

We Strain our Ears  
to the Signals from Nature

**ULVAC**

## **C o n t e n t s**

CEO's Message	04
About ULVAC	06
Company History	08
Business Division	10
Group Companies	22



## CEO's Message

새로운 가치창조를 통해 한국사회에  
공헌하는 기업 한국알박(주)입니다.



한국알박(주) 대표이사 사장

김선길

안녕하십니까. 저희 한국알박(주)를 찾아주셔서 진심으로 감사합니다.

눈부신 발전을 거듭해 온 우리나라 산업기술은 이미 여러 분야에서 세계최고의 경쟁력을 인정 받고 있습니다. 특히 메모리 반도체와 TFT-LCD 같은 진공기술 분야는 타의 추종을 불허하며 세계최고의 품질과 생산량을 자랑하고 있습니다. 이들 분야의 설비에 사용되고 있는 진공기술은 일반산업에서 첨단산업에 이르기까지 광범위하게 적용되어 막대한 수입대체효과와 고부가가치를 창출하는 핵심기술입니다.

한국알박(주)는 세계최고의 진공기술을 보유한 일본기업ULVAC,Inc가 축적해온 기술을 이용하여 새로운 장치와 최고의 제품을 고객에게 제공하고 있습니다. 또한, 예측 불가한 시장상황에서 우수한 경쟁력을 확보할 수 있도록 24시간 기술지원서비스를 실시하고 있습니다. 한국알박(주)는 한국진공기술리더로서의 자부심과 사명감으로 관련장비의 100% 국산화 실현을 위하여 기술개발과 투자에 힘을 쏟고 있습니다.

한국알박(주)는 창사20년을 지나 새로운 한발을 내딛기로 하였습니다.

새로운 가치창조를 통해서 한국사회에 공헌하고 국가경쟁력으로 이어갈 수 있도록 최선의 노력을 다하고 세계 최고수준의 품질과 가격경쟁력을 추구하여 세계시장에서 성장과 확대를 목표로 하고 있습니다. 직원들을 위해서도 공정한 기회를 만들고 사회의 일원으로써 책임을 다하도록 노력하겠습니다.

여러분의 아낌없는 격려를 부탁드립니다.

Vacuum Technology and Innovative Ideas



풍요로운 미래,  
가치있는 기술 \_ 한국알박

세계진공기술 1위기업을 지향하는 한국알박은  
최고의 첨단기술력과 노하우를 바탕으로  
세계최강의 기술이될 수 있도록  
최선의지원을 펼치고 있습니다.  
성공신화를 창조하는 기업파트너 한국알박과  
미래를 함께하십시오.



회사 Vision

- 1 진공 기술 부분의 한국 1위 기업
- 2 고객으로부터 사랑받는 기업
- 3 지속적으로 발전하는 기업

경영방침

- 1 윤리경영
- 2 경영혁신
- 3 생산 기술 향상
- 4 신제품 개발
- 5 고객 만족 경영
- 6 정보보안 경영

품질방침

- 1 완성도 높은 제품 생산
- 2 고객이 만족하는 품질 제공
- 3 지속적인 품질 개선 활동



# Company History

한국알박은 1995년 7월 설립 이래 진공전문 Maker로서 다양한 산업분야에 헌신하고 있습니다.

현재 본사는 경기도 평택시 청북면 어연한산 지방산업단지 내 위치하고 있으며 5천 평 부지에 반도체, 전자기기 장비 위주의 제조설비와 크린룸을 보유하고 있습니다.

그리고 현곡산업단지 내 1만여 평 규모의 부지에 8세대 이상의 Sputter 장치를 제조할 수 있는 제조설비 및 크린룸을 보유하고 있습니다. 그 외 서울, 부산, 대전에 영업소를 두고 있으며, 구미, 이천, 화성, 탕정, 파주에 고객지원센터를 설립하여 고객과 가까운 곳에서 신속한 서비스가 가능하도록 고객중심의 전국네트워크 망을 구축하고 있습니다. 뿐만 아니라 ISO9001, ISO14001, ISO 27001의 인증취득과 2005년 외국인 투자유치 유공자 대통령 표창, 2010년 대·중소기업 동반성장 국무총리 표창, 경실련 주관의 바른외국기업상 최우수상, 2015년 1억불 수출의 탑 수상을 통해 대내외적으로 경제, 사회적 성과를 인정받고 있습니다.



