

Agreed to the Transfer of Iwatani Gas's Cryogenic Equipment Business to UCI
 — **ULVAC CRYOGENICS INCORPORATED**

In May 2014, ULVAC CRYOGENICS INCORPORATED (hereinafter, UCI) took over the manufacturing and selling of cryogenic equipment from the Cryogenic Equipment Department of the Engineering Division at Iwatani Industrial Gases Corporation (hereinafter, Iwatani Gas) and started manufacturing and selling the equipment.

UCI is a manufacturer specializing in cryopumps used for vacuum devices and equipment—such as chip making equipment, flat panel display production equipment and optical film production equipment—and has been supplying many cryopumps in Japan and Asia for many years. In 2009, UCI began manufacturing and selling cryogenic freezers used in the superconductor, medical equipment, measuring instruments and laboratory cryostats sectors.

As a major manufacturer of cryogenic equipment (mainly cryostats and cryogenic freezers), Iwatani Gas developed products used for R&D in the cryogenic field, but discontinued selling those products at the end of 2013.

By taking over Iwatani Gas's business of manufacturing and selling cryogenic equipment, UCI has added cryostats to its product lineup and has acquired cryogenic element technologies.



Various cryostats

This has generated synergy that has led to positive technical innovations; and it facilitates entry into the rapidly growing superconductor and medical equipment sectors.

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Liquid nitrogen server

Renamed to ADVANCE RIKO with the Transfer of Shares to CHINO
 — **ULVAC, Inc.**

In November 2014, a decision was made to transfer all shares of ULVAC-RIKO, Inc., a consolidated subsidiary of ULVAC, Inc. to CHINO Corporation. On December 25, 2014, ULVAC-RIKO, Inc. left the ULVAC Group and made a new start under the name of ADVANCE RIKO, Inc. as part of the CHINO Group.

Since its founding under the name of SHINKU-RIKO Inc. in 1962, ULVAC-RIKO, Inc. has developed its business as a manufacturer specializing in infrared heaters, thermal analysis and thermal property measuring instruments and other types of thermal analysis equipment.

The transferee, CHINO Corporation, is a manufacturer specializing in temperature and other measuring devices and controls, and provides integrated solutions—from measuring temperature to regulating temperature—as its main business. It is anticipated that combining CHINO Corporation's technologies with ULVAC-RIKO, Inc.'s thermal technologies will generate synergy.

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New Products

* Please visit our website for further information.

ULVAC, Inc.

Sales Debut of New HELIOT 900 Series Leak Detectors, Improved Evacuation Capability and Usability for Faster Testing

ULVAC, Inc. has begun selling new leak detectors "HELIOT 900 Series".

Leak detectors are test equipment designed to measure the amount of leakage and locate leaks during helium leak testing, a method of testing leaks using helium gas. Helium leak testing provides higher sensitivity than any other leak test method and enables fast and accurate testing, even for minor leaks. Due to these advantages, helium leak testing is used in a wide range of industries that require leak testing, including production lines for various piping components, electronic devices, air-conditioners/chillers, and automobiles, as well as food/drug packaging and medical equipment.

ULVAC has been selling leak detectors since the 1960s, and after 1995, the name of these products has been the HELIOT Series. We have fully upgraded our time-tested HELIOT 710 Series products to launch the brand-new HELIOT 900 Series.

The market size of leak testing is expanding year by year, with the global trend regarding



product quality improvements. HELIOT 900 Series are compatible with the expansion of new applications for leak testing and the inspection requirements that continue to get stricter.

Main Features

- (1) The products provide a helium pumping speed of 5 L/sec, which is two to three times higher than competing models in the same class. To meet today's ever-demanding helium leak testing requirements, such as shorter test times and higher responsiveness, stability and detection sensitivity, we have dramatically improved helium evacuation capability while increasing the sensitivity of the detection unit.
- (2) Tablet-type controller as a standard feature
 The display is no longer fixed to the detec-

tor body, eliminating operational constraints and greatly improving usability. The 7-inch capacitance touch panel allows operators to work with the detector more intuitively and promptly while holding it in hand. The controller comes standard with wireless remote connection to enable remote control operation. The display supports seven languages.

- (3) Advanced mobile cart
 To ensure safe movement — even through narrow passages — the cart embodies numerous features requested by professionals in laboratories, such as a compact body, large wheels, a flat panel cover, and the ease of moving and placing.
- (4) Improved user serviceability
 The service panel can be removed without tools. The internal structure provides good serviceability. Maintenance can be performed in accordance with a step-by-step video that can be displayed on the controller.
- (5) The products are interchangeable with existing models to enable a smooth transition.

