

KAORI



**Corporate Brochure**



從專業找出價值迎接全球綠色經濟時代  
Sustainable Future - Promising Carbon Neutrality Movement





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創新、品質、責任、榮譽  
[www.kaori.com.tw](http://www.kaori.com.tw)

## 關於高力 About Kaori

高力自 1970 年創立以來，即以追求創新的熱處理技術，進而製造出世界級的產品為目標，不斷的在技術和品質方面努力提昇，並持續地開發、研究、引進新的熱能技術。

自 1992 年起，高力以累積的熱處理、銅焊和真空硬鉚之專業技術與豐富經驗，逐步走向開發自有品牌產品，研發生產板式熱交換器、仙吉米亞壓延輥輪等多項產業之關鍵零組件及系統設備。近年來，更致力與國際大廠合作開發，陸續生產及研發出多項節能、氫能、綠能產品，積極跨足綠色能源市場，朝綠能公司邁進。

高力從『運用能源』到『節省能源』，再到現在的『製造能源』，在在都顯示了高力善盡企業環保責任，想為這個地球盡一份心力，與業界共創綠能新世界的決心。

Since its establishment in 1970, Kaori's main goal has been to pursue cutting edge heat treatment technology and to manufacture world class products. Kaori has worked diligently to continuously improve its technology and quality, investing in research and development, and introducing the latest in thermal technologies.

Since 1992, based on its core technologies in heat treatment, which includes brazing and vacuum brazing, Kaori has developed industrial key components such as brazed plate heat exchanger, sendzimir mill rollers with its own brand name. In recent years, Kaori has cooperated with several worldwide and well-known companies to develop and manufacture system products in energy savings and hydrogen energy.

Kaori is actively stepping into the green energy market and is becoming a green energy company.

Kaori's production activity has evolved over time from "energy utilization" to "energy savings", which now includes today's "energy production". It showcases Kaori's commitment toward protecting our environment and the Earth, while helping to create a new green energy world working closely with our partners.

### 邁向綠能三部曲 Three Steps into to Green Energy



## 經營理念 Management Philosophy

### 願景 Vision

熱能與氫能技術的領導者。

To become the leading thermal and hydrogen technology company.

### 使命 Mission

解決並整合業界對熱能技術的問題及應用，秉持環保節能的理念、開創熱能事業的新紀元。

Kaori is dedicated to solve any emerging issues in thermal technology and integrate industrial thermal applications into their ever better performance. In accordance with the principle of “Environmental Friendly and Energy Saving”, Kaori is working on making possible the evolution of the thermal technology industries into a new era.

### 核心價值 Core Value

創新、品質、責任、榮譽。

Innovation, Quality, Responsibility, Honor.

### 經營策略 Strategy



品質  
Quality

以值得信賴的產品品質，將高力推向世界 / 國際的舞台。全球市場從南、北極到赤道都將有高力板式熱交換器的足跡。

To expand Kaori's brand into the world by reliable and responsible product quality. The presence of Kaori Plate Heat Exchanger will be spread out to the global market from the Equator to the South & North Pole.



創新  
Innovation

致力於產品的不斷創新與研發，結合節能環保的概念，開創高效能的產品且為地球能盡一份心力。

To be devoted to a constant product innovation and R&D. To integrate with the environmental friendly concept and energy saving, Kaori is to initiate the most effective thermal technology products, and further contribute with its efforts of saving the energy of the Globe.



承諾  
Commitment

提供最即時，迅速的服務，確實的交付貨品。重視客戶的需求與意見，作為未來改善的依歸。

To provide product / service on time, promptly and precisely. Kaori values customer needs and opinions for future improvement and progress most highly.



獲利  
Profit

達成並超過公司財政上的目標，並與股東及商業夥伴共同分享成果。

To achieve and exceed company's financial target, and share the fruits of its achievement with shareholders and business partners.



人才  
Talent

重視公司內部人資成本。提供人員完善的教育訓練，並給予和諧且安全的工作環境。藉此培養個人目標且激發最大生產力。

To highly value the talent and overall competitiveness. Continue to conduct training program to all employees as appropriate, with the harmonious and safe working environment....to encourage employee in achieving personal goal and maximized the productivity.



KAORI  
R 高力



1970 創立高力熱處理工業股份有限公司

座落於新莊市化成路 211 巷 1 號，  
資本額新台幣貳佰陸拾萬元。

- 1971 廠房設備工程完工，由西德 FLUMINA 公司引進鹽浴爐開始營業。
- 1977 設高立熱處理工業股份有限公司於高雄。
- 1987 中壢廠第一期工程完工，由美國 ABARIPSEN 公司引進箱型氣體爐。
- 1988 中壢廠全部建設完工，由新莊完全遷至中壢廠。
- 1989 獲得日本工業規格 JIS 標記認證。
- 1990 高立熱處理、高力精密併入高力熱處理。

- 1970 KAORI HEAT TREATMENT CO., LTD was established in Hsinchuan, Taipei County. Investment capital was NTD2.6 million.
- 1971 New plant was completed and equipments were installed. The salt bath furnace was imported from FLUMINA co., Germany.
- 1977 Kaohsiung Kaori was established in Kaohsiung.
- 1987 The first phase of the new Chungli plant was completed. Purchased batch type furnace from ABARIPSEN CO., USA.
- 1988 The Chungli plant was fully completed. Company was moved from Hsinchuan to Chungli.
- 1989 Awarded with certificate of JIS marking.
- 1990 Merged Kaohsiung Kaori and Kaori Precision into Kaori Heat Treatment Co., Ltd.