# History

- |   |                                 |
|---|---------------------------------|
| 1995.07   한국알박(주) 설립                      | 2005.12   UF TECH(株) 인수         |
| 1997.06   구미 고객지원Center 설립                | 2006.11   현곡 제5공장 준공            |
| 2000.08   평택 제1공장 준공                      | 2008.08   자회사[한국알박머터리얼즈(株)] 설립  |
| 2000.09   백층렬 사장 취임                       | 2011.07   한국초재료연구소 설립           |
| 2001.04   평택 제2공장 준공                      | 2012.07   광주사무소→대전사무소 이전        |
| 2003.11   평택 제3공장 준공                      | 2016.09   후지야마 사장 취임, 백층렬 회장 취임 |
| 2004.07   자회사[한국알박정밀(株), PS Tech. (株)] 설립 | 2018.07   김선길 사장 취임             |
| 2005.04   현곡 제4공장 준공                      |                                 |

# 인증 및 수상

- 2001.02 | ISO9001 인증 취득
- 2001.03 | 모범 납세자 경제부총리 표창 수상
- 2003.12 | IT 우수기업 중소기업청 표창 수상
- 2005.03 | 백층렬 대표이사 모범기업인 표창 수상
- 2005.06 | ISO 14001인증 취득
- 2005.11 | 무역의 날 천만불 수출의 탑 수상
- 2005.12 | 백층렬 대표이사 투자유치유공자 대통령 표창 수상
- 2007.12 | 경실련 바른외국기업상 우수상 수상
- 2008.12 | 경기도 투자유치 우수기업인상 수상
- 2009.05 | 대일수출 유망기업 선정
- 2010.10 | 경기도 성실납세법인 인증서 수상
- 2010.12 | 백층렬 대표이사 대·중소기업 협력대상 국무총리 표창 수상
  - 경실련 바른외국기업상 최우수상 수상
  - 우수봉사기업 평택시장 표창 수상
- 2011.04 | ISO 27001 인증 취득
- 2011.06 | 지식경제부 일하기 좋은 기업 선정
- 2012.01 | KOSHA/OHSMS 안전보건경영 인증 취득
- 2012.06 | 지식경제부 자율준수 무역거래자 지정
- 2012.07 | 한국산업안전보건공단 주관 2012년도 안전보건활동 장려상 수상
- 2012.12 | 한국무역협회 7000만불 수출의 탑 수상
- 2014.12 | 산업통상자원부 주관 자율준수 무역 거래자 지정
- 2015.12 | 무역의 날 1억불 수출의 탑 수상
- 2016.03 | 삼성전자 16년도 상생협력DAY 혁신우수협력사 수상
- 2016.10 | 한국디스플레이협회장상 수상
- 2017.12 | 2017 LG Display 동반성장 Award 수상
- 2018.01 | 2018 LG Display Best Partner Award 수상
- 2019.12 | 평택시 주관 사회복지향상 표창 수상
- 2020.09 | 통계청 주관 통계유공자 경인청장 표창 수상



Touch the Future With Dream Technology

## Business Division

### FPD Production Equipment

A Pioneer in Display Manufacturing Equipment with the Largest Share of Global Flat Panel Display Equipment Group

### Solar Cell Production Equipment

Cutting-edge Production Technologies for Thin Film Compounds, Crystalline Solar Cells and Organic solar cells

### Semiconductor Production Equipment

Cutting-edge Products to Meet State-of-the-art Processing Requirements

### Electronic Device Production Equipment

Sputter, Plasma CVD and High Vacuum Evaporation Systems make Up The Main Product Line

### Industrial Vacuum Equipment

Wide Range of Product Applications Made Possible by ULVAC Technologies

### Vacuum Components

Cutting-edge Products to Meet State-of-the-art Processing Requirements





# FPD Production Equipment

A Pioneer in Display Manufacturing Equipment with the Largest Share of Global Flat Panel Display Equipment Group

