



### Commitment to safety

According to a report by the Ministry of Health, Labour and Welfare, the number of workers who suffered fatal or occupational accidents causing four days or more lost work-days has stopped decreasing in recent years and is flatlining at around 110,000. Although the proportion accounted for by the manufacturing industry has been gradually decreasing, it still accounts for about a quarter, indicating the difficulty faced by the industry in its efforts to eliminate occupational accidents. It is in this context that ULVAC has been promoting various safety initiatives, including risk assessment, through the operation of the safety management system, which led to a lower rate of occupational accidents compared with the industry average. With "safety first" as the Group's principle, we will redouble our efforts to eliminate occupational accidents.

### Work-life balance

Measures are in place to encourage employees to take annual paid leave so they can deliver results with high productivity. The entitlement of ULVAC employees to annual paid leave begins on the day they join the company. The "spot-leave campaign" has proved effective in encouraging employees to take annual paid leave. The paid leave accumulation system enables employees to use unused, expired annual paid leave for the purpose of long-term hospitalization, nursing care, or childcare. Load levelling is an ongoing issue and we will consider measures in view of the diversity of workstyles and employee preferences.

### Training of next-generation executives as well as recruitment and promotion of global human resources

The ULVAC Group operates globally and comprises 119 bases. Convinced it is preferable to appoint people of the respective countries and regions to be in charge of management of overseas bases, we have been fostering and promoting local managers and have assigned local employees to important positions overseas. With a view to accelerating business promotion and in preparation for the next leap forward, our new mid-term management plan positions human resources development as a key element in strengthening the management base. We will continue training next-generation executives as well as cultivation and promotion of global human resources.

### Supporting education of the next generation and contributing to local communities

ULVAC holds vacuum demonstration classes and plant tours, mainly for local public institutions, such as elementary schools, and for people in local communities and shareholders. Adhering to the 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," we will support education of the next generation and contribute to local communities through vacuum demonstration classes and other initiatives.

# Consolidated Financial and Non-financial Highlights

## Financial Data

		FY2007 2008.6	FY2008 2009.6	FY2009 2010.6	FY2010 2011.6
	(Unit)				
<b>Key financial results</b>					
Net sales* <sup>1</sup>	Millions of yen	241,212	223,825	221,804	232,040
Operating profit (loss)	Millions of yen	9,081	3,483	4,809	1,850
Ordinary profit (loss)	Millions of yen	5,075	835	4,942	1,441
Net income (loss)* <sup>2</sup>	Millions of yen	3,610	811	2,138	(8,706)
Net assets	Millions of yen	91,853	90,158	102,504	92,023
Total assets	Millions of yen	303,069	318,076	313,784	313,616
Cash flows from operating activities	Millions of yen	32,068	(31,891)	44,312	17,730
Cash flows from investing activities	Millions of yen	(25,944)	(14,051)	(10,876)	(14,833)
Cash flows from financing activities	Millions of yen	(1,750)	51,325	(23,418)	2,159
Cash and cash equivalents at end of period	Millions of yen	16,977	21,827	29,721	35,722
<b>Key performance indicators</b>					
Net assets per share	Yen	2,052.48	1,961.08	1,992.06	1,787.51
Net income per share	Yen	84.16	18.90	46.60	(176.43)
Equity ratio	%	29.1	26.4	31.3	28.1
ROE (return on equity)* <sup>3</sup>	%	4.0	0.9	2.3	—
Ratio of ordinary profit to total assets* <sup>4</sup>	%	1.6	0.3	1.6	0.5
Price-earnings ratio* <sup>5</sup>	Times	44.68	146.79	37.34	—
<b>Other indicators</b>					
Capital expenditure	Billions of yen	23.4	19.6	11.1	17.8
R&D expenses	Billions of yen	8.6	8.3	8.0	8.3
Interest-bearing debt	Billions of yen	86.7	136.1	100.2	105.1
Dividends	Yen	21.0	21.0	21.0	—
Dividend payout ratio	%	25.0	111.1	45.1	—
Number of employees	Persons	6,356	6,871	7,169	7,878

## Notes:

1. Net sales do not include consumption taxes.

2. The Company applies the "Revised Accounting Standard for Business Combinations" (ASBJ Statement No. 21, September 13, 2013) and "net income attributable to owners of parent" is presented instead of "net income."

3. ROE (return on equity) figures for FY2010 to FY2012 are not presented because the Company recorded a net loss for these periods.

4. The ratio of ordinary profit to total assets for FY2011 is not presented because the Company recorded an ordinary loss for FY2011.

5. Price-earnings ratios for FY2010 to FY2012 are not presented because the Company recorded a net loss for these periods.

	FY2011 2012.6	FY2012 2013.6	FY2013 2014.6	FY2014 2015.6	FY2015 2016.6	FY2016 2017.6	FY2017 2018.6
Net sales* <sup>1</sup>	196,804	163,351	173,878	179,174	192,437	231,831	249,271
Operating profit (loss)	(6,384)	6,115	11,996	11,132	17,864	29,468	35,351
Ordinary profit (loss)	(6,497)	6,264	13,384	12,475	18,373	29,716	36,907
Net income (loss)* <sup>2</sup>	(49,984)	(3,807)	11,538	8,874	16,698	24,469	35,904
Net assets	41,187	59,436	72,238	84,928	78,032	104,917	154,069
Total assets	249,651	243,289	230,791	242,348	219,561	245,306	297,754
Cash flows from operating activities	(8,492)	22,357	32,213	21,992	23,708	37,818	19,086
Cash flows from investing activities	(11,328)	(4,506)	(3,023)	(4,055)	(5,593)	(13,713)	(1,564)
Cash flows from financing activities	12,616	(3,619)	(16,881)	(14,895)	(32,448)	(22,580)	(10,734)
Cash and cash equivalents at end of period	28,180	44,204	57,012	61,670	44,862	47,555	54,348
Net assets per share	751.00	806.38	1,040.23	1,398.66	1,477.29	2,002.90	2,994.12
Net income per share	(1,012.94)	(87.79)	223.18	172.73	338.37	496.35	728.68
Equity ratio	14.8	22.7	29.2	32.8	33.2	40.2	49.5
ROE (return on equity)* <sup>3</sup>	—	—	18.8	12.1	21.9	28.5	29.2
Ratio of ordinary profit to total assets* <sup>4</sup>	—	2.5	5.6	5.3	8.0	12.8	13.6
Price-earnings ratio* <sup>5</sup>	—	—	9.66	10.91	9.21	10.88	5.82
Capital expenditure	12.7	6.8	6.2	6.7	7.0	8.3	12.9
R&D expenses	7.1	5.0	5.2	5.6	6.3	6.9	8.3
Interest-bearing debt	120.2	106.1	89.6	82.6	62.7	42.7	35.7
Dividends	—	—	—	10.0	30.0	50.0	95.0
Dividend payout ratio	—	—	—	5.8	8.9	10.1	13.0
Number of employees	6,981	6,579	5,971	5,904	5,886	6,072	6,439

## Commitment of Top Management

Take up the challenge of creating value for the future by fostering human resources for the next round of corporate growth

### Setsuo Iwashita

President and Chief Executive Officer

#### Profile

March	1984	Joined the Company
August	1992	Manager of Beijing Business Office and Shanghai Business Office, Overseas Operation Division
September	1995	Director and Chief Executive Officer of ULVAC (NINGBO) CO., LTD.
July	1998	General Manager for Chinese Region, Asia Division of the Company
March	2006	Director and Chief Executive Officer of ULVAC (CHINA) HOLDING CO., LTD.
October	2006	Chairman of ULVAC (Shanghai) Trading Co., Ltd. Chairman of ULVAC (SUZHOU) Co., Ltd.
September	2011	Director of the Company
July	2012	Director and Executive Officer
September	2013	Managing Executive Officer
July	2015	Senior Managing Executive Officer Chairman of ULVAC (CHINA) HOLDING CO., LTD.
September	2016	Director and Senior Managing Executive Officer of the Company
July	2017	President and Chief Executive Officer (current position)

### Systems and mechanisms to reform employee mindset Promote every employee's personal growth by emphasizing "knowing the outside world and looking in from the outside"

#### ● At the start of my second year as president

Since taking the helm at ULVAC in July 2017, I have been endeavoring to strengthen the solidarity of the Group and to change the awareness of our employees to a globally oriented perspective, while remaining true to ULVAC's corporate DNA of leveraging its "human resources," upholding its corporate culture of boldly seeking out challenges and contributing to industrial and scientific advancement through the comprehensive utilization of vacuum technology. The priority in my first year as president was to lay a foundation for transformation of the corporate culture. Starting from fiscal 2018 (fiscal year ending June 30, 2019), I intend to speed up our reforms in an effort to cultivate new possibilities as a "comprehensive vacuum products manufacturer."

Although ULVAC is performing well at present, the drastic changes brought on by the wave of technological innovation and global competition have awakened a sense of urgency for the need to promote reforms that will ensure our survival. Although living in Japan tends to make us oblivious to our global situation, I have witnessed the rapid changes taking place with our customers and on the market through my experience at the overseas bases.

I believe that it is also essential to utilize this very perspective of being outside looking in to reaffirm our strengths and potential. Through the manufacture of semiconductor production equipment and electronic device production equipment, which promises growth in peripheral markets, in addition to the manufacture of the current mainstay FPD (Flat Panel Display) production equipment, we have been displaying growth potential in a broad range of fields amid the wave of technological innovation. Our operating base capable of generating stable revenues including such businesses as the components and materials businesses and the customer support business may be counted as one of our strengths.

Under the "Run at triple speed!", which is my policy, I intend to encourage our employees to speed up reforms while building "systems and mechanisms" to ensure that the entire ULVAC Group is growing and heading towards the same direction.

#### ● My challenges as president

My first challenge as president is to assess the value of ULVAC by "knowing the outside world and looking in from the outside" so as to envisage what ULVAC's configuration should be five to ten years ahead. In line with the progress of the smart society, embodied by IoT, the emergence of self-driving vehicles, and greater utilization of AI and robots, dramatic changes are taking place as technological innovation increasingly intensifies. As technologies become increasingly sophisticated and diversified, enhancement of ULVAC's corporate value hinges on our ability to come up with leading-edge technologies by deploying our R&D capabilities to maximum effect. Therefore, to fuel our progress as a comprehensive vacuum products manufacturer, we are reallocating resources and promoting optimization of the business portfolio and cultivation of new fields.

Our next challenge is to establish a system to maximize Group synergy to achieve global growth by aligning Group companies in a unified direction as mentioned earlier. We aim to put in place an efficient global management system capitalizing on specialization and regional characteristics, that is, the strengths of each Group company.

Moreover, we will promote alliances with external parties, including industry peers, to establish complementary relationships so as to realize manufacturing that meet the needs of the global market. As ULVAC operates worldwide, it will be essential to secure advantages and economies of scale through collaboration with external parties with the aim of expanding business attuned to the market in each region.

Furthermore, it is necessary to provide support for employees' personal growth. For ULVAC to survive in the global competitive environment, it is crucially important to encourage every employee to display his or her individuality to the full, as this will enable us to leverage the diversity of human resources for competitive advantage. From Group companies, we will select personnel with the potential to flourish in a global milieu, encourage them to gain wide-ranging managerial experience, and train them as next-generation executives. Meanwhile, for directors, senior executives and general managers, we have positioned the fostering of subordinates as the principal item in their performance evaluation. Moreover, each individual will cultivate the "perspective" required of his or her position and to share the "issues." The objective is to promote total optimization geared to growth based on "systems and mechanisms" designed to develop the capabilities ULVAC requires through assignment to managerial positions. My job is to take the lead in building "systems and mechanisms" where people are the most important resources and our future depends on them. By focusing on the development of human resources, we will establish a basis for sustainable growth.

## Commitment of Top Management

### Strengthen profit structure and financial strength through management reform targeting net sales of ¥300 billion and an operating profit margin of 16% in five years

#### ● Highest sales ever, record breaking profits for three consecutive terms

In fiscal 2017, the first year of the three-year mid-term management plan, orders received exceeded the previous fiscal year's level and we recorded our highest-ever net sales. Profitability also improved significantly, with all profit categories achieving record highs for three consecutive terms.

FPD and PV production equipment remained strong in terms of both orders received and sales, thanks to the continued high level of investment in LCDs for large-screen TVs and OLEDs for smartphones, centering on China. Meanwhile, regarding semiconductor and electronic device production equipment, there were significant increases in orders received for and sales of production equipment mainly for memory (NAND, DRAM, next-generation non-volatile), backed by buoyant demand for servers. Additionally, for components and materials, orders received and sales remained brisk. In terms of profits, the expansion of the semiconductor and electronic device production equipment business contributed to a substantial increase in profit.

As a result, for fiscal 2017, on a consolidated basis, orders received increased 3.2% year-on-year to ¥243.0 billion, net sales increased 7.5% to ¥249.3 billion, operating profit surged 20.0% to ¥35.4 billion, ordinary profit grew 24.2% to ¥36.9 billion, and net income surged 46.7% to ¥35.9 billion, reflecting the effects of recording deferred tax assets and gains from sales of stocks. The operating profit margin increased from 12.7% for the previous fiscal year to 14.2% and the equity ratio improved significantly from 40.2% to 49.5%.

In view of this financial performance, ULVAC paid an end-of-term dividend fiscal 2017 of ¥95 per share (an increase of ¥45 per share from the previous fiscal year).

#### ● Upward revisions to the targets of the mid-term management plan

The three-year mid-term management plan (from fiscal 2017 to fiscal 2019) had originally aimed for "net sales of ¥250 billion" and "operating profit of ¥35 billion" on a consolidated basis in the final year of the plan. However, given that in the initial year we are already nearing the target for netsales and we have already overshot the operating profit target, we revised upward our quantitative targets for the final year of the plan to "net sales of ¥265 billion" and "operating profit of ¥38 billion." No changes have been made to the framework of the plan in which the key strategies are "promotion of business

growth" and "enhancement of power to create value." In order to achieve the new quantitative targets, we will aim at further growth primarily in semiconductor and electronic device production equipment.

In addition, as for R&D investment (capital expenditures for R&D + R&D expenses), we will strengthen the development of logic and next-generation non-volatile memory, as part of efforts to aggressively expand the semiconductor and electronic device production equipment businesses, while proactively engaging in development that will lead to future growth.

