



Guangzhou United A/C&R Co.,Ltd.
广州联合冷热设备有限公司

Integrity creates quality, innovation leads the future!

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**Win-win
Cooperation**

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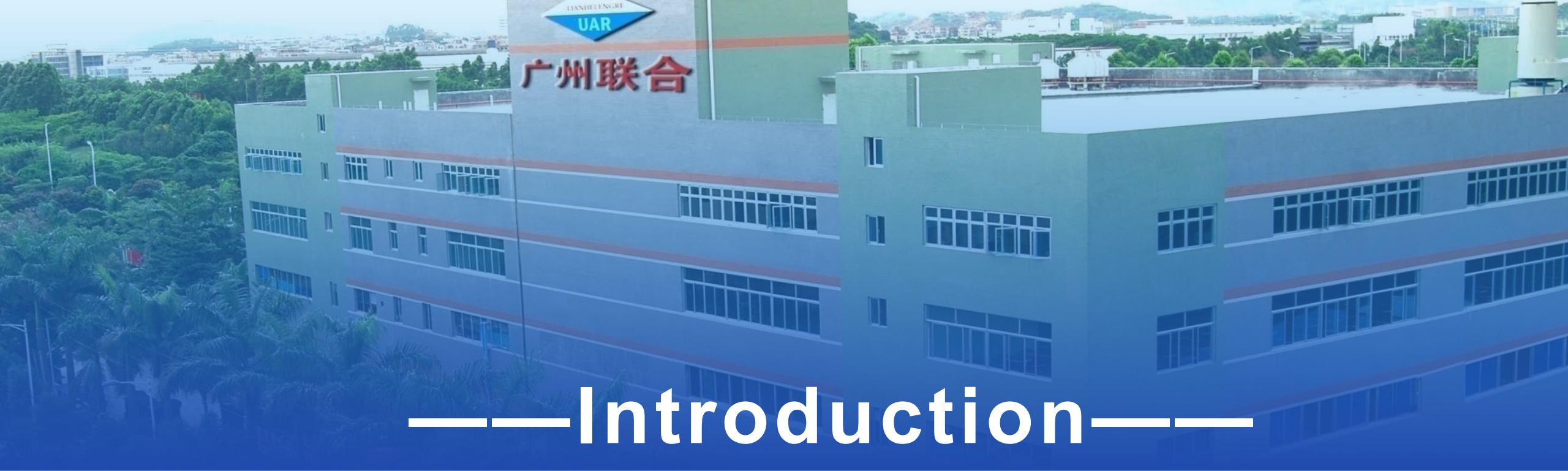
Client Reference

PART ONE

UAR Company Profile

01





——Introduction——

28+

Focusing on the industry for 28 years, providing global customers with safe, efficient, and reliable equipment services