1994 成立板式熱交換器事業部

成立輥輪事業部。  
獲得美國麥道航空公司評鑑授證。

- 1995 高雄永安工業區新廠落成。
- 2001 熱交換器事業部獲得符合美國 UL 壓力容器認證。高雄本洲工業區，高雄總廠本洲廠落成。
- 2003 板式熱交換器事業部獲得符合歐盟 CE (PED) 壓力容器認證。
- 2004 高力科技(寧波)有限公司建廠完成，正式生產板式熱交換器。  
成立熱能科技事業部。
- 2006 成立金屬製品事業部，合併銅鍍廠。  
證期局核准掛牌上櫃。  
於中壢工業區建立中壢三廠。
- 2007 成立空氣乾燥機事業部。
- 2008 中壢工業區板式熱交換器新廠落成。  
板式熱交換器事業部獲得 ASME "U" 及 "UM" 認證。  
通過公司治理協會的公司治理評量。

1970

1994

- 1994 The Plate Heat Exchanger Division was founded. The Sendzimir Roller Division was founded. Awarded with certificate of qualification by McDonnell Douglas Circraft Co., USA.
- 1995 New plant in Yungan industrial zone was completed.
- 2001 Awarded with certificate of qualification for UL marking in Plate Heat Exchanger Division. New plant in Benzhou industrial zone was completed.
- 2003 Awarded with certificate of qualification for CE (PED) marking in Plate Heat Exchanger Division.
- 2004 Kaori Technology (Ningbo) Co., Ltd. was completed and started to manufacture plate heat exchangers. Founded Thermal Technology Division.
- 2006 Founded Metal Ware Division merged with Brazing Division.  
Kaori's shares were approved by Securities and Futures Bureau, and became a listed company. The third plant was completed in Chungli industrial zone.
- 2007 Founded Air Dryer Division.
- 2008 New plant for Plate Heat Exchanger Division was completed in Chungli industrial zone.  
Awarded with certificate of qualification for ASME "U" and "UM" marking in Plate Heat Exchanger Division.  
Awarded with certificate of Corporate Governance System.



## 2009 與美國燃料電池大廠簽署國際合作協定

- 空氣乾燥機事業部獲得歐盟 CE (PED) 壓力容器認證。
- 熱電事業部第一批量產低溫廢熱發電機出貨。
- 再度通過公司治理協會的公司治理評量。
- 2010 中壢工業區燃料電池新廠落成。
- 2011 高雄燃料電池新廠落成。
- 熱交換器事業處成立日本辦事處。
- 2013 產品獲得國家金牌品質獎認證肯定。
- 2014 證交所上市掛牌交易。
- 2015 開發出國內唯一使用天然氣為燃料的家庭用燃料電池發電系統。
- 2017 全球營運總部辦公大樓啟用。

## 2018 成立熱能事業部

- 2019 浸沒式伺服器散熱系統產品發表會。
- 高雄本洲板式熱交換器廠通過環境管理 IOS 14001: 2015。
- 2020 購置中壢工業區土地，興建自強廠。
- 金屬加工廠通過品質管理系統（汽車產業）IATF 16949。
- 2018 The Energy Management Division was established.
- 2019 Server Immersion Cooling System Product Launch.
- Kaohsiung Benzhou Plate Heat Exchanger Factory certificated with Environmental Management ISO14001:2015.
- 2020 Purchase land in Zhongli Industrial Zone and build Ziqiang Factory.
- Metal processing plant certified with Quality Management System (Automotive Industry) IATF16949.



## 2021 高雄本洲廠完成擴建

- 2021 成立 ESG 永續推動委員會。
- 高雄本洲廠完成擴建。
- 成立 ESG 永續推動委員會。
- 2022 全面推動 ESG 永續發展。
- 2021 Kaohsiung Ben-Chou Plant completed expansion.
- Established the ESG Sustainability Promotion Committee.
- 2022 Fully promote the sustainable development of ESG.



- 2009 Signed an international cooperation agreement with a US fuel cell company.
- Awarded with certificate of qualification for CE (PED) marking in Air Dryer Division.
- The first batch of commercial low temperature waste heat generator units was built and shipped to the US. Awarded again with certificate of Corporate Governance System.
- 2010 New fuel cell plant in Chungli industrial zone was completed.
- 2011 New fuel cell plant in Kaohsiung was completed.
- Kaori Heat Treatment Japanese branch office was established.
- 2013 Awarded with Taiwan Quality Product Bravo Award.
- 2014 Kaori Heat Treatment Co., Ltd. was listed at Taiwan Stock Exchange.
- 2015 Kaori has developed the first Natural Gas PEMFC system in Taiwan.
- 2017 Orporation's new headquarter started running.



我們製造高品質的產品，建立迅速且完善的服務網；我們的責任是使客戶事業順利及獲利，能為您服務是我們的榮幸。

Kaori provides with high quality products and prompt customer service. Our goal is to help our customers in achieving the maximum profit and successful business. It's our honor to be at your service.

