Climate control expert for all professional fields

GD Shenling Thermal Tech Co., Ltd

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Shenling

Airport solutions

Pre-Conditioned Air Unit for aircraft

Climate control expert for all professional fields

$ 595 mil.
Sales revenue

420,888 m²
Production area

4000+
Staff

30+
laboratories

1000+
Engineers

1200+
Patents

2500+
Key projects

Stock Code: 301018

Shenling Group

10 functional departments

Research Institute	Marketing	BP/IT	Finance	Operation
Procurement	QC	HR	Sales management	Securities & Legal

7 business units

ETS Co Ecological Thermal System	**ISA BU** Industrial & Specialized Air conditioning	**ICT BU** Information & Comunication Technology	**IE BU** Integrated Engineering
CAC Co Commercial Air conditioning	**IOT BU** IOT & Control	**Service BU** Maintenances & Service	

5 sales organizations

GMS Global Marketing & Sales	**ICT** Information & Communications Technology	**CIM** China Industrial Marketing & Sales	**CDC** China Distribution Channel	**IES** Integrated Engineering Sales

Milestones

1988

Shenling brand created

Keep serving for industries with unitary AC chillers products

2000

Shenling corporation founded

2002

Three Gorges Hydropower Project

2003

Shenling Research Institute established

Guangdong Provincial Engineering Research Center

Shenling Postdoctoral Programme established

2005

Strategic cooperation with ThyssenKrupp

2007

Joint-lab with Siemens Beijing Capital International Airport

2012

New headquarter launched

ICT/IDC solutian launched

National Enterprise Technology Center

Strategic cooperation with Huawei

2014

Production base II launched

2016

National Technological Invention Award

2017

China Patent Excellent Enterprise Award

Beijing Daxing International Airport

2018

National Technology Innovation Model Enterprise Award

2019

National Intellectual Property Model Enterprise Award

2021

I.P.O. in Shenzhen Stock Exchange

Production base III launched

2022

Zero emission building launched

2023

Production base Ⅳ (Tianjin) launched

2024

Production base II reconstructed & launched

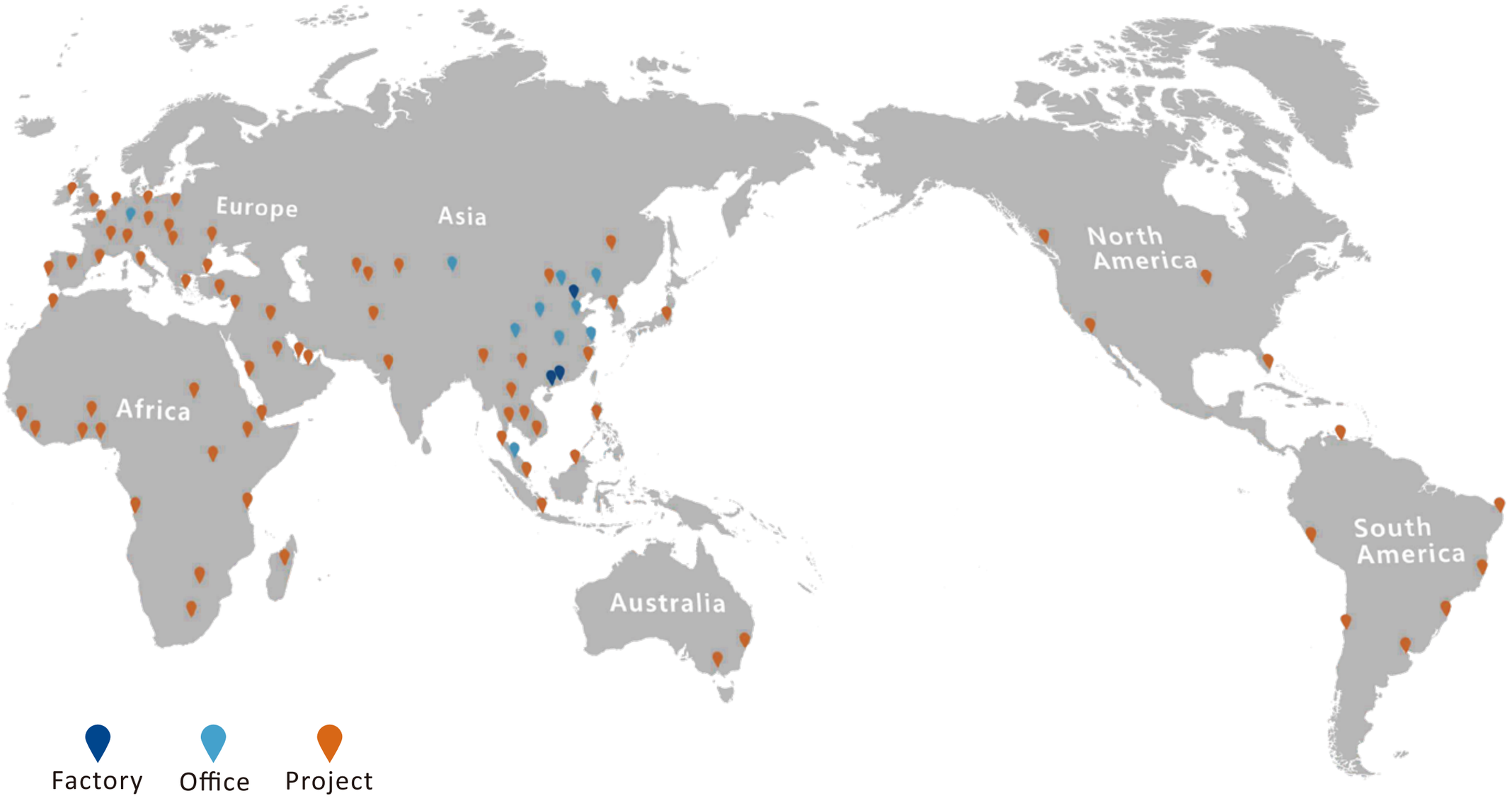
Production base V (Gaozhou) construction started

Shenling Germany (Frankfurt) launched

2025

Net zero emission factory to be launched

Global layout



Application fields

ICT/IDC fields

- Cloud data center
- Supercomputing center
- Intelligent computing center
- Communication infrastructure
- Computer technology services
- Service room
- UPS & battery room