Furthermore, as well as the revisions to the targets of the mid-term management plan, we have set "net sales of ¥300 billion" and "operating profit margin of 16%" on a consolidated basis as targets for the fiscal year ending June 30, 2023, five years from now, as outlined in our "growth strategy" for the next leap forward.

### Further enhancing corporate value by establishing a management base for sustainable growth through human resources development and enhancement of manufacturing capabilities

#### ● Multifaceted strengthening of the management base

ULVAC is implementing multifaceted initiatives to achieve more powerful business promotion capabilities and manufacturing capabilities so as to strengthen the management base. Regarding human resources, in addition to the training of next-generation executives mentioned above, we will emphasize education and training to strengthen global human resources and provide opportunities for personal growth through assignments to overseas posts and exchanges with external parties.

My first action on taking office as president was to call for cultivation of workplaces where every employee can work with vigor and enthusiasm while achieving personal growth. In this regard, initiatives to strengthen the unity of employees as well as vitalize and improve the efficiency of operations have taken root. At the same time, we are promoting workstyle reforms, advancement of women, and health management to ensure that every employee enjoys physical and mental health, is full of energy, and displays his or her full potential.

Meanwhile, regarding the manufacturing structure, we have secured a competitive edge in global business development by optimizing the location of development and production. In terms of product development, we have put in place a system such that our global development bases centering on Japan collaborate while development bases close to the customer precisely respond to the customer's exacting requirements. In terms of production, our plants in Japan, China, South Korea, and Taiwan, with their established local supply chains, collaborate with one another while taking advantage of their

proximity to customers.

Under this manufacturing structure, the Advanced Manufacturing Division at ULVAC Head Office is spearheading the Group's efforts to maintain and improve quality, secure occupational safety, protect the environment and will provide more guidance to plants overseas. These initiatives are indispensable for protecting the ULVAC brand, a vital element of our management base.

Marketing also has an important bearing on the strengthening of the management base. At ULVAC, the Global Market & Technology Strategy Division, which has specialized knowledge concerning advanced technologies, is playing the central role in identifying customer needs around the world in order to navigate markets toward the future and work on development that constitutes the base for the next round of growth.

#### ● Growth strategy going forward

Under the growth strategy based on the mid-term management plan, ULVAC will focus on the following themes.

Firstly, regarding semiconductor production equipment, we aim to achieve growth related to both memory and logic by vigorously tapping demand for logic, which is a new field for ULVAC, while responding to rising demand for memory, the existing strength of ULVAC. We will accelerate efforts to win orders while accumulating a track record in logic by providing production equipment for mass production.

Secondly, regarding electronic device production equipment, in order to catch the trend toward a smart society accelerated by the spread of 5G, we will capitalize on our flexible engineering capabilities while promoting joint development with customers.

Regarding FPD production equipment, in light of continuing long-term investment in the market, we will seek to maintain a high market share for G10.5 substrate-compatible FPD production equipment for large-screen TVs, while addressing needs for lower cost and higher definition. Also, in view of growing demand for OLED, we will strive to secure orders.

In the components and materials businesses and the customer support business, we aim to achieve further growth of these businesses as stable revenue bases, for which purpose we will take advantage of our ability to offer comprehensive solutions together with equipment.

In the China market, which is the main driver for growth of demand for FPD production equipment, semiconductor and electronic device production equipment, and components and materials, we will take advantage of the 15 ULVAC Group companies and their 1,757 employees (as of June 30, 2018) in China to realize further growth.

Based on the market prospects and the key measures outlined above, for fiscal 2018, the fiscal year ending June 30, 2019, we forecast net sales of ¥255.0 billion, up 2.3% year on year, operating profit of ¥36.5 billion, up 3.3%, ordinary profit of ¥37.5 billion, up 1.6%, and net income of ¥25.5 billion, down 29.0%.



The decrease in net income will be in reaction to the posting of deferred tax assets in the previous fiscal year, and the overall trend remains upward with higher sales and higher profit expected.

The year-end dividend for fiscal 2018 is expected to be ¥105 per share, an increase of ¥10 per share from fiscal 2017.

### Contributing to a sustainable society by offering solutions to social issues as a comprehensive vacuum products manufacturer

#### ● Strengthened recognition of sustainability and its practice

In recent years, global efforts are made with a view to developing a sustainable society, such as initiatives to achieve the United Nations' sustainable development goals (SDGs) and environmental, social, and governance (ESG) investment. Efforts by private-sector companies are also called for, as more and more companies are advocating the resolution of social issues through business activities as management themes and proactively working on solutions.

ULVAC recognizes its corporate social responsibility more than ever and is eager to contribute to the achievement of a sustainable society. The Group will make a concerted effort to resolve social issues through collaborative creation with stakeholders. We intend to further clarify materiality (important issues) as a group through the promotion of sustainability-oriented management from a medium- to long-term perspective.

Our products and services contribute to energy saving and the development of emerging countries. Going forward, we will create greater value by comprehensively utilizing vacuum technology, continue to be an enterprise valued by society, and grow together with our stakeholders.

# Revised Mid-term Management Plan and Growth

Whereas ULVAC's targets under the mid-term management plan announced in August 2017 were net sales of ¥250 billion and operating profit of ¥35 billion on a consolidated basis for the fiscal year ending June 30, 2020 (fiscal 2019), the final year of the plan, we made upward revisions to these targets for the final year in view of the strong financial performance in the fiscal year ended June 30, 2018 (fiscal 2017). Moreover, considering the growth strategies for the next round of growth, we target net sales of ¥300 billion and an operating profit margin of 16% on a consolidated basis for the fiscal year ending June 30, 2023 (fiscal 2022), five years from now.

**Market background**

Major turning point for technological innovation

- Establishment of a smart society, progress of 5G and IoT
- Progress of renewable and low-carbon energy systems, improvement of energy conversion efficiency

Opportunities to create new value

FY 2017

**Results for FY2017**

Net sales: **¥249.3** billion

Operating profit: **¥35.4** billion

Operating profit margin: **14.2** %

Strengthening of management base

- Human resources development → More powerful business promotion capabilities
- Deepening relationships and coordination within the Group → More powerful manufacturing capabilities
- Information platform development → Improve business judgments
- Financial strength improvement → Improve capabilities for growth investment

FY 2018

FY 2019

FY 2020

FY 2021

FY 2022

**Targets for FY2022**  
(Fiscal year ending June 30, 2023)

Net sales: **¥300** billion

Operating profit margin: **16** %

## Vision

- Highly profitable corporate management by comprehensively utilizing vacuum technology, maximizing synergy among equipment, materials, deposition processing, analysis & services, and cooperating with global business partners
- Human resources development for the next leap forward and a corporate culture that relishes challenges

**Update!**

**New targets for FY2019**  
(Fiscal year ending June 30, 2020)

Net sales: **¥265** billion  
Initial target: ¥250 billion (+¥15 billion)

Operating profit: **¥38** billion  
Initial target: ¥35 billion (+¥3 billion)

Key strategies

### Promotion of business growth

- Semiconductor production equipment business → Achieve growth in tandem with memory and logic
- Electronic device production equipment business → Achieve growth by seizing business opportunities brought about by technological innovation accelerated by 5G
- FPD and PV production equipment business → Respond to continuous long-term investments centering on large-screen TVs and OLEDs
- Components business, materials business, and customer support business → Achieve growth as stable revenue bases
- China market → Reinforce sales and production, achieve business growth

Feature

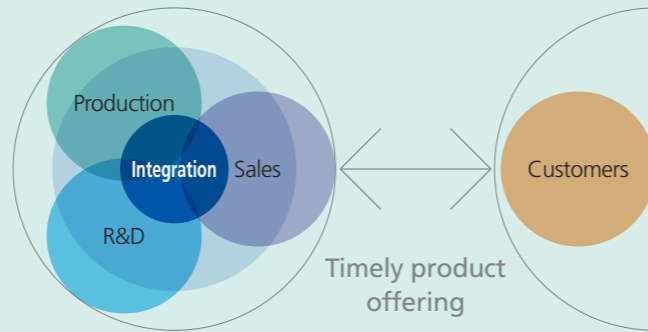
# To Maximize Global Synergy

ULVAC aims to equip itself with more powerful manufacturing capabilities by deepening relationships and coordination within the Group. Strengthening global development, sales and production systems will enable ULVAC to establish a base for sustainable growth supporting further expansion of the business.

## R&D

### Synergy with sales and production

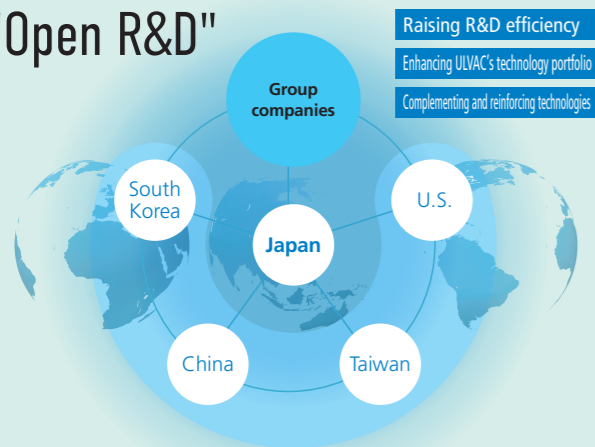
The critically important role of research & development operations consists of determining the direction of R&D in cutting-edge fields and accelerating R&D to enable timely product launches. In order to continuously increase sales and profit in the rapidly changing semiconductor and electronic devices field, we have to conduct advanced development of promising innovative technology at an early stage based on accurate analysis of customer needs and future market trends. Consequently, there is a growing need to integrate R&D with both sales and production departments so as to unleash synergy leading to the timely launch of products desired by customers.



### Open R&D to spur global R&D synergy

Along with the technological innovation of recent years, competition between device manufacturers, which are ULVAC's customers, has been intensifying. One consequence is the emergence of major players based in China, South Korea, and Taiwan. Device development by overseas manufacturers is a rapid process. Even for ULVAC, which derives around 70% of sales from outside Japan, it has become essential for its development structure to match the speed and urgency of the overseas device manufacturers in global business development. Accordingly, it is imperative that any local subsidiaries conducting R&D close to overseas customers promptly share the information gained with the rest of the ULVAC Group's R&D departments. In other words, they should engage in what we call "open R&D." To maximize synergy geared to global growth, we are pursuing initiatives to raise R&D efficiency, enhance ULVAC's technology portfolio, and complement and reinforce technologies.

## "Open R&D"



### Open innovation

In recent years, our customers, the device manufacturers, have been making increasingly sophisticated demands of us in terms of equipment quality and productivity. In response, ULVAC is sharing ideas with customers of products at an early stage of development with a view to collaborative development.

In fact, collaborative development with major device manufacturers and research institutes overseas is underway. In-house commercialization of products and technology devel-

oped internally is becoming ever more difficult in view of the need to accelerate development, while collaboration and integration with external human resources and technologies are becoming keys for success. Going forward, we intend to enhance synergy by prioritizing assignment of personnel from overseas Group companies to important positions, acquisition of talent and new technologies from outside the Group, and collaborative development with leading universities and customers.

# Synergy

## Sales

Sales & marketing operations focus on when and where innovative technology is developed, identify customer needs from various perspectives, and determine how best to deliver solutions to "end users," feeding back all this information to R&D and production operations so as to achieve synergy and enhance corporate value.

Moreover, by building a formidable sales & marketing foundation through strengthened collaboration among the

ULVAC Group's sales & marketing departments, we will pursue customer satisfaction while raising the productivity of sales & marketing. For this purpose, we intend to establish a new organization designed to facilitate and support collaboration among sales & marketing departments throughout ULVAC Group companies and promote a system for sharing sales & marketing information to support sales & marketing activities.



## Production

While ULVAC operates globally with production systems based on Japan, China, South Korea, and Taiwan, each production base has built its own supply chain. Going forward, we are promoting the initiatives described below to achieve growth of the Group as a whole.

### 1) Collaboration among production bases and improvement of production efficiency

We will pursue optimization of delivery dates and costs through dispersion of the workload and sharing of suppliers by visualizing production statuses of our principal production bases. Moreover, by deploying systems to support manufacturing and boosting production capacity by improving production efficiency, we will flexibly respond to rising demand for equipment in line with the progress toward a smart society.

### 2) Strengthening and standardization of quality management systems

Ideally, manufacturing operations should be a source of products of consistent quality regardless of which plant they are produced at. We will continue Group-wide implementation of Front Loading, which is an activity to build in quality from the initial phase by identifying all risks and implementing countermeasures in advance, such as technical reviews, simulations, and verification before receiving orders. We are also working to improve efficiency of

Front Loading itself. Furthermore, we will promote sharing of technologies, skills, experience, knowhow, and related information and data among sales & marketing, engineering, design, and manufacturing departments throughout the ULVAC Group and step up efforts to reflect all of this in the development and design processes.

### 3) Horizontal deployment of safety and environmental initiatives

Safety and environmental considerations are integral to manufacturing. Considering that safety and environmental criteria are aspects of production, we conduct stringent monitoring and review of these criteria. As well as implementing thorough measures to prevent accidents and trouble through information sharing and horizontal deployment of measures at production bases, we are pursuing sustainable manufacturing through efficient utilization of limited resources and energy saving realized by production technology.

Through the initiatives described above, we are pursuing closer global collaboration among production bases and having the production department engage in the projects of each business from an early stage, to further strengthen the Group's production systems.