50+

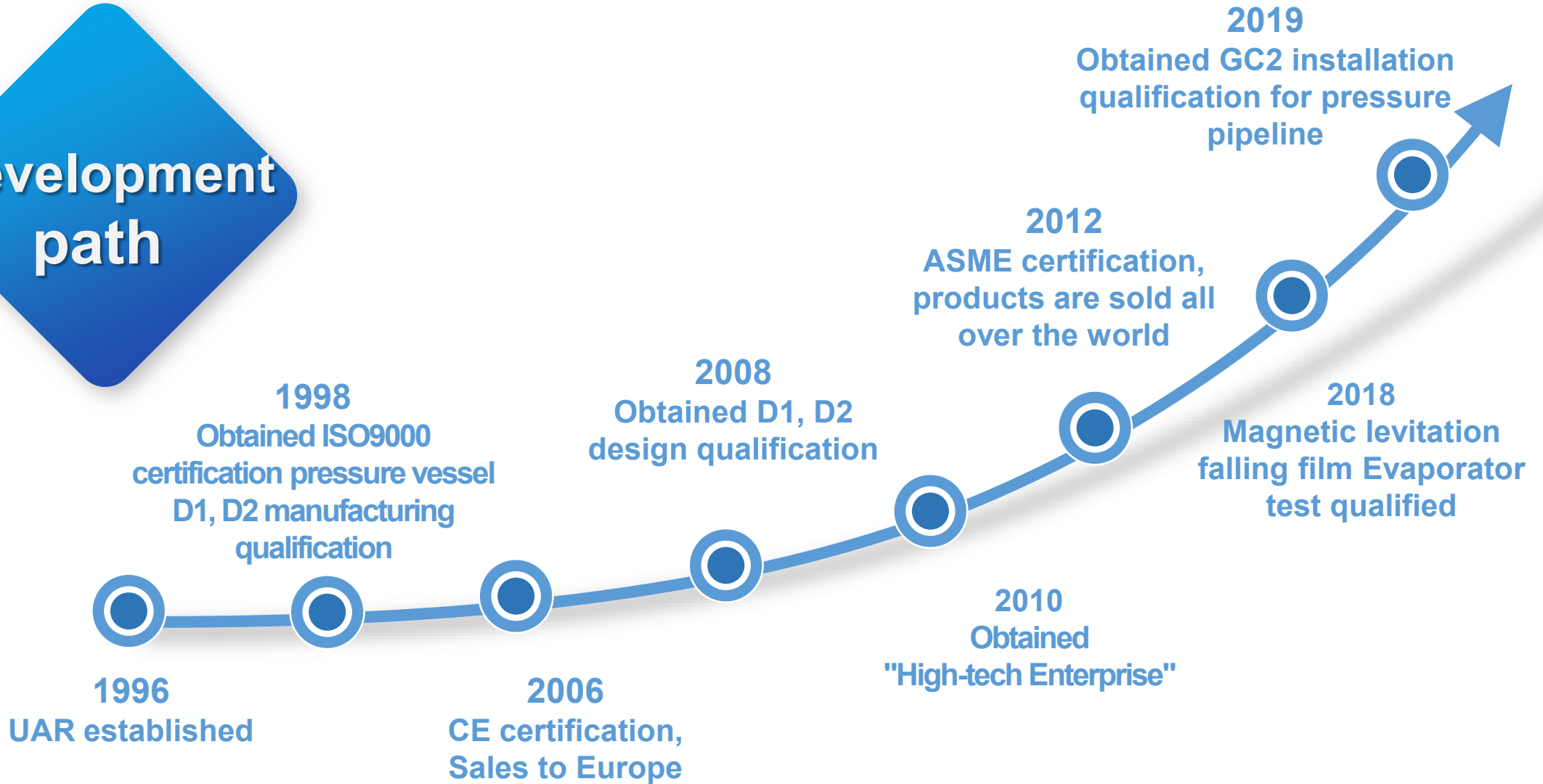
More than 50 advanced technologies and more than 100 patents creating new trends in the industry

6000+

Serve more than 6000 companies around the world, 80 Fortune 500 Companies



Development path



PART TWO

Product Introduction

02

A decorative graphic on the right side of the slide. It features a large blue diamond with the white number '02' inside. The diamond is tilted and overlaps with a background image of a modern skyscraper with a glass facade. The image is partially obscured by the diamond and other blue geometric shapes.



28 YEARS OF PROFESSIONAL HEAT EXCHANGER MANUFACTURING

Professional manufacturer of air conditioning, industrial chiller, refrigeration units ,all kinds of heat exchanger .

UAR Main products:

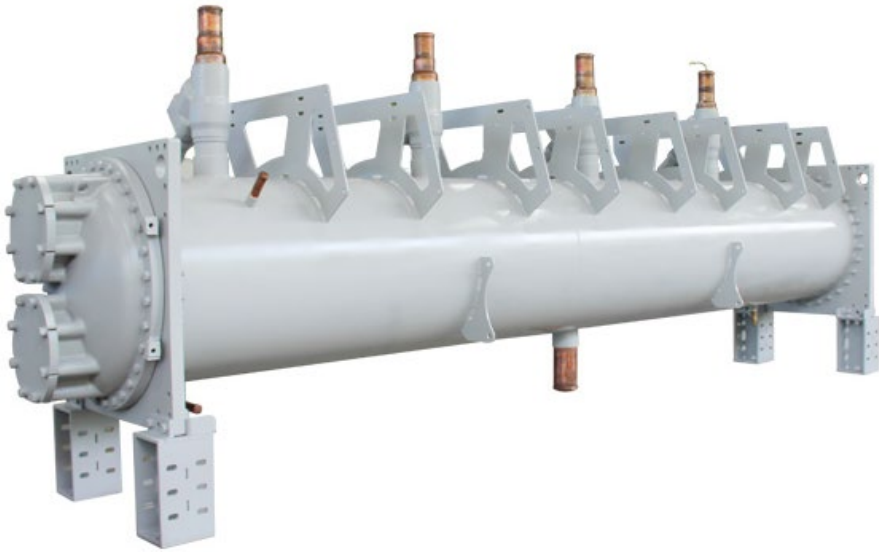
water cooled shell and tube heat exchangers,
air-cooled fin type heat exchangers, and other
refrigeration accessories parts.