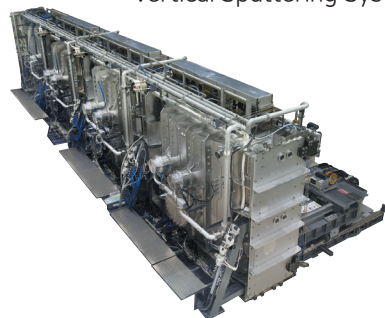
LCD & OLED Manufacturing Equipment / Roll coating system

## SMD Series

Sputtering Systems Single-substrate

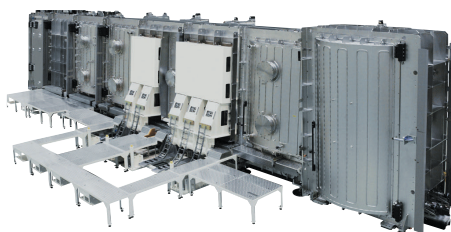


Vertical Sputtering Systems



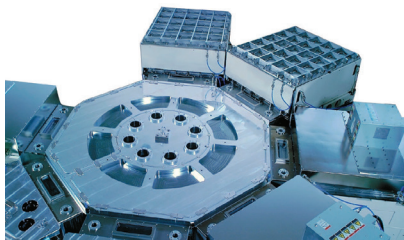
## SDP Series

In-line Sputtering Systems



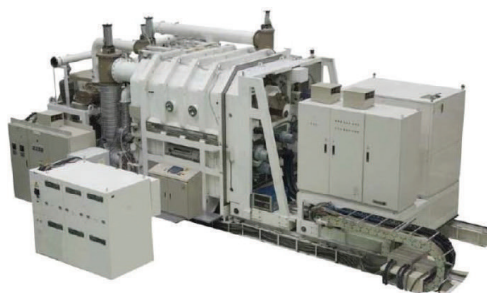
## CMD Series

Single-substrate Plasma CVD Systems



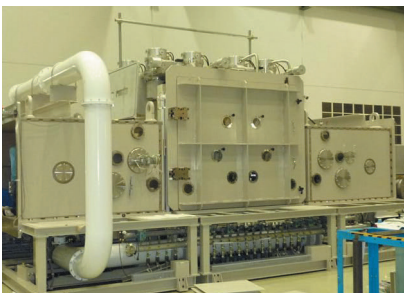
## EWA Series

Evaporation Coating System (Roll Coater Type)



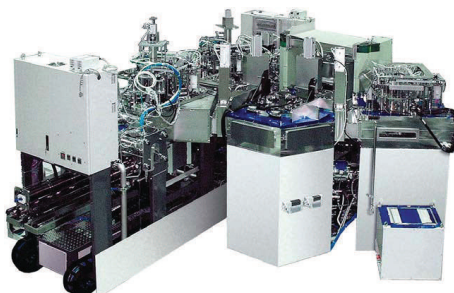
## SPW Series

Sputter Coating System (Roll Coater Type)



## ZELDA Series

Organic Evaporation System for OLED (G2 product)



Organic Evaporation System for OLED (G6H product)



# Solar Cell Production Equipment

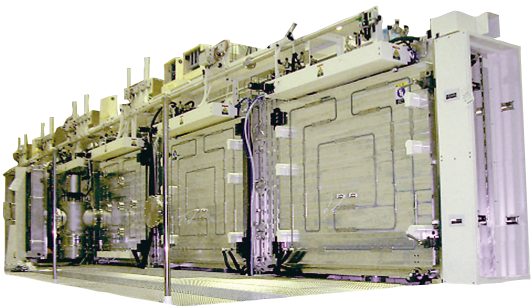
Cutting-edge Production Technologies for Thin Film Compounds, Crystalline Solar Cells and Organic solar cells

## CCV Series

In-line Plasma Enhanced CVD System

Features

- The Experience and Reliability :
  - 30 years experience with key players.
  - Demonstrated system reliability "Mass-production" field.
- Superior efficiency :
  - Low deposition rate.
  - Isolated deposition chamber.
- Low running cost : No use of NF3.
- High throughput : Two substrate per carrier.