### 核心事業 Core Business




**熱交換器事業**  
Heat Exchanger Business Unit

11 品質管理 12 客戶滿意度 13 環境保護



**燃料電池事業**  
Fuel Cell Business Unit

7 研發投入 11 品質管理 12 客戶滿意度 13 環境保護



**氫能事業**  
Hydrogen Energy Business Unit

7 研發投入 11 品質管理 13 環境保護



**熱能事業**  
Energy Management Business Unit

9 研發投入 11 品質管理 12 客戶滿意度 13 環境保護

### 廠區據點 Manufacturing Plant



營運總部 Headquarter



中壢一廠 Chung-Li Plant 1



中壢二廠 Chung-Li Plant 2



中壢三廠 Chung-Li Plant 3



中壢自強廠 Chung-Li Plant 4



高雄本洲廠 Kaohsiung Ben-Chou Plant



中國寧波廠 China Ningbo Plant



國際認證 Certificates



ISO 9001:2015  
品質管理 QMS



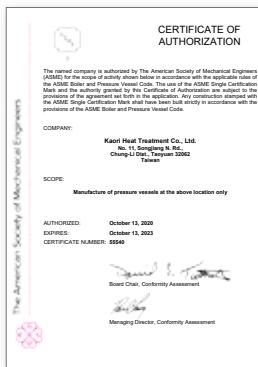
ISO 14001:2015  
環境管理 EMS



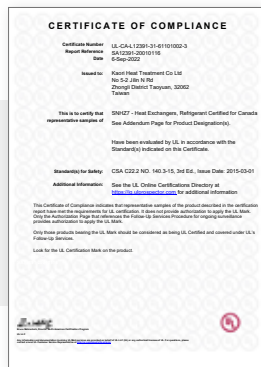
AS9100  
航太品質管理系統 AQMS



ISO 14064-1:2018  
溫室氣體查驗 GHG



ASME  
美國機械師工程協會



UL  
美國安全試驗實驗室



CE  
歐盟壓力設備指令



最新認證 / 專案  
Latest Certificates/Patents

備註 /Note :

QMS: Quality Management Systems, EMS: Environmental Management Systems, AQMS: Aerospace Quality Management Systems, GHG: Greenhouse Gas

ASME: The American Society of Mechanical Engineers U/UM, UL: Underwriters Laboratories, CE, PED: Pressure Equipment Directive

專利權 Patents



台灣、中國、日本、德國等高壓型板式熱交換器專利

Patents regarding high pressure of Plate Heat Exchanger were approved by Taiwan, China, Japan, Germany.

## 深耕台灣半世紀 實現環境永續的承諾

### The World's Brazed Plate Heat Exchanger Leader

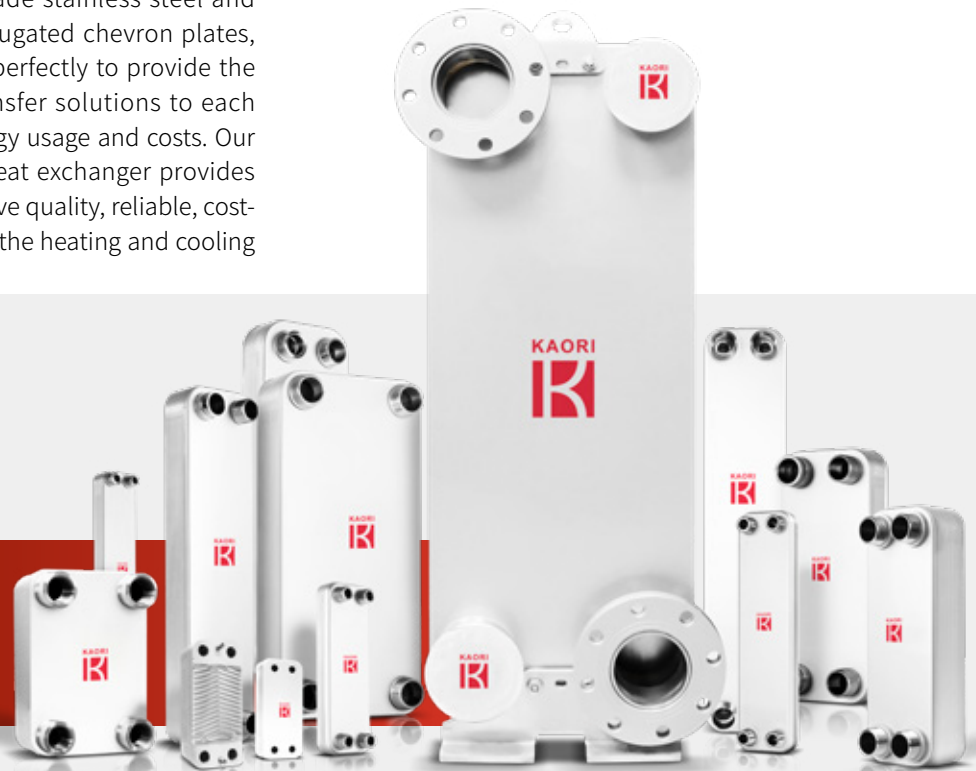
台灣第一且唯一製造商，提供專業優質在地化服務。以客戶為導向的產品發展策略，至今成功銷售超過 70 多個國家。放眼未來，以 ESG（環境、社會、治理）為戰略思維，透過研發創新技術，實現可持續發展的理念，與客戶共同邁向永續經營。

KAORI has been a leading global Brazed Plate Heat Exchanger manufacturer since 1994. We are dedicated to providing the best fit customizable heat transfer solutions to each client which result in lower energy usage and costs. Kaori constantly develop innovative thermal solutions and providing high performance, comprehensive quality, reliable, cost-competitive products to remain the heating and cooling industry's trusted partner.