### Major characteristics of principal production bases

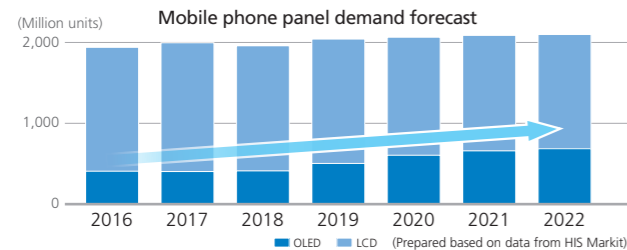
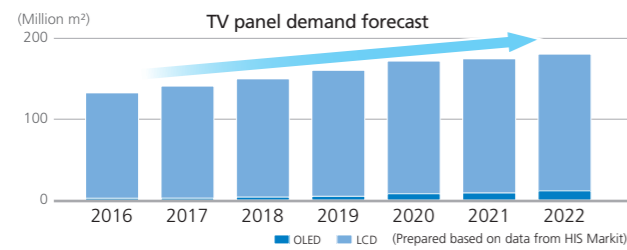
						
<b>Suzhou, China</b>	<b>Pyeongtaek, South Korea</b>	<b>Tainan, Taiwan</b>	<b>Head Office/Plant, Japan</b>	<b>Fuji-susono, Japan</b>	<b>Hachinohe, Japan</b>	<b>Kagoshima, Japan</b>
Supplies FPD production equipment and electronic device production equipment to the China market	Supplies FPD production equipment and semiconductor production equipment to the South Korean market	Supplies FPD production equipment and electronic device production equipment to the Taiwan market	Mother plant of the Group	Mother plant for semiconductor production equipment	Model plant for FPD production equipment, industrial equipment, materials, and production technologies	Model plant for FPD production equipment, electronic device production equipment, materials, and production systems

**Overwhelming market share for G10.5 sputtering equipment for LCDs for large-screen TVs  
Ready for next-generation equipment other than FPDs**

Regarding LCDs for large-screen TVs, device manufacturers rapidly expanded capital investment for G10.5 that is capable of producing multiple 65- or 75-inch panels from one substrate. Capitalizing on abundant experience accumulated in the TV market, ULVAC has secured an overwhelming share of this market segment by introducing sputtering equipment offering superior productivity ahead of competitors. We are also ready to enter the market for vacuum equipment for printed OLED TVs, which are promising next-generation large-screen TVs.

Although the market scale of the solar-cell field is not large business opportunities are emerging since a leading research institute in China demonstrated the performance of ULVAC's high-efficiency silicon heterojunction solar cell production equipment. Moreover, we secured orders for deposition roll coaters for high-performance capacitors required for electric vehicles (EVs), which constitute a promising growth market. In addition, with regard to large-capacity lithium-ion batteries, we have reached the trial manufacturing phase following vigorous basic R&D, a milestone pointing to business development from now on.

**FPD-related investment expected to continue over the long term**



**Advanced development of successor products attuned to customer needs, leading to greater market share**

Capital investment is in full swing in the FPD field. China has become the largest producer of LCDs for large-screen TVs and G10.5-compatible factories have come on stream. OLED TVs, which are gaining traction as premium large-screen TVs, promise to be a future growth engine in view of ongoing technological innovation. With regard to small and medium-sized displays, flexible displays adopting OLED are the key to further growth.

With differentiated proprietary technologies, such as low-particle large glass substrate transportation technology, ULVAC aims to expand its market share, including that in the OLED-TV market. Meanwhile, we are developing products for small and medium-sized displays with a view to reducing particles, which have a direct impact on yield.

Continued growth is expected for the solar-cell market until 2030, with high-efficiency solar cells showing particularly high growth. ULVAC is the only company with a track record in mass production of high-efficiency solar cells using silicon heterojunction solar cell production equipment. Aiming to set a de facto standard for high-efficiency solar cells, we will promote development of new products unmatched by competitors. We are also preparing our new deposition roll coater, which is capable of handling high functional films necessary for large-capacity lithium-ion batteries used in EVs, for market entry and business operation.

**Key Measures**

1. Further enhance quality and ensure reliable manufacturing
2. Strengthen systems responding to demand for next-generation displays and develop a global business structure
3. Cultivate high functional film and PV markets and develop successor products

**Conceivable Risks**

1. Rapid change in the trend of the FPD market (slowdown in the large-screen TV market in China, advent of alternative technology, etc.)
2. Delay in development of technically challenging technology

**Strategic growth by expanding customers in memory and entering the logic/foundry market**

Through vigorous investment in the memory market we received orders from both repeat customers, and newly acquired customers with new processes applications. Our progress is largely attributable to one of our key business strategies; cultivation of ever-stronger relationships with technology-initiative-partners. Additionally, we accomplished full-scale entry to the logic/foundry markets, a longstanding goal, and progressed in establishing these businesses as new growth drivers in accordance with our business strategy. Having started business with customers in China, one of the growing markets, we are poised for future growth of this business.

Atop of these gratifying accomplishments and progress, we are promoting initiatives to further reinforce the foundation for growth by strengthening sales & marketing, production, and customer support systems.

**Growing semiconductor equipment market share in the age of the smart society**

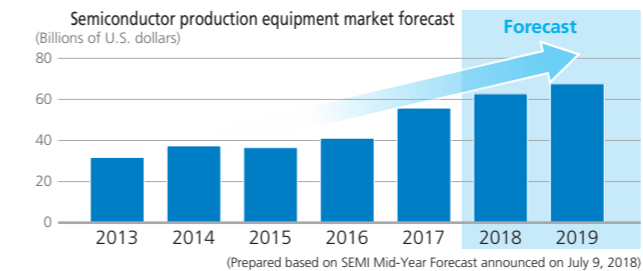
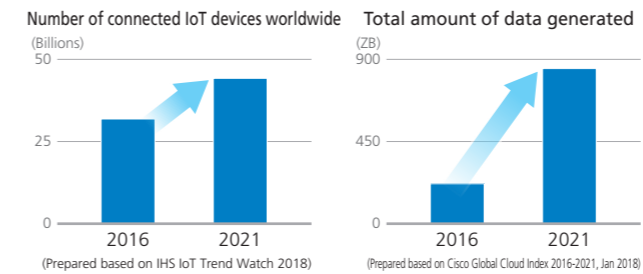
The requirements of semiconductor devices and related components are evolving to support the emergence of IoT's big data demand and servers for edge computing. Growth opportunities are increasing not only for traditional DRAM and NAND but also for storage-class memory. Miniaturization is fueling innovation in processor technology.

ULVAC intends to grow memory and logic/foundry business through these technical innovations.

We will focus on growth engine keywords: "Miniaturization Process Requirements", "Nonvolatile memory film formation", "Wafer level package deposition", and "Logic/Foundry miniaturization mass production support". Based on a business growth strategy unique to ULVAC, we will pursue business development different from other major competing equipment manufacturers.

As a medium-term strategic plan we are promoting the development of leading edge technologies that will leverage our strengths in native oxide removal and sputtering equipment.

**Semiconductor equipment market expansion due to the rising tide of IoT related data and soaring server demand.**



**Key Measures**

1. Achieve growth in memory and logic/foundry to double market share
2. Promote technology development and strengthen relationships with technology-initiative partners for strategic business development
3. Accelerate business development in the growing China market

**Conceivable Risks**

1. Delay in development of technically challenging technologies
2. Intensifying of competition
3. Growth speed of the China market
4. Growth rate of the leading-edge device market

**Further growth by strengthening the global business structure**

**Yasuo Shimizu**  
General Manager of FPD:PV Division

The quality enhancement initiatives launched five years ago have yielded good results and we have set in motion a virtuous cycle capable of securing profit. While maintaining these initiatives throughout the business unit, including Group companies, we will not only provide customers with superior products and technologies but also promote development and sales of successor products, thus expanding ULVAC's share of the market for FPD, PV and high functional films.



**For the semiconductor equipment operation to become the second pillar and achieve substantial global business expansion**

**Tomoyasu Kondo**  
Executive Officer, General Manager of Semiconductor Equipment Division

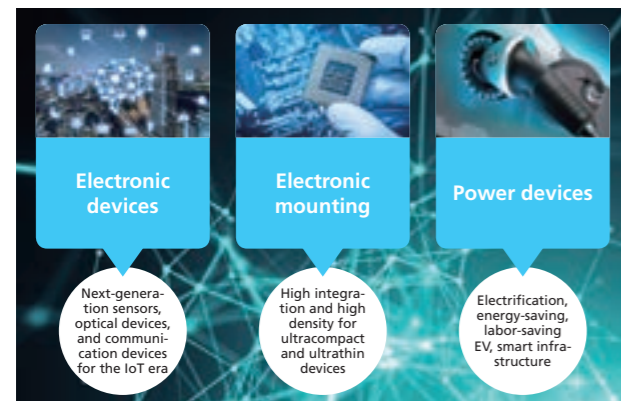
Our aim is to expand the semiconductor equipment operation as ULVAC's second pillar and achieve substantial global business development by continuing to ride a robust investment trend in the semiconductor market. To accomplish this, we will endeavor to seize business opportunities based on our growth strategy emphasizing responsiveness to customer needs and by earning customer confidence in ULVAC.



**Brisk business supported by the buoyant equipment market for electronic devices**

IoT-related demand is vigorous, such as equipment for communication devices, equipment for MEMS and other sensors, optical films for electronic devices, and microdisplays. The equipment market is booming, with the emergence of the supersmart society providing a tailwind. ULVAC began actively pursuing R&D in these fields several years ago and we are now receiving numerous inquiries. Viewing further growth of the electronic devices market fueled by the progress of IoT as a huge business opportunity, we aim to expand our business by following a cycle from development and installation of equipment through to identification of new needs. Amid brisk order-taking for equipment, responding to customers' requested delivery dates is an issue. We are working to establish a mechanism enabling us to seize opportunities without fail by flexibly responding to customers' requests, for example, by reviewing our approach to procurement.

**Priority fields**



**Expand equipment sales worldwide while further strengthening our presence in China, as well as in Europe and North America, to become a truly global enterprise**

With the advent of the supersmart society, needs for electronic devices that support IoT, such as communication,

sensing, and optical devices, are bound to further increase. Development of these devices is progressing concurrently around the world. The ongoing evolution of production equipment for them is predicated on the development of innovative new technologies and improvement of existing technologies.

In Europe and North America, where many new devices are developed, ULVAC is strengthening the customer support system and technical proposal capabilities through collaboration among Group companies with the aim of vigorously cultivating new customers.

Furthermore, we are cultivating collaborative relationships with customers to develop new equipment that promises a strong presence in the market.

On the other hand, in Asia where many of our customers have production bases, we will focus on enhancing customer satisfaction by leveraging the Group's well-established production and service bases in addition to our delivery track record so far. Through these initiatives, we aim to expand business globally in order to increase the presence of ULVAC in the electronic device field which supports the supersmart society.

Key Measures
1. Further expand global business development in Asia as well as in Europe and North America
2. Continue development of cutting-edge technologies for the supersmart society
3. Build partnerships with customers by leveraging Group capabilities
4. Win more orders by vigorously tackling new projects (related to optical films and microdisplays)
Conceivable Risks
1. Delay in the takeoff of fields that are expected to be sources of new demand
2. Delay in business development in China, Europe and North America
3. Slowdown in the Japanese market
4. Longer manufacturing lead times for equipment attributable to difficulties in parts procurement

**Offering solutions for higher-value-added products of superior quality based on a sure grasp of customer needs across the full spectrum of industries**

Industrial equipment constitutes the infrastructure of high-tech industry. ULVAC supports customers' innovation by combining vacuum technology with fundamental technologies, such as heat treatment of parts to increase hardness and luster, melting for development and production of high-performance materials, brazing for bonding different kinds of materials, and drying and distillation to increase purity and preservability.

In order to respond to customers' global business development, we are implementing measures to maximize synergy among our bases, thereby capitalizing on ULVAC's comprehensive capabilities. In fiscal 2017, both orders received and net sales of industrial equipment exceeded those for the previous fiscal year, led by vacuum heat treatment furnaces for the production of automotive components and leak testers.

**Contributing to the full spectrum of industries**

The industrial equipment business is contributing to the full spectrum of industries.



**Application of existing technologies to cultivate growth markets and pioneer new markets**

Regarding systems employed in the manufacture of the rare-earth magnets widely used in wind turbines, electric vehicles, and mobile phones, we will meet customer needs for higher performance by optimizing hydrogen furnaces, pulverizers, and SC melting furnaces.

In the automotive components field, we anticipate growing demand associated with the development of heat exchangers for exhaust gas recirculation (EGR) coolers used in internal combustion engines and heat exchangers for electronic parts cooling in EVs. We intend to secure our market share for vacuum brazing furnaces, which are ULVAC's forte.

In the pharmaceuticals field, investment in generic drugs is booming. This is creating opportunities for ULVAC to display its strengths in freeze-drying equipment and high-precision transportation mechanisms.

New applications of ULVAC's unique Micro Powder Dry technology for producing porous powder include blood plasma preparation, ceramic capacitors, and new materials.

In the food field, distinctive drying technologies, such as superheated steam drying and puffed freeze drying, have made it possible to preserve and commercialize foodstuffs that were previously disposed of as waste. We aim to offer solutions to alleviate food shortages and food losses worldwide.

Key Measures
1. Swiftly identify customer needs and market needs and develop new processes
2. Resolve social issues through business
3. Further strengthen supply chains
4. Strengthen collaboration among production bases and Group companies to achieve integrated operation
Conceivable Risks
1. Progress of commoditization and intensifying price competition
2. Delay in the takeoff of projects for products to be introduced in new markets

Advent of the supersmart society  
Further expand global business development of equipment for electronic devices

Tetsuya Shimada  
Executive Officer, General Manager of Advanced Electronics Equipment Division

Sensors are the key electronic devices for the IoT era and trillions of them will eventually be required. Furthermore, electronic devices are indispensable for next-generation communication technology, including 5G.

ULVAC will vigorously promote substantial global business development with the aim of achieving further growth in the globally expanding electronic devices market.



Contributing to industries and society with vacuum technology involving thermal application

Hisanao Kusaba  
General Manager of Industrial Equipment Division

The Industrial Equipment Division offers vacuum technology solutions involving thermal application. We are developing the equipment customers require in order to create higher-value-added products of superior quality. Our solutions contribute to the full spectrum of industries and cover such processes as vacuum heat treatment and brazing of internal combustion engine parts, vacuum melting of magnetic materials, vacuum freeze drying of pharmaceuticals, high-purity refining of vitamin E, eicosapentaenoic acid (EPA), and docosahexaenoic acid (DHA) using vacuum distillation, and special vacuum drying of food without spoiling the taste.





### Achieve further growth through Group synergy

Vacuum components (vacuum pumps, vacuum gauges, vacuum valves, vacuum leak testers, gas analyzers, power generators for deposition processes, etc.) are used in many industries. In fiscal 2017, supported by robust markets for FPD panels, semiconductors, electronic devices, and automobiles, we achieved sales targets in all categories (pumps, measurement equipment, mechatronics, and power generators for deposition processes). In particular, centering on Asia, we expanded the scale of business of power generators for deposition processes by enriching the product lineup.

The vacuum pump business is conducted by ULVAC CRYOGENICS, which is a manufacturer specializing in cryopumps and cryocoolers, and ULVAC KIKO, which handles compact vacuum pumps, as well as ULVAC, Inc. In order to achieve growth in the global market, we aim to enhance the efficiency of production and sales through synergy among ULVAC Group companies in Japan and overseas involved in the components business and expand collaboration with business partners.

