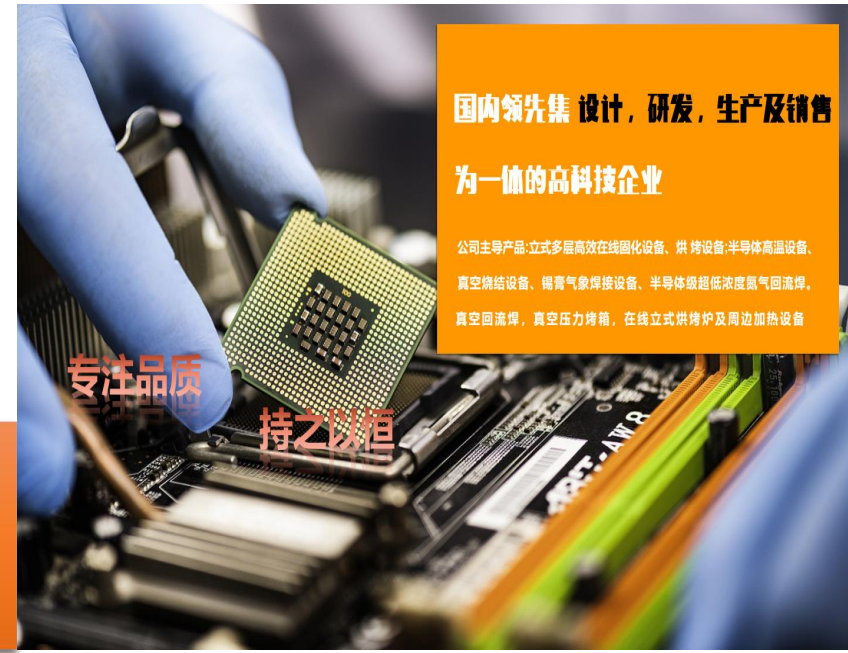


**Focus Forever, Create Better**



**国内领先集设计, 研发, 生产及销售  
为一体的高科技企业**

公司主导产品: 立式多层高效在线固化设备、烘 烤设备; 半导体高温设备、  
真空烧结设备、锡膏气象焊接设备、半导体级超低浓度氮气回流焊、  
真空回流焊, 真空压力烤箱, 在线立式烘烤炉及周边加热设备

专注品质  
持之以恒

**Guangdong Huaxin Semiconductor Technology Co., Ltd.**

**Huaxin (Shenzhen) Vacuum Thermal Energy Equipment Co., Ltd.**

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Guangdong Huaxin Semiconductor Technology Co., Ltd.

Huaxin (Shenzhen) Vacuum Thermal Energy Equipment Co., Ltd.

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Huaxin Vacuum Thermal Energy——A leader in vacuum thermal energy technology in the semiconductor industry



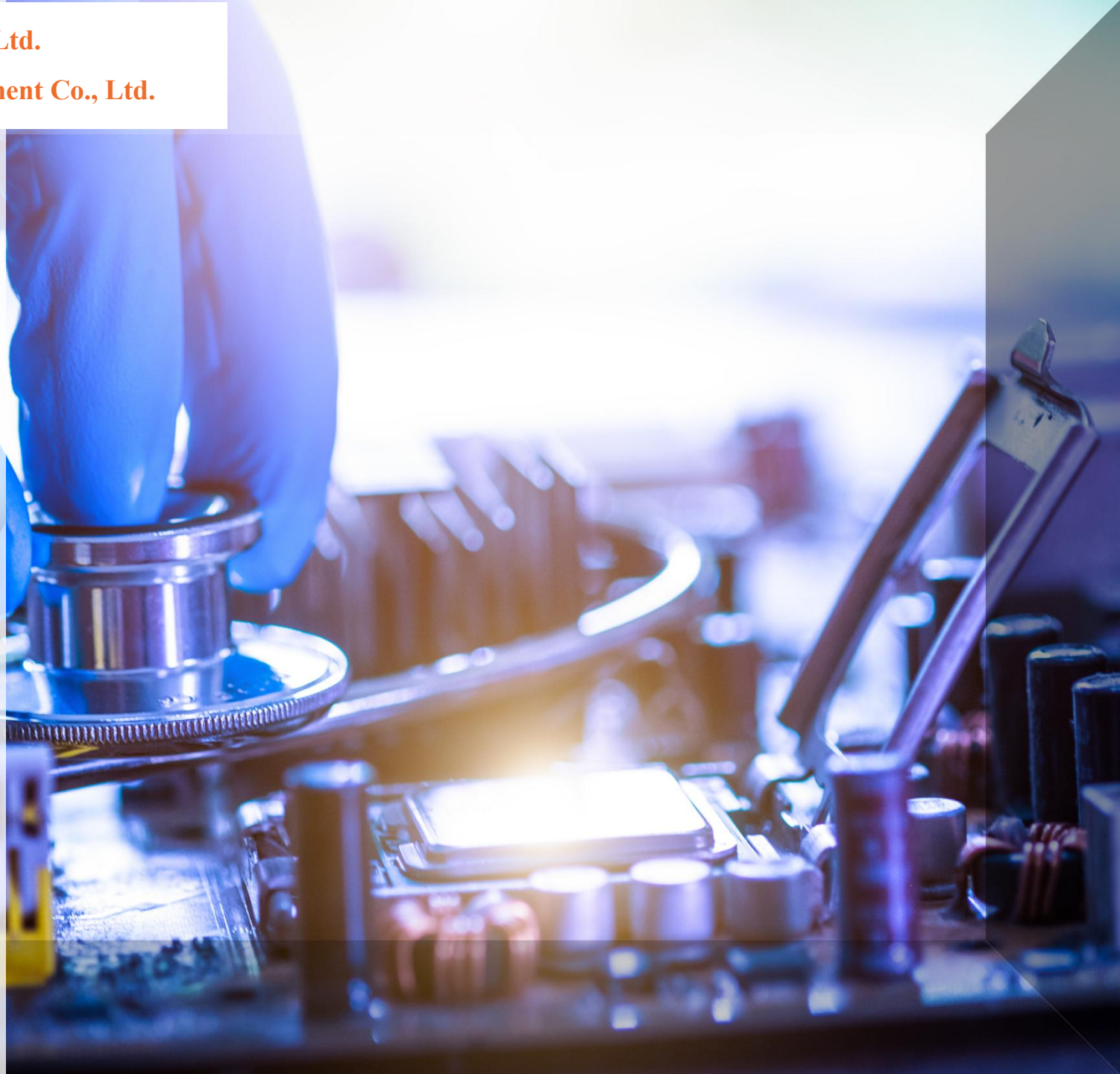
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# PART 01

## Company Profile

- **Technological innovation**  
**Leading intelligent manufacturing**



# Company Profile



Guangdong Huaxin Semiconductor Technology Co., Ltd.

Huaxin (Shenzhen) Vacuum Thermal Energy Equipment Co., Ltd.

## Corporate Prospect

Become the world's leading provider of semiconductor technology and process integration solutions

## Our Mission

Promote the transformation and upgrading of industrial technology and achieve the blueprint for building China into a powerful country with intelligent manufacturing

## Enterprise Philosophy

Technological innovation, continuous improvement, quality first, integrity and win-win

广东华芯半导体设备股份有限公司

Guangdong Huaxin Semiconductor Technology Co., Ltd. is located in Zhongji Technology Industrial Park, Songshan Lake, Dongguan, Guangdong Province, with more than 8,000 square meters of modern design and manufacturing plants. It is a "specialized, special and new" high-tech enterprise specializing in the research and development, production, sales and service of vacuum thermal soldering special equipment used in semiconductors, automotive electronics, 3C electronics and other fields.

Main products:

- (Semiconductor) vacuum contact soldering
- Semiconductor formic acid vacuum reflow oven
- Vacuum pressure oven
- Oxygen-free N<sub>2</sub> oven
- (IGBT, automotive electronics, 3C electronics) vertical curing oven

The company has passed strict ROHS, CE, ISO9001 quality management system certification; it adopts ERP+MES modern management system to conduct full-process control and management of materials, processes, assembly, debugging and shipment. Each link can be effectively traced, thus providing a strong guarantee for the production and processing quality of the product. It not only reduces the defective rate of the product, but also greatly improves the production efficiency and quality.

The company's main customers include American Kaihong, SAIC Xinyao, China Resources Micro, Star, Huawei, Foxconn, as well as high-level certifications from many customers in Taiwan, the United States and at home and abroad. In the future, Huaxin people will always adhere to the tenet of "people-oriented, honest management, technological innovation, and effective improvement of users' soldering quality".

Focusing closely on the field of vacuum thermal energy technology, we will be refined and specialized, tackle technical barriers in science and technology, and continue to innovate. With a pragmatic spirit of high starting point and high requirements, Huaxin will develop into a well-known national enterprise.

We will not forget our original aspirations and ahead to provide customers with more high-quality vacuum thermal soldering and vacuum curing process solutions, and create more technology-based, high-quality products.

# Working Environment



Guangdong Huaxin Semiconductor Technology Co., Ltd.

Huaxin (Shenzhen) Vacuum Thermal Energy Equipment Co., Ltd.



# Workshop



Guangdong Huaxin Semiconductor Technology Co., Ltd.

Huaxin (Shenzhen) Vacuum Thermal Energy Equipment Co., Ltd.



**Huaxin has a modern manufacturing plant covering an area of 8,000 square meters. It has assembled a group of high-quality employees who are proficient in precision manufacturing. It is equipped with multiple industry-leading professional equipment, uses high-quality spare parts manufacturing materials, refined management models, and strictly implements The ISO9001 quality management system enables products to have good performance and strong stability, allowing the company to quickly respond to customer needs and deliver quickly.**

# Company Direction



Guangdong Huaxin Semiconductor Technology Co., Ltd.

Huaxin (Shenzhen) Vacuum Thermal Energy Equipment Co., Ltd.

Relying on solid process technology platform research and development and large-scale intelligent manufacturing capabilities, Huaxin supplies automotive electronics (car lights LED light sources and modules), FPC soft boards (mobile phone soft boards, automotive electronics soft boards), high-power devices (diode, triode, MOS tubes), IGBT, fast charging and power management chips, aerospace and research institutes, some mobile phone PCBA boards, medical industry, military industry, high-speed rail industry, signal communication industry, drone industry and other fields to provide precise and high-end solutions plan. The company adheres to the concepts of technological innovation and continuous improvement, provides customers with high-standard, highly stable products, and actively deploys cutting-edge application fields, expands product lines, and improves vertical integration capabilities.

## Solutions



**Signal  
communication  
industry**



**Military  
industry**



**Automotive  
electronics  
industry**



**Mobile phone  
and drone  
industry**

## Core products



**HPK series  
formic acid  
oven**



**SMT vacuum oven**



**Semiconductor  
vacuum oven**



**Semiconductor  
vertical oven**



**Vertical curing  
oven**

# Honor



Guangdong Huaxin Semiconductor Technology Co., Ltd.

Huaxin (Shenzhen) Vacuum Thermal Energy Equipment Co., Ltd.



# Certificate of honor

**皇冠认证证书**

华芯（深圳）真空热能设备有限公司

建立管理体系并经过审核符合以下标准  
质量管理体系  
GB/T19001-2016 idt ISO9001:2015  
认证范围  
真空热能设备及其零配件的生产及销售

证书编号: HG2200317R06  
初次发证日期: 2022/07/14  
证书复评日期: 2022/07/14  
证书有效期至: 2025/07/13

IAF IAS ACCREDITED

**企业信用认证证书**

华芯（深圳）真空热能设备有限公司

根据格兰德信用评级标准，评定贵公司为：  
**AAA级诚信供应商**

证书编号: XY22061203812308  
有效期: 2022-07-22 至 2025-07-21  
查询网址: saas.x315.com/certification

**企业信用认证证书**

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根据格兰德信用评级标准，评定贵公司为：  
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华芯（深圳）真空热能设备有限公司

根据格兰德信用评级标准，评定贵公司为：  
**刘仿冠 诚信企业家**

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**企业信用认证证书**

华芯（深圳）真空热能设备有限公司

经审核，贵单位积极参与企业信用体系建设和实施，规范合同管理，完善企业信用管理制度，评定为：  
**AAA级重合同守信用企业**

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**企业资信等级证书**

华芯（深圳）真空热能设备有限公司

根据格兰德信用评级标准，评定贵公司为：  
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**证书**

华芯（深圳）真空热能设备有限公司

贵公司在全国开展的半导体技术行业先进企业评选活动中，经审核被选为：  
**中国半导体技术行业先进企业**  
ADVANCED ENTERPRISES IN CHINA SEMICONDUCTOR TECHNOLOGY INDUSTRY

华芯（深圳）真空热能设备有限公司

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ADVANCED ENTERPRISES IN CHINA SEMICONDUCTOR TECHNOLOGY INDUSTRY

**荣誉证书**

**中国知名品牌**  
FAMOUS BRANDS IN CHINA

华芯（深圳）真空热能设备有限公司

贵公司主营的系列产品，在全国知名品牌推广活动中，经审核被选为“中国知名品牌”。

华芯（深圳）真空热能设备有限公司

贵公司主营的系列产品，在全国知名品牌推广活动中，经审核被选为“中国知名品牌”。

**中国知名品牌**  
INTERNATIONAL FAMOUS BRANDS



# Intellectual Property



Guangdong Huaxin Semiconductor Technology Co., Ltd.

Huaxin (Shenzhen) Vacuum Thermal Energy Equipment Co., Ltd.