#### 產品介紹 Why KAORI ?

高力的硬銲型板式熱交換器係由沖壓成形之山形波紋板片所組成。依據不同的工況用途，使用不同的板紋設計，採真空硬銲方式製作成硬銲型板式熱交換器，並能在高溫高壓的工作系統中發揮高效率的熱傳性能，以達到節約能源之功效。

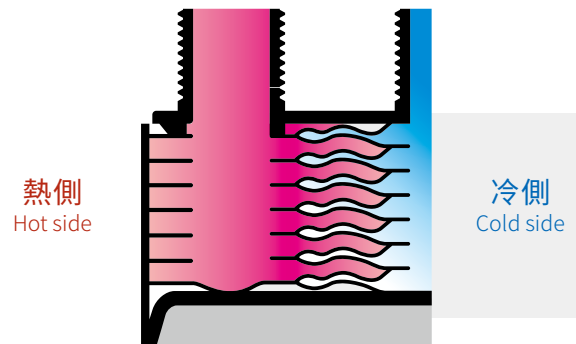
Kaori professionals in heat transfer solution are constantly developing high quality brazed plate heat exchangers. We select high grade stainless steel and brazing material to design corrugated chevron plates, and braze by vacuum furnace perfectly to provide the best fit customizable heat transfer solutions to each client who results in lower energy usage and costs. Our innovative thermal solutions heat exchanger provides high performance, comprehensive quality, reliable, cost-competitive products to remain the heating and cooling industry's trusted partner.



### 產品特色 Features

- 高效率熱傳性能
- 耐腐蝕性能
- 品質及可靠度驗證
- 耐高溫
- 耐高壓
- 體積小、安裝便捷
- 產品壽命長且耐用
- High Thermal Transfer Efficiency
- Corrosion-Resistance
- Proven & Reliable Quality
- High Working Temperature
- High Pressure Resistance
- Compact & Easy Installation
- Durable & Robust

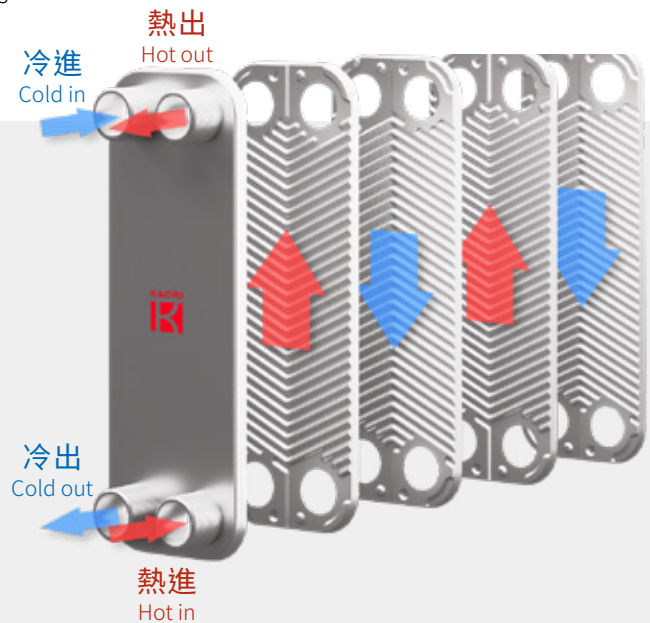
### 工作原理 Working Principle



### 流道示意圖 Cross section

### 產業應用 Applications

- 暖通空調
- 半導體與電子業
- 低溫冷凍
- 能源與公用事業
- 機械設備
- 交通運輸
- 醫療設備
- 資料中心
- HVAC
- Semiconductor & Electronics
- Refrigeration
- Energy & Utility
- Machinery
- Transportation
- Health Care
- Data Center





## 高熱傳效能 多樣的板片選擇

### High Efficiency Heat Transfer Performance & Extensive Selection

為何使用組合式熱交換器？比螺旋式或殼管式熱交換器體積更小，具有更佳的熱傳導能力。經設計後能使熱傳更具高效率，容易清洗維修，拆裝方便，並具備再擴充之能力及空間。

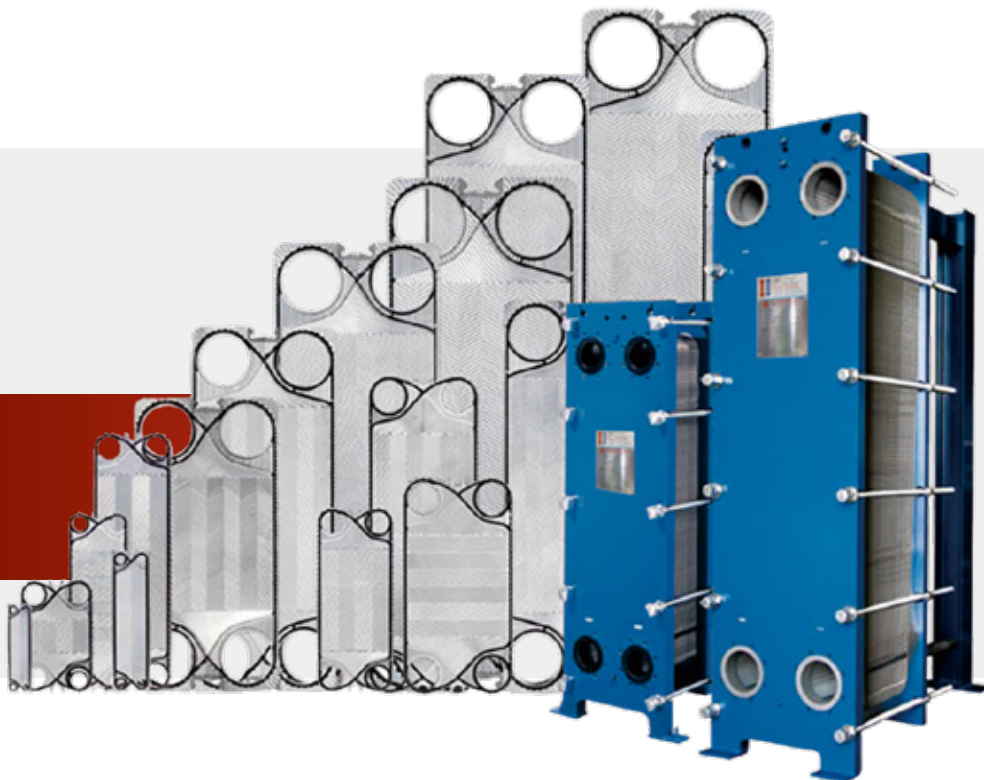
Compared to spiral and shell and tube heat exchangers, GPHEs of similar capacity also take up little floor space and are easy to expand. Deliver greater efficiency, lower cost, easier cleaning and maintenance, and closer approach temperatures than any other heat transfer technology. The vertical swing out plates allow one to pack thousands of square feet of heat transfer area into a small space, while still allowing room for future growth.