Industrial fields

- Automobile factory
- Battery manufacturing
- Pharmaceutical
- Precision electronic instrument
- Food industry
- Cement
- Metallurgy

Specialized fields

- PV/Wind power plant
- Hydro/thermal power plant
- Power grid converter station
- Energy storage cooling
- Nuclear power plant
- Aerospace
- Railway station
- Subway station
- Airport
- Hospital
- VOCs

Commercial fields

- Shopping mall
- Hotel
- Stadium
- Library
- Theater
- Archives
- Exhibition hall
- University
- Office building

Heat pump

- Residential heating
- Commercial heating
- District heating
- Energy management system

Climate control expert for all professional fields

Shenling innovation system

Level 1

Exploratory study on cross categories of foundational technology

Include:
Shenling R&D Academy
1 state-level postdoctoral research station
1 state-certified technical center
20+ cooperative research institutes

Level 2

Application of universal technology

Energy management system, AIOT platform,
PCB & software R&D, renewable energy study & application
Include:
2 province-level technical centers

Level 3

Exclusive technology for specific product

Include:
8 research institutes
13 state-level laboratories

Level 4

Individual product development

Include:
10 product development teams

6 Core Technology Systems

01 Ultra-high energy efficiency

- Flow field optimization & heat transfer enhancement
- Free cooling technology
- Variable flow control technology
- Comprehensive utilization technology of natural cold and heat sources
- Condensation heat recovery technology

02 VOCs treatment technology

- -80°C ultra-low temperature cascade refrigeration
- Oil and gas chemical process treatment
- Safety technology of stainless steel pressure vesse
- Multistage condensation+adsorption+thermal oxidation technology

03 Smart control

- High precision temperature and humidity control
- Multi-mode automatic conversion technology
- Remote monitoring technology

04 Extreme environment application

- 65°C high temperature refrigeration
- -40°C ultra-low temperature refrigeration

05 Explosion proof & anti-corrosion

- Class C5 anti-corrosion design
- Class II B explosion-proof design
- Salt spray environment design of offshore platform

06 Shock resistance

- Collision avoidance
- Anti-seismic(Protection) technology

ESG

Environmental
Social
Governance

As a company, we recognise that our activities have an effect on the world we live in. For this reason, we have adopted a sustainable approach, focusing on three key areas in our activities: ***environmental, social and governance.***

NZE 1.0

Zero emission building

Shenling Production Base III, launched in may 2022

Green power generated
7,302,900 kW·h

Co_2 emission reduced
2,966 tons

Energy saved
611,700 kW·h

Energy cost saved
€ 144,828

*The above data represents annual benefits

▸ LEED Platinum Certification

▸ Zero emission building authentication (Design+Operation)

NZE 2.0

Zero emission factory

Shenling Production Base II, launched in may 2025

Green power generated
3,000,000 kW·h

Co_2 emission reduced
1,884 tons

Energy saved
303,965 kW·h

Energy cost saved
€ 79,266

*The above data represents annual benefits

Production system

Shenling has leading technology and excellent management team, first-class production facilities, and IOT management system, which build up a solid foundation for Shenling's reputation in HVAC field. Currently, Shenling has ***over 420,888 m²*** research and manufacturing bases with modern equipments. The total production capacity exceeds ***1 billion USD***, which can meet the customers' demand with short lead time and good craftsmanship.

Quality management system

Environmental management system

Occupational health & safety management system

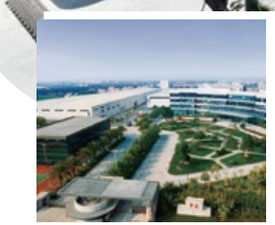
Hazardous substance process management system

Certificated Measurement Assurance System

Explosion Safety Inspection Attestation for R290 production line

Five production bases

Production base Ⅲ (Shunde)
133,000m²



Headquarter
93,000m²

Production base Ⅱ (Shunde)
100,000m²

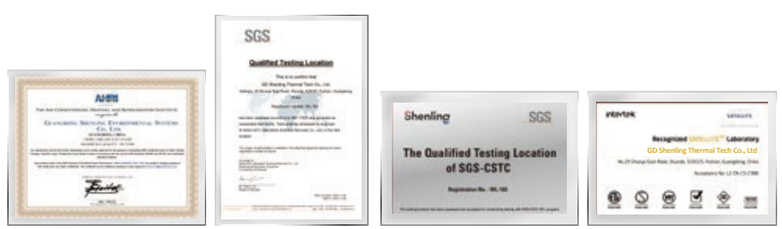
Production base Ⅳ (Tianjin)
10,000m²

Production base Ⅴ (Gaozhou)
88,000m²

Glances in the workshop

Testing center

Shenling has 3 testing centers to cover diversified product test items, including ETS Testing Center, HQ Testing Center and PBIII Testing Center, all built with the concept of digitalization by leading institutes, and equipped with top brand instruments and meters.



ETS Testing Center

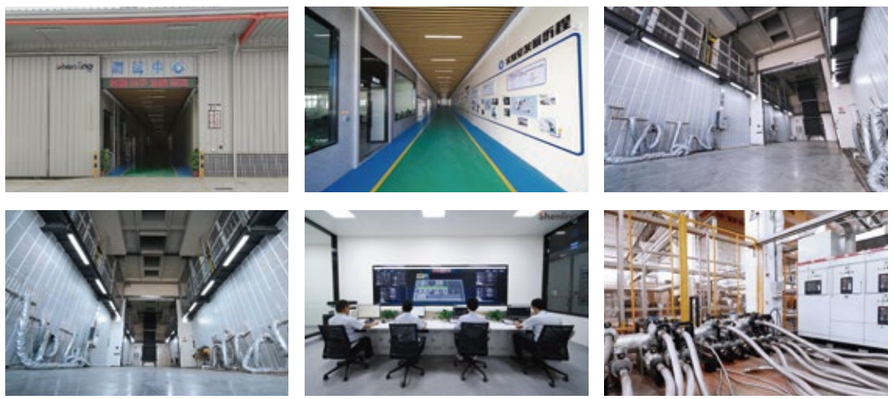
Intertek, SGS & TUV SÜD certified laborateries. All the aboratories were designed and constructed by top testing institutes, and can meet the testing requirements of EU and China standards, and the anti-explosion demand of combustible refrigerant e.g. R290. The testing ambient temperature range: -40℃~60℃, testing capacity range: 2kW~50kW.