## Patent

5 items

## Trademark patent

1 item in progress

## Practical and new

1 item

1 item in progress

## Appearance patent

1 item

1 item in progress

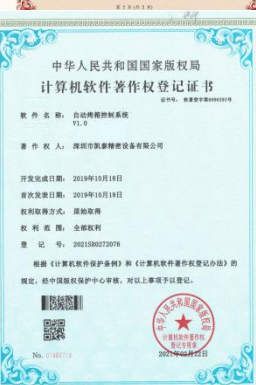
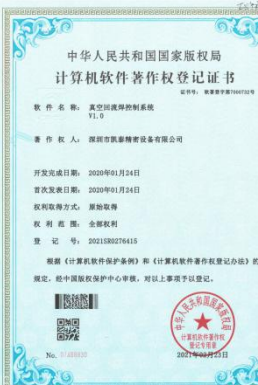
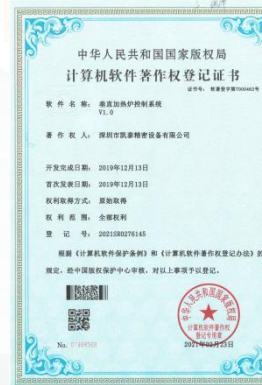
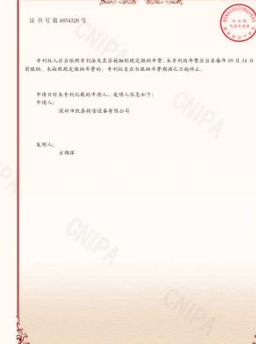
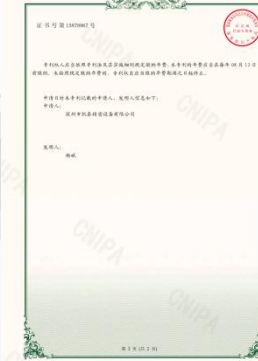
## Technology standard

1 item in progress

## Software copyright

5 items

1 item in progress





Guangdong Huaxin Semiconductor Technology Co., Ltd.

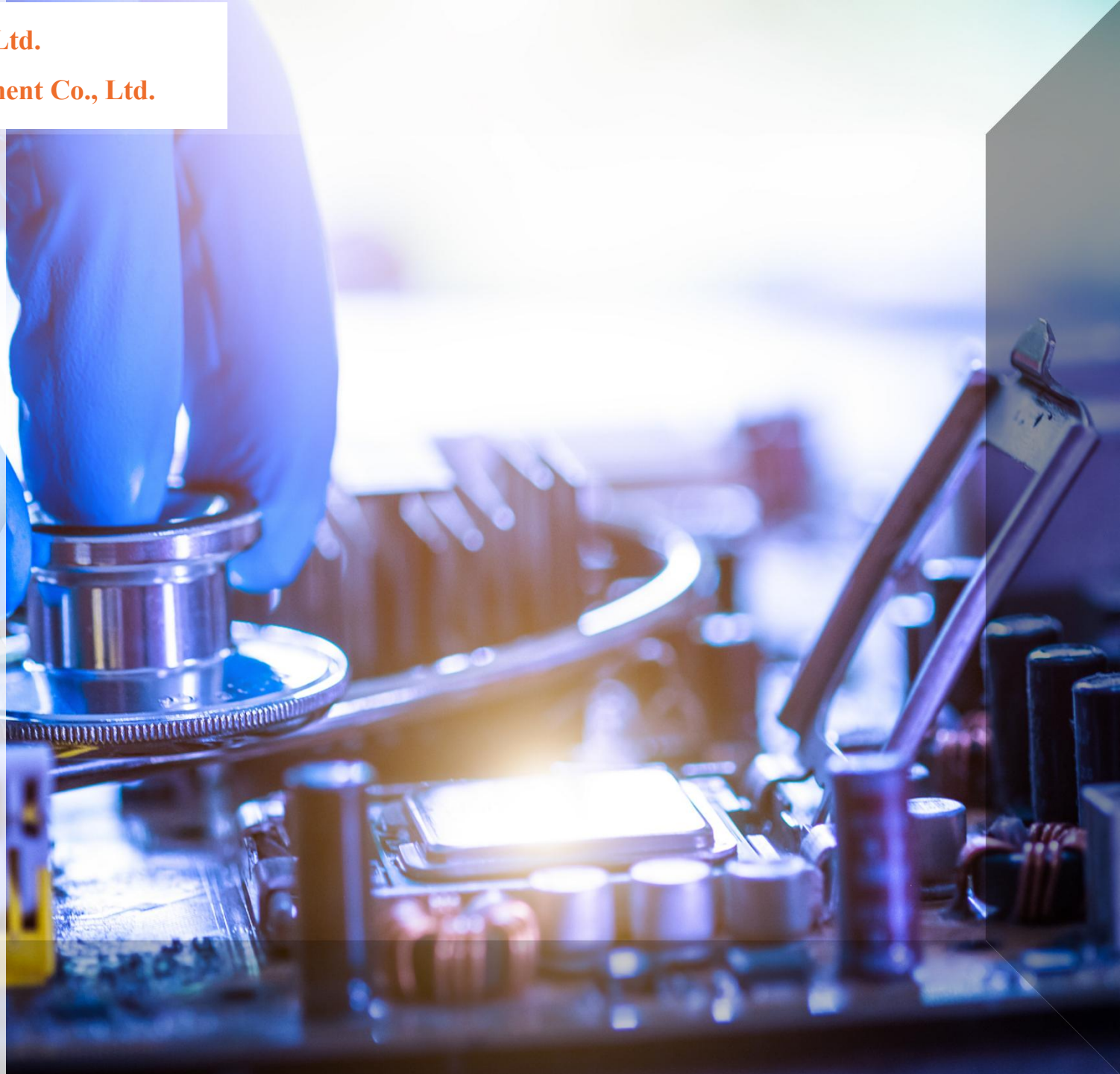
Huaxin (Shenzhen) Vacuum Thermal Energy Equipment Co., Ltd.

**PART 02**

**Honor**

**Customer**

- **Technological innovation**  
**Leading intelligent manufacturing**



# Honor Customer



Guangdong Huaxin Semiconductor Technology Co., Ltd.

Huaxin (Shenzhen) Vacuum Thermal Energy Equipment Co., Ltd.

Shanghai Kaihong, Shanghai Jiemin, Shanghai Xufu, Anhui Jixin Micro, Wuxi Certian, Dongguan Ward, Shenzhen Shengyuan Semiconductor, Shenzhen Keisai, China Resources Microelectronics, Ningbo Gangbo Electronics

Jiaying Star, Heilongjiang Beiyi Semiconductor, Anhui Zhongheng Micro Semiconductor, Anhui Ruidi Micro, Shanghai Heimic, Anhui Archimedes Semiconductor, Suzhou Huichuan United Power, Zhejiang Cuizhan Micro, Zhejiang Jingneng Micro

Shanghai Xinyao, Suzhou Yaoxin, Zhejiang Shengpu, Jiangmen Jingrui, Guangzhou Jinko, Guangdong Jiali, Guangzhou Foda Signal, Zhongshan Easystar, Dongguan Connor, Dongguan Jiyou, Ningbo CRRC

Huawei, Foxconn, Zhuoyi, Huaqin, Hytera, Sunwoda, Iron General, TCL,

Zhuhai Yuansheng, Xichongge, Zhuhai Hejin, Suzhou Weidi





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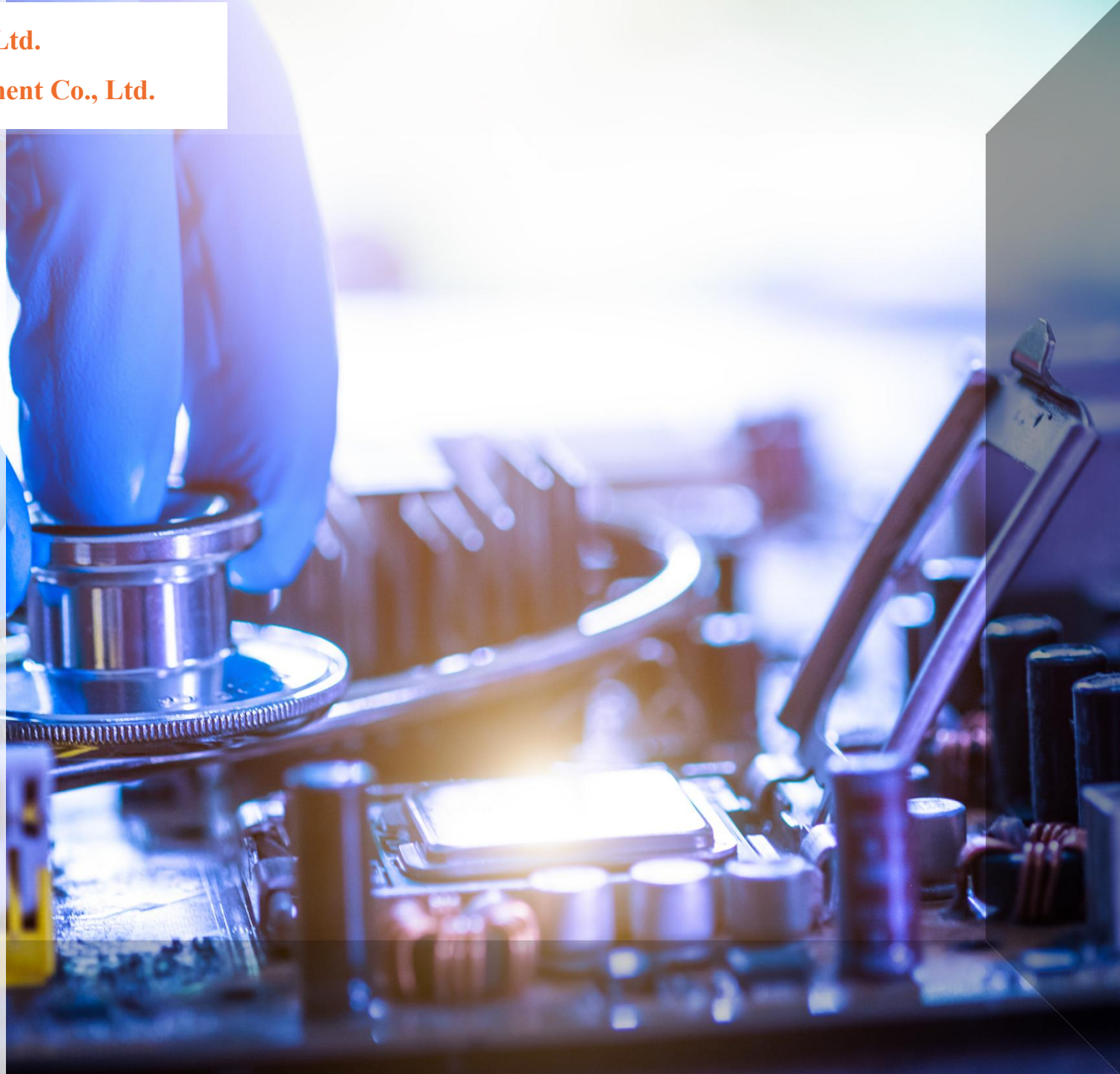
Huaxin (Shenzhen) Vacuum Thermal Energy Equipment Co., Ltd.

## **PART 03**

## **Process**

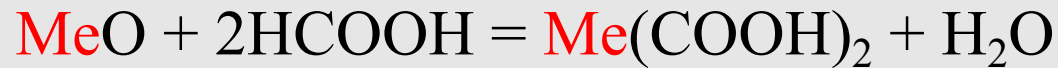
## **Analysis**

- **Technological innovation**  
**Leading intelligent manufacturing**

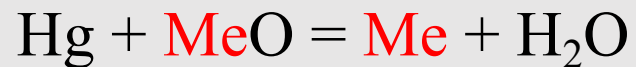
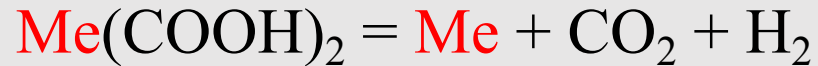


### The gaseous formic acid to metal oxide reaction:

◆ When  $T > 150\text{ }^{\circ}\text{C}$



◆ When  $T > 200\text{ }^{\circ}\text{C}$



(Memo: where “Me” represents metal)

◆  $\text{HCOOH} + \text{Metal Oxide}$

$\text{Metal} + \text{CO}_2 + \text{H}_2\text{O}$

## How Does Formic Acid Work?



Two step process to attack metal oxides

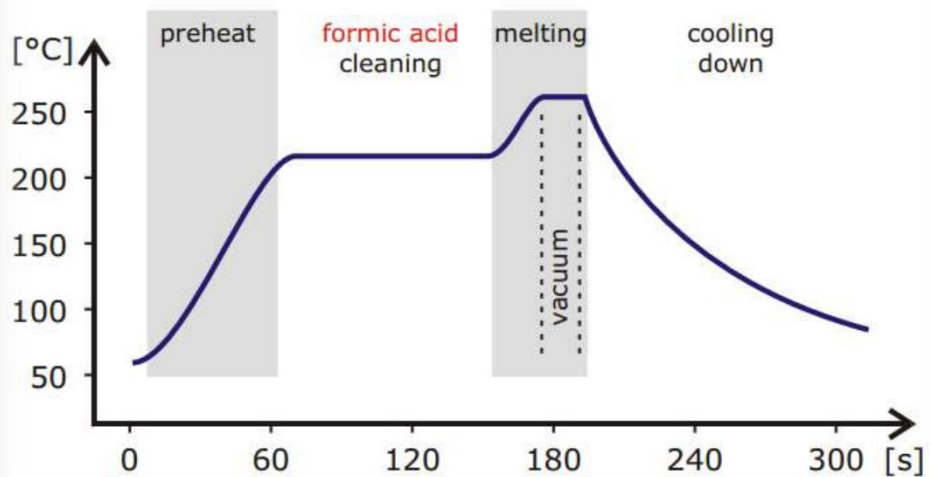
- ① Formic acid is at 150 to 160°C to react with metal oxides
- ② Metal oxide of formic acid converts to metal salt (formic acid)
- ③ As temperature is then increased to 200°C or higher, the salt (formic acid) decomposes to CO<sub>2</sub>, water, and H<sub>2</sub> (which also helps to reduce oxides, and leaves pure metal)