- 01 Shell and tube condenser
- 02 Shell and tube evaporator
- 03 Finned heat exchanger
- 04 Refrigeration parts



01

Large capacity condenser



- The standard heat exchange tube is 1.1 mm double side enhanced high efficiency tube, which condenses the high temperature and high pressure refrigerant in the refrigeration system into liquid to make the unit run efficiently.

02

Small and medium sized condenser



- The material and thickness of heat exchange tube will directly affect the service life of the unit. Different material and wall thickness of heat exchange tube can be selected according to the service environment and working conditions.

03

Falling film evaporator

- Compared with the flooded type evaporator, the heat transfer coefficient is 30% higher and the refrigerant charge is reduced by more than 35%.



04

Flooded type evaporator

- Water in tube side and refrigerant in shell side, in the heat transfer between liquid refrigerant and liquid refrigerant, the gaseous refrigerant directly enters the compressor, which greatly improves the heat transfer efficiency.



05

Dry type evaporator

- Traditional evaporator, simple control, refrigerant tube side evaporation, The water loop is baffled in the shell side.





06

Fin Type Heat Exchanger

- Complete sets of automated equipment processing such as sheet metal, aluminum sheet, copper pipe, bending, etc., minimize quality risks.
- The use of long U pipes has been reduced by 70%, reducing the number of welds to reduce the risk of welding leakage.
- Optional sheet type: flat sheet, corrugated sheet, open sheet.
- Fin types are available: flat type, U type, L type, O type.
- The reasonable circuit arrangement and the perfect match of the front wind speed maximize the heat transfer capacity.



07

Fin Type Heat Exchanger with Fans



- Air-cooled condenser: The condenser is placed outside, and the evaporator and compressor are placed inside, which reduces the damage rate of the original electrical components of the whole machine and reduces maintenance costs.
- Air-cooled evaporator: applied in a dual-source heat pump system, effectively reducing the average energy consumption of the system.
- Dry cooler: also known as winter economizer, direct heat exchange between high-temperature water and low-temperature air does not require heat exchange by refrigerant. The entire chilled water system only has fans and pumps working, which greatly reduces the energy consumption of the system.



08

Stainless Steel Type Shell and Tube Heat Exchanger

- Aluminium Brass Heat Exchanger
- Nickel-copper Heat Exchanger
- Titanium Shell & Tube Heat Exchanger