HQ Testing Center

In total 8 labs, incl. enthalpy difference lab, water-cooled heat pump platform, air leakage rate testing device and transportation simulation tester with simulated test working condition -40-60℃ , test capacity range 2-1800kW, air volume range 250~120,000 m³/h and 4 tons max load of transportation test.

PBⅢ Testing Center

In total 10 labs, incl. enthalpy difference lab, air cleanness ab, water-cooled heat pump platform, semi-anechoic lab, rotary dehumidifier lab, air volume testing device and high static pressure air leakage rate testing device, with simulated test working condition -30-60℃, test capacity range 6kW~ 1500RT and air volume range 1,500-240,000 m³/h.



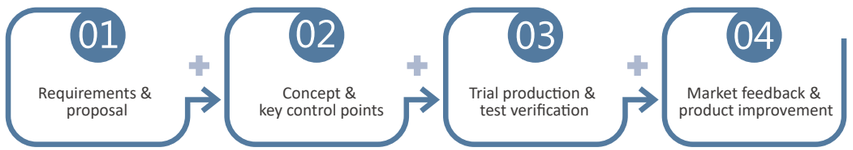
Quality Control

Since its establishment in 2000, Shenling has been keeping building a strong technical and management team, and developing a diversified production mode. With years of stringent quaity control, Shenling has obtained a range of certifications, including ISO9001, IS014001, IS045001, CCC, CB, CRAA, GCCA, AHRI, etc.

New product quality control

- Market/customer requirements identification, technical proposal review
- Leading the team to carry out DFMEA (severity, frequency, detectability)
- Problem identification & closing
- Problem summarization and identification improvement implementation

Advanced Product Quality Planning(APQP)



Incoming components problem screening

Parts laboratory

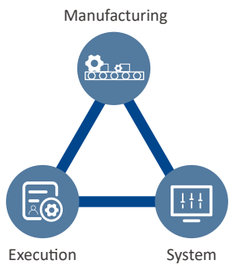
As the quality verification platform for technical evaluation and quality improvement of parts and components, parts laboratory provides incoming material inspection, systematic analysis of applied bad data, environmental adaptability/reliability verification and material failure analysis.

Manufacturing process quality control

By establishing a product QCP and integrating it with the MES, key control points in the manufacturing process are managed effectively.

IT-based management:

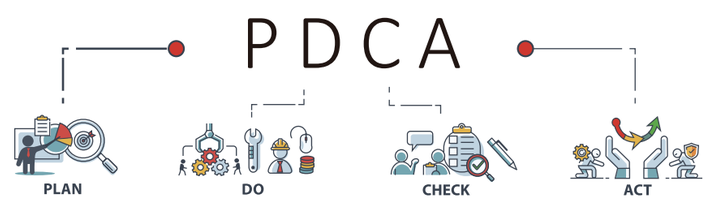
- Leveraging the MES for tracking data and information
- IT-based inspection for standardizing inspection procedures & preventing errors
- Displaying non-conformance judgments



Quality improvement

Shenling has established quality management platform for continuous improvement. By focusing on VOC and VOB according to product demands and PDCA principles, and carrying regular specific activities such as QCC and quality projects, Shenling promotes continuous product quality improvement.

- Major quality improvement projects
- Rationalization suggestions, CAR forms, and non-conformance reports
- Establishing an integrated platform for after-sales service, customer follow-ups, and prompt responses.



Technical & service support

Technical Training

Design & Application trainings

The design and application trainings for various products are basically for the sales personnel selling products in order to give them basic understanding about the main features.

After sales-service trainings

These trainings are dedicated for after-sale/service personnels in order to better carry out the installation, commission and maintenance of the products. In Shenling training centers,the trainees have chances to solve malfunctions on real products, delicately prepared for each training.

Training Center

The training centers provide hands-on experiences with various systems, components and controls to refresh and enhance the skills of our sales, design and installation and service teams.

Factory Training Center

Shenling ETS Training Center

Address: No. 29, East Shunye Rd, Shunde, Foshan, China
Products: air source heat pump, PVT, energy storage, specialized AC

Shenling HQ Traning Center

Address: Xinglong 10 Rd, Shunde, Foshan, China
Products: centrifugal chiller, screw/scroll chiller and terminals, system design and engineering, IOT&smart control

Regional Training Center

Malaysian Training Center

Address: A-5-7 Menara Prima Avenue (The Tube), Jalan PJU 1/37,
Dataran Prima, 47301 Petaling Jaya, Selangor

German Training Center

Address: Room 0779, HdM, Frankfurter Str. 70-72, 65760 Eschborn

Service Center

Regional Service & Part Center

Shenling Environmental System(Malaysia)

Address: A-5-7 Menara Prima Avenue (The Tube), Jalan PJU 1/37,
Dataran Prima, 47301 Petaling Jaya, Selangor, Malaysia

Shenling Deutschland GmbH

Address: Room 0779, HdM, Frankfurter Str. 70-72, 65760 Eschborn, Germany



Local Service Center

Latin America:
Sao Paulo, Florianopolis, Hermosillo

Europe:
Milan, Rome, Budapest, Lisbon, Barcelona

Africa:
Accra

Middle East:
Doha,Dubai, Riyadh, Jeddah, Beirut

Middle Asia:
Tashkent, Almaty, Shymkent, Samarkand

Asia:
Kuala Lumpur, Jakarta, HCM city, Manila

In the 21st century, the demand for environmental protection drives the continuous optimization of aircraft air conditioning systems, using environmentally friendly refrigerants and ground support equipment (such as aircraft ground air conditioning) to achieve environmental protection.

GPUs emerged in the mid-20th century to provide power to aircraft on the ground, supporting onboard systems, reducing reliance on APU, and lowering fuel consumption and noise. However, GPUs can only provide power, and aircraft air conditioning still needs to operate through onboard systems, resulting in certain energy conversion losses and complexity.

With the popularity of commercial jet aircraft, APU has begun to be widely used in commercial aviation. APU not only provides power for ground operations, but also serves as an important part of the air conditioning system, backup power source, and device for starting the main engine during flight.