# Formic Acid Feature

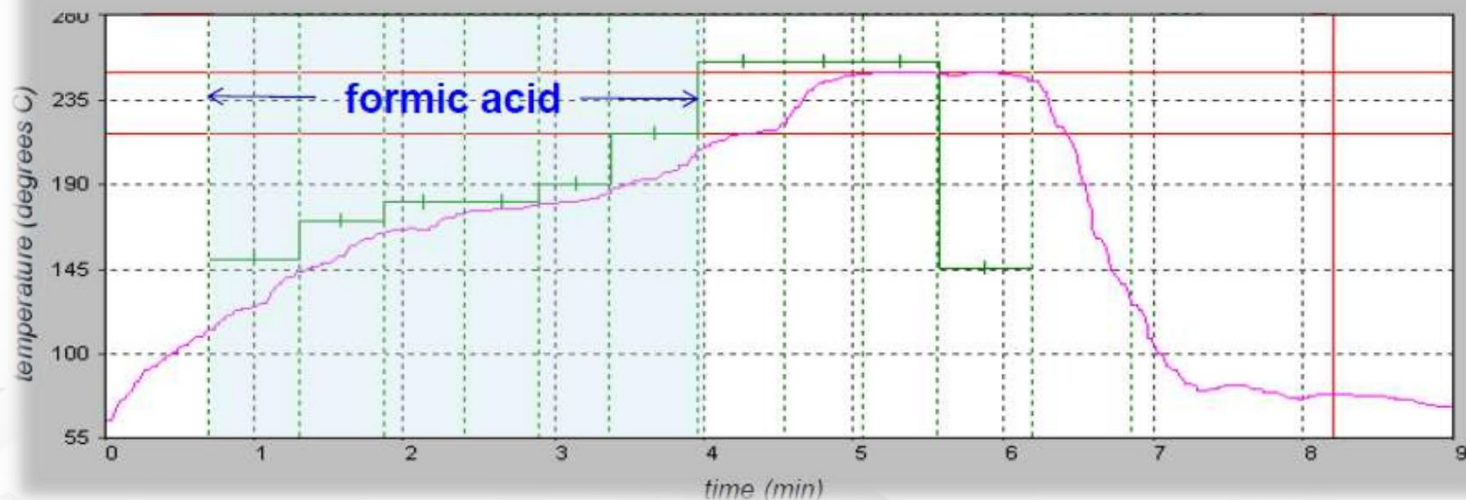


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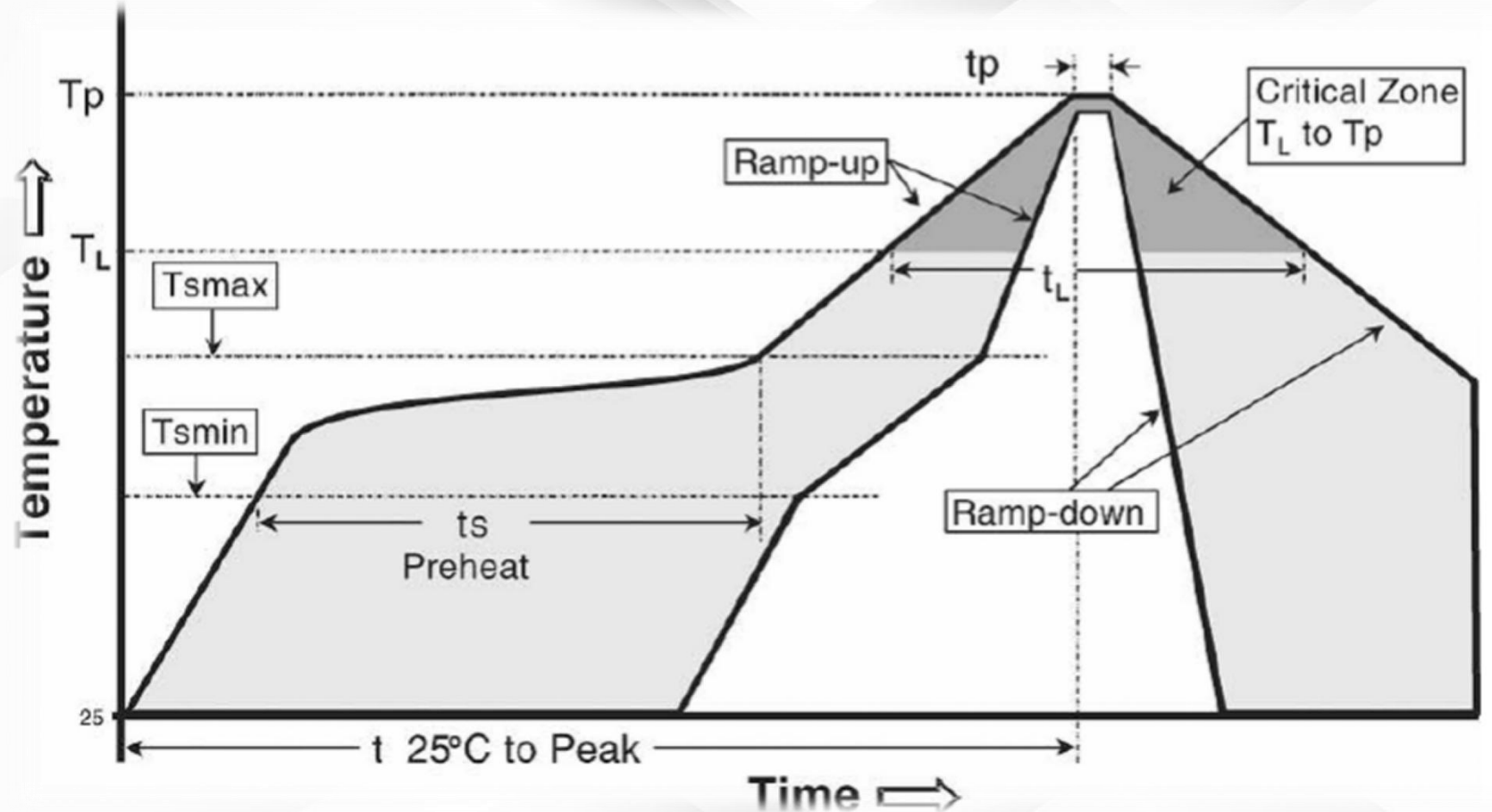


Temperature Profile



# Typical Temperature Profiler

- Requires IPC/JEDEC reference guide
- Activation media available for solder melting point  $>290^{\circ}\text{C}$  :  $\text{H}_2$ , forming gas ( $\text{N}_2+\text{H}_2$ ) or formic acid ( $\text{N}_2+\text{HCOOH}$ )
- Activation media available for solder melting point  $<250^{\circ}\text{C}$ : formic acid ( $\text{HCOOH}$ ),  $\text{H}_2$  doesn't apply







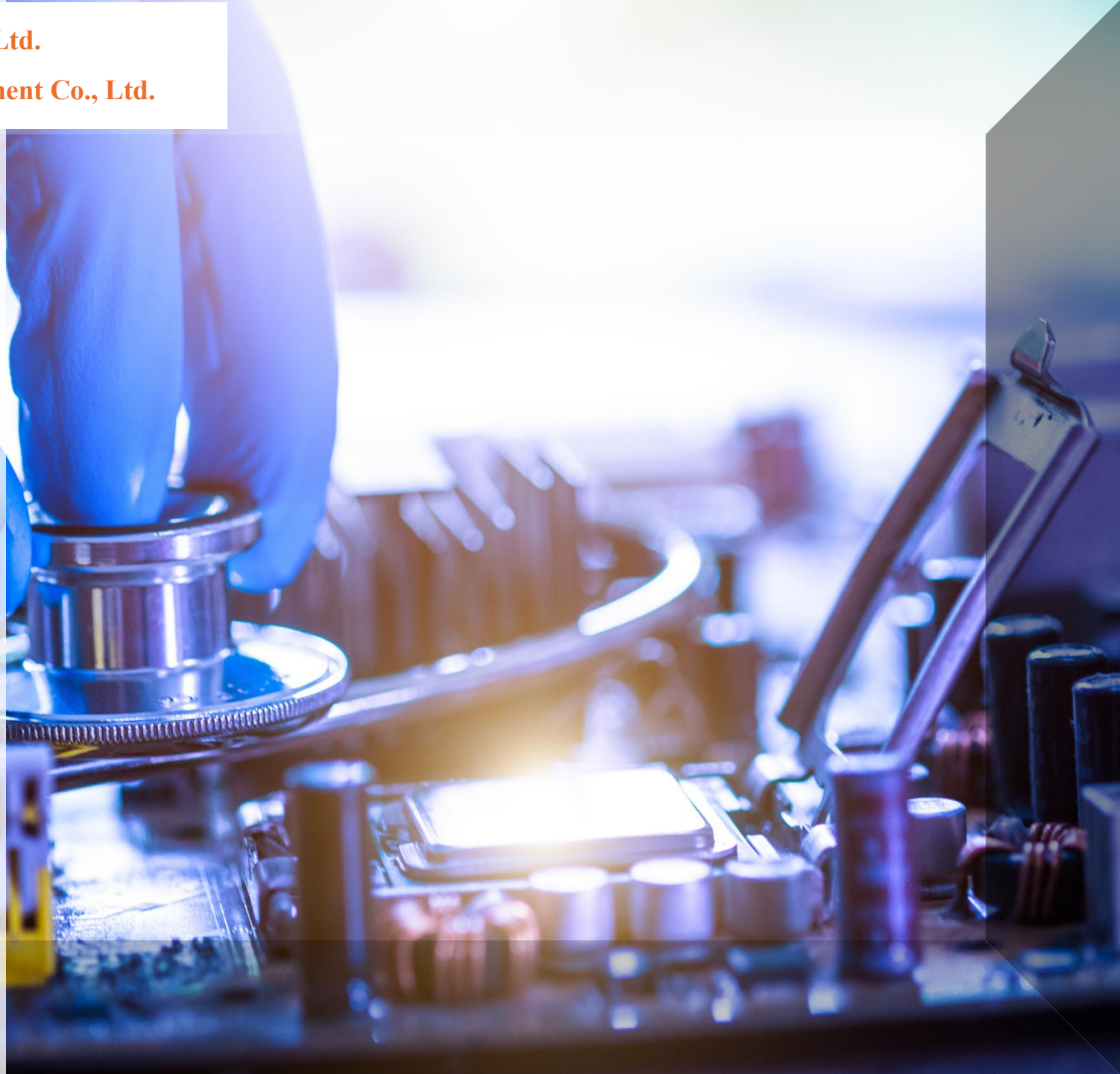
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# PART 03

## Equipment Presentation

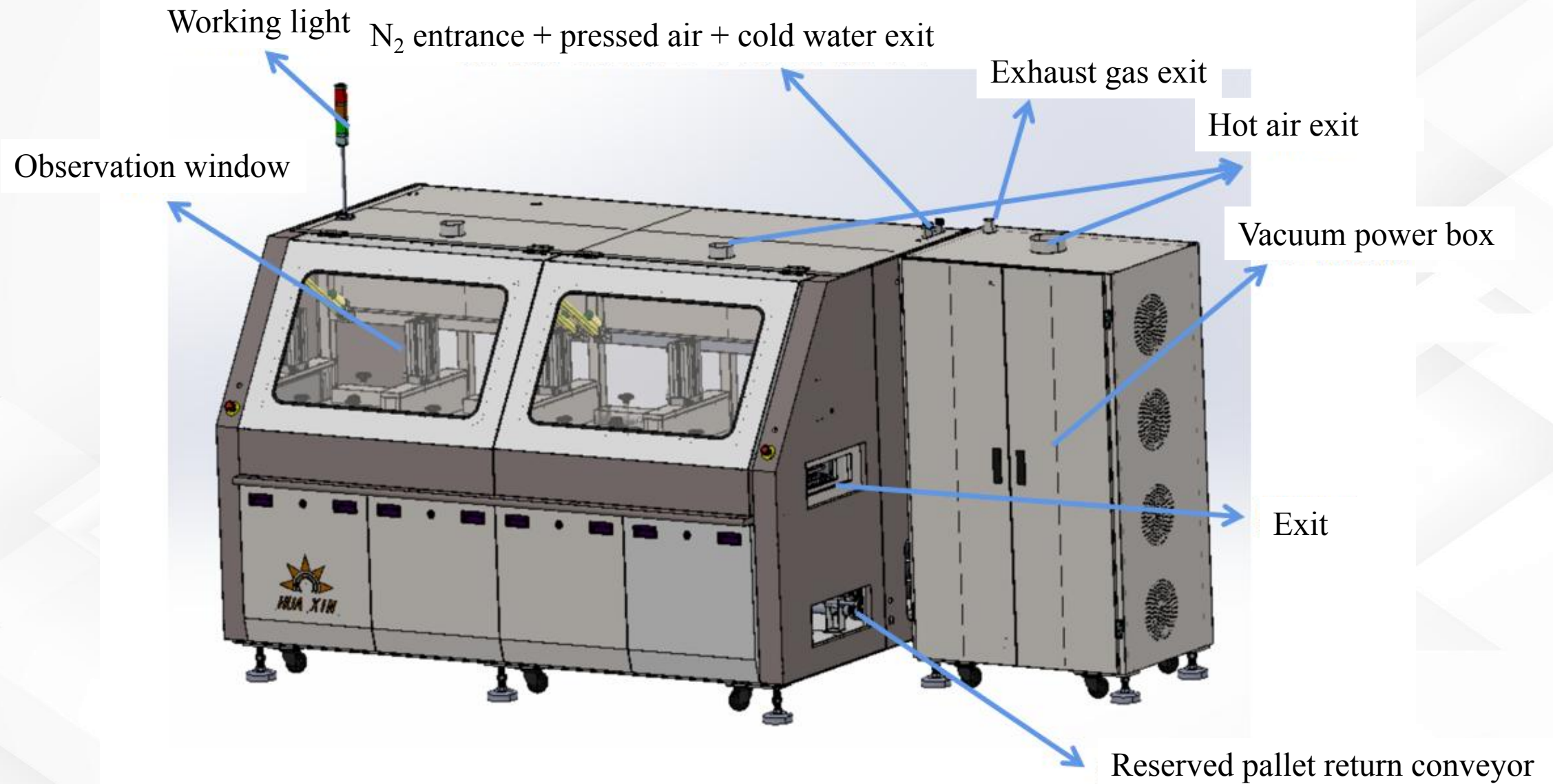
- **Technological innovation**  
**Leading intelligent manufacturing**