09

Fin Type Heat Exchanger



- Copper Finned Heat Exchanger
- Stainless Steel Finned Heat Exchanger



10

Heat/Cold Recovery Unit



Cold Recovery Unit



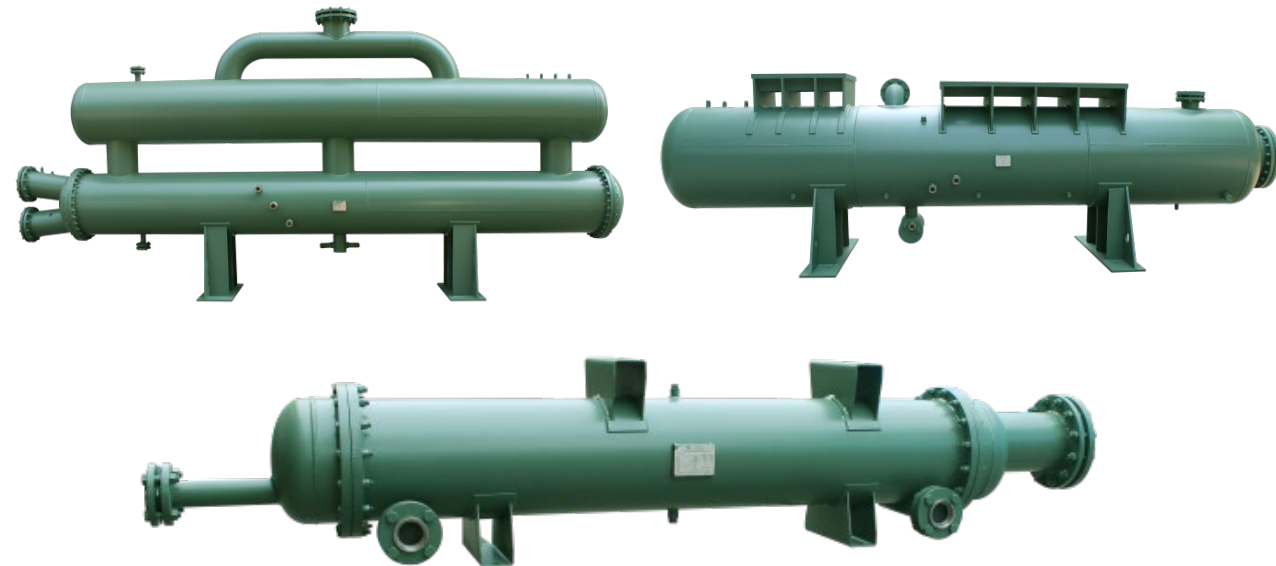
Heat Recovery Unit

- The heat recovered under different working conditions is 30%-100% of the cooling capacity
- Heat recovery does not consume energy and improves the efficiency of the whole machine.

11

Cooling Spare Parts

- Oil Separator、Gas-liquid Separator
- High Pressure Reservoir
- Electrical Heater、Economized、Oil Cooler