In the 1950s, there were significant improvements in aircraft air conditioning systems, and airlines began using more efficient air conditioning systems to more accurately control the cabin temperature and improve comfort.

With the improvement of aircraft structure and performance, flight altitude and speed continue to increase. At the same time, with the danger of low temperature, low pressure and oxygen deficiency at high altitude, life support requires the cabin to be changed to an airtight cabin. The air conditioning system on the aircraft has emerged to ensure the normal operation of people and onboard equipment.

For a period of time since the Wright brothers manufactured their first airplane in 1903, open cockpits were used on airplanes, making it impossible to control the cabin environment.

PCA

Pre-conditioned Air Unit

- High energy efficiency and low maintenance requirements, lower long-term operational costs.
- Low noise and low emissions, green solution for airport.
- Low energy consumption, better economic benefits.
- Repid cooling with fresh air, better passenger comfort, short cabin preparation waiting.

GPU

Ground Power Unit

- Power only for aircraft lighting, electric and electronic appliances.
- Unable to drive APU or PCA, unable to deal with the cabin cooling.
- Diesel engine has low efficiency, high cost, and most importantly air pollution.

APU

Auxiliary Power Unit

- Powered by aviation fuel, running cost is very high.
- Cooling through air compressing and condensing, cooling effect is poor.
- Generates noise, affecting cabin comfort.
- Generates emissions(CO_2, NOX, etc) during operation, causing negative environmental impacts.
- Maintenance cost is high and easy to cause safety risks.

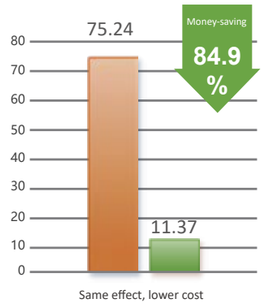
Auxiliary Power Unit (APU) is a small engine on an aircraft that provides essential power and pneumatic support when the main engines are off. During flight, the APU is typically not used for primary power but can serve as a backup emergency power source if needed, ensuring continued operation of critical systems in the event of a main engine failure. On the ground, it supplies electricity to the aircraft's systems, and the air conditioning in the cabin through air compressing and condensing.

PCA improves cabin comfort during aircraft parking by its good cooling efficiency and good cooling effect. It also reduces economic costs through high energy efficiency and low maintenance costs, with good environmental benefits by reducing noise and significantly reducing carbon dioxide emissions.
Comparison of APU and PCA as below.

Comparison		APU	PCA
Running Cost	Power source	Aviation fuel	Electricity
	Maintenance cost	High	Low
Comfort	Service lifetime	Short	Long
	Cooling speed	Slow	Rapid cooling
	Cooling effect	Poor	Good
Environmental Care	Noise	Large	Small
	CO_2 emissions	Heavy	None

Pre-conditioned Air Unit (PCA) is a specialized air conditioning device on the ground designed to provide fresh air that has been filtered, pressurized, dehumidified, and cooled (or heated) for aircraft cabins parked on the ground. These devices provide a comfortable cabin environment for passengers and crew members from the time the aircraft docks at the boarding bridge to the time it leaves the bridge.

Project	Noise dB(A)	CO_2 emissions (kg/h)	Aviation fuel consumption (kg/h)	Cost ($/h)
APU	94.7	369.7	116.0	75.24
PCA	78.0	-	-	11.37



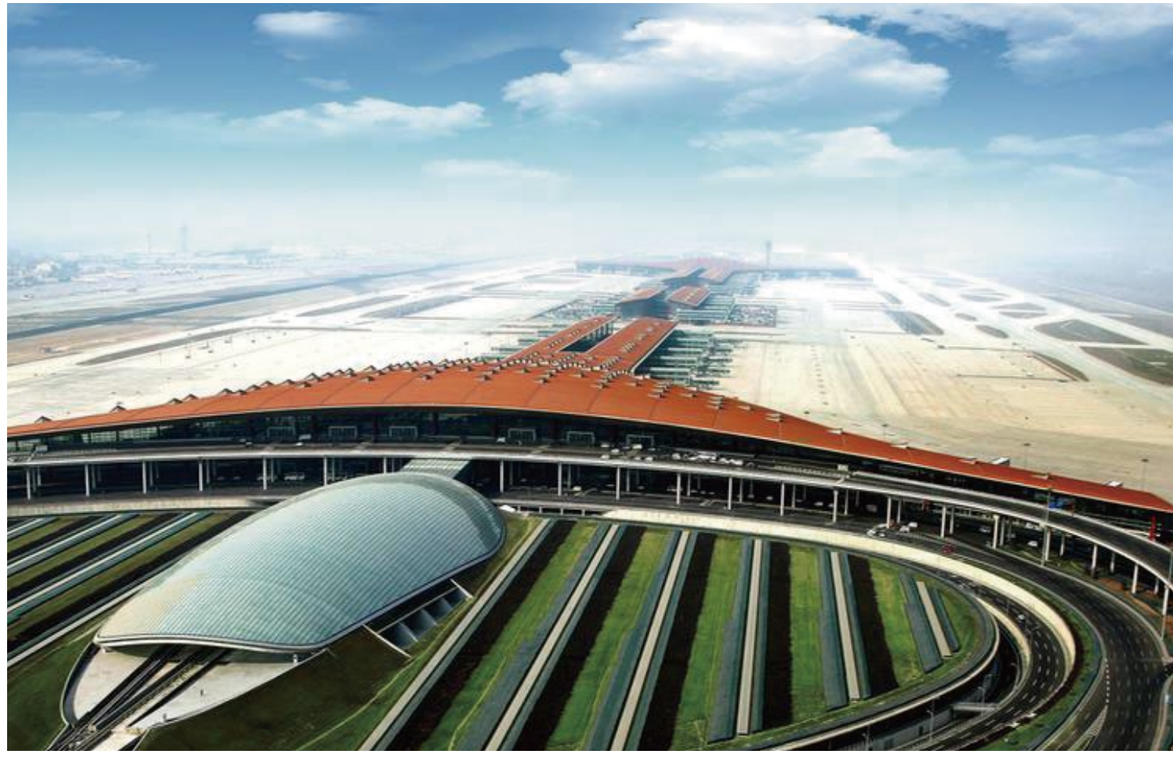
Same effect, lower cost

Remarks:

1. When APU is running, the noise levels of B757 and B767 at 5 meters away from the tail is 94.7dB(A) and 89.4 dB(A) respectively. *APU noise data comes from Hangjia Technology.* The PCA noise of AC215 model is 78 dB(A), tested in the laboratory.
2. APU emission per ton of aviation kerosene consumed: CO_2: 3187kg, SO_2: 0.98kg, CO: 0.56kg, NOX: 21.12kg.
Data sourced from the International Air Transport Association.
3. The fuel consumption and cost data of APU comes from Honeywell in the United States. Calculated based on an average of 648.6$/ton of aviation fuel, the hourly fuel consumption cost of APU (with air conditioning) is 0.116 tons/h * 648.6$/ton =75.2$. The cost of PCA is calculated based on industrial electricity consumption of 0.14 USD/kWh, and the cooling power consumption of AC215 model PCA is 81kW·h.