## SCH Series

In-line Sputtering System

Features

- Demonstrated high reliability in many mass-production lines
- Flexibility in size and number of substrates
- High deposition rate & high efficiency cathode
- Applicable to a broad range of deposition methods (Depo-down/Depo-up, DC/AC/RF sputtering)
- Simple and easy maintenance



## PVI Series

Ion Implant System

Features

- Mask implantation process is shorter than the other patterning process by using etching
- Reducing of edge cut process due to the using edge cut mask
- High accuracy of pattern alignment by each wafer alignment
- The Cluster type equipment with High Throughput
- Compact footprint against semiconductor ion implanter
- Risk dispersion by combining compact equipment



## ULDEX Series

Batch Type Dry Etching System

Features

- High throughput : 4000pcs./hr
- Simple mechanism :
  - No driving system inside the process chamber.
- Simple maintenance.





# Semiconductor Production Equipment

Cutting-edge Products to Meet State-of-the-art Processing Requirements

## ENTRON-EX W300

Metallization System for 300mm Wafers  
Sputtering Systems

### Features

- Flexible module configuration
- The integration of PVD and CVD/ALD process
- The various applications (Al & Cu wiring , Ti/TiN barrier metal, UBM and Co/Ni salicide etc.)
- Process capability for not only Si devices but also compound semiconductor, on quartz devices , etc.
- 10 process modules maximum can be equipped based on the cluster tool concept Single or Tandem platform is available.
- High productivity  
The wafer transfer speed is 60%UP in the ratio on the current model.
- A high production processing performance and low COO were achieved.
- Environmental consideration  
Various energy saving functions were standard installed, and the energy saving of 30% on the current model was achieved. RoHS compliance.
- Equipped with the control system that complies with the next generation semiconductor Fab.
- The excellent thin film control and EES compliance.  
The high advanced automation Fab compliance.



### Applications

- Advanced semiconductor memory (DRAM & Flash memory)
- Next generation NVM (STT-MRAM, ReRAM, PRAM, FeRAM)
- Advanced Logic devices
- CMOS image sensor

## RISE-300

Native Oxide  
Removal Equipment

### Features

- Damage-free (remote plasma and low-temperature process)
- High throughput and low CoO
- Processing in batches of fifty wafers
- Superior uniformity of etching (5% or less per batch)
- Easy maintenance (no side maintenance access is required)
- Small foot print compare to cluster type equipment
- 50% lower self-aligned contact resistance compared to current wet process
- The Smallest foot print

### Applications

- Pre-cleaning for self-aligned contact (SAC) formation
- Pre-cleaning for capacitor formation
- Pre-cleaning for epitaxial growth
- Pre-cleaning for Co or Ni salicide



# Electronic Device Production Equipment

Sputtering, Plasma CVD and High Vacuum Evaporation Systems Make Up the Main Product Line

## ei-Series

Batch type E-beam Evaporation System

### Features

- Supports various evaporation sources (i.e. EB, RH, EB + RH etc.).
- Substrate holders complying with each process (i.e. lift-off, planetary, satellite etc.).
- Supports various substrates; substrates size from  $\phi 2$ in to 6in, rectangular substrates, Si, compounds, glass and ceramics.
- Display and operation on LCD touch panel.
- Superior PC-operating system and functions (recipe function, data logging, maintenance assist function).



## NE-Series

Load Lock Type Dry Etcher System

### Features

- Higher Through-Pu (t by 140% than conventional systems)
- ICP with magnetic field high density plasma source which has over 600 delivery record in compound semiconductor market is equipped.
- Propriately Star electrode\*2 which has self-cleaning function for deposited material from RF window is equipped.
- High maintenance capability, stability, reliability are achieved through re-deposition preventative designing.
- Dry etching technology availability for various process application. (GaN, Sapphire, Metal, ITO, SiC, AlN, ZnO, 4 elements compound semiconductor materials, etc.)
- Various Option availability



## SME-Series

Multi Chamber Sputtering System

### Features

- Substrate size up to  $\phi 200$ mm.
- Process chamber up to three process chamber can be equipped.
- Available for various application-specific process modules.
- Substrate heating mechanism, simultaneous deposition and revolved deposition are available.