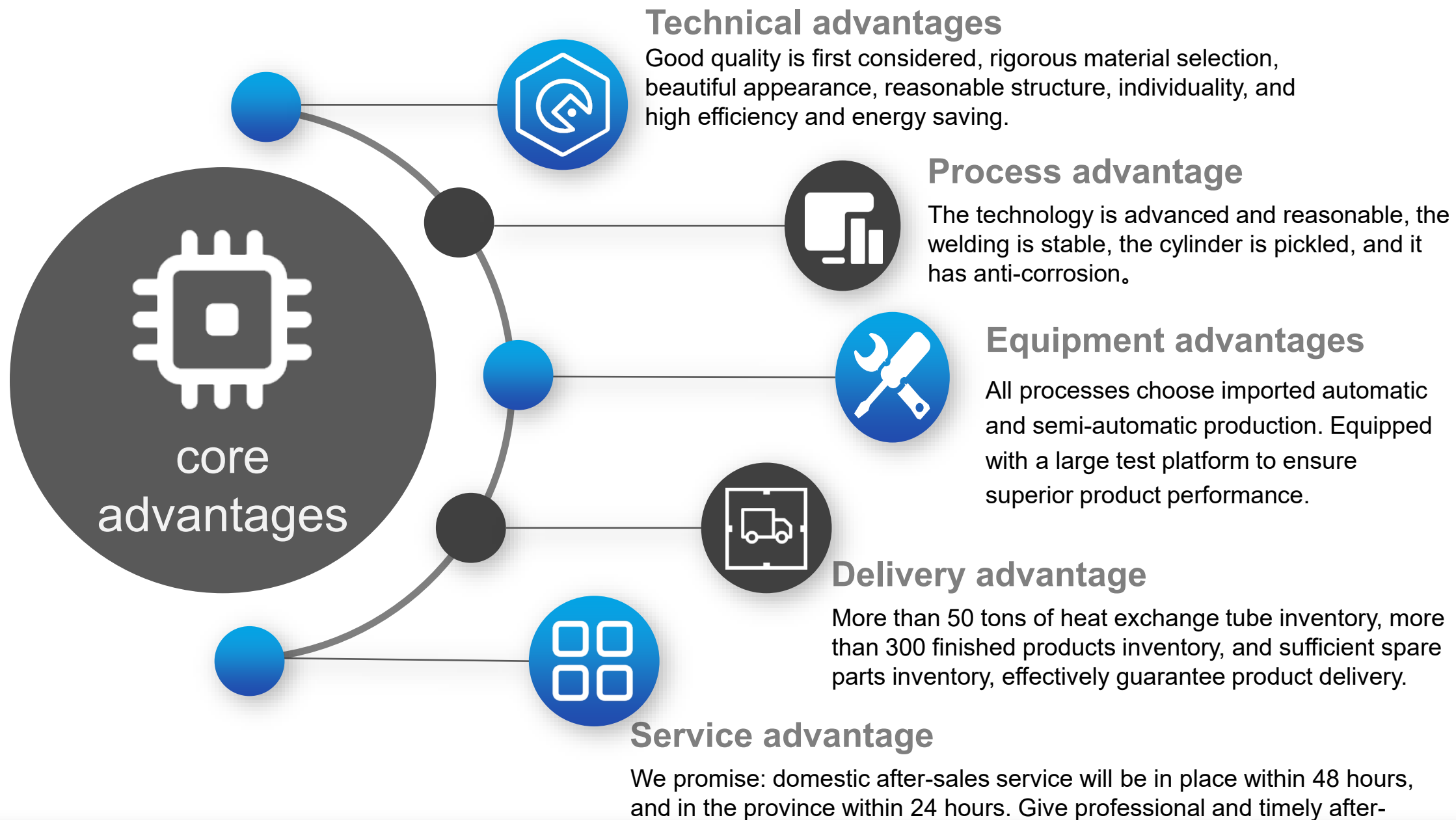


PART THREE

Core Competence

03





Selection software + Accurate calculation software

Flooded Evaporator with WIELAND Enhanced Tubes

File Further results Other tube type Calculate Tools Language/Sprache ?

Capacity kW 2234

Info Heating fluid water

Flow rate m³/h 383.35

Inlet temperature °C 12

Outlet temperature °C 6.99

Fouling resistance m²/W 0.000044

Refrigerant R134a

Evaporating temperature °C 6.08
nom. - at refr. outlet mean 6.21

Oil influence ?

☒ low ☐ mean ☐ high % 1

viscosity

Fouling resistance m²/W 0

other Tube type Info B5-HP05.17063-88
Gewa-B5 3/4" K21 0.63

Velocity m/s 2.74
recommended max. 2 m/s

Number of passes 2

Number of tubes ☒ 364

Single tube length tot. mm 4000
max. 6000 mm active 3790 mm

☐ define plain ends and lands

364 tubes in 2 passes

Tube O.D. (plain ends) 19.00 mm

Tube arrangement staggered

Tube pitch transverse a mm 23.75

Tube pitch longitudinal b mm 20.57

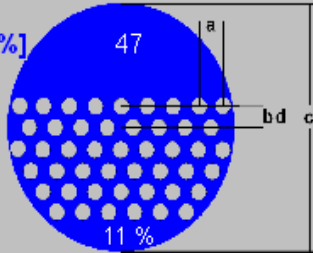
Shell I.D. c mm 733

Distance upper row / center d mm 19

No of tubes upper row 30

Number of tube rows *) 14

Free space [%] 47



11 %

*) In this program version only the number of tube rows will be considered by the calculation. The other data are displayed just for information.

固定式换热器设计 C:\Documents and Settings\lsjb01\桌面

文件操作 数据输入 运行 形成计算书 帮助

主体设计参数

壳程设计压力 (MPa) : 8

管程设计压力 (MPa) : 1

壳程设计温度 (°C) : -20

管程设计温度 (°C) : 30

沿筒体长度平均温度 (°C) : 30

换热管沿长度平均温度 (°C) : 30

壁厚计算基准 :