The first airport using PCA worldwide

Zurich Airport is the world's first airport to widely and systematically apply PCA systems. This system is part of the airport's environmental management and sustainable development strategy. And its successful experience has provided reference for other airports.



The first airport using PCA in China

Beijing Capital Airport, launched in 2007, is the first airport adopting PCA for airplane cabin cooling. This project is aimed to welcome 2008 Beijing Olympic Games and installed 36 units in total, including 14 pcs of C-class units and 22 pcs of D-class units. All the PCA were from Shenling. All the PCA operated well and Shenling was chosen as the supplier again in the consequence tenders.

Shenling PCA Milestone

Serving *over 50 airports* with *over 2300pcs PCA*.
Over 70% market share on PCA in China.
No.1 PCA manufacturer in the world.

2006-2008

- Beijing Capital International Airport Expansion Project
  First PCA manufacturer in China
- Guangzhou Baiyun Airport T1 Expansion Project

2009-2012

- Nanchang Changbei International Airport
- Wuhan Tianhe International Airport
- Kunming New Airport Construction
- Chengdu Shuangliu International Airport
- Changsha Airport New Terminal

2013

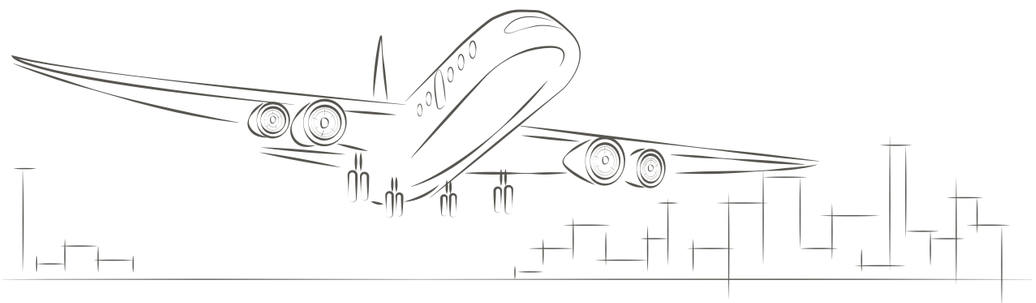
- Nanjing Lukou International Airport
- Tianjin Binhai International Airport
- Nanning Airport Project
- Chongqing Jiangbei International Airport

2014

- *Key editor of China PCA standard MH/T 6109-2014*
- Zhengzhou Xinzheng International Airport
- Changsha Huanghua International Airport

2015-2018

- Xiamen Airport
- Fuzhou Airport
- *Guangzhou Baiyun Airport T2*
- Hangzhou Xiaoshan International Airport
- Qingdao New Airport
- Shanghai Pudong International Airport



2019-2020

- *Beijing Daxing International Airport*
- Beijing Capital International Airport(Renovation)
- Tianjin Binhai International Airport
- Shijiazhuang Zhengding International Airport
- Chengdu Tianfu Airport
- COMEC C919 Flight Test Center
- *Phuket Airport, Thailand*

2021-2022

- Nanchang Changbei International Airport
- Sunan Shuofang International Airport
- Langzhong Airport
- Xishuangbanna Airport

2023

- Harbin International Airport
- Guangzhou Baiyun Airport Satellite Terminal
- Yantai Penglai International Airport
- Sanya Fenghuang International Airport
- *Brazil Floripa Airport*
- *Brazil Vitoria Airport*
- Urumqi Airport
- Zhuhai Airport
- Anhui Jiuhuashan Airport
- Hefei Xinqiao International Airport

2024

- Shanghai Pudong International Airport(AHU)
- Hefei Xinqiao International Airport
- Jieyang Chaoshan Airport
- *Brazil Natal Airport*
- Luoyang Beijiao Airport

know HOW, know WHY

With robust technical strength of research and innovation as well as application experience, Shenling drafted over 30 standards of professional and special air conditioning, and joined in compilation of almost all national and industry standards related to industrial and commercial central air-conditioning products, acting as a technical benchmark to promote standardized development and advocate low carbon and environmental protection.

National Standards drafted by Shenling

No.	Standard No.	Name
1	GB/T 19411-2003	Dehumidifiers
2	GB/T 19569-2004	Air conditioning unit for clean operating room
3	GB 19577-2004	The Minimum Allowable Values of the Energy Efficiency and Energy Efficiency Grades for Water Chillers
4	JB/T 10538-2005	Explosion-proof dehumidifiers and air conditioners
5	GB/T 20738-2006	Rooftop air conditioning unit
6	GB/T 18430.1-2007	Water chilling(heat pump) packages using the vapor compression cycle
7	GB/T 14294-2008	Central-station Air Handling Units
8	GB/T 19410-2008	Screw refrigerant compressors
9	GB/T 21362-2008	Heat pump water heater for commercial & industrial and similar appication
10	GB/T 17758-2010	Unitary air conditioners
11	GB/T 19413-2010	Unitary air-conditioners for computer and data processing room
12	***MH/T 6109-2014***	***Aircraft pre-conditioned air units***
13	NB/T 35040-2014	Design Code for Heating, Ventilation and Air Conditioning of Hydropower Station
……	……	……

PCA Industry Standards

Key editor of China PCA national standard ***MH/T 6109-2014***.