#### 產品特色 Features

- 高熱傳性能
- 低阻塞率
- 完全逆流
- 低溫差的熱傳效能
- 單機多迴路設計
- 適用高黏稠度液體
- 排除混淆互通
- High Efficiency Heat Transfer Performance
- Reduced Fouling
- True Counter Flow
- Close-Approach Temperatures
- Multiple Duties With a Single Unit
- High Viscosity Applications
- Cross Contamination Eliminated

#### 產業應用 Applications

- 石化廠 煉油廠
- 鋼鐵業
- 發電業
- 海運業
- 半導體廠
- 金屬加工業
- 食品業
- 冷凍空調
- Petroleum
- Steel
- Power Plate
- Marine
- Semiconductor
- Metal Working
- Food
- HVAC



## 完善的維修服務 Maintenance services

高力組合型板式熱交換器為具有合理設計和高品質的產品，可大幅度降低維修保養成本。

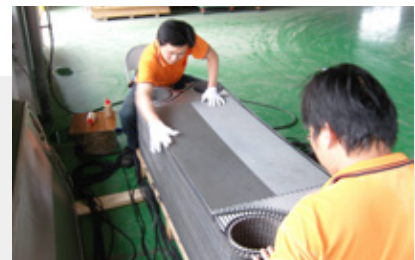
根據使用狀況的不同，密封墊圈會經歷一個疲勞老化的過程，這是正當的現象。在正常使用下，可以通過多次夾緊板片組合方式，使得組合型板式熱交換器達到應有的熱交換效果及密封性，但不可低於最小的 A 值，在一定的使用時間後，可以更換密封墊圈，以達到最佳的密封性，確保熱交換效果。

一般的維護保養工作由專業技術人員進行，如有需求，請與高力的業務部門聯絡，我們將給予您適當的建議與解決方案。

The Gasketed Plate Heat Exchanger Combining High Technology, Quality and Durability, significantly reduces maintenance costs.

The sealing gasket undergoes a fatigue aging process due to varying usage conditions, which is a normal phenomenon. Under normal use, the plate heat exchanger can achieve necessary heat transfer and sealing performance through multiple clamping of the plate assembly, but the minimum A value must not be lower. After a certain period of use, the sealing gasket can be replaced to achieve better sealing performance and ensure heat transfer efficiency.

General maintenance work is carried out by professional technical personnel. If you have any needs, please contact our sales department, and we will provide appropriate advice and solutions.



## 服務內容 Our services include

清洗：

沖洗 / 現場機械清洗 / 化學方法清洗（浸泡池）、高力公司可按客戶要求提供清洗工具（包括清洗用化學物質）、供應帶密封墊片的新板片（板片經過微裂紋檢驗）。

供應備件：

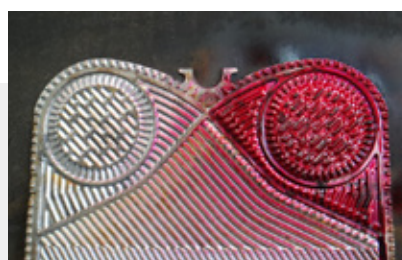
整台設備完整檢驗、持續性能改進、根據要求增加或減少板片 / 調整板片結構。

Cleaning:

rinsing/on-site mechanical cleaning/chemical cleaning (immersion tank). GEA can provide cleaning tools (including cleaning chemicals) as per customer requirements and can also supply new plates with sealing gaskets (plates undergo micro-crack inspection).

Supply of Spare Parts:

The entire equipment undergoes complete inspection to ensure continuous performance improvement, and the number of plates or plate structure can be adjusted as per requirements."



## 以核心本業技術 結合永續合作夥伴

### Connecting Sustainable Partners with Core Technology

自 2009 年，高力與美國燃料電池 Bloom Energy 公司簽署國際合作協定，憑藉著優異的工廠管理與研發實力，成為開發燃料電池的關鍵策略夥伴，進軍燃料電池產業。

Founded in 2009, the FCBU is a key milestone that demonstrates Kaori's ambition to be a key player in energy industry to the public.

#### 製造能力 Manufacturing Capability



具備強大的硬焊、氬焊能力以及完善的設備。

Strong brazing & welding capabilities with comprehensive facilities.



客戶滿意的優良產品品質。

Excellent product quality to fulfill customers' expectations.



