ULVAC Group's Strengths



Research and **Development**

Sustainably creating value from a medium to long-term perspective

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



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

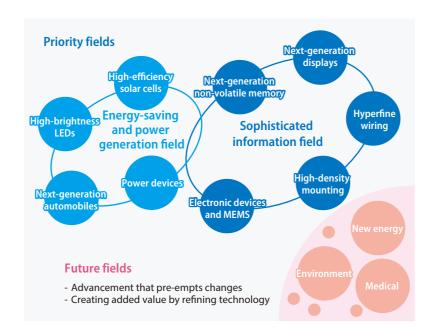
ULVAC contributes to the shaping of a safe and prosperous society by investigating vacuum technology and creating new value that will be needed in the future.

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

Nine important areas

Working towards a prosperous and safe lifestyle

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



Development institutions

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

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

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

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

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



ULVAC Group's Global Intellectual Property

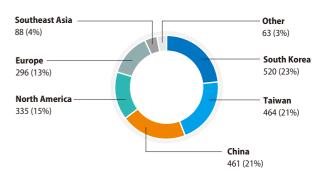
With regard to ULVAC's intellectual property rights, we are mainly applying for patents in countries in which ULVAC has many sales, and the number of foreign patents held as of June 30, 2016 totaled approximately 2,200, which is an increase over last year. In particular, the ratio of patents held in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

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

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

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

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



Global Network

Solution networks that support global industrial development

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

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

ULVAC Group

ULVAC, Inc.

ULVAC Group Companies in Japan

ULVAC TECHNO, Ltd. ULVAC KYUSHU CORPORATION ULVAC TOHOKU, Inc. ULVAC KIKO, Inc. ULVAC EQUIPMENT SALES, Inc. ULVAC CRYOGENICS INCORPORATED ULVAC-PHI, Inc. TIGOLD CORPORATION ULVAC COATING CORPORATION NISSIN SFIGYO Co., LTD. ULVAC Human Relations, Ltd. SHINKU CERAMICS CO., LTD.

FINE SURFACE TECHNOLOGY CO., LTD.

Reliance Electric Limited

SHOWA SHINKU CO., LTD.

Overseas ULVAC Group Compan

North America

ULVAC Technologies, Inc. Physical Electronics USA, Inc.

Europe

ULVAC GmbH

China

ULVAC (CHINA) HOLDING CO., LTD ULVAC (NINGBO) CO., LTD. ULVAC (SUZHOU) CO. LTD. ULVAC Orient (Chengdu) Co., Ltd. ULVAC Automation Technology (Shanghai) Corporation ULVAC Tianma Electric (Jingjiang) Co., Ltd. ULVAC Vacuum Furnace (Shenyang) Co., Ltd. ULVAC (Shanghai) Trading Co., Ltd. ULVAC Materials (Suzhou) Co., Ltd ULVAC Opto-electronics Thin Film Technology (Shenzhen) Co., Ltd.

ULVAC CRYOGENICS (NINGBO) INCORPORATED ULVAC NONFERROUS METALS (NINGRO) CO., LTD. ULVAC Research Center SUZHOU Co., Ltd. Hong Kong ULVAC Co., Ltd. ULVAC VACUUM EQUIPMENT (SHANGHAI) CO., LTD.

Taiwar

ULVAC TAIWAN INC.

ULTRA CLEAN PRECISION TECHNOLOGIES CORP.

ULCOAT TAIWAN, Inc.

ULVAC AUTOMATION TAIWAN Inc.

ULVAC SOFTWARE CREATIVE TECHNOLOGY, CO., LTD.

ULVAC Materials Taiwan, Inc.

South Korea

ULVAC KORFA. Ltd.

Ulvac Korea Precision, Ltd.

Pure Surface Technology, Ltd.

ULVAC CRYOGENICS KOREA INCORPORATED

ULVAC Materials Korea, Ltd.

UF TECH, Ltd.

Southeast Asia

ULVAC SINGAPORE PTE LTD ULVAC MALAYSIA SDN. BHD. ULVAC (THAILAND) LTD.



Customer Support

ULVAC CS Solutions focuses all of the Group's knowledge

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

Equipment maintenance service

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

Global CIP (continuous improvement program)

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

Factory outsourcing (FOS)

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

Rejuvenation, precision cleaning, and resource recovery

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

Component maintenance

Pump maintenance

We maintain components such as vacuum pumps.

JCSS vacuum gauge calibration service

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

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

Components and consumables

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

Analysis service

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

Second-hand sales and purchase

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

Training service

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