# HPK Series Formic Acid Reflow Soldering Oven Whole Line Layout Diagram



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Working light

N<sub>2</sub> entrance + pressed air + cold water exit

Exhaust gas exit

Hot air exit

Observation window

Vacuum power box

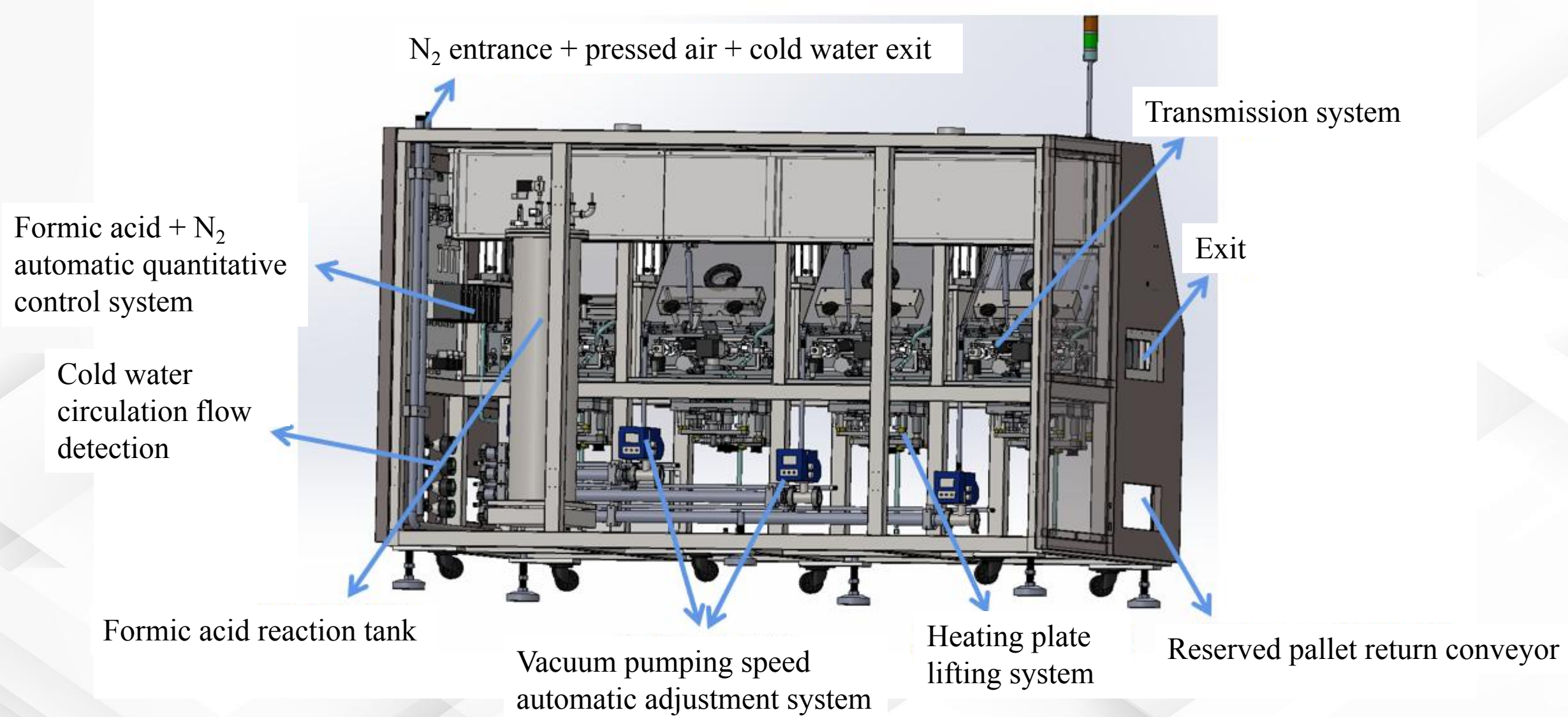
Exit

Reserved pallet return conveyor

# HPK Series Formic Acid Reflow Soldering Oven Internal System



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# HX-HPK Series Formic Acid Vacuum Reflow Soldering Oven



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Features

1. This equipment is developed and produced using an imported platform, targeting products such as semiconductor power devices and IGBTs that require vacuum soldering of solder paste sheets.
2. This equipment adopts industrial control embedded control system, which is not only stable and reliable, but also has more accurate temperature control.
3. The equipment supports the recipe function of key soldering parameters and supports SECS/GEM data exchange.
4. The equipment can automatically and visually adjust the pumping speed of the vacuum pump and set segmented vacuum according to different products to prevent soldering components from shifting and producing solder beads.
5. The sealing ring with built-in cold water pipe not only has a longer life and lower usage cost, but also reduces product damage caused by poor sealing.
6. The maximum vacuum degree can reach 0.1KP, single void<1%, total <2%
7. The accurate quantitative formic acid and N<sub>2</sub> control system not only significantly saves N<sub>2</sub> and formic acid, but also effectively reduces residual formic acid emissions.
8. The equipment adopts an automatic inspection system, which can detect the operating status of the equipment in advance, predict equipment fault, and eliminate equipment fault in advance.
9. This equipment perfectly replaces PINK formic acid vacuum reflow soldering.

Advantages



 Huaxin Semiconductor's technology research and development comprehensively covers core components, software architecture, and hardware systems. It adopts a model that combines planned research and development with scenario-based research and development, and has established a professional division of labor R&D management system to realize an industrial vision intelligent technology system for intelligent manufacturing.

# HPK Series Formic Acid Reflow Soldering Oven Application



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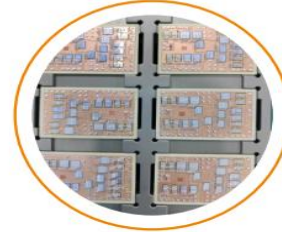
## HPK series formic acid vacuum reflow soldering oven



Cooling pipes and vacuum system pipes



Automatic vacuum formic acid gas regulating valve



Pallet and DBC



Visual soldering window



Formic acid mist system



Upper and bottom vacuum chamber heating structure



Formic acid control and protection system



Formic acid-N<sub>2</sub>-H<sub>2</sub> quantitative system



Complete control and protection system

# Specification



Guangdong Huaxin Semiconductor Technology Co., Ltd.

Huaxin (Shenzhen) Vacuum Thermal Energy Equipment Co., Ltd.

Main specification	
Demission	Approx. 4275*1625*1750
Configuration	1 equipment body, 2 conveyors, 1 chiller, one set of vacuum boxes
Max. temperature	400°C, (400-450 °C, optional)
Heating zones	4 (3 heating zones, 1 cooling zone)
Min. vacuum value	<5Pa
Vacuum time	15-30s
Max. product size	330*470mm
Cooling speed	1-10°C/min, can be set
Chamber height	100mm (Suitable for soldering workpieces or pallets up to 50mm high)
Cooling method	Water cooling+N2 cooling; Equipped with water cooling system for contact cooling
Ultimate vacuum value	Below 5pa
Heating method	Contact heating
Top heating	Radiation heating
Void rate	≤2%
Formic acid process	Can satisfy
N2 and H2 mixed gas	Can satisfy

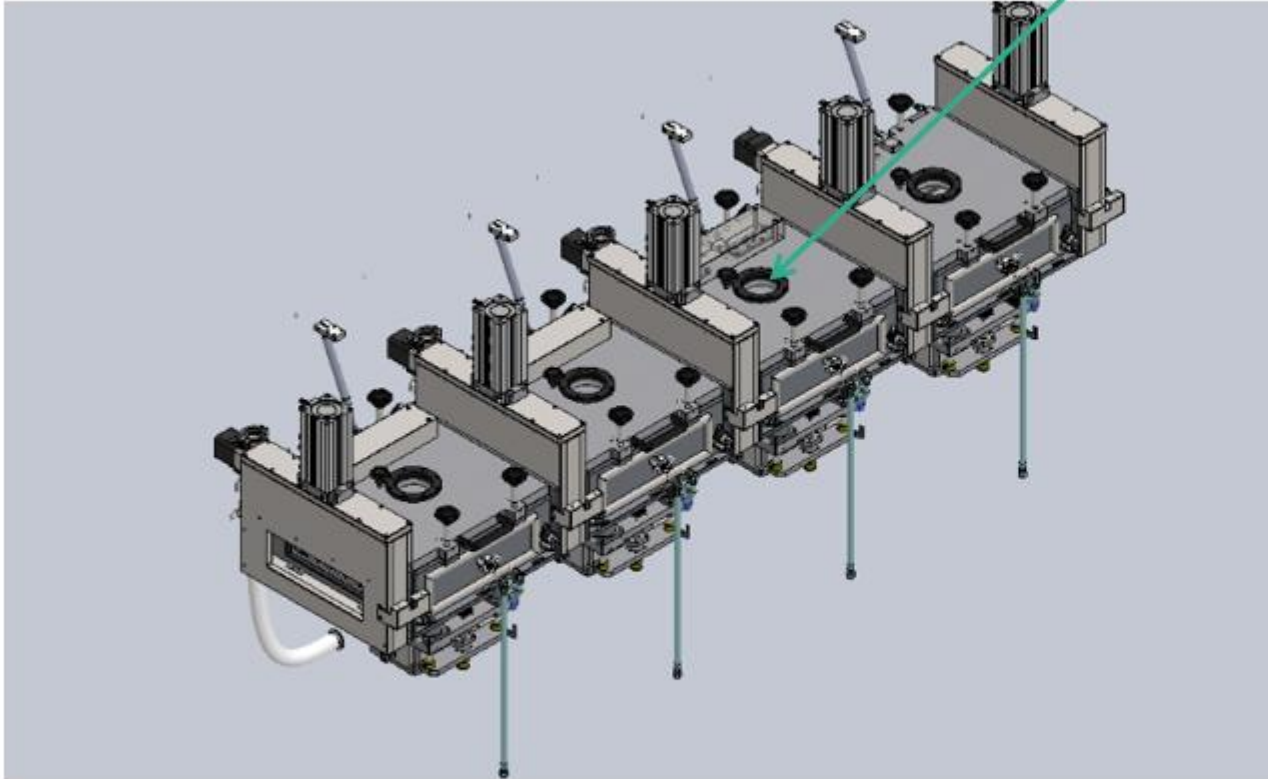
# Chamber Structure



Guangdong Huaxin Semiconductor Technology Co., Ltd.

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Visual window is made of high temperature and high pressure resistant glass



The side wall of the chamber is equipped with a water-cooling pipeline, which can be used in conjunction with a chiller or factory water to reduce the temperature of the sealing structure, ensuring the stability of the sealing structure for long-term use, and meeting the requirements of higher temperature soldering processes. Each chamber is equipped with an independent visual observation window, which can observe the soldering situation in real time.

Each chamber is equipped with a stepper motor and a separate transmission wheel set to ensure that damage to one chamber will not affect other chambers.

# Water Pipe



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There is a water-cooling pipeline on the side wall of the chamber. The water pipeline adopts the method of dividing one pipe into many. The water pipes in each chamber run separately and are equipped with corresponding pressure gauge to ensure mutual non-interference and large separation space. Water pipes are all made of steel wire high-pressure hoses to ensure water pressure while reducing condensation.