面對客戶需求或環境改變時，擁有良好的適應力及彈性做出及時的反應。

Great adaptability and flexibility to customers' needs or environmental changes and react on a timely basis.



中壢一廠燃料電池關鍵零組件生產線  
SOFC key parts production line in Chung-Li Plant 1



中壢一廠硬焊設備  
Brazing facility in Chung-Li Plant 1





高力 40 週年廠慶暨燃料電池新廠落成啓用典禮  
Kaori 40 Years Anniversary & Fuel Cell Plant Grand Opening Ceremony



高力與美國 Bloomenergy 燃料電池國際合作簽約儀式  
Kaori & Bloomenergy Fuel Cell International Cooperation Signing Ceremony



舉辦節能產品發表會  
Kaori held energy-saving product launch event.



全球營運總部大樓落成剪綵典禮  
Global Headquarter Grand Open Ceremony



2019 能源新產品發表會  
New Energy Product Release 2019

## 浸沒式散熱技術 打造永續低碳資料中心

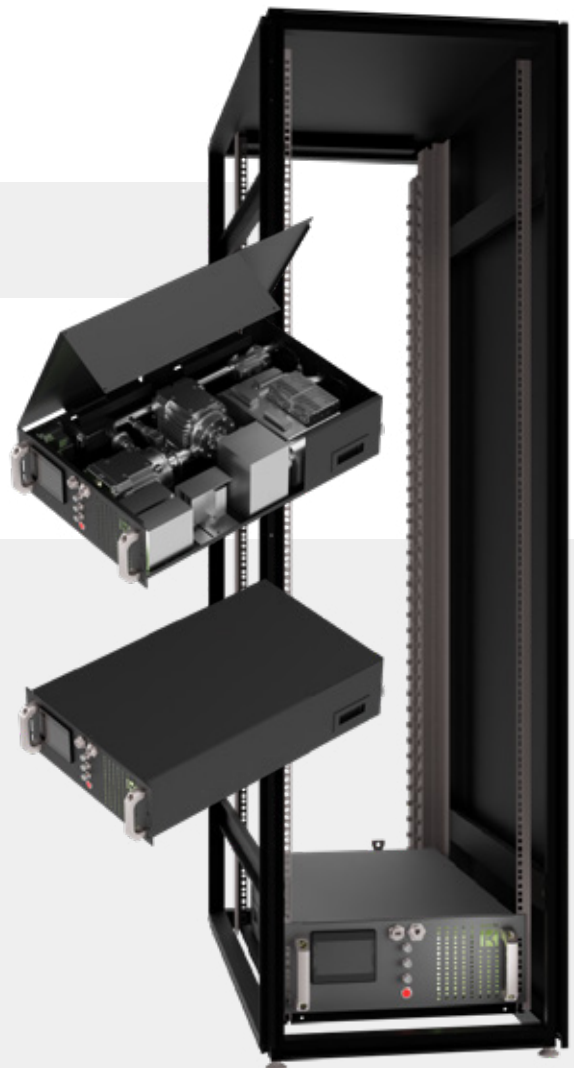
Immersion Cooling Technology to Create a Sustainable Low-Carbon Data Center

熱能事業部以雲端資料中心為主軸，針對「伺服器的散熱」提出液冷式解決方案，結合高力板式熱交換器進行廢熱回收再運用，能源使用效率提昇 20% 以上，並優化能源使用效率 PUE (Power Usage Effectiveness)  $\leq 1.1$ 。

The coolant distribution unit (CDU) for servers is the latest achievement of the company's dedication to heat managements. The CDU combining with plate heat exchangers is able to collect and recover waste heat simultaneously to preserve energy, and improves the power usage effectiveness (PUE)  $\leq 1.1$ .



浸沒式展示機  
Immersion Cooling Demo Tank



機櫃式水冷板散熱模組  
Direct to Chip (D2C) In Rack CDU & CDM



大型資料中心  
浸沒式槽體及冷卻單元  
Immersion Cooling Solution for Hyperscale Datacenter

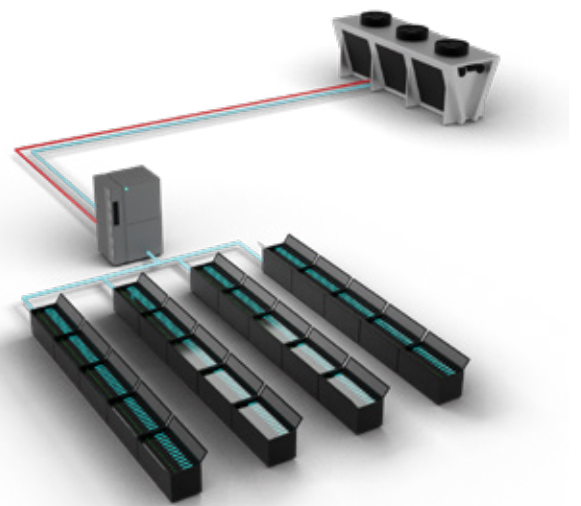
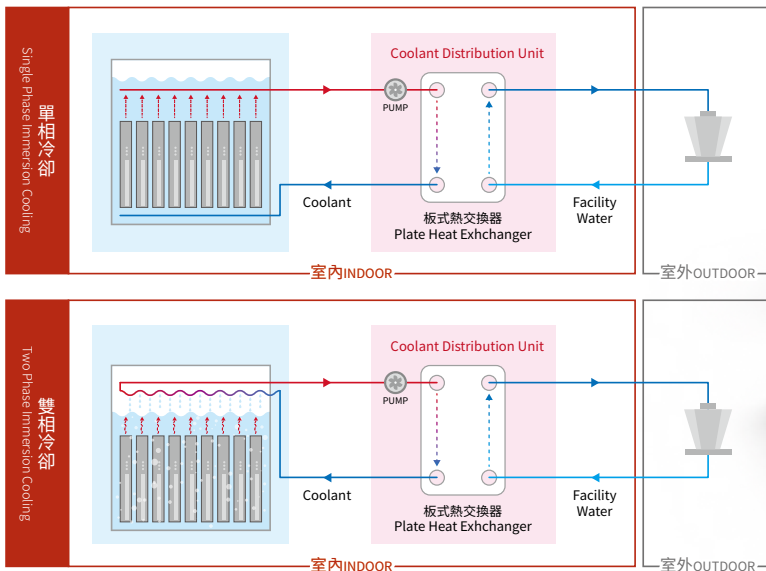
**產品特色** Features