Scope of application

Technical requirements

01 Adaptation to the environment

- Temperature & humidity
  - T1: high temperature drying
  - T2: high temperature & low humidity
  - T3: high temperature & moderate humidity
  - T4: high temperature & high humidity
- Wind speed
  - C-5500m³/h A318、A319、A320、A737
  - D-8100m³/h A300、A310、A757、A676
  - E1-15860m³/h A330、A340、A747、A777、A787
  - E2-12000m³/h A380

02 Performance requirements

03 Electrical requirements

Safety & reliability

01 Material requirements

02 Corrosion resistance

03 Mechanical strength

04 Operating lifespan

Testing method

01 Test conditions

- Dry bulb temperature on the evaporator side
- Relative humidity on the evaporator side
- Dry bulb temperature on the condenser side
- Power supply
- Air volume
- Static pressure

02 Test project

- Start operation
- Air tightness of refrigeration system
- Airflow, external static pressure, input power
- Customized cooling capacity
- Maximum cooling operation
- Minimum cooling operation
- Noise

Maintenance & overhaul

01 Testing standards

The Aircraft Type & Product Code

Class C

A318

A319

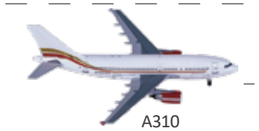
A320

B737

One Set AC215X

Class D

A300



A310

B757

B767

One Set AC315X

Class E

A330

A340

B747

B777

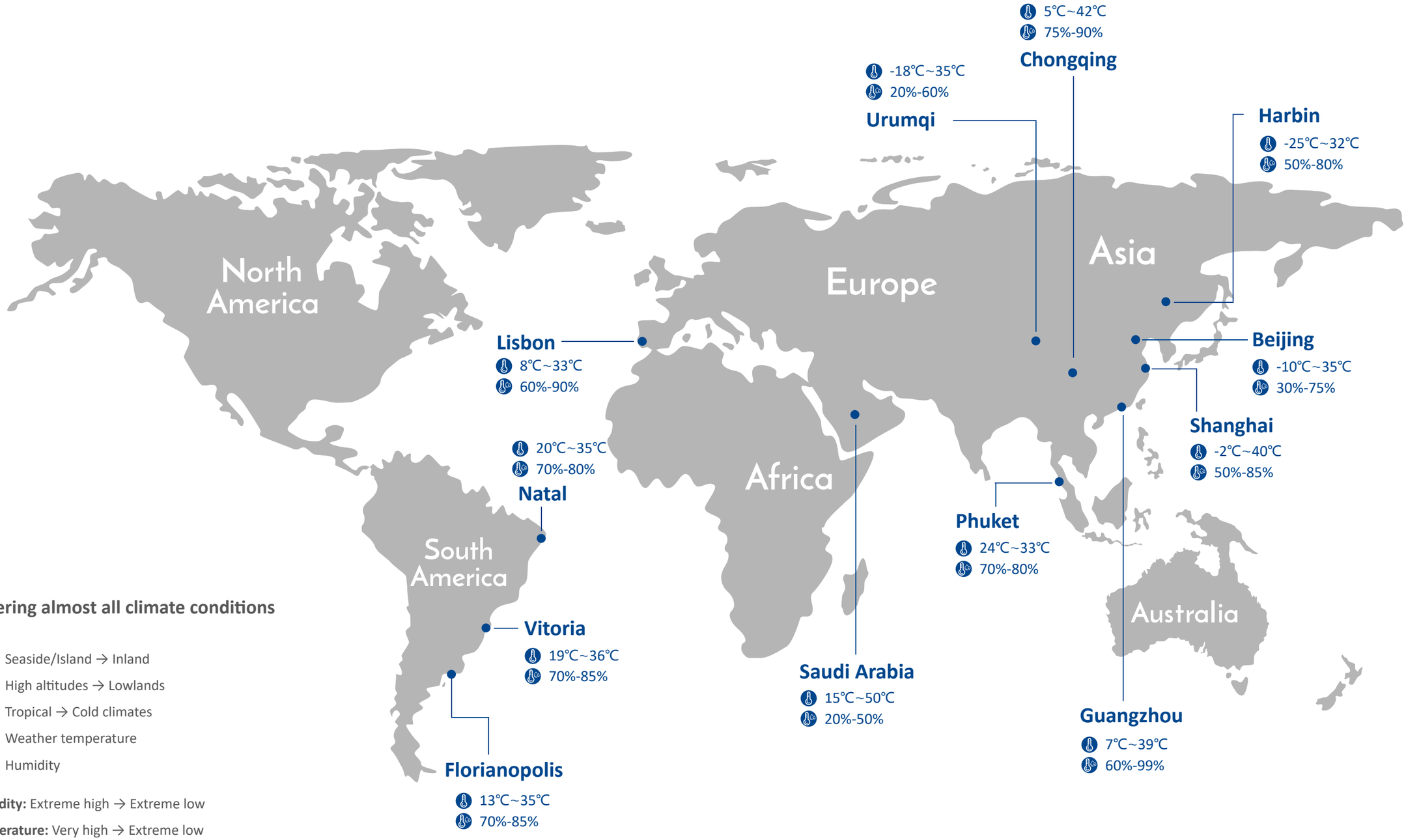
One Set AC385X

Class F

A380

Two Set AC315X

Multiple application



Covering almost all climate conditions

- Seaside/Island → Inland
- High altitudes → Lowlands
- Tropical → Cold climates
- Weather temperature
- Humidity

Humidity: Extreme high → Extreme low

Temperature: Very high → Extreme low

Continuous R&D

Revolution of Shenling PCA Technology.

2023~Now

- DC inverter PCA, the 1st in the industry
- Variable frequency control (fan + compressor)
- PCB refrigerant cooling technology
- Frost inhibiting technology
- ±1℃ temperature control
- Higher energy efficiency

2019~Now

- Cold storage PCA
- COP ≥ 3.95
- Continuous technological innovation to serve green airport

2017~Now

- Low-temp. evaporative chiller +high-pressure fresh air AHU
- COP > 3.5, highest in the industry
- Innovative energy-saving applications in the industry

2017~Now

- 2nd generation of DX PCA
- COP > 2.15, the highest in the industry
- With comprehensive performance optimization & improvement

2006~2016

- 1st generation of DX PCA
- The 1st PCA manufaturer in China
- COP is appr. 1.6

01. Rapid cooling

In the typical condition, PCA can reach full output within 30s after startup and cool down the cabin in 3 min, which can largely shorten the traditional cooling time and improve passenger comfort.