# Industrial Vacuum Equipment

Wide Range of Product Applications Made Possible by ULVAC Technologies

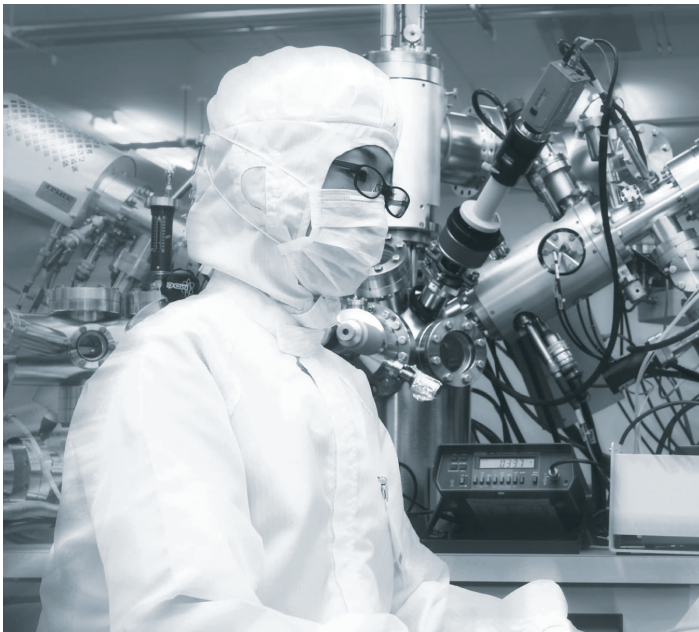
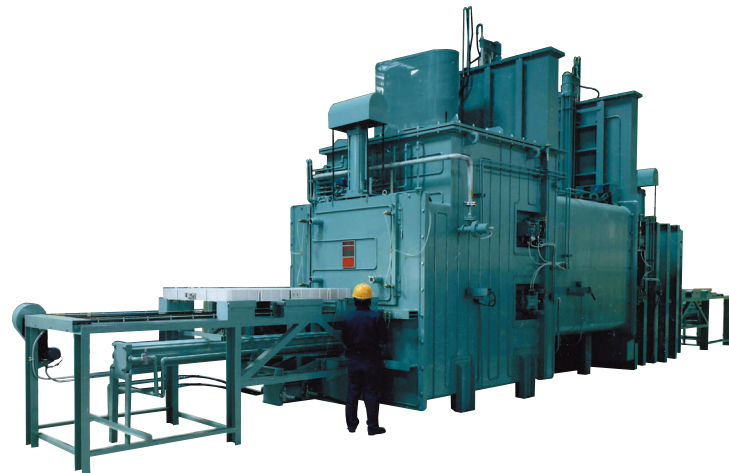
## FHH Series

### Horizontal Type Vacuum Heat Treatment Furnace

FHH series are used for various purposes such as quenching, tempering, sintering and brazing of various metals. Chamber configuration can be multiplied up to 3 chambers by adopting fork carry system.

#### Features

- Maximum temperature 1350°C , Operation temperature 800 to 1150°C
- Temperature uniformity is within  $\pm 5^\circ\text{C}$  at 1150°C
- Keeping the heating chamber in vacuum for high quality and repeatability of products.
- Carrier gas system is implemented to minimize metal evaporation.
- At cooling process, heating chamber is not cooled so that power consumption can be saved.
- The heating chamber is kept in vacuum to prevent from oxidizing so that lifetime for internal parts of the heating chamber can be longer.
- Water-cooling jacket construction contributes clean work environment.



# Vacuum Components

Cutting-edge Products to Meet State-of-the-art Processing Requirements.