☒ 以内径为基准 ☐ 以外径为基准

换热器壳程筒体内径 (mm) : 610

壳程试验压力 (MPa) : 8.8

管程试验压力 (MPa) : 1.25

壳程压力试验类型

☐ 液压试验 ☒ 气压试验

管程压力试验类型

☒ 液压试验 ☐ 气压试验



Characteristic manufacturing process



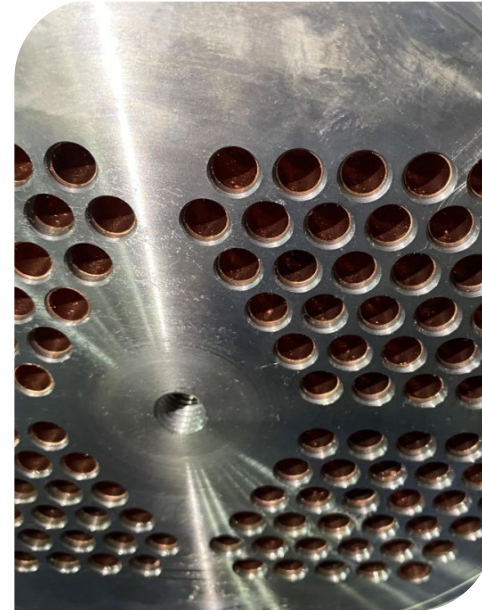
Pickling process

Using a unique pickling process, the heat exchanger shell is pickled to remove oil, oxide scale and rust, and form a dense phosphate film to protect the shell. Prevent the shell from being oxidized and rusted again during the manufacturing process, thereby effectively ensuring the cleanliness of the refrigeration system.



Drilling technology

The important process of heat exchanger manufacturing adopts high-end CNC machining center. Drilling, grooving, and boring use patented tools and are finished by 6 processes. Long-term guarantee the sealing performance of the expanded tube position.



Expanding process

Adopt German CNC tube expansion equipment. According to the tube diameter and wall thickness of the heat exchange tube, the expansion tube head and torque are selected. High-end equipment and rigorous process control effectively guarantee the quality of the tube expansion and ensure the safety of the tube expansion process.



Welding process

Using American Miller welding machine and ASME standard CO2 flux cored welding wire. According to the characteristics of each product, the welding process specification is formulated. Ensure that each weld of the product is beautifully formed and has no defects.



UAR Facility:



Tube opening equipment

There are 6 high-end flaw detection equipments and second-level qualification specialists. Covers the detection and evaluation of radiography, ultrasound, magnetic particle, and penetration.



Precision machining center

Many high-precision CNC machining centers, special equipment for precision machining of heat exchanger tube plate holes. Digital precision control is equipped with a super large workbench, and super large heat exchanger tube plates can be added to ensure the processing accuracy of the heat exchanger tube holes to ensure product quality.



Product inspection station

Large closed hydraulic turret automatic CNC punch press. The large work surface can complete the punching and cutting operations of the entire sheet metal part, and reduce the welding seam of the product sheet metal.



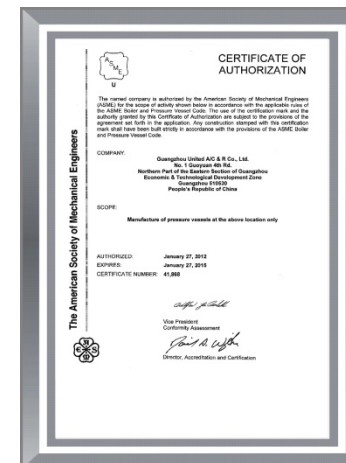
More than 50 tons of heat exchange tube inventory, more than 300 finished products inventory, nearly 10 million parts inventory, guarantee product delivery