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Crystal Oscillator System for Regulating Frequency Won "the Business Award" at "The Kanagawa Industrial Technology Development Grand Prize Competition"

— SHOWA SHINKU CO., LTD.



SHOWA SHINKU CO., LTD. received "The Business Award" at "The 31st Kanagawa Industrial Technology Development Grand Prize Competition" for its system for adjusting crystal oscillator frequencies, SFE-B03. Kanagawa Prefecture and the Kanagawa Newspaper jointly sponsor this competition to recognize excellent industrial technologies and products developed by small- and medium-sized companies in Kanagawa Prefecture, thereby encouraging their efforts for improving their capabilities developing technologies.

This is the third time that SHOWA SHINKU has received an award (it was previously awarded "The Grand Prize" and "The Encouragement Award" (in the 1st and 11th competitions respectively).

This system continuously measures and monitors the oscillation frequency of a crystal oscillator and etches the electrode film on the surface of the crystal oscillator with an argon ion beam to adjust the frequency to the target value. The Business Award was granted for capabilities of SFE-B03 to adjust and process smaller and higher-precision crystal oscillators at high productivity.

It is expected that using this system will contribute to further downsizing and increasing the efficiency of various types of electronic equipment.

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Received its Seventh Straight "AUO Best Equipment Supplier Award" for Cooperating to Make Proposals for Improving the IGZO Process and Reducing the Lead Time of Sputtering Systems

— ULVAC TAIWAN INC.

ULVAC TAIWAN INC. (hereinafter, UTI),



an overseas subsidiary of ULVAC, Inc. in Taiwan, received "The 2013 Best Equipment Supplier Award" from AU Optronics Corp. (hereinafter, AUO), which is a major panel manufacturer in Taiwan. This is the seventh straight year UTI has received the award.

The awards ceremony was held at the Head Office of AUO in Hsinchu, Taiwan and Masasuke Matsudai, the Director and Managing Executive Officer of ULVAC, Inc., received the shield from Mr. Xie, the Deputy General Manager of AUO.

UTI received this award for the improvements it made to AUO's large-scale mass-production line by making proposals for the IGZO process and reducing the lead time of sputtering systems.

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New Products

* Please visit our website for further information.

ULVAC, Inc.

Sales Debut of New Ceramic Ball Bearing Molecular Pump UTM300B, Compact Size with Integrated Controller Design and Free Mounting Orientation



ULVAC, Inc. has begun selling new ceramic ball bearing type turbo molecular pump, UTM300B with 280L/s pumping speed. Turbo molecular pump is utilized to make high and ultra high vacuum environment in various markets from R&D or mass production line. ULVAC launches the ceramic ball bearing turbo molecular pump, UTM300B, in addition to the existing line-up, small size pivot bearing type, medium and large size magnetic levitation turbo molecular pumps, to meet to the requirements such as free mounting orientation, more compact design, smaller size backing pump, etc in the trend of diversified applications of turbo molecular pumps.

The UTM300B is the ceramic ball bearing turbo molecular pump with 280L/s pumping

speed. The size of this new pump is compact by integrated controller design. There is no limitation in mounting orientation. Excellent high backing pressure performance allows you to select smaller backing pumps.

The UTM300B is ideal and affordable solution for use in the small-size equipment for academic research and R&D, compared with conventional magnetic levitation type pumps.

Main Features

- (1) No limitation in the mounting direction.
- (2) Integrated controller to the pump body reduces cable length and downsize pumping system.
- (3) Advanced mobile cart.
High compression ratio made it possible to run the pump at high backing pressure and downsize its backing pump.
- (4) Inlet port flange is selectable from VG100, ICF152, and ISO100-K.
- (5) Noise level at the no load is 50dB or less (with ISO-100K flange).
- (6) Applicable standard CE and NRTL.

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ULVAC, Inc.

System for Integrating the Photonics Crystal Process is Developed and Launched

Through collaborative research with MARUBUN CORPORATION, TOKYO OHKA KOGYO CO., LTD., TOSHIBA MACHINE CO., LTD., the National Institute of Advanced Industrial Science and Technology and the Institute of Physical and Chemical Research, ULVAC, Inc. developed and launched a system of integrating the photonic crystal process, which can significantly improve the light-extraction efficiency in LED production processes.

Used in an LED manufacturing process, this system forms a uniquely patterned photonic crystal layer—through nanoimprinting and dry etching—on a sapphire substrate layer. This helps make an LED with significantly improved energy efficiency, as part of the light that would otherwise go back into the device and change to heat energy can also be extracted from the sapphire substrate layer.

Photonic crystals are structures that can scatter and transmit light. By using this photonic crystal layer, in place of the conventional PSS method, light-extraction efficiency can be

Received the Special Contribution Award from CSOT in Shenzhen for Making Tremendous Contributions to Reliable Mass Production by Providing Services Promptly and Establishing a Well-Organized System for Supplying Parts

— ULVAC (Shanghai) Trading Co., Ltd.