## Leak Detector

HELIOT901W1 / 901D2 / 904W2 / 904D3 / 904D4

HELIOT 900 series is a leak detector which has high speed pumping capability and user-friendliness. Highest performance is committed in all kinds of leak tests.

#### Features

- High speed pumping capability 5L/sec helium in ULTRA flow mode.
- Tablet wireless remote control as standard.
- Simple and eye-friendly high-definition screen.
- Backing pump is selectable from oil rotary pump and dry scroll pump in different sizes.
- Mobile-friendly with maneuverable cart (904 series) and low height floor cart (901 series).
- Easy maintenance. Tool-free removal panel, easy access to each part and maintenance instruction movies installed.
- Aside from helium, hydrogen detection is possible in vacuum method.



## Process gas monitor(Residual Gas Analyzer)

#### Features

- **Qulee CGM Series**  
For sputtering system for process control, quality control and yield ratio improvement.
- **Qulee BGM Series**  
For various kind of evaporator and vacuum furnace for quality control and yield ratio improvement.
- **Qulee HGM Series**  
For research & development equipment.
- **Qulee RGM Series**  
For etching and CVD system for process control, quality control, yield ratio improvement and end point monitoring.
- **Pumping System Qulee with YTP**  
For wide range of usage from process control, residual gas analysis of various vacuum equipments to R&D.



## Multi-Ionization Gauge

#### Features

- **ST2-1 / ST2-2**
  - The world's first metal type triode ionization gauge (Patent 5827532). Long lifetime taking advantage of triode type even in harsh environment for vacuum gauges.
  - Measurement accuracy is improved at  $\pm 10\%$  and sensitivity stability is also improved drastically.
- **SH2-1 / SH2-2**
  - For measurement from ultra-high vacuum to high-vacuum.
  - For measurement of ultimate pressure of sputtering and evaporation system such as PV · FPD / SEMI and electronic component manufacturing systems, and pressure monitoring for ultra high vacuum equipments.





# Vacuum Components

Cutting-edge Products to Meet State-of-the-art Processing Requirements.

## Spectroscopic Ellipsometer

UNECS-1500M / 1500A / 2000A / 3000A / Portable

UNECS series is Spectroscopic Ellipsometer which measures thin film thickness and refractive index with high speed and high precision. Unique measurement method makes high speed measurement and compact size design.

### Features

- Unique measurement method which does not have a rotation mechanism makes measurement speed extremely high in 20ms.
- Wavelength of standard type from 530nm to 750nm and visible spectroscopy type from 380nm to 760nm.
- The emitter and receiver sensor consists of only optical elements which does not include any rotating mechanism. It makes weight and design light and compact, and periodical maintenance cycle very low.
- Various mode available from unique portable, manual stage and auto stage type. A built-in type for vacuum environment is also available.



## Power Supply

### Features

- High Power DC Power Supply DPG series / DPG-30H
- Low Power DC Power Supply DPG / DCS Series
- DC Pulse Power Supply DPG-P Series
- RF Power Generator / Matching Box RFS-N series
- High Function EB Power Supply HPS-N series



## Dry Vacuum Pump

LS120A / 300A / 600A / 1200A

Dry Pump which has both high pumping speed and low power consumption. Enable to select suitable pump from 4 different pumping speed model depending on the use condition

### Features

- High pumping speed  
High pumping speed at near atmosphere pressure, and pumping down time can be drastically reduced
- Low power consumption  
ECO-CHOCK technology realizes low power consumption(C Type)  
Power consumption at the ultimate pressure is the industry-leading 0.6kW or less(LS120A-C)
- Low noise  
Built-in silencer achieves the noise level 61dB(A) or less
- Low running-cost  
No shaft sealing gas



## Oil Rotary Pump

VS650A-A / 650A-W / 750A-A / 750A-W

Large size and low vibration single stage

### Features

- Selectable from air and water cooled type. Oil cooler is used for oil temperature cooling for a air cooled model.
- Equipped with a cartridge-type oil mist filter inside the oil tank.
- Cleaning of the inside of the oil tank and replacement of the oil mist filter are easy.