### Components

Components essential for vacuum equipment. ULVAC supplies vacuum pumps, vacuum gauges, vacuum valves, vacuum leak testers, gas analyzers, power generators for deposition processes, etc. to vacuum equipment manufacturers, machinery manufacturers, etc.

#### Application examples

<b>Applications for OLED production equipment</b> <p>Dry pumps Cryopumps Film deposition controllers Vacuum valves</p>	<b>Vacuum measurement</b> <p>Helium leak detectors Vacuum gauges Gas analyzers</p>	<b>Advanced research, medical, etc.</b> <p>4K cryocoolers for cooling superconductive magnets Liquid nitrogen generators</p>
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Regarding product development, we released products attuned to market needs that offer both superior productivity and energy saving, including the new LS series of dry pumps (for details, please refer to Page 47). We will step up development of products offering higher productivity and environmental friendliness.

### Reaching out from Japan to China, Europe and North America in pursuit of global business development

The vacuum components business is already borderless. The rapidly expanding semiconductor and display production equipment market in China is a huge business opportunity for components manufacturers. Tackling this market inevitably involves competing against powerful European and American manufacturers. In order to prevail, we are strengthening our global marketing structure and establishing systems for developing products attuned to market needs. Moreover, we seek to enhance the value of the ULVAC brand by pursuing business development, including enrichment of the lineup through alliances.

By offering the optimum products for various fields, including analysis, medicine, and food, we will cultivate vacuum applications and promote expansion of the cryocooler business.

Key Measures	
1. Establish an R&D structure attuned to market needs	3. Expand vacuum applications (general industries) and the refrigerator business (advanced technology, etc.)
2. Reform the operational system of the components business	
Conceivable Risks	
1. Stronger competitors expanding business through M&A	2. Intensifying price competition, market entry by low-cost manufacturers

### Become a pillar of ULVAC's global business with an extensive product lineup

Vacuum technology is essential for diverse industries. As a comprehensive manufacturer of vacuum components supporting the industrial infrastructure, we offer an extensive lineup of vacuum pumps, measurement equipment, and power generators for deposition processes. Whereas previously expectations of the components business were largely limited to ensuring the reliability of components so as to enhance the competitiveness of equipment businesses, from now on, through the enhancement of our global competitiveness, we aim to become a pillar of ULVAC's global business.

**Ju Hoon Shin**  
General Manager of Components Division



### Steady business expansion

In fiscal 2017, sales of LCD materials in China greatly increased and sales of semiconductor materials were also robust. Moreover, for high-performance superconductive materials, we were able to establish a track record overseas and are laying the foundation for future business expansion.

### Materials business

The materials business centers on target materials used in sputtering, which is the mainstream method of vacuum deposition, and also includes development and manufacturing of functional materials.

 Sputtering equipment for large-screen TV manufacturing Sputtering target	 Sputtering equipment for semiconductor manufacturing Sputtering target	 Acceleration cavity for high-performance accelerators (use of high-purity Nb materials)
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### Such a great opportunity comes only once in decades

Technological innovation, with IoT, 5G communication, and AI to the fore, has brought us to the threshold of the smart society. One consequence of this trend is that new high-performance materials are coming into their own in the semiconductor, cutting-edge electronic device, and the display field. They are destined to eventually supersede traditional materials. With a view to facilitating the emergence of the smart society, we are developing new materials required in this expanding application field in cooperation with ULVAC's equipment divisions and research institutes and together with our customers.

Key Measures	
1. Capture the demand from increasing equipment operation in China	3. Provide support for high-tech applications besides the deposition process (develop high-performance materials)
2. Meet the increasingly sophisticated demand associated with FPD and semiconductor production processes	4. Enhance production capacity in Japan and overseas
Conceivable Risks	
1. Stably securing raw materials suppliers in view of increasing demand	2. Price competition in the promising China market
3. Investment for growth and recoupment	

### Be a pioneer in offering excellent materials to the market

Sputtering equipment, ULVAC's mainstay products, requires target materials as a source for deposition substances. We are endeavoring to develop products such as target materials endowed with functions required in the emerging smart society, power-generation markets, and corrosion-resistant, superconductive high-performance materials, in cooperation with the equipment divisions and research institutes. Moreover, we aim to be first-to-market so that our customers can be the first to enjoy their benefits.

**Seigou Kinugawa**  
General Manager of Materials Division



## Others

### Semiconductor mask blanks market

We will respond effectively to increasing needs for miniaturization and higher definition in line with the expansion of the application field and the proliferation of types, reflecting the improved performance of smartphones, development of self-driving vehicles, and the ramp-up of demand related to IoT and artificial intelligence (AI).

### Surface analyzer market

Whereas university and company laboratories were previously the principal users of surface analyzers, this equipment is increasingly used nowadays for routine purposes such as product inspection. Surface analyzers are being applied to more materials in more regions and markets throughout the world. ULVAC will continue offering surface analyzers with functions attuned to customer needs.

# Management Structure



## Directors and Auditors

Isao Utsunomiya <b>14</b> External Auditor	Senshu Asada <b>13</b> External Auditor	Mitsuru Yahagi <b>12</b> Auditor	Makoto Ito <b>11</b> Auditor	Akira Mihayashi <b>7</b> External Director	Norio Uchida <b>8</b> External Director	Dr. Kozo Ishida <b>9</b> External Director	Yoshimi Nakajima <b>10</b> External Director
Shigemitsu Sato <b>5</b> Director and Managing Executive Officer General Manager of Advanced Manufacturing Division	Hisaharu Obinata <b>3</b> Director and Senior Adviser	Setsuo Iwashita <b>1</b> President and Chief Executive Officer	Mitsuru Motoyoshi <b>2</b> Director and Executive Vice President	Dr. Choong Ryul Paik <b>4</b> Director and Managing Executive Officer General Manager of R&D Headquarters	Masahiko Ishiguro <b>6</b> Director and Managing Executive Officer General Manager of Corporate Sales & Marketing Division		

# Corporate Governance

In accordance with its 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," we work to ensure thorough corporate governance in order to increase corporate value over the medium to long term. From this perspective, we respect the interests not only of shareholders, but also of business partners, local communities, employees, and other stakeholders that are related to our business activities. We also value competitive and efficient operation, while ensuring strict compliance with laws and corporate ethics.

ULVAC has adopted a company with a board of corporate auditors as its management structure. Particularly important institutional structures include the Board of Directors, the Board of Standing Directors and Executive Officers, the Board of Corporate Auditors, and the Committee for Appointment and Remuneration, etc.

Firstly, ULVAC has a Board of Directors, which is a decision-making body for important management issues. The Board holds regular meetings once a month, as well as ad hoc meetings as necessary to ensure flexibility. The Board of Directors comprises 10 members, of whom four are external directors. Three of the external directors are designated as independent external directors. By virtue of 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 supervision.

Next, with the introduction of an executive officer system, executive officers exercise executive functions, having been granted a certain amount of responsibility and authority over their designated areas, through delegation by the Board of Directors. ULVAC also has a Board of Executive Officers that comprises a total of 16 internal directors and executive officers. The Board of Executive Officers holds regular meetings once a month, as well as ad hoc meetings as necessary. By virtue of this structure, we have achieved more flexible and swifter 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.

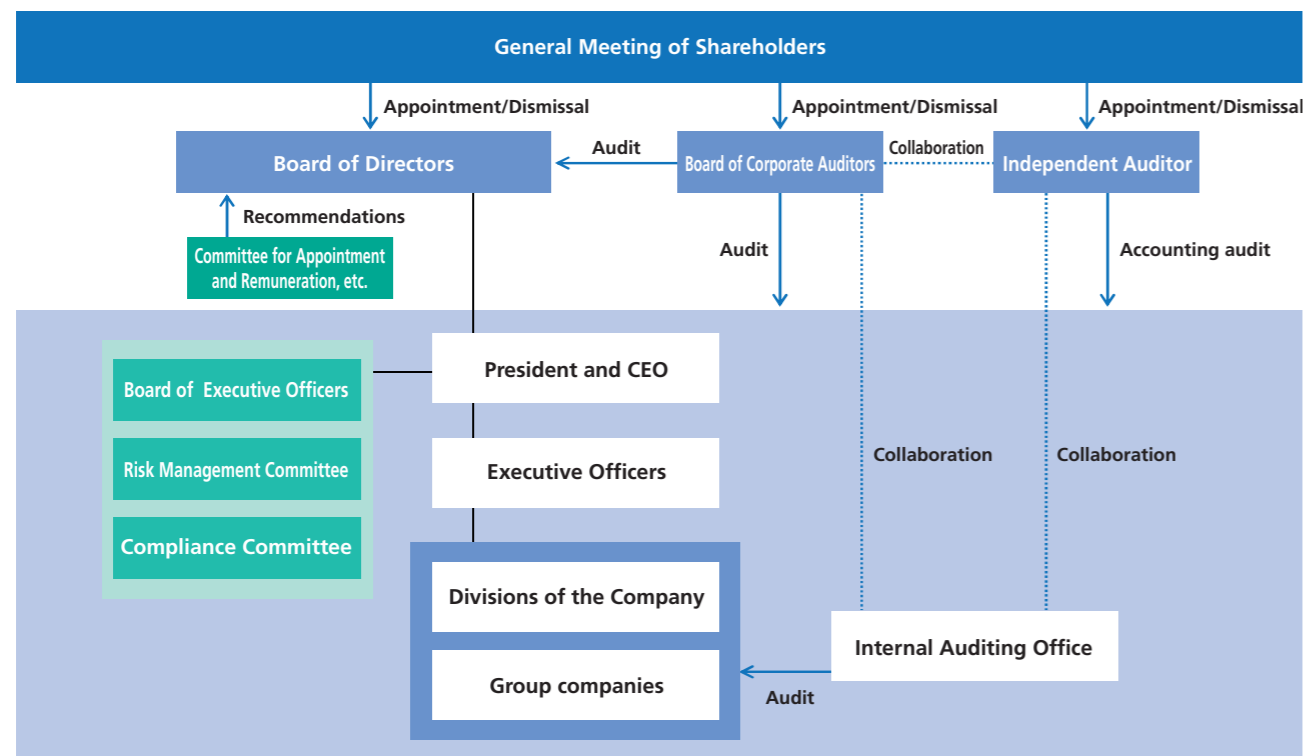
In addition, ULVAC has a Board of Corporate Auditors, which performs auditing and supervision of management decision-making and business operations. The Board of Corporate Auditors comprises four members, of whom two are external auditors. Both of the external auditors are designated as independent external auditors. We ensure full auditing and supervisory functions through close links between auditors and the Internal Auditing Office and the independent

auditor, whose independence is ensured, as well as through attendance and comments by auditors at important meetings, such as meetings of the Board of Directors and the Board of Standing Directors and Executive Officers, and through regular meetings between the Internal Auditing Office and the President, etc. By virtue of this structure, we have achieved rigorous, fair, impartial, and transparent auditing and supervisory functions, ensuring that each auditor obtains sufficient information.

Furthermore, 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 seven members, of whom five are independent external directors or independent external auditors. Of the remaining two members, one 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.

Corporate Governance Structure (As of September 30, 2018)



## Topics

### Holding a meeting of ULVAC's Board of Directors at a subsidiary in China and conducting a business tour

In June 2018, a meeting of the Board of Directors of ULVAC, Inc. was held at ULVAC (SUZHOU) Co., Ltd., a subsidiary in China whose growth is expected to continue. This was the first time ULVAC held its Board of Directors meeting overseas. In addition to a plant tour, exchanges with management of Group companies and joint venture partners in China were a great opportunity for ULVAC directors to deepen their understanding of ULVAC's business development in China while familiarizing themselves with Chinese culture.



## Message from an External Director

### ULVAC's management and operation of the Board of Directors

Norio Uchida  
External Director



**For ULVAC to become a leading global enterprise**  
ULVAC needs to make efforts to further enhance corporate value by strengthening not only technological capabilities and manufacturing innovation but also global competitiveness and entry to new business fields. At the same time, it is essential to enhance the effectiveness of governance by the Board of Directors.

**My role**  
Utilizing the knowledge I have accumulated in the course of my career, I will supervise management in terms of business orientation and risk management from an objective stance as an independent officer.

My guiding principles are to act swiftly, share information, and ensure corporate governance and compliance. With the aim of further enhancing the effectiveness of governance, I am committed to taking actions and making decisions that are in the interest of our stakeholders and will meet with their approval.

**My expectations regarding ULVAC's sustainable growth**  
With a view to enhancing corporate value and achieving sustainable growth so as to become a leading global enterprise, human resources development is the top priority. I think it is important to develop excellent personnel with a

global perspective who are well versed in the liberal arts, can adapt to conditions around the world, are decisive when they encounter issues involving contradictions, can envisage various scenarios, are sensitive to risk, and can exercise leadership.

Secondly, it is vital to strengthen technological capabilities. You can't create a world's first without imagination and sensitivity, and you can't create the best in the world without innovation. So it will be necessary to further globalize R&D and seek cooperation with other companies and external human resources that transcends the conventional framework.

Thirdly, it is important to strengthen global information capabilities. I would like to see business management accelerated by enhancing the quality of operations to a global standard and through information sharing.

Finally, I would like to see ULVAC's group-wide initiatives for sustainable management flourish as such initiatives have an increasingly powerful impact on corporate value.

I will do my utmost to contribute to the success of ULVAC's ongoing efforts to achieve sustainable growth, enhance corporate value, and become a leading global enterprise.

# Compliance

The ULVAC Group views compliance as a vitally important issue. In addition to conducting awareness-raising 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 thorough compliance.

## Establishment of Corporate Code of Conduct

The ULVAC Group has established a Corporate Code of Conduct comprising 18 items, conducted education, and distributed booklets to inculcate a culture of compliance, in order to ensure that the execution of the duties of officers and employees is compliant with laws and regulations and internal rules, and that we fulfill our corporate social responsibility.



## Compliance Education

ULVAC is working to create a culture of compliance through awareness-raising activities. As part of this effort, we are providing opportunities for regular and ad hoc education and training.



## Whistleblowing System

ULVAC has adopted a whistleblowing system operated through the Internal Auditing Office, which is an independent body. The Internal Auditing Office also serves as the secretariat 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 such case, the report shall also be handled appropriately.

Individuals making reports are not treated unfavorably in any way. Reports can also be submitted

anonymously.