- 無需冰水機
- 低噪音設計
- 節能減碳
- 零風扇、隔絕粉塵
- 震動減少
- 資訊設備故障率降低 50%
- No Need For Water Chiller
- Low Noise Level
- Electricity Saving & Decarbonization
- No Fan & Dust free
- Vibration Reduction
- Lower IT Equipment Failure Rate By 50%

**產業應用** Applications

- 雲端服務 / 5G 通訊
- 邊際運算
- 資料中心
- 半導體 EDA
- 人工智能 (智慧)
- 區塊鏈
- 加密貨幣 (挖礦)
- 電動汽車電池冷卻
- Cloud Services / 5G Mobile Communications Edge Computing
- Data Center
- Electronic Design Automation (EDA)
- Artificial Intelligence
- Block Chain
- Cryptocurrency (Mining)
- Battery Cooling

**浸沒式單相 / 雙相冷卻系統** Single/ Two Phase Immersion Cooling System





## 氫應用技術 協助客戶邁向循環經濟

### Hydrogen Application Technology Collaborate with Customers to Move Towards Circular Economy

未來的能源發展趨勢將以安全潔淨的替代能源取代現有傳統電廠及有安全疑慮的核能發電廠，相較於太陽能及風力發電會受制於自然天候影響電力正常輸出，燃料電池可提供穩定、持續、低成本、低污染的電力，最重要的是電力的提供由集中設備改為分散式設備，不僅減少大量資本投入，亦大幅減少電力傳輸過程的損耗。以發電效能及供應穩定度而言，燃料電池係各項替代能源中效能及穩定度最高之產品，故各項替代能源雖有其互補性，惟就發展潛力而言，燃料電池仍佔有優勢。

隨著對氫應用的了解，高力加入循環經濟的行列，投入廢有機溶劑處理，餘氫可回收發電，透過循環再利用，作為穩定基載發電。處理半導體與太陽能的廢砂漿的過程中會產出 99.9% 純度氫氣，透過高力純化系統將氫氣純度提高至 99.999% 後，可將氫氣應用於工業用途或發電上。

Alternative clean energy sources are emerging to replace conventional power plants and nuclear power, which pose safety concern. Unlike solar and wind power that are highly dependent on weather conditions, fuel cell has the potential to provide consistent power supply with low cost and low pollution. More importantly, it allows transition from a centralized power system into a distributed power system, which not only lessens capital requirement but also reduces loss of power during transmission by a significant degree. As far as power efficiency and stability are concerned, fuel cell offers the highest performance and stability among all forms of alternative energy, while being able to co-exist in complement with other alternative energy sources. For this reason, fuel cell still has better growth potentials compared to others.

Take part in circular economy by investing into the treatment of waste organic solvent and the recycling and reuse of residual hydrogen for base load power. Waste silicon from semiconductors and solar panels can be processed to produce hydrogen at 99.9% purity; using Kaori's purification system, the level of purity can be increased to 99.999%, which makes the hydrogen usable for industrial and power generation purposes.

### 甲醇重組 / PSA 純化產氫 Hydrogen Generator (Methanol reforming/PSA purification)



- 純度達 99.999%
- 30~4.5 立方米 / 小時
- 低壓 (~5kg/cm<sup>2</sup>) 產氫，嚴格的安全保護
- 甲醇水 (~59%) 為原料，即產即用，無需氫氣儲槽
- 相對於氫氣鋼瓶，設備投資回收年限為 0.5~1.2 年 (依使用量)
- 依氫氣消耗量調整出氫量，避免多餘排放之浪費
- High quality hydrogen (purity>99.999%)
- 30~4.5 cubic meters/hour
- Low pressure (~5kg/cm<sup>2</sup>) hydrogen production, strict safety protection
- Methanol water (~59%) is used as the raw material, which can be used immediately after production, without the need for a hydrogen storage tank
- Compared with hydrogen cylinders, the payback period of equipment investment is 0.5~1.2 years (depending on usage)
- Adjust the hydrogen output according to the hydrogen consumption to avoid the waste of excess emissions

## 甲醇重組 / 質子交換膜 (PEM) 燃料電池發電系統 / 氨裂解產氫發電系統 (AFC)

Fuel Cell Power Generator (MOH-Reforming PEM/Ammonia AFC)