## Cryo Pump

With proven reliability, excellent performance and quality, prompt and appropriate services, and many different models, our cryo pumps are ideal for production lines all over the world.

### Features

- Ultra-clean vacuum
- High pumping speed
- Pumps all gases
- No liquid helium nitrogen
- Mounts in any orientation
- Compact design
- Quiet, easy, to operate
- Lower operating cost



## Turbo Molecular Pump

Controller integrated turbo molecular pump with magnetic bearings saves wiring work and installation space.

### Features

- Controller integrated with the pump body  
No wiring work between pump body and controller.
- Free mounting direction  
Free mounting direction makes the system design flexible.
- 5 models from 1000L/s to 4000L/s class.
- Wide range and high flow for the light processes.
- Pump rotation variable from 25% to 100%  
Enabling the pressure adjustment in a chamber.
- High durability and safety  
Safety confirmation tests are passed, such as air rushing-in test and touch down test.



## Small Vacuum Pumps

### Features

- Diaphragm Type Vacuum Pumps - DAP / DA / DAT / DAU / DTU / DTC Series
- Rocking Piston Type Dry Vacuum Pumps - DOP Series
- Scroll Type Dry Vacuum Pumps - DIS / DISL Series
- Multi-Stage Roots Type Dry Vacuum Pump - RDA Series
- Oil-Sealed Rotary Vacuum Pumps - GLD / GHD / GCD Series
- Mechanical Booster Pump - MBS Series





# Charging System for Electric Vehicle

Cutting-edge products leading the market



Normal lot-Charger

- UK-NC7S-TCE / UK-NC7W-TCE

※ lot : 사물인터넷



Normal Charger

- UK-NC7S / UK-NC7W



Fast Charger

- UK-FC22S / UK-FC22W





Quick Charger

- UK-QC43S

Touch the Future With Dream Technology

We Strain our Ears  
to the Signals from Nature

ULVAC



# ULVAC GROUP COMPANIES

## Europe



**ULVAC GmbH**  
Sells and provides customer support for vacuum equipments and components

### Europe

### Asia

### Japan

### North America

## North America



**ULVAC Technologies, Inc.**  
Manufactures, sells, and provides customer support for vacuum equipments

**Physical Electronics USA, Inc.**  
Sells surface analyzers

## Taiwan



**ULVAC TAIWAN INC.**  
Manufactures, sells, and provides customer support for vacuum equipments



**ULTRA CLEAN PRECISION TECHNOLOGIES CORP.**  
Manufactures, cleans, conducts surface treatment, and provides customer support for vacuum equipments and parts

**ULVAC SOFTWARE CREATIVE TECHNOLOGY, CO.,LTD.**  
Develops and produces software for vacuum equipment control systems

**ULVAC AUTOMATION TAIWAN Inc.**  
Manufactures and sells control panels and automatic control equipments

**ULCOAT TAIWAN, Inc.**  
Manufactures, processes, and sells black matrixes for liquid crystal displays and large mask blanks

**ULVAC Materials Taiwan, Inc.**  
Manufactures and sells sputtering targets for flat panel displays

## Southeast Asia



**ULVAC, Inc., India Branch**  
Sells and provides customer support for vacuum equipments and components



**ULVAC SINGAPORE PTE LTD.**  
Sells and provides customer support for vacuum equipments and components



**ULVAC MALAYSIA SON. BHD.**  
Sells and provides customer support for vacuum equipments and components, and provides parts cleaning and target bonding services



**ULVAC (THAILAND) LTD.**  
Sells and provides customer support for vacuum equipments and components

## China



**ULVAC (CHINA) HOLDING co., LTD.**  
Undertakes administrative and coordinating tasks for investment and business in China

**ULVAC (Shanghai) Trading Co., Ltd.**  
Sells and provides customer support for products manufactured by ULVAC group companies

**ULVAC Automation Technology (Shanghai) Corporation**  
Manufactures and sells control panels and automatic control drives