After a whistleblower report has been received, the initial response is for the Compliance Committee to conduct an investigation in order to establish 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 necessary may be conducted and analyzed.

The president chairs the Compliance Committee and the members of the Committee observe a strict duty of confidentiality in carrying out their duties.

## Handling of Violations

In the event that, based on the results of an investigation by the Compliance Committee, it is deemed that a violation of laws or regulations has been committed, then the opinion of an external expert, such as a lawyer, may be sought as necessary, steps will be taken to ensure that the violation ceases with

immediate effect and improvement measures will be implemented, and those involved in the violation will be dealt with after deliberation by the appropriate bodies. In addition, the root causes of the violation are also investigated in order to formulate effective measures for preventing recurrence.

# Risk Management

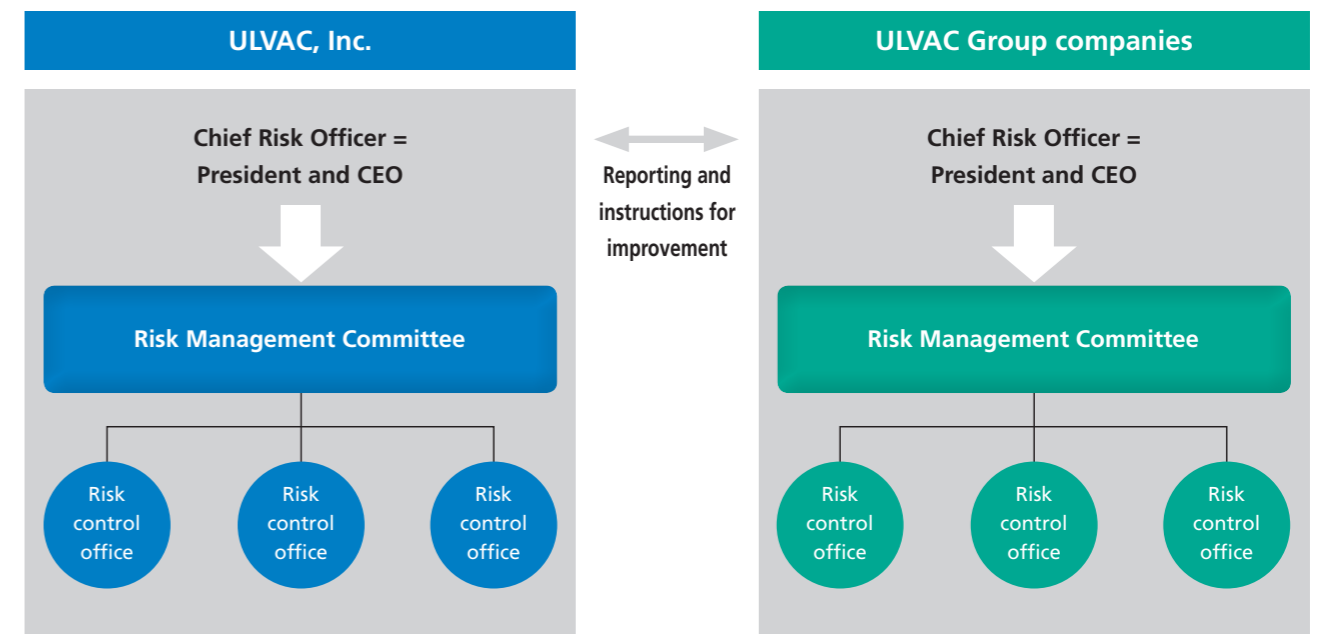
The ULVAC Group considers that responding appropriately to increasingly complex and diverse risk factors leads to the creation of governance structures that contribute to the fulfillment of legal requirements and the creation of internal control structures, and by extension, the medium- to long-term 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

In regard to risk management initiatives, ULVAC has established rules concerning its risk management system, classifying a broad range of risks from various perspectives, and designated the control offices primarily responsible for risk management according to the classification of risks. Furthermore, these risk control offices identify more specific risks and respond to them. We work to ensure that these offices efficiently gather important information in operating the risk management system. 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 representatives of the risk control offices with primary responsibility for risk management. The Risk Management Committee holds regular twice-yearly meetings as an umbrella organization for risk management, and it determines company-wide basic policies, 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



- Risk control offices are designated according to risk classifications and they implement risk management through a PDCA cycle.
- Each Group company decides whether it is necessary to establish a Risk Management Committee in consideration of the size of the company in question and other factors.

# Quality Assurance and Product Safety

The ULVAC Group is engaging in initiatives worldwide to meet customer expectations for high-level, safe ULVAC quality through assurance activities centered on Front Loading.\*1

## ULVAC Group Quality Policy

"Product quality assurance strengthens our customers' confidence in ULVAC."

- The ULVAC group is committed to promote ULVAC quality through front-loading in all business processes including development, sales, production and service and through offering products and services which include needs from all parts of the world.
- Each employee within the ULVAC group strives to ensure that their personal efforts contribute to the creation of value necessary to maintain the customer as an everlasting partner.

## Global Integrated Certification for ISO 9001 and ISO 14001

As of the end of December 2017, 38 ULVAC Group companies had completed integrated certification for the 2015 versions of ISO quality and environmental management systems. We have aligned quality policies groupwide and put in place a framework for addressing quality issues and deploying improvements globally.

## Quality Management System

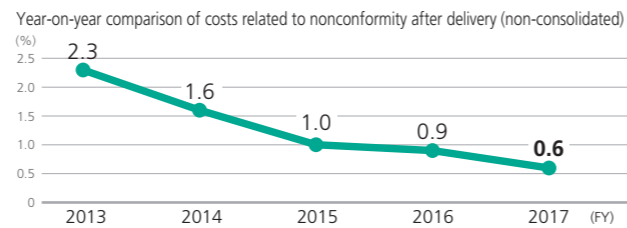


Under this system, the Group will further promote Front Loading, operation of integrated Group regulations, coordination of internal auditing, and common qualification schemes (qualified quality inspectors and safety assessors\*2) and work to further improve quality through groupwide quality system operation.

## Quality Improvement through Front Loading

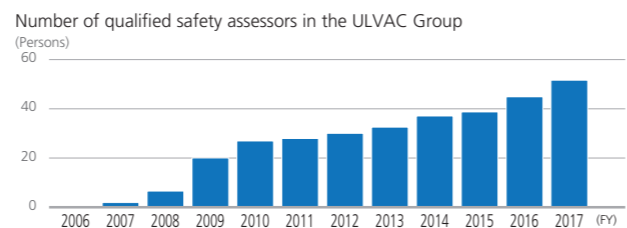
The Group promotes quality creation by implementing Front Loading in all business processes. At ULVAC, the term Front Loading refers to activities to ensure that nonconformities do not occur in the subsequent processes. Front Loading involves identifying all risks and considering countermeasures before starting

work by performing technical reviews, simulations, verification, and other tasks before receipt of orders. In fiscal 2017, Front Loading again contributed substantially to preventing nonconformities, improving quality, and increasing profits.



## Product Safety Activities

To deliver safe and secure ULVAC brand products to markets around the world, qualified safety assessors play a leading role in product safety assessments and continuously engage in activities to verify the required safety and quality at the drawing release and product shipment phases. In recent years, we have conducted group training and personnel exchanges at various locations, in addition to periodic exchanges of information, for the purpose of constructing independent verification systems at the overseas production bases in step with expansion of production in the Asia region. In addition, foreign national qualified safety assessors belonging to overseas production bases have begun to actively contribute to product safety. We intend to continue to promote integrated Group product safety activities and link them to increases in customer satisfaction.



\*1 "Front Loading" ordinarily refers to arranging or planning so that a large portion of work occurs in the initial phase. At ULVAC, it is an activity to create quality by identifying issues as soon as possible.

\*2 Safety Assessor (SA) Qualification is a qualification scheme based on third-party certification of machine safety knowledge and competence under international safety standards.

# Procurement

Suppliers are important partners that support MONODZUKURI. The ULVAC Group promotes communication with suppliers, values cooperative frameworks, and engages in initiatives to build relationships of trust.

## Procurement Policy

To conduct procurement activities in keeping with the Basic Corporate Philosophy and Management Policies, ULVAC has established, observes, and promotes the Basic Procurement Policy.



## Global Production Bases Capable of Responding to the Shift to Larger Products and Mass Production

To respond to a shift to mass production of semiconductor production equipment for logic and a shift to larger equipment, such as FPD production equipment for G10.5 and OLED, our Japanese production bases in the Kyushu and Tohoku regions and overseas bases in China, South Korea, and Taiwan are continuing activities to build supply chains in their vicinity of the same level and quality as that of the ULVAC head office. In this way, by having the production bases take the lead in implementing local and optimal procurement, we aim to utilize the advantage of customer proximity in order to engage in global production at appropriate locations that flexibly responds to market conditions.

## Communication with Suppliers

ULVAC holds supplier meetings three times a year to communicate production plans from the divisions in a timely manner and operations briefing meetings once a year as a forum for ULVAC management to directly explain to suppliers the business environment and prospects. To share policies and deepen relationships of trust with our suppliers, we take care to meticulously respond to their needs. For instance, we provide information for each business segment that incorporates delivery dates for procurement items based on the status of trade inquiries.

We also communicate our requirements for suppliers with respect to the environment, human rights, labor, compliance and other procurement-related matters to fulfill our social responsibilities not only within the Group but also throughout the supply chain.

➔ For details, please see:

<https://www.ulvac.co.jp/company/purchase/purchase2/>

## Supply Chain Management

### Supply Chain Management (SCM) Innovation at ULVAC

In the current era of globalized production, accuracy of information on lead times, cost, and required specifications for materials and parts procurement is crucially important. If we do not introduce the right quantities of materials into production processes at the right times, goods will pile up in the supply chain, inconveniencing suppliers. To avoid this, we must further develop procurement mechanisms that utilize IT and data.

Much of the production in the equipment businesses, which account for the majority of ULVAC's sales, is made-to-order production of unique products to meet individual customer needs, and in principle we do not hold inventory. We consider parts or materials piling up anywhere in the supply chain to be inventory and aim for total optimization of the supply chain by using indices to prevent inventory accumulation and visualizing inventory.

# Human Resources

**To achieve sustained growth, vitalized organizations must serve as a foundation enabling diverse human resources to fully demonstrate their potential. ULVAC will strengthen its management base by actively engaging in organization and human resources development and focusing on cultivating the leaders of tomorrow.**

## Human Resources and Organizational Development

In accordance with the Basic Policy for Human Resources Development, we are promoting the creation of synergy by diverse human resources.

### ULVAC Basic Policy for Human Resources 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 human resources 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

## Establishment of the Human Resource Center

In recent years, a shift toward smart societies has begun worldwide and seismic changes are taking place, namely, a wave of technological innovation and global intensification of competition. On January 1, 2018, ULVAC launched the Human Resource Center, which is under the direct control of the president, to reinforce development of global human resources capable of thriving in a changing external environment in order to successfully compete in this unprecedented business environment.

We recognize that the development of a company, technological innovation, and product competitiveness depend on human resources and that people are ULVAC's most important asset. The Human Resource Center is a dedicated human resources development organization whose purpose is to maximize the value of this critical asset.

The Center flexibly and proactively implements job rotation within the Group. Its mission and role is to enhance knowledge and information, cultivate and refine experience, and vitalize, develop, and maximize the asset value of organizations and human resources by actively pursuing interactions with universities, research institutes, and companies in Japan and abroad.



Keywords related to human resources development at ULVAC

Through the development of the capabilities of people and organizations, ULVAC will improve business promotion capabilities, strengthen the management base for sustained growth, contribute to further creation and accomplishments, and increase corporate value.

## Development and Operation of a Groupwide Education and Training System

The Human Resource Center is developing a groupwide education and training system. It will promote the growth of individuals by providing stratified training, skills training, and language and cultural programs for all employees, from new recruits to employees rehired after mandatory retirement. In the future, the Center will also consider a groupwide mechanism for evaluating employees on the basis of knowledge, language abilities, and other skills required of employees at each organizational level.

The Center will also further inculcate the corporate philosophy groupwide, promote personnel development to take the next leap forward by putting the philosophy into practice, and further foster a corporate culture of boldly taking on challenges.

## Strengthening of Global Adaptability

Since ULVAC plans to further expand its business overseas, it is necessary to systematically develop employees capable of flourishing on the global stage and increase global adaptability. We will reinforce the operating foundation groupwide by focusing on training to cultivate not only language ability, a necessary business skill, but also sensitivity to different cultures and international business acumen as well as human resources development at overseas Group companies.

## Developing the Next Generation of Executives

To develop the next generation of executives, the ULVAC Group will strive to cultivate the leaders of tomorrow by arranging opportunities to discuss a future vision for the ULVAC Group. We will also aim to build human networks by actively promoting personnel exchanges within and beyond the Group. Through such activities, we will promote diverse human resources and engage in flexible organizational operation.

## ULVAC Academy Portal

ULVAC is implementing the ULVAC Academy Portal groupwide under the concept of creating an environment that facilitates learning throughout the Group through the provision of training materials necessary for ULVAC's production to those who need them. The ULVAC Academy Portal provides an environment that enables employees to study anytime, anywhere there is an Internet connection, even outside the company. In this way, ULVAC is creating mechanisms for raising the level of employee skills and demonstrating individual capabilities as well as those for consolidating, systematizing, and providing educational materials that are currently scattered among individuals, departments, and Group companies. With the portal, we aim to create a space where individuals can continuously manage their learning (progress and degree of comprehension) and their licenses and qualifications.



The ULVAC Academy Portal is a platform not only for more effective study driven by individual initiative through e-learning and training materials but also for group training, including practical skills training. It also presents ULVAC's history and disseminates the latest Group information. In addition, the portal is used for distributing presentation materials and videos of lectures and briefings. Indeed, extensive use is made of video.

Since the portal supports Japanese, English, and Chinese and handles everything from signing up for lectures to aggregation of post-lecture questionnaire results, it serves as a backbone system for education that supports the efforts of individuals, departments, companies, and the Group to achieve their future

visions. The number of registered users already exceeds 3,000, and the objective is to complete registration groupwide (6,439 persons as of June 2018) during fiscal 2018.

For management of licenses and qualifications we are in the process of introducing functions not only for the management of internal qualifications and obtaining national licenses, but also assessment and management of the skill levels of customer support personnel and engineers by equipment type and geographical area, and we are proceeding with development to enable systematic planning of education using a global groupwide skills map.