Steel wire high pressure pipe

Water flow pressure gauge

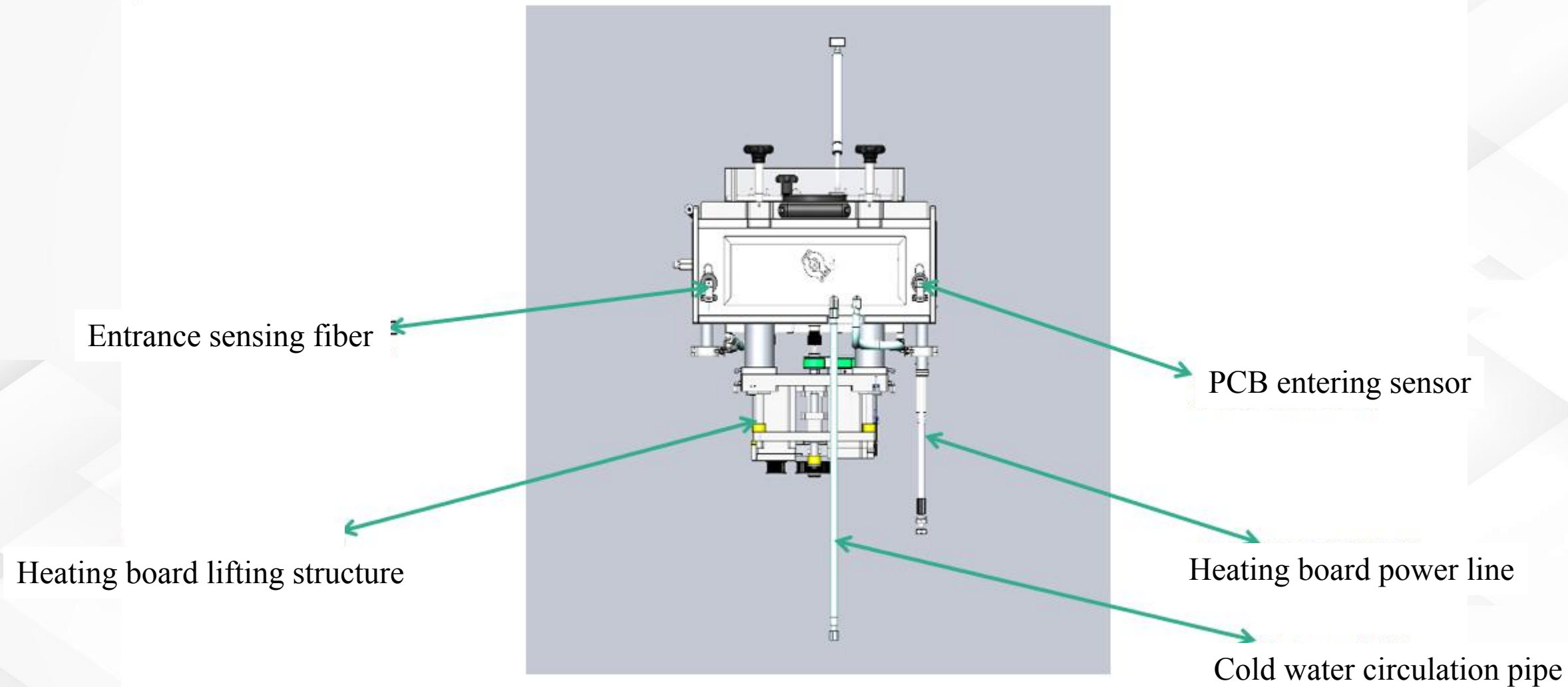


# Appearance of Single Chamber



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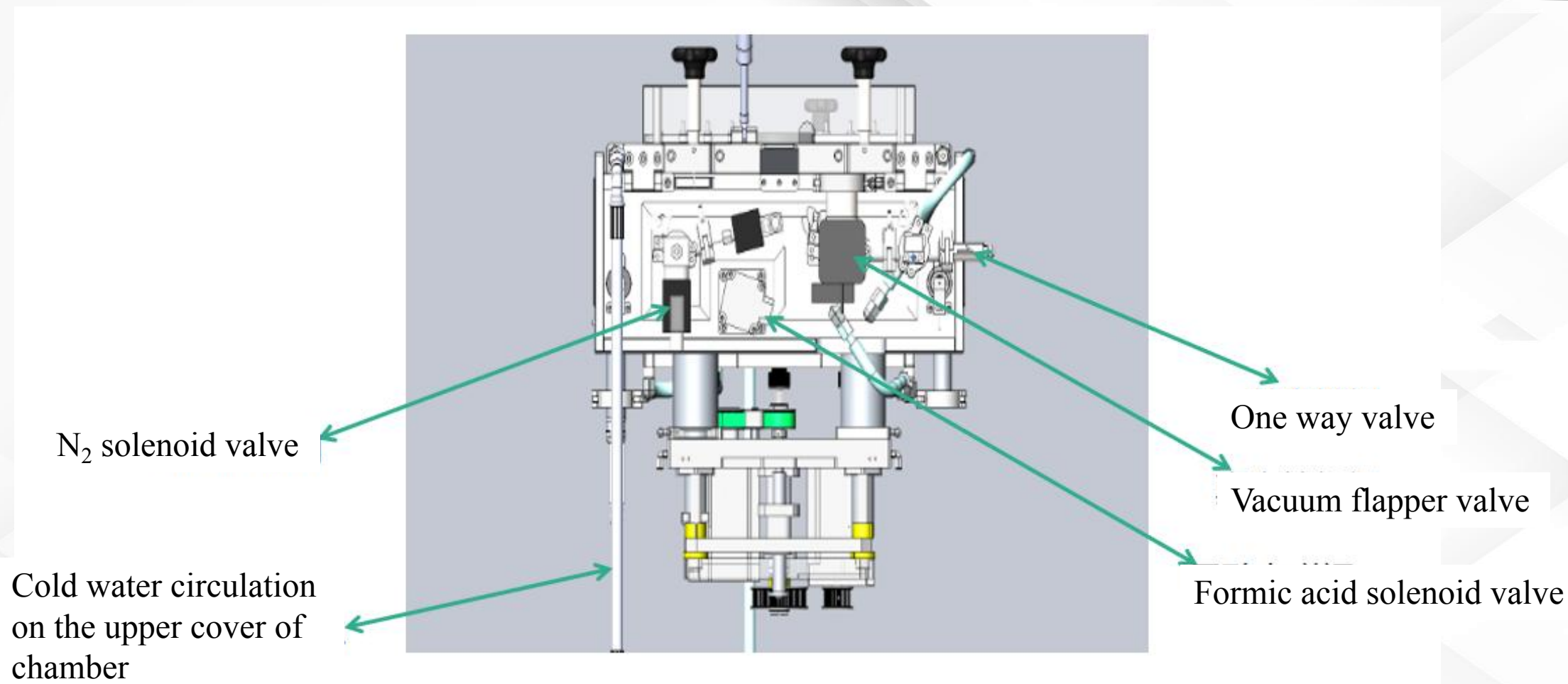


# Chamber



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Chamber cover water-cooling system: The water-cooling structure cools the entire valve and the connecting flange to ensure that the equipment can meet the needs of high-temperature processes.

# Formic Acid Barrel



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Formic acid gas leak detector: alarm when the formic acid concentration in the equipment exceeds the set range

Formic acid tank anti-tipping iron chain: prevent formic acid tank from tipping

Formic acid tank pressure gauge: real-time monitoring of formic acid pressure

Formic acid gas diversion pipeline: controlling formic acid diversion

Formic acid tank pressure safety valve: automatic pressure relief beyond the pressure range

Formic acid tank: stores formic acid, stainless and corrosion-resistant

Gas residue recovery tank: waste gas collection

Formic acid weight electronic scale: automatic alarm when the formic acid weight is lower than a certain amount



Safety valve: Automatically relieves pressure when the pressure is too high

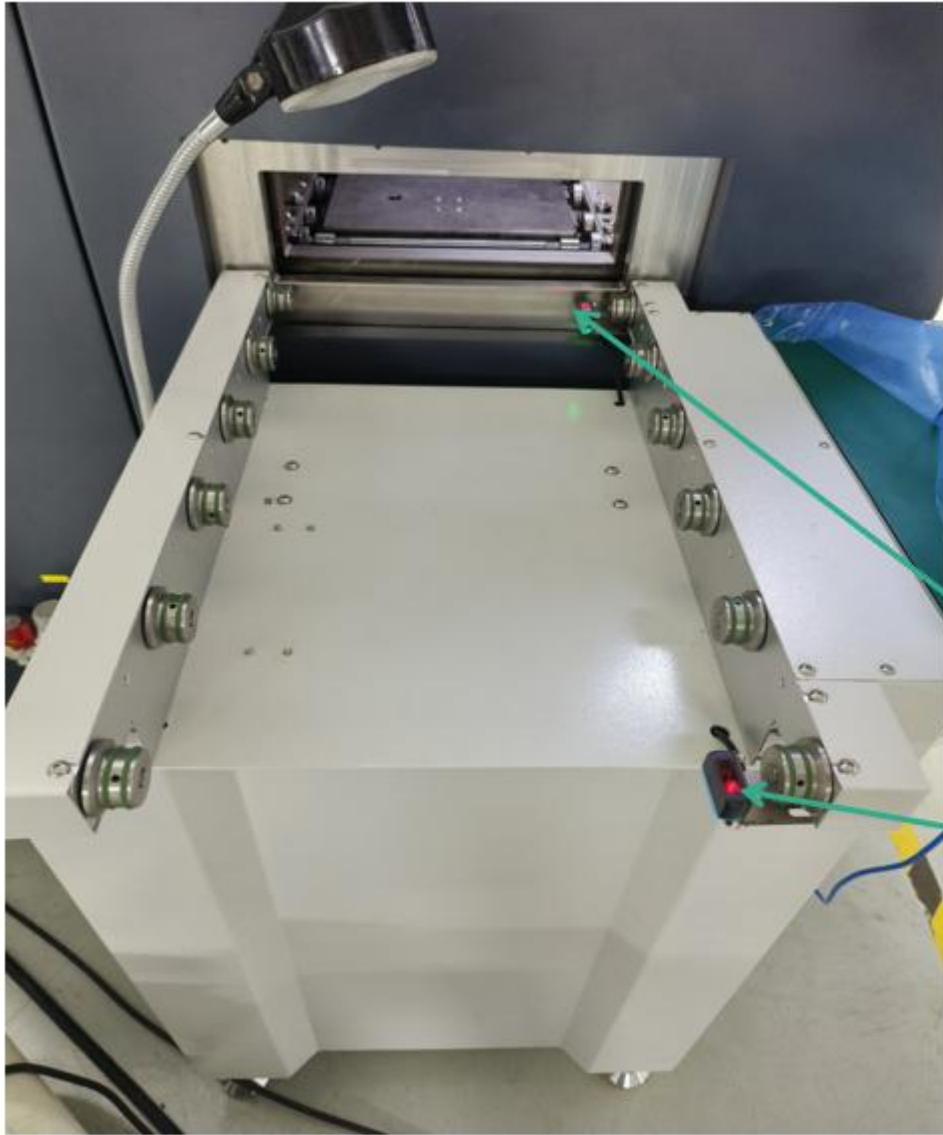
Chamber vacuum pressure gauge: real-time monitoring of chamber pressure

# Conveyor



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1. Equipped with a 220V single-phase motor with adjustable speed
2. The front is equipped with a diffuse photoelectric switch, with an adjustable recognition distance of 3 to 7cm. When the pallet is transported to the switch, the belt automatically transfers, by default there is a pallet on it, and is transported to the next diffuse switch.
3. The back end is equipped with a diffuse photoelectric switch, which stops transmission when the pallet is recognized.
4. Equipment size: 1100\*760\*900mm

Diffuse switch

# Industrial Chiller System



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The fourth temperature zone is equipped with a professional water cooling system to ensure the continuous supply of cold water at the set temperature and the consistency of the equipment cooling slope. According to the process requirements, the cooling temperature can be set and different cooling slope parameters can be adjusted.

# Vacuum Pump



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1. High ultimate vacuum degree, fast pumping speed, minimum 1.3mp
2. Built-in oil mist collector, integrated design, more tidy and environmentally friendly (TRP-324A)
3. A complete built-in check valve system prevents vacuum oil and oil vapor from flowing back into the vacuum system when the pump is stopped
4. The air entrance and exit adopt international standard ISO flanges
5. Low noise and vibration
6. Constant pressure oil circulation system
7. Simple gas ballast valve control
8. N<sub>2</sub> tank size: 1000\*730\*1800mm
9. The bottom is equipped with foot cups and wheels for easy movement and height adjustment
10. Each storage pump uses a pull-out method to facilitate maintenance

# Daily Maintenance of Vacuum Pump



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	Maintenance area	Content
1	Replace oil seal regularly	The oil seal is an important component of the rotary vane vacuum oil pump. Its sealing directly affects the performance and life of the pump. Therefore, the oil seal must be replaced regularly. Normally, the life of the oil seal is about 1 year, but the specific time depends on the usage. If the oil seal is found to be damaged or aged, it should be replaced in time.
2	Replace oil regularly	Rotary vane vacuum oil pumps require the use of specific vacuum pump oil, and the quality of the oil directly affects the performance and life of the pump. Therefore, the oil must be replaced regularly. Normally, the oil replacement cycle is about 6 months, but the specific time depends on the usage. Also pay attention to keeping the oil clean and dry to prevent impurities and moisture from being mixed into the oil.
3	Clean pump chamber regularly	Dust, oil stains and other impurities are easy to accumulate inside the pump chamber of the rotary vane vacuum oil pump, which affects the performance and life of the pump. Therefore, the pump chamber must be cleaned regularly. When cleaning, you should first drain the oil from the pump chamber, then clean the inside of the pump chamber with detergent, and finally rinse it with clean water and dry it.
4	Check parameters of the pump regularly	Parameters of the rotary vane vacuum oil pump include: pressure, flow, speed, temperature, etc. Changes in these parameters may affect pump performance and life. Therefore, these parameters of the pump must be checked regularly. Normally, an inspection should be carried out every 3 months or so to ensure the normal operation of the pump.
5	Check sealing of the pump regularly	The sealing of the rotary vane vacuum oil pump directly affects the performance and life of the pump. Therefore, the sealing of the pump must be checked regularly. During inspection, you can touch the sealing part of the pump with your hands. If you feel gas leakage, it means there is a problem with the sealing of the pump and it needs to be repaired or replaced in time.
6	Check the oil mist filter regularly	The oil mist filter is installed at the exhaust port of the vacuum pump and is used to filter the vacuum sealing oil. During long-term use, the vacuum oil will be deposited in the oil mist filter, and the sealing oil needs to be injected into the vacuum pump oil tank. Method: Open the oil port, connect one end of the oil pouring pipe to the oil drain valve of the oil mist filter, and extend the other end into the vacuum pump oil tank. Open the oil drain valve and start draining oil. After the oil drain is completed, close the oil drain valve. Install the vacuum pump oil port sealing screw (be sure to tighten it, otherwise it will affect the vacuum effect).