**ULVAC (NINGBO) CO., LTD.**  
Manufactures and sells vacuum pumps



**ULVAC (SUZHOU) CO., Ltd.**  
Manufactures and sells vacuum equipments and components



**ULVAC Orient (Chengdu) Co., Ltd.**  
Manufactures and sells vacuum equipments and components

**ULVAC Tianma Electric (Jingjiang) Co., Ltd.**  
Manufactures and sells parts for vacuum pumps

**ULVAC Research Center SUZHOU Co., Ltd.**  
Provides technologies for R&D into vacuum equipments

**ULVAC VACUUM EQUIPMENT (SHANGHAI) CO., LTD.**  
Sells vacuum equipments and components and trading in the free trade area

**ULVAC Opto-electronics Thin Film Technology (Shenzhen) Co., Ltd.**  
Produces optical films (e.g. touch panels) and manufactures and sells vacuum equipments

**ULVAC Vacuum Furnace (Shenyang) Co., Ltd.**  
Manufactures, sells, and provides customer support for vacuum equipments

**ULVAC NONFERROUS METALS (NINGBO) CO., LTD.**  
Manufactures, sells, and provides research guidance/technical advice on casting materials (e.g. aluminum alloys) and the castings

**ULVAC CRYOGENICS (NINGBO) INCORPORATED**  
Manufactures, sells, and provides customer support for cryopumps

**ULVAC Materials (Suzhou) Co., Ltd.**  
Develops, manufactures, sells, and provides customer support for sputtering targets

**Hong Kong ULVAC Co., Ltd.**  
Sells vacuum equipments and components

## Korea



**ULVAC KOREA, Ltd.**  
Manufactures, sells, and provides customer support for vacuum equipments



**ULVAC KOREA PRECISION, Ltd.**  
Manufactures parts for large-substrate vacuum equipments and other vacuum equipments



**Pure Surface Technology, Ltd.**  
Provides a surface treatment service for parts used in film deposition equipments

**UF TECH, Ltd.**  
Manufactures equipments parts

**ULVAC CRYOGENICS KOREA INCORPORATED**  
Manufactures and sells cryopumps

**ULVAC Materials Korea, Ltd.**  
Provides a bonding service for sputtering targets

## Japan



**ULVAC, Inc.**  
Develops, manufactures, sells, and customer support for vacuum equipment, vacuum components, and materials



**ULVAC TECHNO, Ltd.**  
Sells and provides customer support for vacuum equipment, devices, parts, consumable materials, surface treatment, cleaning and used equipments

**ULVAC KIKO, Inc.**  
Manufactures and sells small vacuum pumps

**ULVAC CRYOGENICS INCORPORATED**  
Manufactures and sells cryopumps and cryogenic equipments

**ULVAC-PHI, Inc.**  
Manufactures and sells surface analyzers

**ULVAC COATING CORPORATION**  
Manufactures, processes, and sells mask blanks for semiconductors and black matrixes for liquid crystal displays

**SHOWA SHINKU CO., LTD,**  
Manufactures and sells vacuum equipments for quartz devices and optical applications

**ULVAC EQUIPMENT SALES, Inc.**  
Sells vacuum equipments and components

**ULVAC KYUSHU CORPORATION**  
Conducts contract manufacturing of vacuum equipments, vacuum pumps, vacuum valves, sputtering targets, etc

**ULVAC TOHOKU, Inc.**  
Conducts contract manufacturing of vacuum equipments, sputtering targets, etc

**TIGOLD CORPORATION**  
Develops technologies, sells and materials for composite film deposition

**NISSIN SEIGYO Co., LTD.**  
Designs control systems for vacuum equipments and manufactures and sells automatic control panels

**UL VAC Human Relations, Ltd.**  
Undertakes resident contracting, general worker dispatching, and training

**SHINKU CERAMICS CO., LTD.**  
Manufactures and sells special refractories and ceramic products made of various oxides, such as alumina, magnesia, zirconia, silica, and cordierite

**FINE SURFACE TECHNOLOGY CO., LTD.**  
Provides ultra-precision polishing technologies for glass substrates and blasts parts for ultra-precision devices used in the semiconductor field

**Reliance Electric Limited**  
Manufactures and sells drives for industrial machinery





# ULVAC

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