China Star Optoelectronics Technology (hereinafter, CSOT), which is affiliated with TCL Corporation, a major general home electric appliances manufacturer in China, held a groundbreaking ceremony on September 16, 2014 in Wuhan, Hubei to celebrate the start of construction of a G6 LTPS panel production line funded by a new investment by CSOT.

At the global vendor convention held on the same day, awards were presented to excellent vendors. Hisaharu Obinata, the President and Chief Executive Officer of ULVAC, Inc., received the Special Contribution Award from Mr. Li Dongsheng, the Chairman of TCL Corporation. The ULVAC Group was commended for making great contributions to a

ULVAC, Inc.

JCSS Calibration Service Expanded its Scope

ULVAC, Inc. is an MRA*1/JCSS*2 accredited calibration laboratory for vacuum gauges. Recently the range of calibration pressure has been expanded and ULVAC, Inc. is allowed to calibrate all vacuum gauges (whether they are made by ULVAC, Inc. or not). ULVAC, Inc. will continue to provide its customers with calibration services for their vacuum gauges, whether they are made by ULVAC, Inc. or other manufacturers, by using JCSS secondary standard gauges and working reference standard gauges, and issue JCSS sealed certificates.



- *1 MRA (Mutual Recognition Agreement) International agreement for recognizing one another's conformity assessments
- *2 JCSS (Japan Calibration Service System) Calibration laboratory registration system under the Measurement Act

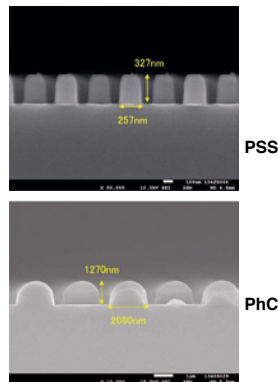
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reliable G8.5 mass production line in Shenzhen by establishing a service center near the factory, getting it up and running in a short time, providing services promptly, and establishing a well-organized system for supplying parts.

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Upper panel: Conventional PSS method (enlarged 10,000 times)
 Lower panel: Photonic crystal method (enlarged 50,000 times)

increased to a maximum of about 80% from about 30% achieved by PSS. In addition, the pattern depth can be reduced to about one-fifth of that of PSS, resulting in less dry etching time and, in turn, significantly reducing manufacturing costs.

As a general distributor of this system in Japan, MARUBUN CORPORATION provides sales support collectively for collaborative research licensing and the systems and materials of each company. ULVAC, Inc. and TOSHIBA

MACHINE CO., LTD. are in charge of nanoimprint systems that form photonic crystal layers. In particular, ULVAC, Inc. is in charge of final shaping to the designed pattern after dry etching, by using the two-layer resist method.

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■ Japan

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- 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
- Nisshin Seigyo Co., LTD
- ULVAC Human Relations, Ltd.
- SHINKU CERAMICS CO., LTD.
- FINE SURFACE TECHNOLOGY CO., LTD.
- Reliance Electric Limited
- SHOWA SHINKU CO., LTD.

■ China

- ULVAC (China) Holding Co., Ltd.
- ULVAC (NINGBO) Co., Ltd.
- ULVAC (SUZHOU) CO. LTD.
- ULVAC Orient (Chengdu) Co., Ltd.
- ULVAC Automation Technology (Shanghai) Corporation
- ULVAC Tianma Electric (Jingjiang) Co., Ltd.
- ULVAC Vacuum Furnace (Shenyang) Co., Ltd.
- ULVAC (Shanghai) Trading Co., Ltd.
- ULVAC Materials (Suzhou) CO., LTD
- ULVAC Opto-electronics Thin Film Technology (Shenzhen) Co., Ltd.
- ULVAC CRYOGENICS (NINGBO) INCORPORATED
- ULVAC NONFERROUS METALS (NINGBO) CO., LTD.
- ULVAC Research Center SUZHOU Co., Ltd.
- Luoyang Xinyou Magnesium Co., LTD
- Hong Kong ULVAC Co., Ltd.
- ULVAC VACUUM EQUIPMENT (SHANGHAI) CO.,LTD.

■ Taiwan

- 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 KOREA, Ltd.
- Ulvac Korea Precision, Ltd.
- Pure Surface Technology, Ltd.
- ULVAC CRYOGENICS KOREA INCORPORATED
- ULVAC Materials Korea, Ltd.
- UF TECH, Ltd.

■ Southeast Asia

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- ULVAC MALAYSIA SDN. BHD.
- ULVAC (THAILAND) LTD.

■ North America

- ULVAC Technologies, Inc.
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