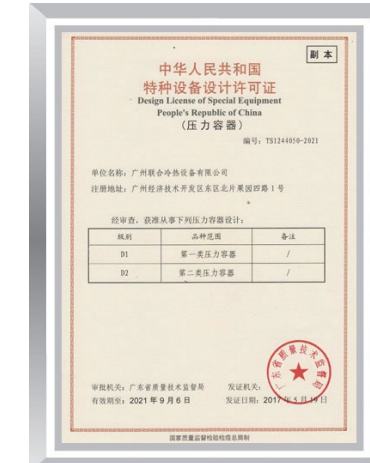
ISO 14000 Certificate



ISO 9000 Certificate



ASME Certificate



Pressure Vessel
Design License



CE Certificate



High-tech Enterprise



Famous Enterprise



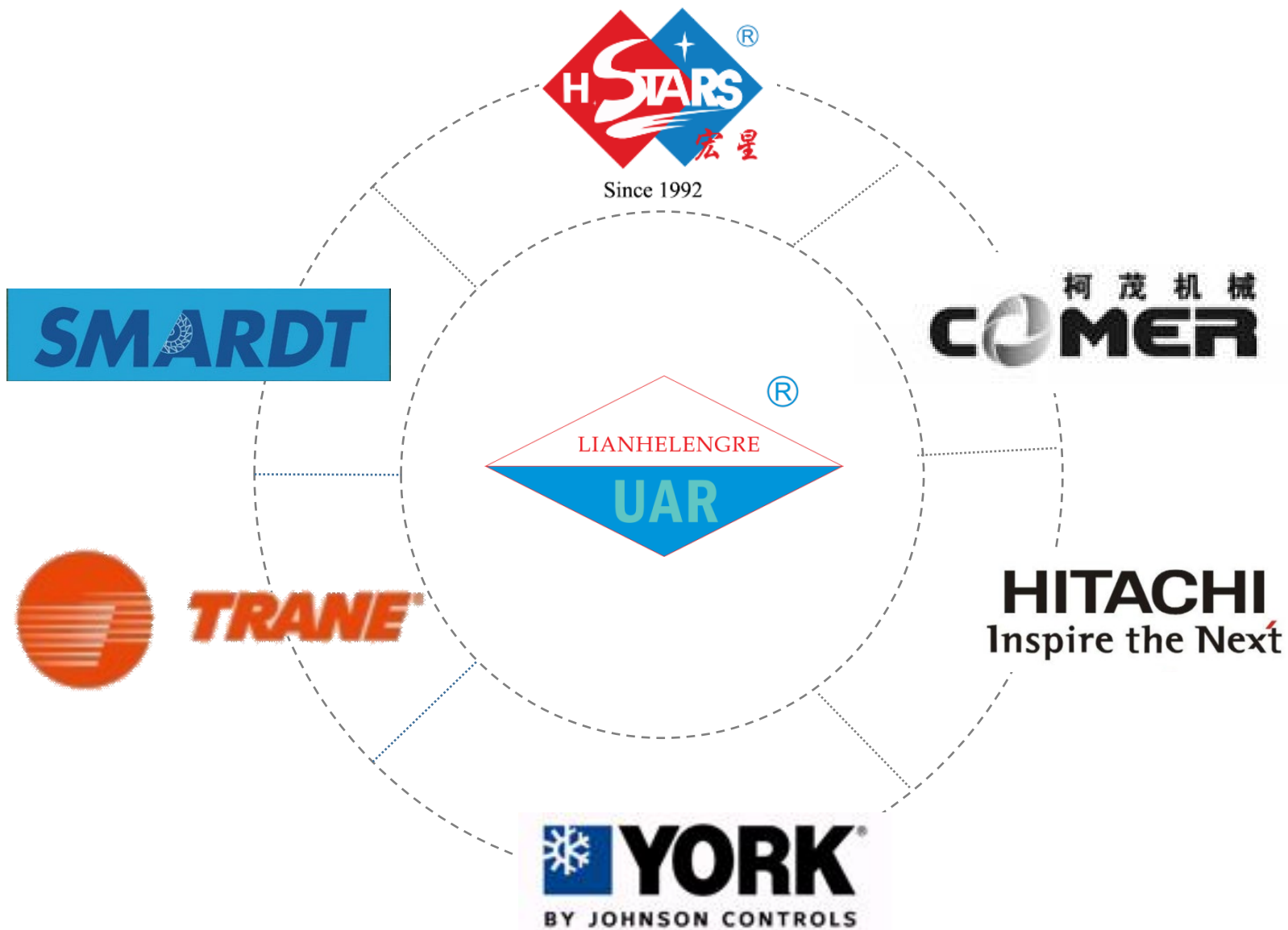
Intellectual Property Certificate

PART FOUR

Client Reference

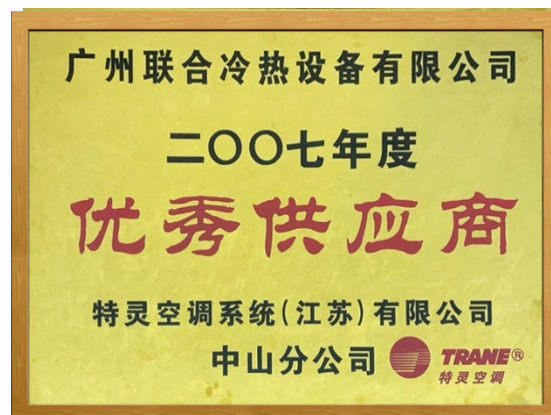
04







From Trane
The best supplier



From Trane
The best supplier



From Trane
best service supplier



From Hitachi
Qualified supplier



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Thank you !