# Advantages



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- 4 sets of chambers, 3 sets of heating, 1 set of cooling, more suitable for soldering process
- Higher temperature soldering: Equipped with a patented water-cooled gate valve, which is more resistant to high temperatures and can solder at 400 °C for a long time
- A top heating system can be added to make the temperature more uniform
- Minimum power consumption, normal production is 6KW
- High temperature uniformity: Lateral temperature difference within  $\pm 2.5$  °C





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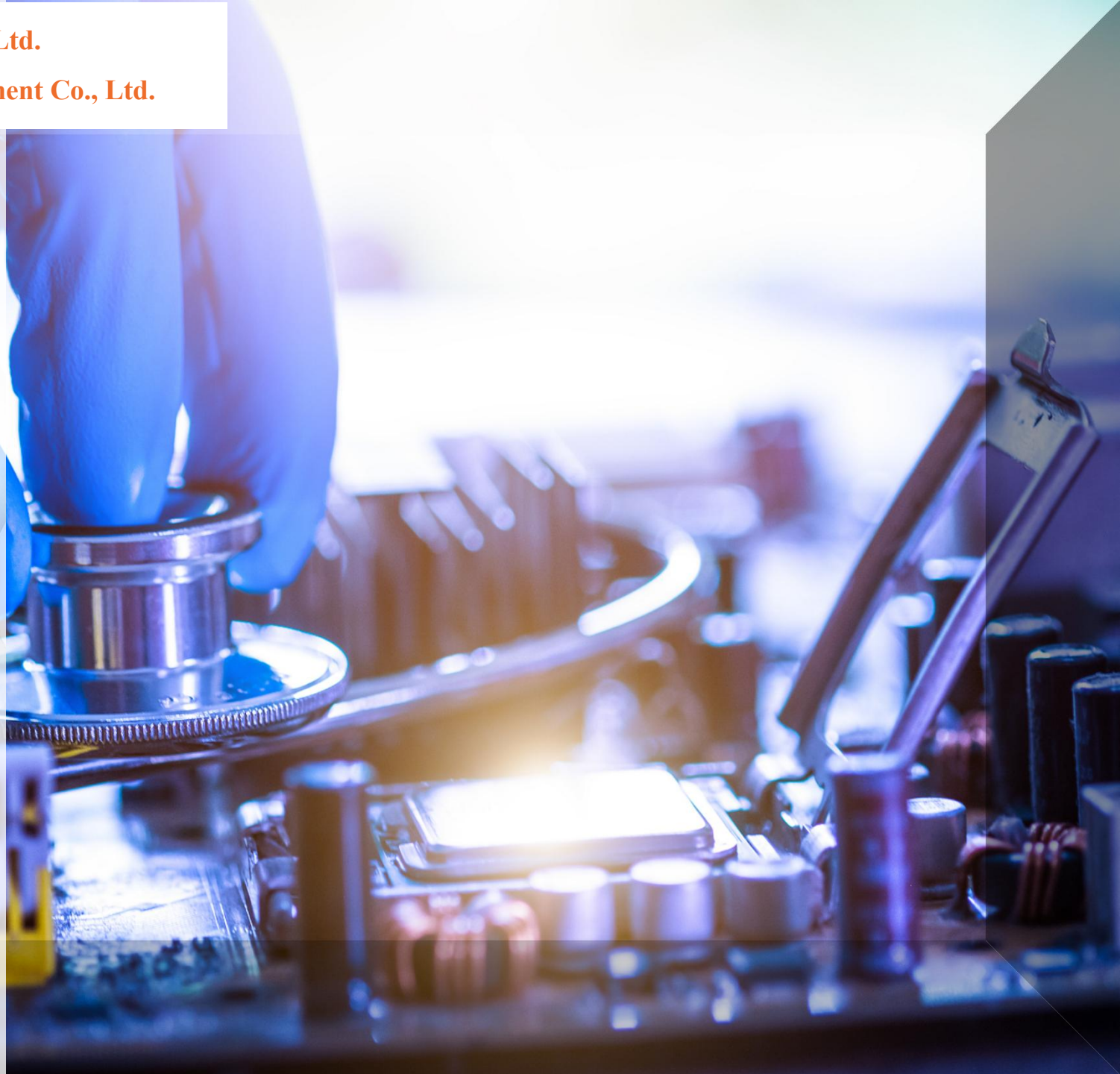
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## PART 05

## Process

## Flow

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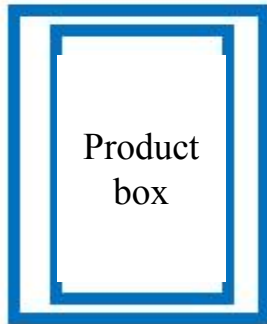
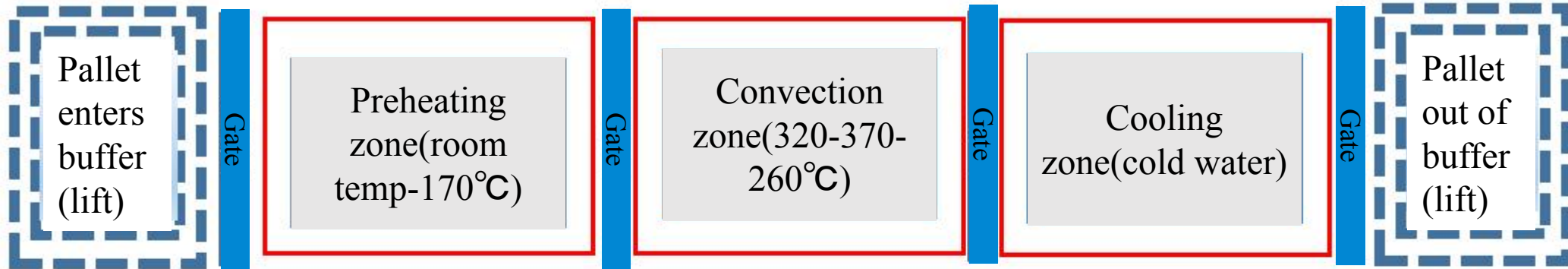


# Process Flow

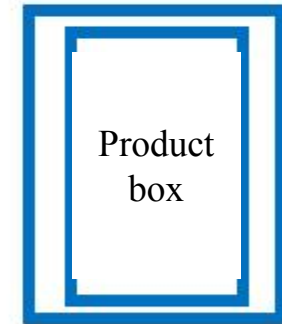


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- The heating board can bear a load of >30Kg, and the product is placed on the pallet and transported between chambers.
- Heat is conducted by raising the heating plate so that it is close to or in contact with the pallet, and the temperature gradient (slope) is controlled by the gap distance.
- Elimination of air bubbles by vacuum technology when heating to liquid phase.
- Cooling is completed in an independent chamber, and the cooling gradient is controlled by adjusting the distance between the pallet and the cooling platen.



## (Vacuum) contact soldering process steps

[Inert gas in the whole process <5ppm O<sub>2</sub>]

### ◆ Chamber #1 :

- (Load product) The pallet enters the chamber and then close the gate
- Exhaust air and inject H<sub>2</sub>/formic acid
- Perform preheating and maintain preset process time

### ◆ Chamber #2 :

- Continue heating until the solder is melted
- Use vacuum (<10 mbar) control technology to eliminate voids (bubbles) and maintain for a set time
- Fill with H<sub>2</sub>, the pallet is transported to the cooling chamber

### ◆ Chamber #3 :

- Cooling in inert gas with adjustable gradient

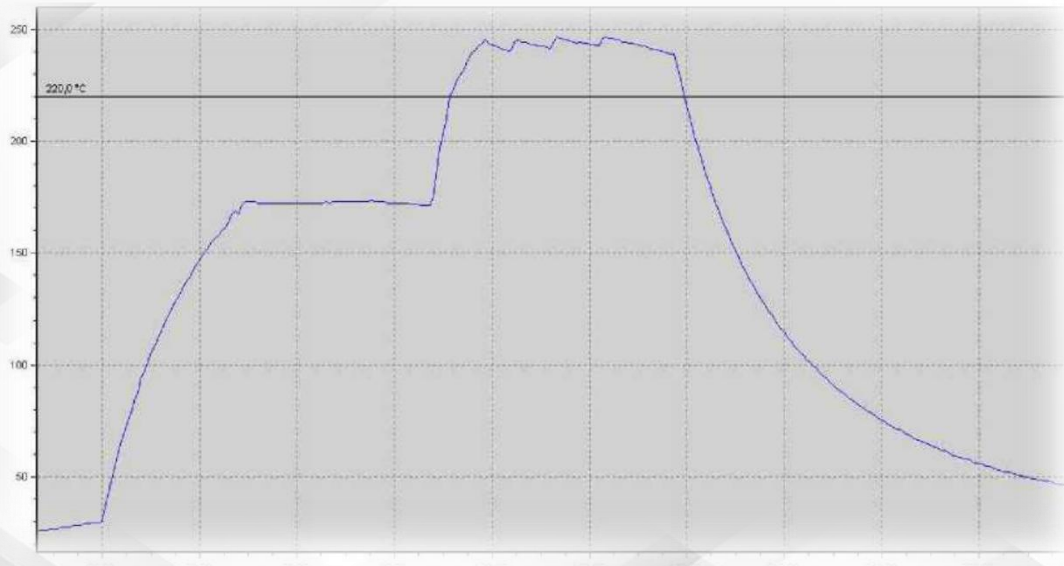
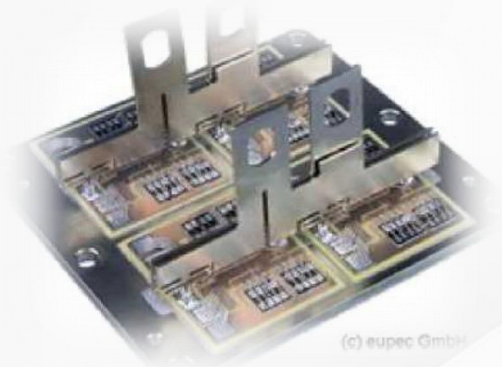


# Thermal Transfer System Performance



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- ◆ Efficient heat conduction enables the temperature gradients used in the heating and cooling processes to be appropriately adjusted in a temperature range that can be used for all product sizes and weights, regardless of the product thermal mass.
- ◆ In traditional reflow ovens with hot air convection or steam, the solder is often melted before the heavy base reaches wetting temperature, and poor wetting is the main cause of bubbles.
- ◆ The contact heat conduction method used in the eutectic system causes the base to be heated first. The solder will not melt until the heavy thermal mass base reaches the wetting temperature. The heating plate has a large mass and works at a constant temperature. So the soldering work of almost all products can be completed within the IPC/JEDEC temperature range.

Example of temperature ranges with steep gradients for heating and cooling processes.

Processing time: only 4 minutes

Product: (automotive electronics) power module weighing 1.000g



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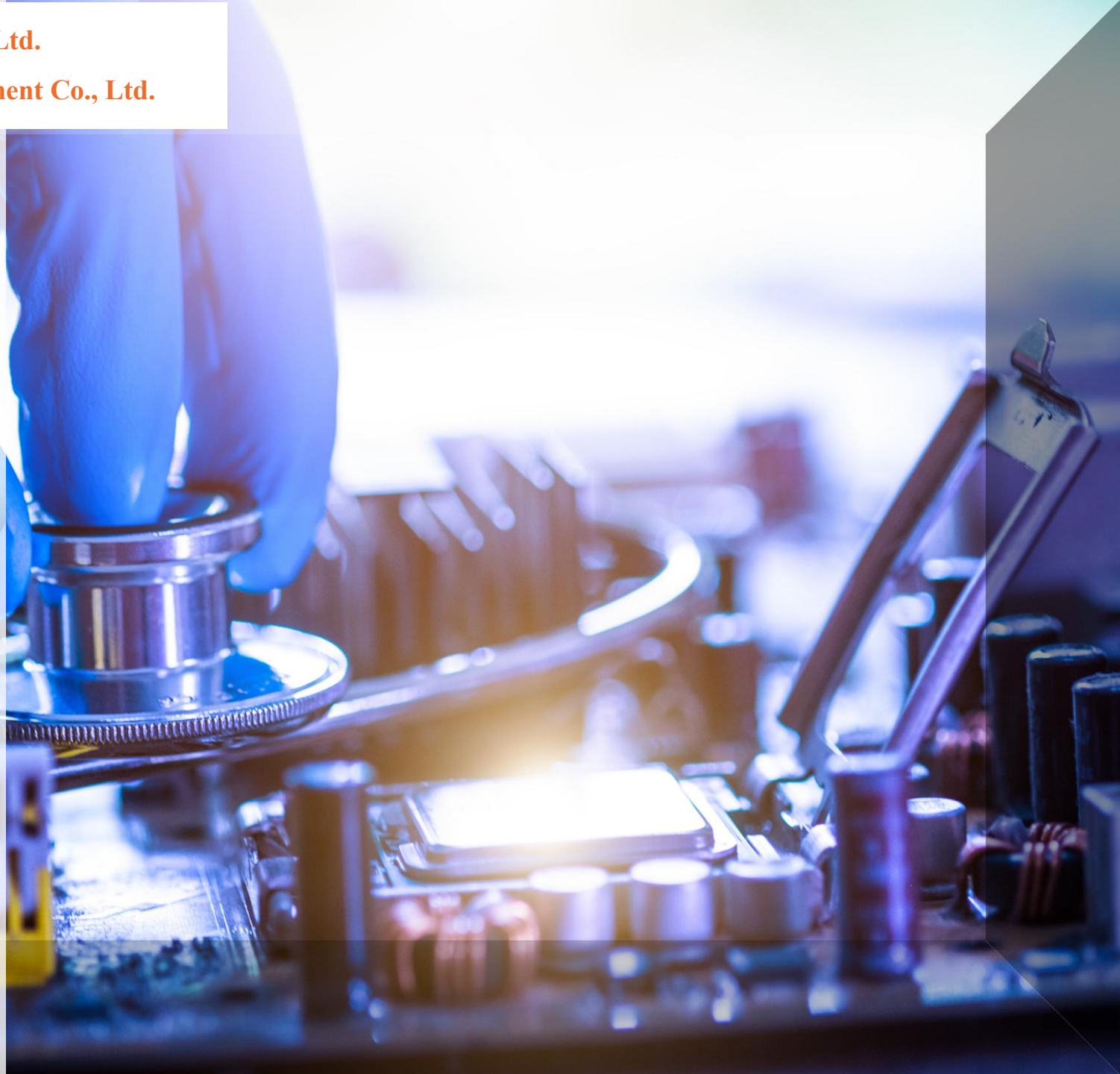
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## PART 06