## Knowing the Outside World and Looking in from the Outside

ULVAC conducted overseas training for directors and executives (in Europe, the U.S., and South Korea) in May 2018. We also actively engage in secondment and temporary assignment of employees, collaborative research, and other personnel exchanges with universities, research institutes, and companies. We will continue to engage in initiatives to enable employees at every level of the organization to recognize anew ULVAC's strengths and potential through knowledge of the world beyond ULVAC and a perspective of looking in from the outside.

During the six-month period from January 2018, we held 16 lectures conducted by internal and external lecturers as part of an effort to encourage employees to learn about the world beyond ULVAC and develop a global mindset. More than 800 employees attended the lectures, and many employees unable to attend in person viewed videos of the lectures at ULVAC Academy Portal. In a post-lecture questionnaire survey, more than 80% of participants indicated that they had learned or become aware of something. In fiscal 2018, in addition to holding lectures, we will provide a forum for discussing how to utilize the lecture content in the actual practice of business.

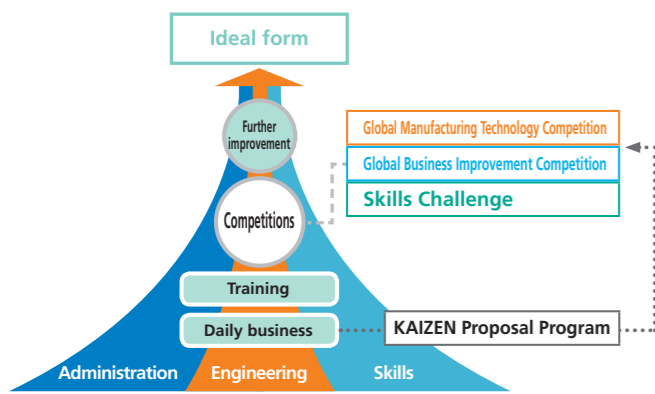
### Examples of Lectures

- Growth secrets and development strategies, expectations for Japan (CEO of a fast-growing foreign company)
- The current state and future of the semiconductor industry (director of a leading overseas research institute)
- The latest technological trends in 5G (professor at a leading Japanese university)
- The latest technological trends in bio-nanodevices (professor at a leading overseas university)
- Means of survival for Japanese manufacturing companies in the digital era (professor at a leading Japanese university)
- The latest market trends (leading overseas research firm)
- Motivation design methods (external consultant)
- How to cultivate a strong mind (external consultant)

# Human Resources

## Global Vitalization Programs

ULVAC utilizes the diversity that results from different ways of thinking and different cultures to stimulate the awareness of organizations and individuals. By sharing among departments and throughout the Group processes that lead to the resolution of organizational and individual issues, we maximize the effects.



The aim of the Global Manufacturing Technology Competition is value creation through the improvement and innovation of the value chain process based on the central theme, "Groupwide innovation of production technology to increase value."

With the Global Business Improvement Competition, we aim to create mechanisms and measures to inculcate ULVAC's management policies in day-to-day work, maximize groupwide synergy, and strengthen cross-organizational functions.

The purpose of the Skills Challenge is to develop a groupwide atmosphere of respect for skills and promote the sharing and transmission of skills by holding a skills level competition among Group companies.

Through these programs, we aim to make all employees aware of the importance of putting the corporate philosophy and management philosophy into practice in their work and linking their work to outcomes that contribute to achieving ULVAC's vision.



Participating in the Skills Challenge

## Creating Excellent Workplaces

To enable each employee in our diverse enthusiasm, increase productivity, and dis-environment that enables employees to In fiscal 2018, we will work to create an themes shown in the diagram to the right. We will develop an environment and change his or her awareness of work styles

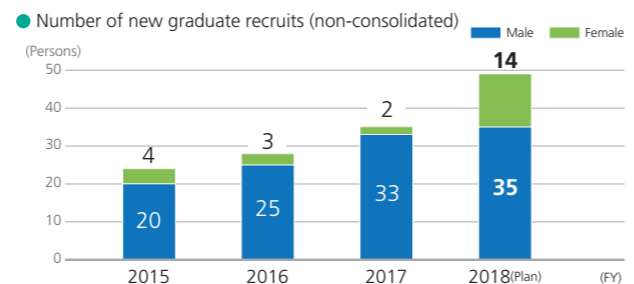
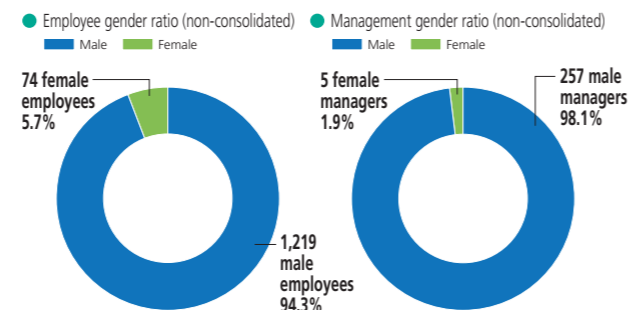
Aspiring to be a company where every employee enjoys physical and mental health, is full of energy, and displays his or her full potential

In keeping with the belief that human resources are the source of value creation, ULVAC actively engages in initiatives to promote the health of employees.

To vigorously engage in health promotion activities, we have appointed an executive officer to serve as the Chief Health Promotion Officer and put in place a health promotion structure led by department general managers and the Health Promotion Office.

We have articulated a mission, namely, that of "Creating a corporate climate in which employees can energetically pursue work goals in good health," and are promoting employee health, the foundation of MONOD-ZUKURI, in accordance with two strategies: "Health risk reduction" and "Wellness improvement."

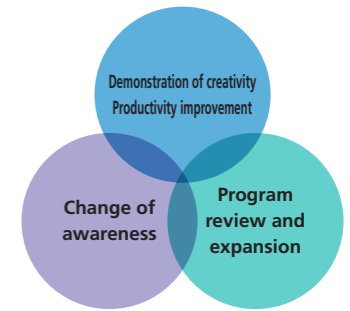
### Human Resources Data



## Environment

workforce to demonstrate his or her strengths with vigor and play creativity, it is necessary to create an excellent workplace work with a greater sense of security and peace of mind. excellent workplace environment, focusing mainly on the key

enhance and operate programs to enable each employee to and lifestyles and increase productivity.



### Priority Activity 1 Health Risk Reduction: Making Walking a Habit

Our health risk reduction targets are "Health age\*1 3.0 years lower than actual age by fiscal 2020" and "Percentage of people with regular exercise habits of 25% or higher by fiscal 2020."

We consider it important to create the habit of walking and exercise to ensure that our employees are healthy in mind and body and able to fully demonstrate their capabilities. Accordingly, together with the health insurance association, we promote activities such as physical strength age measurement and walking events.

As a result of engaging in these activities, the number of people who walk regularly is increasing each year (Fig. 1), and health age is 2.86 years lower than actual age at ULVAC.



Physical strength age measurement at ULVAC

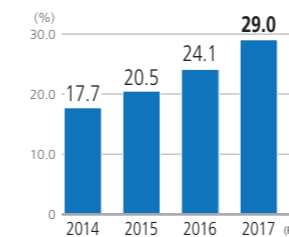


Fig. 1 Percentage of people who walk regularly\*2

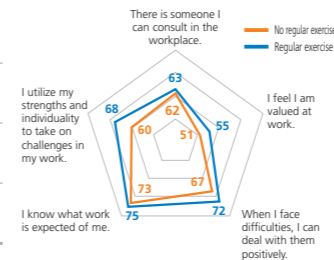


Fig. 2 Difference in vitality toward work according to exercise habits

Also, the number of employees taking leave due to illness has decreased dramatically compared to fiscal 2014, when ULVAC began actively implementing organization vitalization measures (Fig. 4).

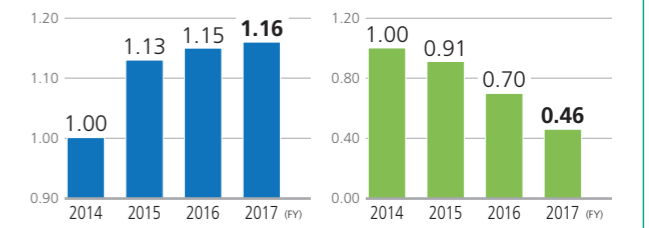


Fig. 3 Ratio of employees who work enthusiastically\*3 Fig. 4 Ratio of the total number of working months lost

These activities have been admired, and ULVAC was recognized as a 2018 Certified Health and Productivity Management Organization (White 500).



## Analysis and Evaluation

Analysis of data from ULVAC's health check survey indicates that people with regular exercise habits show strong work vitality, especially "strengths and challenges" necessary for enthusiastic work (Fig. 2). At ULVAC, we will continue to reinforce human resources development and improve business promotion capabilities through health promotion activities.

\*1 An index developed by JMDC Inc. based on the medical checkup data and medical expenses of 1.6 million people

\*2 Aggregated from questionnaire responses of employees at the time of medical checkup application

\*3 The average score for all items of the percentage of people answering "5. I strongly agree" for the vitality toward work items (five-point scale) in the health check survey. The ratio with fiscal 2014 as 1.0.

### Priority Activity 2 Wellness Improvement: Organization Vitalization

Our wellness improvement target is "An increase of 20% in the number of people who work energetically by fiscal 2020 compared to fiscal 2014."

Senior management and line managers, who play an important role in ensuring that employees work energetically, are taking the lead in promoting organization vitalization activities, utilizing the results of a health check survey independently conducted at ULVAC.

The number of departments that engage in these activities is gradually increasing, and the number of ULVAC employees who work enthusiastically is increasing each year (Fig. 3).

### Comment by the Chief Health Promotion Officer

**Ryo Matsumoto**

Executive Officer in charge of General Administration & Personnel Department

ULVAC is implementing initiatives relating to employee health. Our walking program has been particularly popular, with some 50% of employees participating. We also provide health assistance at the presymptomatic stage in cooperation with the Kanagawa Prefectural Government.

We will continue efforts to further develop health promotion activities to enable each employee to work with vigor and enthusiasm.

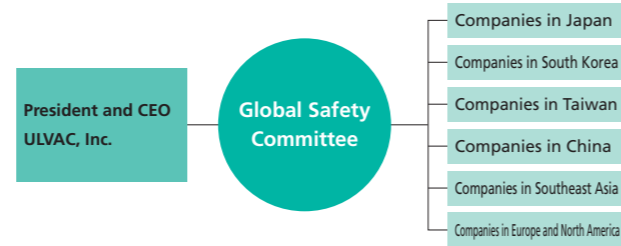
# Occupational Safety and Health

The ULVAC Group has made "Safety First" the fundamental principle of business management. By operating our Occupational Safety and Health Management System (OSHMS) focused on risk assessment, we endeavor to ensure safety of the products and services used by our customers and create dynamic workplaces where Group employees can work in good physical and mental health.

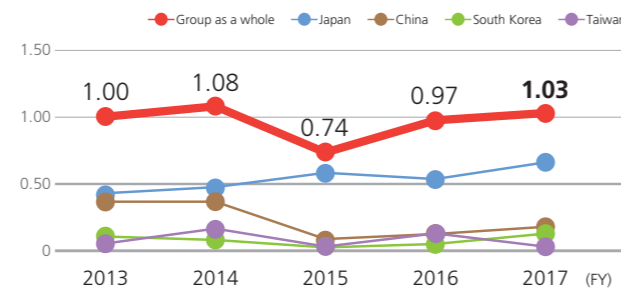
## Approach on Occupational Safety and Health

In the execution of development, manufacturing, transport, installation, maintenance and other business processes, everyone in the ULVAC Group, from senior management to line workers, is encouraged to seize the initiative in continuously undertaking improvements placing the highest priority on safety, striving to maintain and improve the safety of everyone involved and ensure a healthy working environment.

## Safety Management System



## Frequency ratio of occupational accidents



\*This graph shows the rate of occupational accidents for each fiscal year, with the value for fiscal 2013 (as of June 2014) as 1.00. The number of accidents remained low in fiscal 2017.

## Safety and Health Activities

ULVAC KOREA, Ltd. has installed digital signage and shows videos on safety, health, and the environment to raise employee safety awareness. ULVAC CRYOGENICS KOREA INCORPORATED has installed employee-designed notice boards at workplace entrances for use in providing safety, health, and environmental information to employees. These Group companies will continue to update information and campaign activities as necessary to ensure that their employees fully recognize the importance of safety, health, environmental considerations and adherence to company rules.



Playing a video on safety information at lunchtime (ULVAC KOREA, Ltd.)



Provision of safety, health, and environmental information at a workplace entrance (ULVAC CRYOGENICS KOREA INCORPORATED)

### ULVAC Safety Basic Policy

- 1. Compliance to the code/regulations, and implementation of risk assessment**  
Comply with Codes of Occupational Safety & Health Management and Rules according to ULVAC's OSHMS, and conduct Risk Assessment in order to perform Occupational Safety & Health Management activities with the help of all the employees.
- 2. Assure safety of ULVAC's products**  
Comply with ULVAC's standard for safety design and perform risk assessment of our products, in order to deliver our safe products and services to our customers.
- 3. Planned education about Occupational Safety & Health & Product Safety**  
For all the employees and contractor's employees, perform Occupational Safety & Health training based on ULVAC Safety Management system, while offering scheduled Product Safety training for our users.
- 4. Promotion of mental health care**  
Promote mental health care achieve a health, vigorous workplace environment.
- 5. Global expansion of ULVAC group**  
Through the Safety & Health promotion activities by the Global Safety Management Committee, we will try to create an appropriate work environment for the whole ULVAC group, and contribute to prosperity of our businesses.

## Aiming for a Type-V Zero Accident Record

To ensure the safety and good health of its customers and employees, the ULVAC Group regularly holds meetings of the Global Safety Committee, and all Group companies promote safety and health activities in an integrated manner. Each Group company operates the safety management system, and everyone is engaged in safety and health activities, such as management reviews conducted by the CEO and risk assessments performed by each employee. The Chigasaki Plant achieved a Type-IV zero accident record (total of 10.5 million hours) in 2017 and now aims to achieve a Type-V zero accident record (total of 15.8 million hours), the highest level provided by the Ministry of Health, Labour and Welfare. With "Safety First" as their motto, all Group companies will continue their efforts to extend the zero accident record.

# Environment

Based on its environmental policy, the ULVAC Group provides products that allow customers to embrace the feeling that they have made environmental contributions. Through management and reduction of energy consumption and other efforts, we are working to minimize environmental impacts. As we have a global production system, we are working to gain integrated ISO14001 certification so as to strengthen governance, ensuring information sharing among Group companies and swift implementation of instructions issued by top management. The ULVAC Group will continue its efforts to reduce environmental impacts through its products.