02. Energy saving

The unit contains 4 to 6 of compressors and refrigerant circuits, which can more precisely adjust the running load based on the air supply situation, thereby improving the energy efficiency ratio.

03. Smart control

The unit can be equipped with an IoT platform, connecting the unit with the management system to enable remote monitoring, intelligent billing, real-time data updates.

04. High adaptability

The unit offers customized services to handle various operating conditions such as high altitude, high salt spray, and high temperature and humidity environments.

05. Easy maintenance

The unit is designed with 3-dimensional piping and wiring layout, with strong sense of keeping maintenance space inside. It can facilitate maintenance, avoiding the need to disassemble the unit before repairs and reducing maintenance time.

06. High reliability

The entire product line adheres to the highest quality standards, with reliable core components to avoid frequent replacement and reduce maintenance costs.

Product features & advantages

Rapid cooling

Four-stage rapid cooling

- Aircraft not air-conditioned yet

Startup to fully loading	30s
Cool down to set temp.2℃	3min
Cabin temp. to 18~24℃	15min

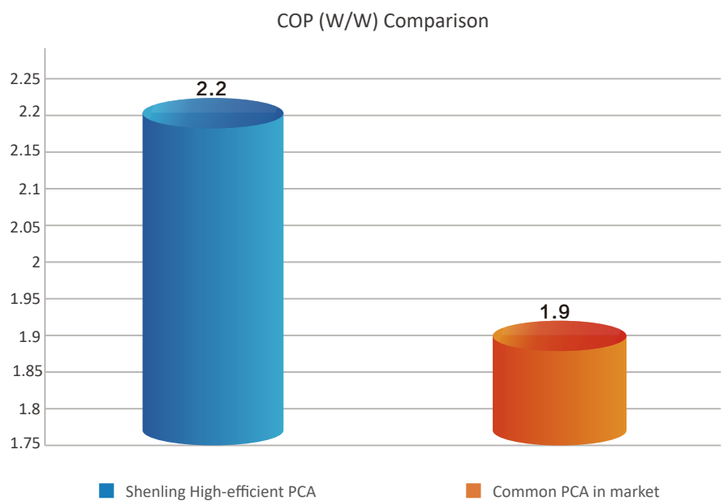
- Aircraft already air-conditioned

Cabin Temp 18~24℃, switching to PCA	
Startup to normal cooling	3min

Guangzhou Baiyun Airport T2 Real Data
Ambient temp. 37℃, Humidity 75%, Jul.12, 2023

2 Efficient & energy-saving

Shenling PCA excels in energy efficiency and performance, leading the industry with its high-efficiency, stable and reliable operation precise control, quiet and comfortable operation, and environmental and health benefits.



3 High adaptability

- **Flexible applicable climate**

  Shenling PCA offers products tailored to various climate conditions worldwide, including high-temperature and high-humidity environments, extreme cold environments, high-altitude and windy environments, and coastal areas prone to salt corrosion.

- **Multiple power supply**

  The power supply can be selected based on the usage location, including 380V/50Hz, 380V/60Hz, 400V/50Hz, 400V/60Hz, 415V/50Hz, 460V/60Hz, etc.

- **Flexible working temperature**

  Shenling PCA is available in a standard temperature range, and we also offer specialized products for low-temperature environments to meet the requirements of different regions.

- **Various installation type**

  Shenling PCA available in various installation modes, including bridge mounted, floor standing, mobile, vehicle-mounted, etc. It can be installed below passenger boarding bridges or placed directly on the apron. For remote parking positions, mobile type can be used.

4 Easy maintenance

Large inside which can allow the engineer have internal checking and maintenance.

Most of the troubles (over 90%) are small and easy to repair or maintain. If engineer can go inside to operate, troubleshooting can be easily showed on site, no need to disassemble a lot, save much time for the operators.

5 Automatic hose reel (optional)

- Automatic winding and rewinding
- Romote control
- Fast and easy hose reclaim, labor saving
- Interlocking control for fully extending and retracting the air supply hose
- Interlocking function with the boarding bridge and PCA;
- Motor power ≤ 0.55kW.

Floor-mounted

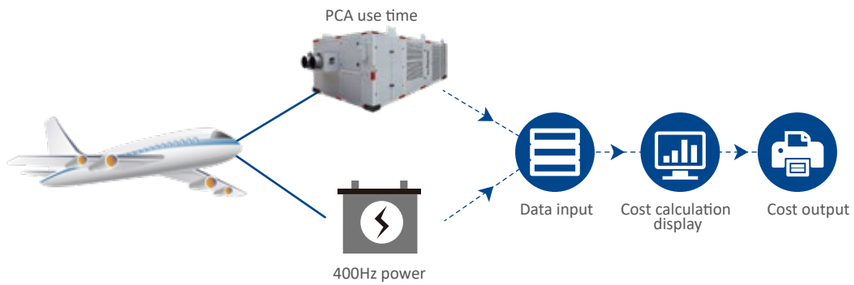
Bridge-mounted

China invention patent

6 Online Diagnosis

● Online Diagnosis

Intelligent and interconnected billing system
Automatic cost calculation through computer control
Enhanced humanized operations to make data more objective.



● WIFI control

Real-time data monitor and diagnosis remotely through laptop or mobile phone
Quick response and shorter troubleshooting time

7 Patented Low-loss Hose

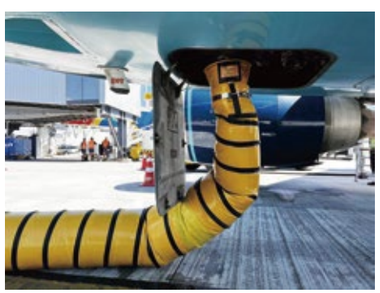
Traditional air supply hoses have high air leakage rates and significant temperature rises, resulting in significant losses in PCA cooling capacity and airflow during transport. Shenling uses proprietary air supply hoses with superior performance to improve energy efficiency.