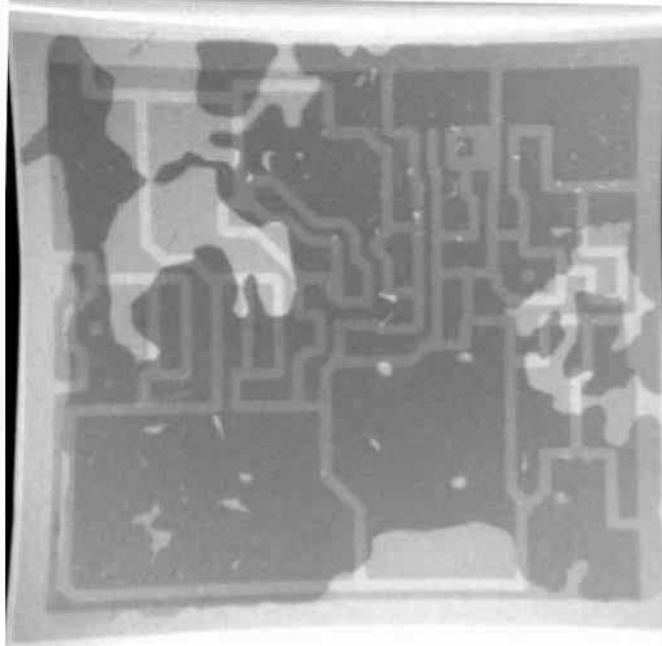
### Case

### Analysis

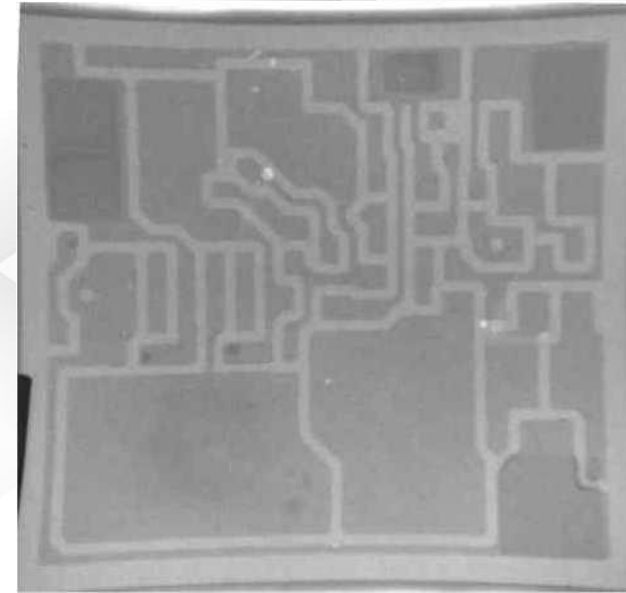
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## Case: Heating methods cause poor wetting



- DBC with steel mold on copper base, typical voids due to base wetting issues.
- In traditional reflow or vapor phase system for base soldering, the void rate is  $>15\%$ .



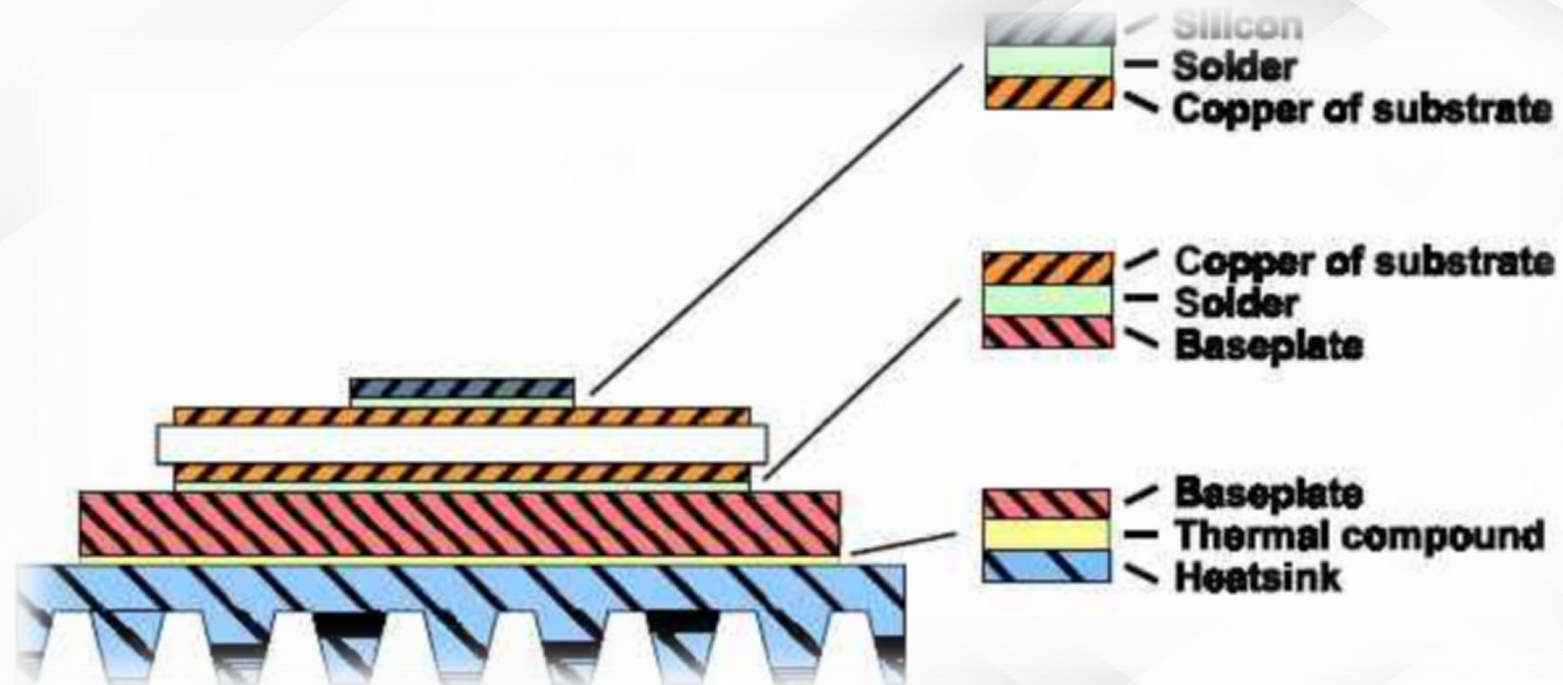
- ✓ DBC with steel mold on a copper base, soldered in a contact soldering system with vacuum technology.
- ✓ Void rate  $< 1\%$ .

# Typical Applications - Power Module with Base



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Chip + solder + DBC + solder + baseplate + solder + radiating board  
Soldering can be done in one go (soldering process)



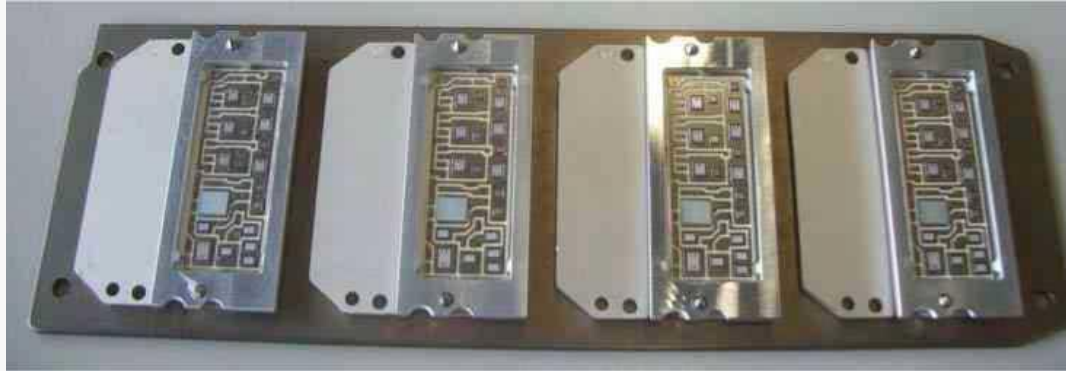
The copper layers on both sides of the DBC baseplate form a multi-layer structure

# Examples

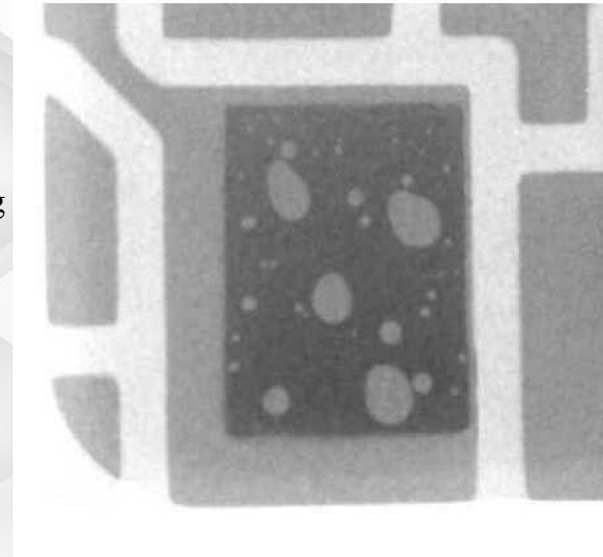


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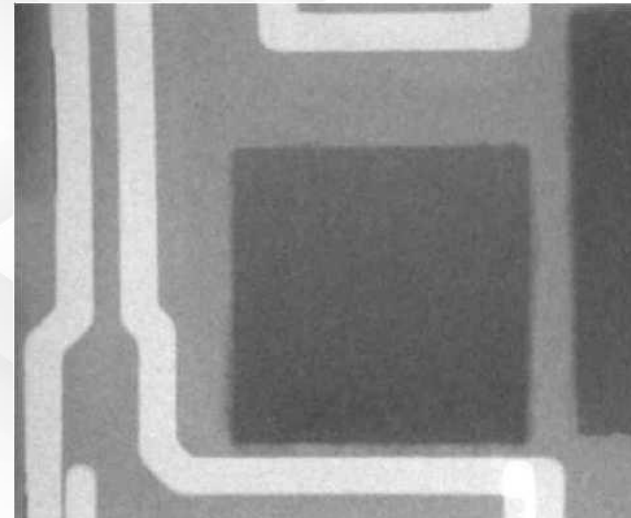
Traditional reflow soldering



Power module that completes the soldering of DBC and steel mold in one step (completes the soldering of solder paste and preform in one step).

Fixed frame to ensure correct positioning of DBC.