## Environmental Philosophy

The ULVAC Group is tackling protection of the global environment, one of the major issues confronting people worldwide. We will consider environmental conservation in all aspects of our business activities and will contribute to realization of a better living environment and a more affluent society.

## Environmental Policy

Develop energy-saving products, reduce the use of natural resources and protect the environment.  
 1) ULVAC Group products/Final products  
 2) ULVAC Group manufacturing process

## Environmental Activities in Fiscal 2017

Although production volume increased, total waste emissions decreased by approximately 14% compared with the previous fiscal year. This decrease was largely attributable to the increase of the recovery rate of valuable materials to 29%. As recovery of valuable materials is important also from the perspective of material recycling, we will continue to promote it throughout the ULVAC Group.

We are also implementing groupwide initiatives, including visualization of wattage, preparation and

utilization of a manual for energy saving, concentration of locations where electricity-intensive activities are conducted, and 100% conversion to LED lighting for factories and offices, in order to reduce energy (electricity) consumption.

The ULVAC Group will continue to promote environmental management activities in order to reduce environmental impacts derived from its business activities.

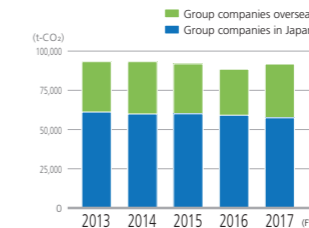
## Material balance (Source: Aggregate data for fiscal 2017)

INPUT		OUTPUT		
Electricity consumption	174,794 thousand kwh	CO <sub>2</sub> emissions	91,822 t-CO <sub>2</sub> (Emissions due to consumption of electricity, gas, and fuels)	
Gas consumption	LPG: 106 t LNG: 584 t City gas: 1,690 thousand m <sup>3</sup>		Total waste emissions	7,556 t Total amount of waste recycled: 7,197 t
Fuel consumption	Heavy oil: 224 kL Kerosene oil: 30 kL Diesel oil: 192 kL			Final landfill disposal rate
Water consumption	1,127 thousand m <sup>3</sup>			
Packaging materials	1,712 t			

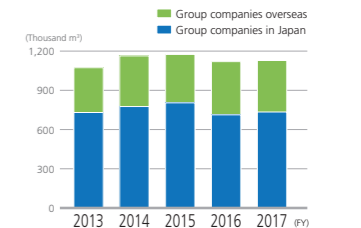
\* The above data are based on the data from 38 Group companies in Japan and overseas.

\* The volume of packaging materials is based on the data from 17 Group companies in Japan and overseas.

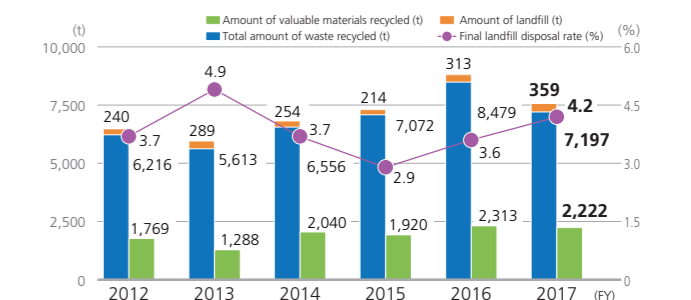
## CO<sub>2</sub> emissions



## Water consumption



## Waste emissions





# Environment

## Initiatives through Products

### LS series new dry vacuum pump achieves both high pumping speed and low power consumption

Components Division, ULVAC, Inc.

This product's principal characteristic is the simultaneous achievement of both high pumping speed and low power consumption. While achieving high pumping speed at near atmospheric pressure thanks to the newly developed screw rotor, the built-in patented ECO-SHOCK minimizes power consumption, resulting in realization of seemingly contradictory technological features. Product reliability has been enhanced through operation tests in high-temperature, low-temperature, and dusty (equivalent to IP\*144) environments, in addition to repeated atmospheric vacuum pumping at short intervals. The Components Division develops and sells dry vacuum pumps. Rising demand for electronic devices, smartphones and communication technology-related items in the global market are a tail wind for this product.



LS120A dry vacuum pump

\*1 IP ratings indicate the level of protection against dust and water.

### Cat-CVD equipment for silicon heterojunction solar cells improves conversion efficiency

FPD•PV Division, ULVAC, Inc.

Renewables are attracting attention as sources of environmentally friendly energy because they do not emit CO<sub>2</sub>. For photovoltaic power generation, in which solar cells are used to obtain power, heterojunction solar cells capable of converting energy from sunlight into electricity more efficiently are a focus of high expectations. Consisting of monocrystalline silicon and amorphous silicon thin films, silicon heterojunction solar cells are distinguished by their higher energy conversion efficiency compared with conventional monocrystalline silicon solar cells. ULVAC has developed a system that employs the catalytic chemical vapor deposition (Cat-CVD\*2) method, which is subject to less damage by plasma, to provide high-quality amorphous silicon thin films offering greater conversion efficiency.



Cat-CVD equipment for silicon heterojunction solar cells

\*2 Cat-CVD: A chemical vapor deposition method that uses a heated catalyzer to chemically decompose source gas molecules by catalytic cracking reaction and forms thin films by transporting the free radicals to the substrate.

## Initiatives through corporate activities

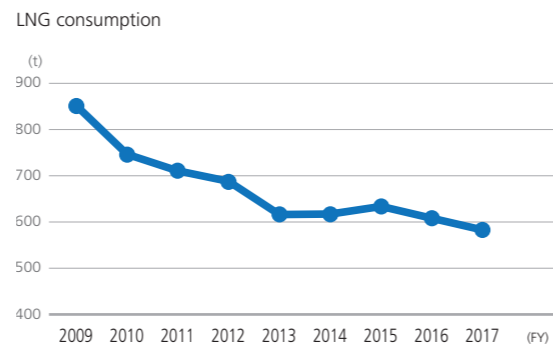
### Heat recovery by increasing wastewater recovery

ULVAC COATING CORPORATION

Massive water consumption in the film deposition process was an issue at ULVAC COATING CORPORATION. The company is working to minimize its environmental impact by setting the reduction of water consumption as a quality and environmental objective.

The company has reduced water consumption by recycling wastewater discharged from the production line and also reduced consumption of energy used for heating water, because the temperature of wastewater is higher than that of tap water. The reduction in LNG consumption is equivalent to approximately 250 tons of CO<sub>2</sub> emissions a year.

Mindful of the impact on water resources in the community where it operates, ULVAC COATING continues to promote recycling of wastewater so as to reduce water and energy consumption.



### Tree planting

ULVAC (SUZHOU) CO., LTD.

In March 2018, ULVAC (SUZHOU) CO., LTD. held its fourth tree-planting event, planting 29 cherry trees as part of its ongoing effort to enrich the environment.

The company will continue this initiative to raise awareness of the importance of environmental protection.



# Social Contribution Activities

The ULVAC Group will continue to contribute to local communities and the global community by effectively utilizing its technologies and human resources to help resolve various social issues.

## Japan (Chigasaki)

### Plant tour and demonstrations

ULVAC conducts plant tours and vacuum demonstration classes, mainly for elementary schools and other public institutions, local residents, and shareholders. In 2017, on more than five occasions we engaged in joint projects with Chigasaki City, holding events for the purpose of contributing to community youth development and education activities followed by plant tours and vacuum demonstrations. We will continue to deepen ties to local communities and educational groups through activities designed to encourage as many people as possible to take an informed interest in science.



## Japan (Chigasaki)

### Sale of cookies by a social welfare corporation

Syonokai, a social welfare corporation located in Chigasaki, Kanagawa Prefecture, sells homemade cookies once a month at the ULVAC Head Office/Plant, thus providing an opportunity for persons with disabilities to participate in society. Syonokai has sold cookies at a space provided next to the cafeteria at lunchtime since 2010. We will continue to encourage employment of persons with disabilities by supporting the purchase of cookies.



## Malaysia

### Water supply assistance during a water stoppage

In March 2018, a water stoppage occurred in Selangor State due to an accident at a water purification plant. ULVAC MALAYSIA SDN. BHD. hastened to supply 20,000 liters of water reserved for use at a special cleaning treatment plant to nearby residents. The ULVAC Group will continue to engage in activities to help resolve various social issues and seek harmonious coexistence with local communities.



## Thailand

### Lecture on the fundamentals of vacuums at Thai-Nichi Institute of Technology

At the request of Thai-Nichi Institute of Technology, in February 2018 ULVAC (THAILAND) LTD. gave a lecture on the fundamentals of vacuums, covering the types and structure of vacuum pumps, vacuum measurement, and related topics for students of the institute. The company's acceptance of student interns since 2017 led to the request.

Although vacuum technology is an unfamiliar field in Thailand, when an engineer explains that it is a building block of industry, many students develop an interest. The company will continue to support the development of the next generation of engineers by various means, including the acceptance of student interns.



# Business Results: Review of Operations for Fiscal 2017

## Business results for Fiscal 2017

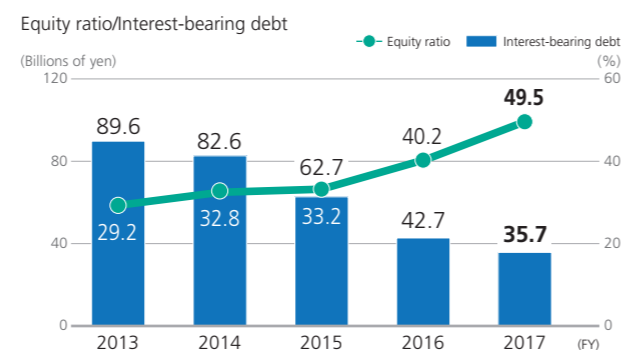
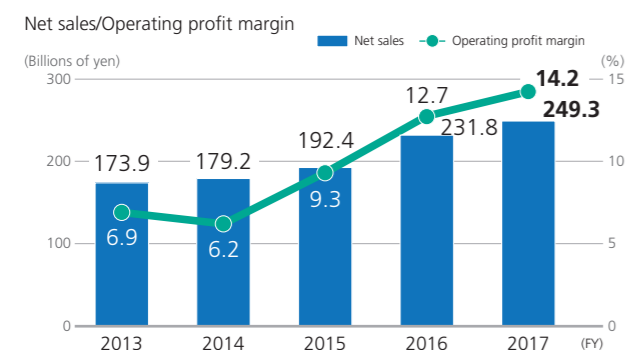
In the electronics market in which the ULVAC Group operates, semiconductor memory manufacturers increased capital investment in response to expanding memory demand fueled mainly by greater demand for servers for data center applications. In the flat panel display (FPD) sector, continued capital investment for manufacturing OLED panels for smartphones and large LCD panels for TVs remained brisk.

In these circumstances, for the fiscal year ended June 30, 2018 (fiscal 2017), orders received increased 3.2% year on year to ¥243.0 billion, net sales rose 7.5% to ¥249.3 billion, operating profit rose 20.0% to ¥35.4 billion, and ordinary profit increased 24.2% to ¥36.9 billion. Net income surged 46.7% to ¥35.9 billion mainly because of additional recording of deferred tax assets.

## Greater Profitability

Because of an increase in the proportion of semiconductor and electronic devices production equipment, which have high profit margins, both the gross profit margin and the operating profit margin rose. While total assets increased in line with increases in orders received and net sales, net assets also increased by ¥49.2 billion as a result of increases in net income and market valuation of investment securities. Thus, the equity ratio improved to 49.5%. Interest-bearing debt decreased by ¥7.0 billion to ¥35.7 billion.

## Products making big contributions to sales



# and Outlook

## Review of Operations by Business Segment

### Vacuum Equipment Business

For the vacuum equipment business, orders received amounted to ¥209,707 million, orders back-log was ¥94,171 million, net sales were ¥216,652 million, and operating profit amounted to ¥32,411 million.

#### FPD and PV production equipment

Orders received for FPD production equipment were below the level of the previous fiscal year because order-taking in the second half was temporarily lack-luster despite recording of orders received, mainly from customers in China, for large LCD production equipment for TVs and small to medium-sized OLED production equipment for smartphones. On the other hand, net sales were robust and virtually the same level as the previous fiscal year.

#### Semiconductor and electronic device production equipment

Regarding semiconductor production equipment, in line with the expansion of investment for memory, demand for sputtering equipment and the natural oxidized film removing system for NAND flash memory, DRAM, and next-generation non-volatile memory increased. Regarding electronic device production equipment, demand for high-performance device production equipment for mobile devices was firm, and as a result, orders received and net sales greatly exceeded those for the previous fiscal year.

#### Components

Both orders received and net sales exceeded those for the previous fiscal year because of robust demand

for cryopumps for mounting on OLED production equipment, as well as for vacuum pumps and measuring equipment for the FPD, semiconductor, and electronic device industries and for the automotive-related industry.

#### Industrial equipment

Both orders received and net sales exceeded those for the previous fiscal year, led by vacuum heat treatment furnaces for production of automotive components and leak testers.

### Vacuum Application Business

For the vacuum application business, orders received amounted to ¥33,273 million, orders back-log was ¥5,812 million, net sales were ¥32,619 million, and operating profit amounted to ¥2,957 million.

#### Materials

Both orders received and net sales exceeded the previous year's level, centering on sputtering target materials for LCDs.

#### Others

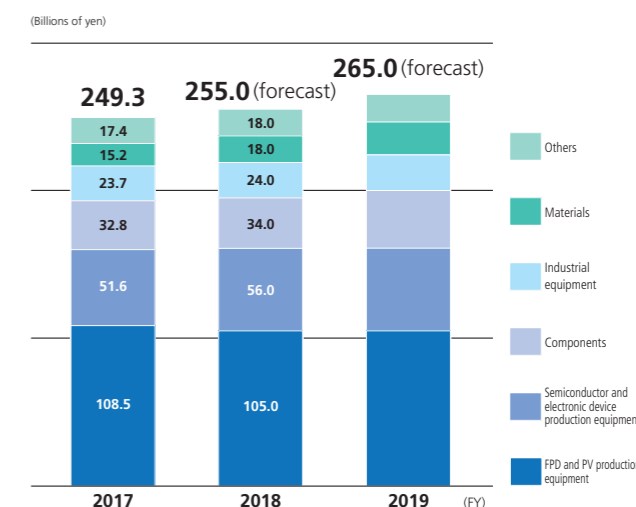
Demand for mask blanks was generally firm, reflecting an increase in demand for high-definition, high-performance display panels and semiconductors for in-vehicle and industrial applications. On the other hand, analysis equipment-related net sales were lower than the previous fiscal year's level.