- 系統優勢：體積較同級產品小 30%~50%
- 能耗 $\leq 0.5\text{kW}$  及噪音 $\leq 65\text{dB}$ (at 5kW output)
- CO 排放 $\leq 20\text{ppm}$  (低廢氣排放，無 NOx 及 SOx)
- 安全穩定：電與熱能綜合效率  $>85\%$ 、連續運行  $>72\text{hr}$
- 應用場域：偏遠或災區備用電源、關鍵設施備載電源
- System advantages: 30%~50% smaller than similar products,
- Energy consumption  $\leq 0.5\text{kW}$  and noise  $\leq 65\text{dB}$ (at 5kW output),
- CO emission  $\leq 20\text{ppm}$  (low exhaust emission, no NOx and SOx)
- Safe and stable: comprehensive efficiency of electricity and heat  $>85\%$ , continuous operation  $>72\text{hr}$
- Application fields: backup power supply in remote or disaster areas, backup power supply for key facilities

## 工業廢氫純化 / 回收

Purification and Recycle of Industrial Wasted Hydrogen



- 產業應用：熱處理業、粉末冶金業、金屬線、鋼鐵業
- 回收再利用：無氫氣去化及高壓運送，回收率約 70%
- 槽車 / 鋼瓶供氫量需求大減，可用高力甲醇產氫機取代
- 設備投資回收期約 2.5 年
- Industrial application: heat treatment industry, powder metallurgy industry, metal wire, steel industry...
- Recycling and reuse: There is no problem of hydrogen degasification and high-pressure transportation, and the recovery rate is about 70%, which can reduce carbon emissions
- The demand for hydrogen supply from tank trucks/steel cylinders is greatly reduced, and can be replaced by Kaori's methanol hydrogen generators
- Equipment investment recovery period (ROI) is about 2.5 years

## 廢有機溶劑裂解製氫

Hydrogen Generation by Pyrolysis of Wasted Organic Solvent

- 獨特專利設計及熱能管理
- 具低成本、防止阻塞及模組化架構
- 含前處理功能去除氟、氯、硫及金屬離子等不純物
- 應用：鍋爐燃燒供熱、氣渦輪發電、進一步純化製氫，供發電或工業用氫
- Unique patented design and heat management
- Low cost, anti-blocking and modular structure
- Contains pre-treatment function to remove impurities such as fluorine, chlorine, sulfur and metal ions
- Application: Boiler combustion heat supply, gas turbine power generation, further purification of hydrogen production, hydrogen for power generation or industrial use



## 企業永續發展才能永續服務

### Only A Sustainable Business Is Able To Sustain Service

專注於本業成長之外，亦追求經營思想與產業技術的創新突破。以「For Earth. For Us.」精神，透過 ESG 堅實組織韌性，為所有利害關係人開創多贏境界，堅定守護社會安定，持續創造向上提升的力量。

Kaori has relied on innovative business mindset and technology as the main driver for business growth. Kaori's sustainability efforts to be inspired by the idea - "For Earth. For Us." Backed by a strong conviction to ESG values, the Company will strive to act in the best interest of all stakeholders and contribute further to the stability and growth of the society.

### 永續宣言 4E ESG Statement

為了地球，也為了我們  
For Earth. For Us.

Eco-friendly	環境友好
Employability	受聘價值
Equity	公平公正
Ethics	道德倫理





# ESG 永續推動亮點 Sustainability Highlights

## 環境 Environment



**減少溫室氣體排放**  
Reduce GHG Emission

**通過國際 ISO 14064-1 溫室氣體盤查查驗 (2022.08)**  
Received ISO 14064 Greenhouse Gas Emission verification by the third-party assurance



**投資再生能源**  
Clean Energy Investment

**高雄廠區設置屋頂型太陽能光電系統 744.51kW**  
Installed rooftop photovoltaic systems totaling 744.51kW in capacity at kaohsiung plant



再生能源 支持能源轉型  
Renewable Energy Supporting the Energy Transition

## 社會 Social



**多元化、平等化、包容化**  
Diversity & Equity & Inclusion

**管理階層女性比例提高**  
Increasing female of managerial



**職涯發展**  
Career Development

**增加平均每位員工的年度訓練時數**  
Increasing average annual training hours per employee



植樹活動 落實環境永續  
The Tree Planting Public Welfare Activity

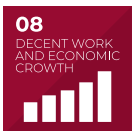


捐血活動 關懷社會公益  
Blood Donation Activities for Social Welfare



教育訓練 實踐永續發展  
Training For Sustainable Development

## 治理 Governance



**永續供應商管理**  
Sustainable Supply Chain Management

**協助關鍵供應商完成可持續發展管理自我評估問卷**  
Support critical suppliers complete the Sustainability Management Self-assessment Questionnaire



**協助客戶發展低碳技術**  
Develop Low-Carbon Technology

**持續投資研發以推動創新**  
Keep investing in R&D to drive innovation



永續夥伴 共創永續價值鏈  
Sustainable Partners to Create a Sustainable Value Chain

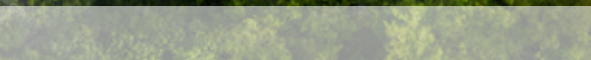


任何有關本報告書或對永續發展的建議，誠摯歡迎您與我們聯繫。ESG 推動委員會 [pr@kaori.com.tw](mailto:pr@kaori.com.tw)  
Please do not hesitate to contact us if you have any suggestions regarding this report or Kaori's sustainability practices. [pr@kaori.com.tw](mailto:pr@kaori.com.tw)



For Earth. For Us.  
為了地球，也為了我們

CO<sub>2</sub>









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**創新、品質、責任、榮譽**

**Innovation、Quality、Responsibility、Honor**



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