Vacuum soldering



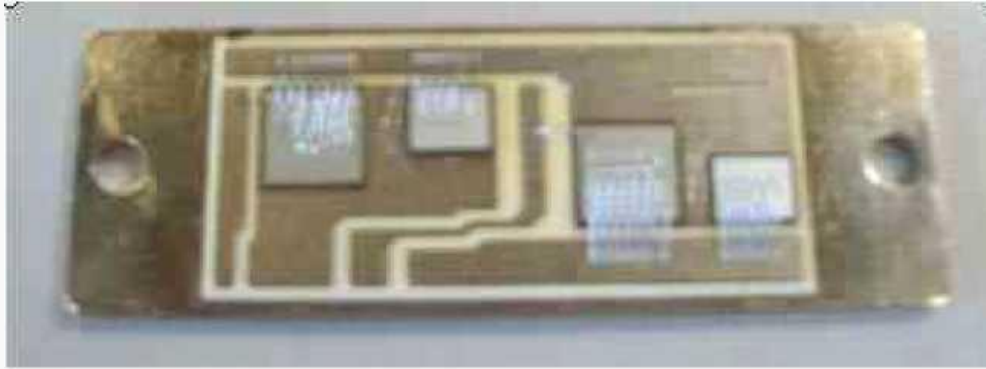


# Examples

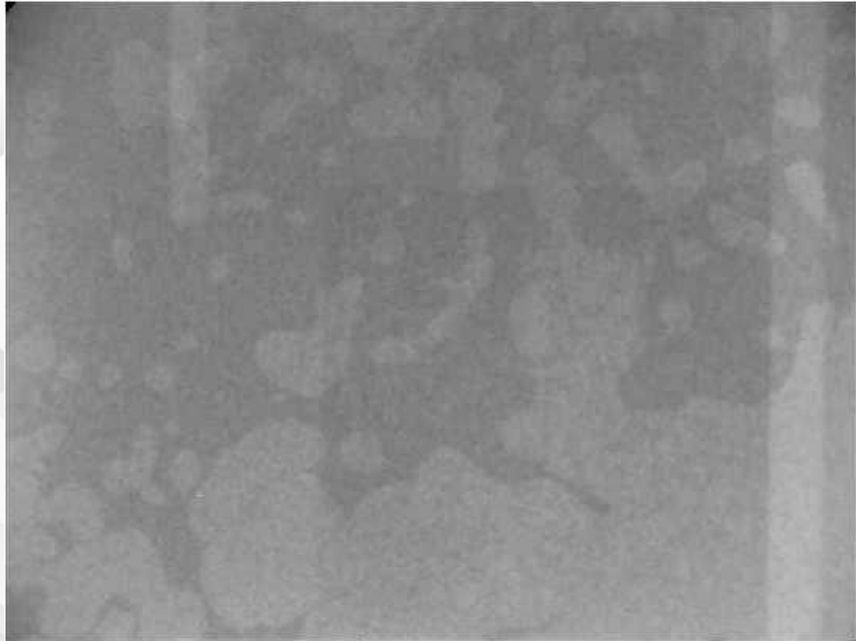


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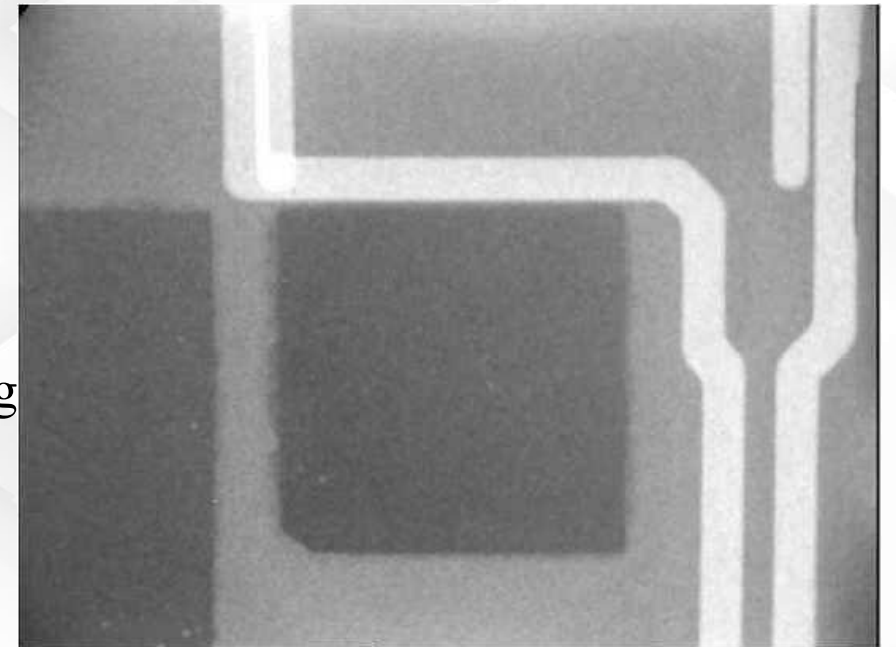


Product: IGBT power module with copper base  
Application: Wide variety for motor control



Traditional reflow soldering

Vacuum soldering

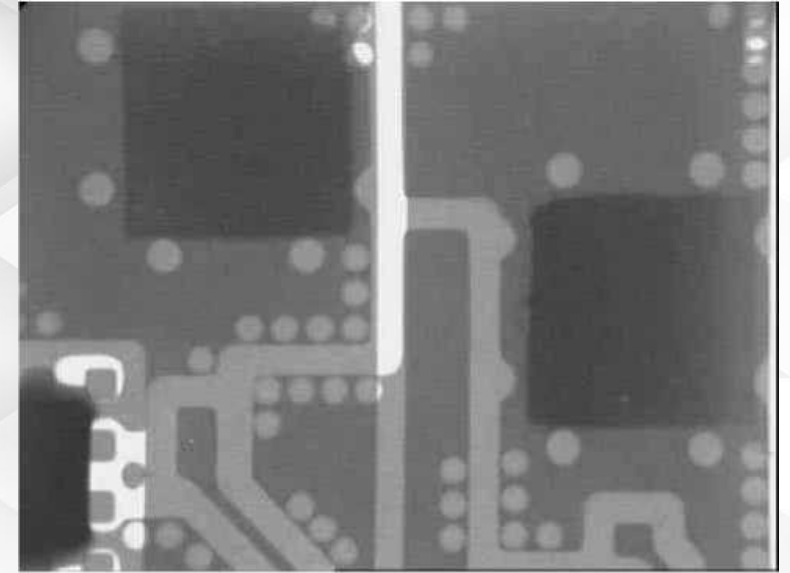


# Examples



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Power electronics for the automotive industry, instrument panels, mass production, steel molds and splitters are soldered on the DBC using solder paste.

Produced under vacuum technology mode, fully automatic processing.

After using the vacuum soldering process, the void rate is 0.

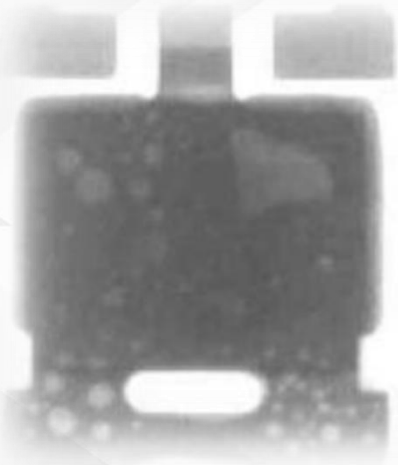
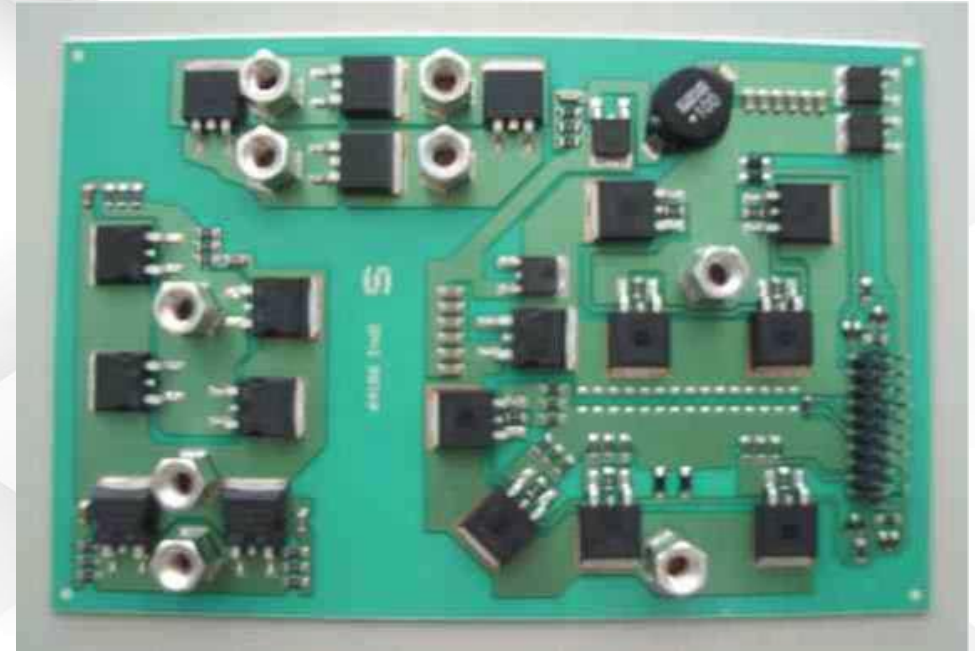
# Process Flow



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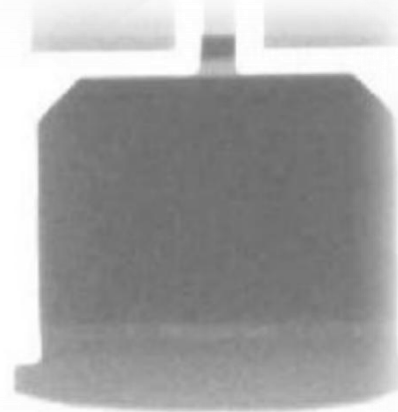
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- ◆ Product: Circuit board with aluminum base
- ◆ Application: Soldering machine and forklift feeder
- ◆ Manufactured in vacuum process environment



←Traditional reflow soldering

Formic acid vacuum soldering→





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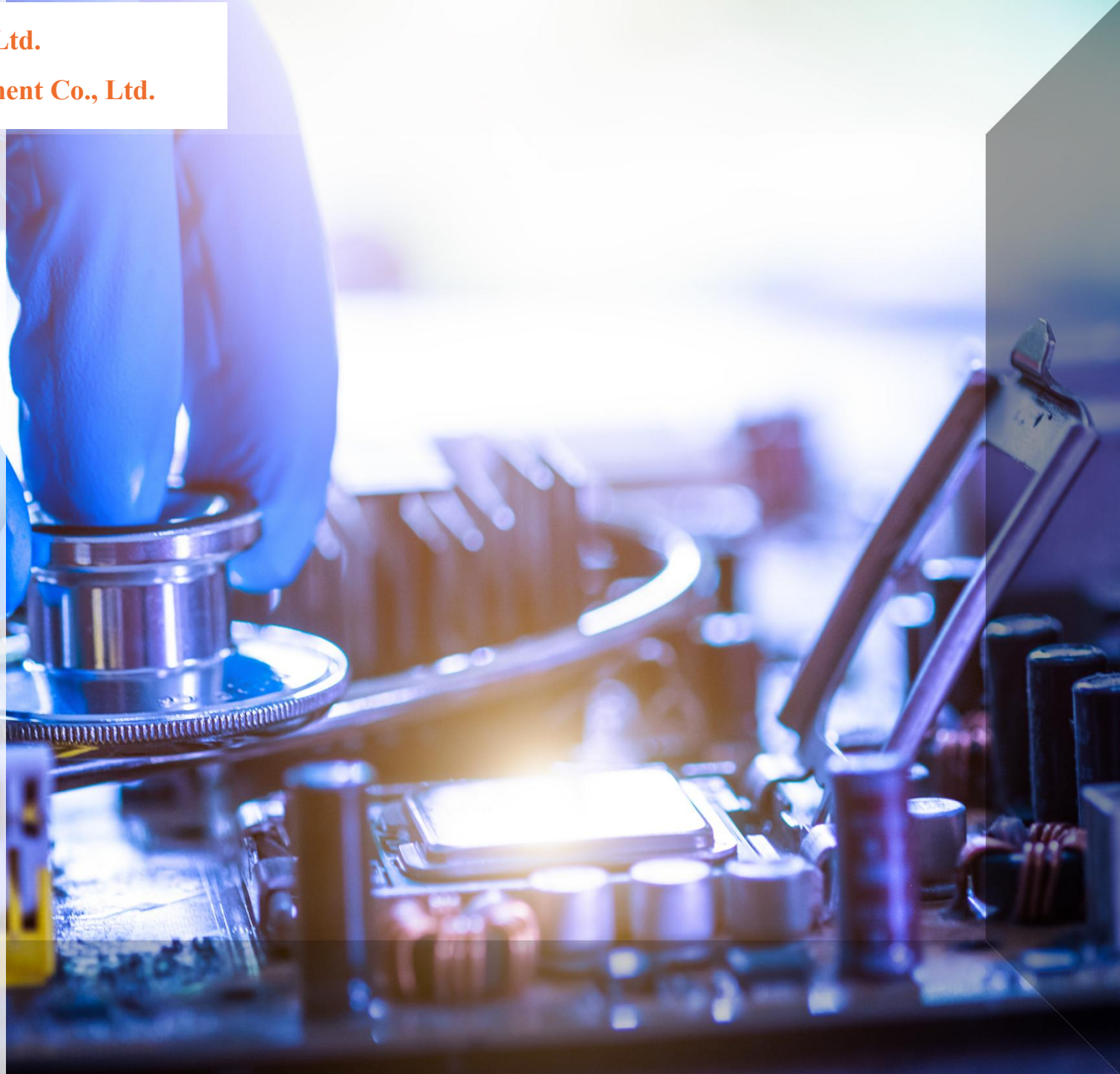
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## **PART 07**

### **After-sales**

### **Service**

- **Technological innovation**  
**Leading intelligent manufacturing**



# After-sales Service



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## Promise

If any fault occurs while using the equipment, please contact our after-sales personnel immediately. We will respond within 1 hour and come to solve the problem within 2 to 24 hours. The main processing procedures are as follows:

1. After-sales personnel communicate with the customer over the phone to confirm the problem and try their best to provide the customer with a solution. If the problem can't be solved immediately, a reply must be made within 1 hour.
2. For on-site problems that cannot be solved through telephone communication, our company will inform the customer as soon as possible after discussing the solution within the company and agreeing to arrive at the scene to deal with it.
3. When the customer handles problems, 5S must be ensured on the equipment and in the customer's workplace.
4. After the processing is completed, please ask the customer's operator to verify that the equipment can operate normally before leaving.

The main technical support and after-sales service personnel have rich qualifications and have been engaged in project management in the company for a long time, and have rich experience in after-sales management.



Ye Yongli	Project Manager
Wei Shuo	Chief Mechanical Engineer
Liu Fangguan	Electrical Engineer
Hu Tianqi	After-sales Manager
Lv Hongyang	After-sales Engineer



After-sales Tel: 0769-26885770 13318467009

# Production Cycle/Project Progress



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- 1 Sign an order and provide the technical data required for the project to our company as the contract starts.
- 2 Complete the drawing design within 4 weeks after the contract is initiated
- 3 Complete procurement and start processing within 4 weeks
- 4 Complete assembly and debugging within 8 weeks
- 5 Shipped to the customer's factory, installed, debugged and produce within 2 weeks
- 6 After trial production operation, after-sales online tracking



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