## Outlook

The ULVAC Group is implementing the mid-term management plan that covers the period up to June 30, 2020. For fiscal 2017, the first year of the plan, net sales, operating profit, ordinary profit, and net income exceeded the initial forecast. Moreover, operating profit for fiscal 2017 exceeded the target set for the final year (fiscal 2019) of the mid-term management plan.

The framework of the current mid-term management plan, including "strengthening of management base" and "key strategies," will remain unchanged from fiscal 2018 onward, but we revised the targets for net sales and operating profit for the final year of the plan to ¥265 billion (+¥15 billion) and ¥38 billion (+¥3 billion), respectively. We are tackling "management reform" to achieve the next round of growth following the current mid-term management plan and aim for net sales of ¥300 billion and an operating profit margin of 16% in fiscal 2021. Seizing the business opportunities created by technological innovation, ULVAC will strive to further improve the profit structure and financial strength to accelerate initiatives toward sustainable growth and improved corporate value.

Forecast of net sales by business segment



## Consolidated Financial Statements

## Consolidated Balance Sheets

(Millions of yen)

	FY2016 As of June 30, 2017	FY2017 As of June 30, 2018
<b>Assets</b>		
<b>Current assets</b>		
Cash on hand and in banks	56,434	57,074
Notes and accounts receivable, trade	70,519	87,276
Merchandise and finished goods	5,097	4,615
Work in process	15,880	23,618
Raw materials and supplies	9,240	10,847
Deferred tax assets	6,027	5,032
Other	7,299	9,509
Allowance for doubtful accounts	(811)	(914)
<b>Total current assets</b>	<b>169,685</b>	<b>197,058</b>
<b>Non-current assets</b>		
<b>Property, plant and equipment</b>		
Buildings and structures	79,246	80,982
Accumulated depreciation	(47,018)	(49,168)
Buildings and structures, net	32,229	31,814
Machinery, equipment and vehicles	65,343	69,543
Accumulated depreciation	(50,892)	(53,161)
Machinery, equipment and vehicles, net	14,451	16,382
Tools, furniture and fixtures	14,153	14,738
Accumulated depreciation	(12,506)	(12,899)
Tools, furniture and fixtures, net	1,647	1,839
Land	8,096	8,624
Leased assets	1,836	1,872
Accumulated depreciation	(1,002)	(1,142)
Leased assets, net	834	731
Construction in progress	3,049	4,907
<b>Total property, plant and equipment</b>	<b>60,306</b>	<b>64,297</b>
<b>Intangible assets</b>		
Leased assets	67	81
Software	690	844
Other	2,815	2,529
<b>Total intangible assets</b>	<b>3,573</b>	<b>3,454</b>
<b>Investments and other assets</b>		
Investment securities	4,389	25,562
Deferred tax assets	2,298	2,620
Other	7,107	6,812
Allowance for doubtful accounts	(2,051)	(2,048)
<b>Total investments and other assets</b>	<b>11,743</b>	<b>32,946</b>
<b>Total non-current assets</b>	<b>75,622</b>	<b>100,697</b>
<b>Total assets</b>	<b>245,306</b>	<b>297,754</b>

(Millions of yen)

	FY2016 As of June 30, 2017	FY2017 As of June 30, 2018
<b>Liabilities</b>		
<b>Current liabilities</b>		
Notes and accounts payable, trade	48,829	55,566
Short-term loans payable	30,199	21,539
Lease obligations	315	300
Income taxes payable	2,525	4,534
Advances received	16,908	16,739
Deferred tax liabilities	10	16
Accrued employees' bonuses	2,738	3,185
Accrued directors' bonuses	401	512
Accrued warranty costs	2,069	1,742
Provision for loss on order received	785	1,074
Other	11,175	13,637
<b>Total current liabilities</b>	<b>115,954</b>	<b>118,845</b>
<b>Long-term liabilities</b>		
Long-term loans payable	12,528	14,150
Lease obligations	692	607
Deferred tax liabilities	1,408	343
Net defined benefit liability	8,311	8,370
Accrued directors' retirement benefits	335	272
Provision for board benefit trust	74	134
Asset retirement obligations	392	395
Other	694	568
<b>Total long-term liabilities</b>	<b>24,436</b>	<b>24,840</b>
<b>Total liabilities</b>	<b>140,389</b>	<b>143,685</b>
<b>Net Assets</b>		
<b>Shareholders' equity</b>		
Capital stock	20,873	20,873
Capital surplus	3,912	3,912
Retained earnings	73,801	107,238
Treasury shares	(271)	(266)
<b>Total shareholders' equity</b>	<b>98,315</b>	<b>131,756</b>
<b>Accumulated other comprehensive income</b>		
Valuation difference on available-for-sale securities	491	14,950
Foreign currency translation adjustment	2,480	2,579
Remeasurements of defined benefit plans	(2,599)	(1,753)
<b>Total accumulated other comprehensive income</b>	<b>372</b>	<b>15,775</b>
<b>Non-controlling interests</b>	<b>6,229</b>	<b>6,538</b>
<b>Total net assets</b>	<b>104,917</b>	<b>154,069</b>
<b>Total liabilities and net assets</b>	<b>245,306</b>	<b>297,754</b>

## Consolidated Statements of Income

(Millions of yen)

	FY2016 (July 1, 2016–June 30, 2017)	FY2017 (July 1, 2017–June 30, 2018)
<b>Net sales</b>	231,831	249,271
<b>Cost of sales</b>	168,001	176,163
<b>Gross profit</b>	63,829	73,108
<b>Selling, general and administrative expenses</b>		
Selling expenses	14,818	15,703
General and administrative expenses	19,543	22,054
Total selling, general and administrative expenses	34,361	37,757
<b>Operating profit</b>	29,468	35,351
<b>Non-operating income</b>		
Interest income	117	157
Dividend income	302	470
Rent income	297	300
Insurance and dividends income	259	463
Foreign exchange gains	—	352
Share of profit of entities accounted for using equity method	203	426
Other	572	464
Total non-operating income	1,750	2,631
<b>Non-operating expenses</b>		
Interest expenses	511	349
Other	992	727
Total non-operating expenses	1,503	1,076
<b>Ordinary profit</b>	29,716	36,907
<b>Extraordinary income</b>		
Gain on sales of non-current assets	35	—
Gain on sales of investment securities	81	2,002
Total extraordinary income	117	2,002
<b>Extraordinary losses</b>		
Loss on retirement of non-current assets	643	382
Loss on sales of non-current assets	423	—
Total extraordinary losses	1,065	382
<b>Income before income taxes</b>	28,768	38,527
<b>Current income taxes</b>	4,556	7,309
<b>Deferred income taxes</b>	(1,599)	(5,937)
<b>Total income taxes</b>	2,957	1,372
<b>Net income</b>	25,811	37,155
<b>Net income attributable to non-controlling interests</b>	1,342	1,250
<b>Net income attributable to owners of parent</b>	24,469	35,904

## Consolidated Statements of Comprehensive Income

(Millions of yen)

	FY2016 (July 1, 2016–June 30, 2017)	FY2017 (July 1, 2017–June 30, 2018)
<b>Net income</b>	25,811	37,155
<b>Other comprehensive income</b>		
Valuation difference on available-for-sale securities	364	14,456
Foreign currency translation adjustment	3,390	113
Remeasurements of defined benefit plans, net of tax	224	845
Share of other comprehensive income of entities accounted for using equity method	10	2
Total other comprehensive income	3,989	15,416
<b>Comprehensive income</b>	29,799	52,570
Comprehensive income attributable to:		
Owners of parent	28,200	51,307
Non-controlling interests	1,599	1,263

## Consolidated Statements of Cash Flows

(Millions of yen)

	FY2016 (July 1, 2016–June 30, 2017)	FY2017 (July 1, 2017–June 30, 2018)
<b>Cash flows from operating activities</b>		
Income before income taxes	28,768	38,527
Depreciation	6,418	6,541
Increase (decrease) in allowance for doubtful accounts	(171)	97
Increase (decrease) in accrued employees' bonuses	401	473
Increase (decrease) in net defined benefit liability	(247)	182
Increase (decrease) in accrued directors' retirement benefits	16	(63)
Increase (decrease) in provision for board benefit trust	74	60
Increase (decrease) in accrued warranty costs	32	(321)
Increase (decrease) in provision for loss on order received	227	289
Interest and dividend income	(419)	(628)
Interest expenses	511	349
Subsidy income	(98)	(96)
Share of (profit) loss of entities accounted for using equity method	(203)	(426)
Loss (gain) on sales of investment securities	(81)	(2,002)
Loss (gain) on sales of non-current assets	387	—
Decrease (increase) in notes and accounts receivable - trade	(10,732)	(16,748)
Decrease (increase) in inventories	(161)	(9,878)
Increase (decrease) in notes and accounts payable - trade	12,680	6,789
Increase (decrease) in advances received	2,634	(123)
Increase (decrease) in accrued consumption taxes	76	(241)
Other	1,948	1,230
<b>Subtotal</b>	42,060	24,011
Interest and dividend income received	488	720
Interest expenses paid	(510)	(350)
Income taxes paid	(4,219)	(5,295)
<b>Net cash provided by (used in) operating activities</b>	37,818	19,086
<b>Cash flows from investing activities</b>		
Payments into time deposits	(12,317)	(12,755)
Proceeds from withdrawal of time deposits	4,347	18,873
Purchase of property, plant and equipment and intangible assets	(6,515)	(9,869)
Proceeds from sales of property, plant and equipment and intangible assets	234	19
Proceeds from sales of investment securities	323	2,171
Payments for investments in capital of subsidiaries and associates	—	(290)
Proceeds from subsidy income	240	237
Other	(25)	48
<b>Net cash provided by (used in) investing activities</b>	(13,713)	(1,564)
<b>Cash flows from financing activities</b>		
Net increase (decrease) in short-term loans payable	(11,668)	(5,157)
Proceeds from long-term loans payable	—	9,400
Repayments of long-term loans payable	(8,313)	(11,282)
Repayments of lease obligations	(368)	(344)
Cash dividends paid	(1,477)	(2,464)
Purchase of treasury shares	(260)	(0)
Dividends paid to non-controlling interests	(494)	(886)
<b>Net cash provided by (used in) financing activities</b>	(22,580)	(10,734)
<b>Effect of exchange rate change on cash and cash equivalents</b>	1,168	4
<b>Net increase (decrease) in cash and cash equivalents</b>	2,693	6,793
<b>Cash and cash equivalents at beginning of period</b>	44,862	47,555
<b>Cash and cash equivalents at end of period</b>	47,555	54,348

## Company Data/Stock Information

### Company Profile

As of June 30, 2018

Name: ULVAC, Inc.

Trademark: ULVAC

Head office: 2500 Hagisono, Chigasaki, Kanagawa Prefecture, Japan

Established: August 23, 1952

Capital: ¥20,873,042,500

Number of employees: Non-consolidated 1,293  
Consolidated 6,439

### Directors, Auditors and Executive Officers

As of September 27, 2018

President and Chief Executive Officer Setsuo Iwashita

Director and Executive Vice President Mitsuru Motoyoshi

Director and Managing Executive Officer Dr. Choong Ryul Paik

Director and Managing Executive Officer Shigemitsu Sato

Director and Managing Executive Officer Masahiko Ishiguro

Director and Senior Adviser Hisaharu Obinata

External Director Akira Mihayashi

External Director Norio Uchida

External Director Kozo Ishida

External Director Yoshimi Nakajima

Senior Managing Executive Officer Masasuke Matsudai

Senior Executive Officer Dr. Kazuya Saito

Senior Executive Officer Kiyokazu Yanagisawa

Executive Officer Akira Umeda

Executive Officer Ryo Matsumoto

Executive Officer Yu Jer Tsai

Executive Officer Kazuo Ikeda

Executive Officer Tomoyasu Kondo

Executive Officer Sadao Aoki

Executive Officer Tetsuya Shimada

Auditor Makoto Ito

Auditor Mitsuru Yahagi

External Auditor Senshu Asada

External Auditor Isao Utsunomiya

### Stock Information

As of June 30, 2018

Total number of shares authorized 100,000,000

Total number of shares issued 49,355,938

Total number of shareholders 15,859

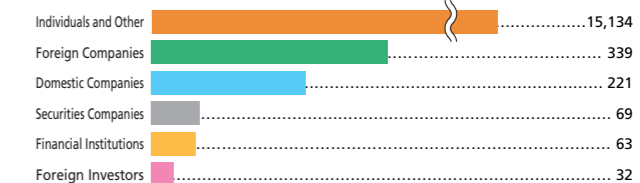
### Major Shareholders

Shareholder's name	Number of shares (Thousands)	Shareholding ratio (%)
Nippon Life Insurance Company	3,242	6.57
Japan Trustee Services Bank, Ltd. (Trust account)	3,048	6.18
The Master Trust Bank of Japan, Ltd. (Trust account)	2,023	4.10
Mizuho Bank, Ltd.	1,916	3.88
Sumitomo Mitsui Banking Corporation	1,864	3.78
TAIYO HANEI FUND, L.P.	1,050	2.13
STATE STREET BANK AND TRUST COMPANY 505019	979	1.98
MUFG Bank, Ltd.	910	1.84
STATE STREET BANK AND TRUST COMPANY	907	1.84
Japan Trustee Services Bank, Ltd. (Trust account 5)	885	1.79

Note: Treasury stock (3,466 shares) is excluded from the calculation of shareholding ratios.

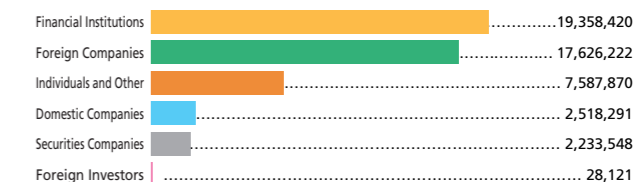
### Number of Shareholders

Total 15,859 shareholders



### Number of Shares Held

Total 49,355,938 shares



### ULVAC Group Companies

As of September 30, 2018

- Bases of ULVAC, Inc.
- Bases of ULVAC Group companies in Japan/overseas
- R&D bases
- Sales and service bases