● Low leakage rate

Shenling air hose leakage rate ≤0.1%
Traditional hose leakage rate 15-20%
Heat loss rate 0.05℃/m
Previous rate 0.3℃/m

● Length adjustable

Zipper designed hose, with adjustable



8 Pre-cooling & heating

● PCA Pre-cooling&heating supply

Bypass valve (Optional fuction)
Prestart PCA to save startup time to full loading. Bypass valve will be closed after the aircraft is connected and air valve to aircraft is opened.

● Bridge pre-cooling&heating supply

Cooled/heated air can be sent to the bridge through bypass valve before aircraft connected.

● Benefits:

Fast cooling for the aircraft.
Pre-cooling/heating for the boarding bridge, reduce AC investment for boarding bridges.

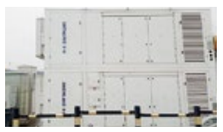
Products Category

Bridge-mounted type

Floor-standing type

Mobile type

Vehicle-mounted type:
Self-powered



Hybrid type (Chiller+Terminal)

Specifications

Working Condition		T1	T2	T3	T4	T1	T2	T3	T4
Model		AC215	AC215	AC215	AC215	AC315	AC315	AC315	AC315
Cooling Capacity	kW	132	157	175	193	225	250	275	300
Heating Capacity (Optional)	kW	0~130	0~130	0~130	0~130	0~190	0~190	0~190	0~190
Rated Air Supply Volume	m³/h	4500~6000	4500~6000	4500~6000	4500~6000	4200~8100	4200~8100	4200~8100	4200~8100
External Static Pressure	Pa	0~7400	0~7400	0~7400	0~7400	0~7400	0~7400	0~7400	0~7400
Cooling Air Supply	℃	≤2℃							
Heating Air Supply	℃	20~60							
Working Condition	℃	−40~50							
Power Input	kW	65	73	81	89	102	115	127	138
Dimension	L(mm)	4050	4050	4050	4050	4500	4500	4500	4500
	W(mm)	2400	2400	2400	2400	2400	2400	2400	2400
	H(mm)	1340	1340	1340	1340	1680	1680	1680	1680
Air Supply Outlet Size	Inch	14"	14"	14"	14"	14"	14"	14"	14"
Noise Level	dB(A)	78	78	78	78	81	81	81	81
Net Weight	kg	2900	2900	2900	2900	3600	3600	3600	3600

Note:

1. Power supply: 3N~380V 50Hz.
2. The unit above is the electric heating type. For cooling only type, simply remove the electric heating device.
3. The weight does not include the weight of the trailer or vehicle chassis.
4. AC385A series consists of two units of 315 series.
5. The above parameters represent the standard product data and can be customized based on specific requirements of the project or engineering.
6. This product adopts refrigerant R410a.

Performance Parameters

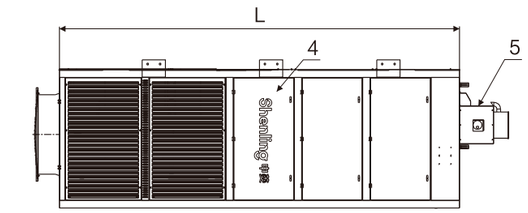
Working Condition		T1	T2	T3	T4	T1	T2	T3	T4
Model		AC385	AC385	AC385	AC385	AC385A	AC385A	AC385A	AC385A
Cooling Capacity	kW	280	320	350	380	450	500	550	600
Heating Capacity (Optional)	kW	0~260	0~260	0~260	0~260	0~380	0~380	0~380	0~380
Rated Air Supply Volume	m³/h	4200~12000	4200~12000	4200~12000	4200~12000	4200~15860	4200~15860	4200~15860	4200~15860
External Static Pressure	Pa	0~7400	0~7400	0~7400	0~7400	0~7400	0~7400	0~7400	0~7400
Cooling Air Supply	℃	≤2℃							
Heating Air Supply	℃	20~60							
Working Condition	℃	−40~50							
Power Input	kW	138	151	162	176	102×2	115×2	127×2	138×2
Dimension	L(mm)	5350	5350	5350	5350	4500×2	4500×2	4500×2	4500×2
	W(mm)	2450	2450	2450	2450	2400×2	2400×2	2400×2	2400×2
	H(mm)	1680	1680	1680	1680	1680	1680	1680	1680
Air Supply Outlet Size	Inch	14"×2	14"×2	14"×2	14"×2	14"×2	14"×2	14"×2	14"×2
Noise Level	dB(A)	84	84	84	84	85	85	85	85
Net Weight	kg	4700	4700	4700	4700	3600×2	3600×2	3600×2	3600×2

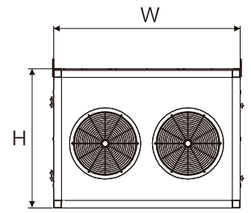
Note:

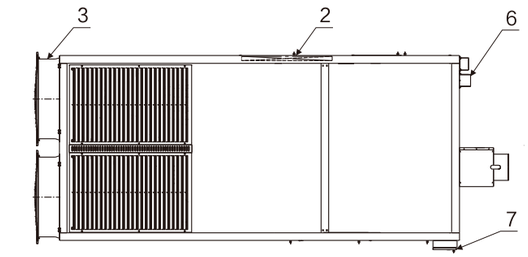
1. Power supply: 3N~380V 50Hz.
2. The unit above is the electric heating type. For cooling only type, simply remove the electric heating device.
3. The weight does not include the weight of the trailer or vehicle chassis.
4. AC385A series consists of two units of 315 series.
5. The above parameters represent the standard product data and can be customized based on specific requirements of the project or engineering.
6. This product adopts refrigerant R410a.

Unit Outline Drawing

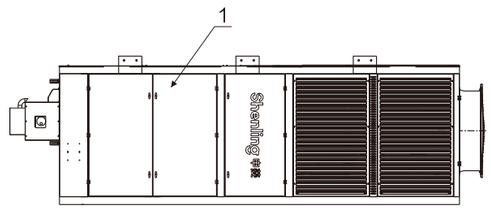
01. Bridge-mounted Unit Outline Diagram

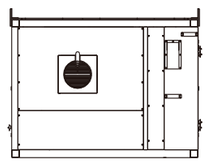






No.	Key components
1	Electric Cabinet
2	Air Inlet
3	Axial Flow Fan
4	Access Door
5	Air Outlet
6	Cable Inlet Box
7	Operator Box

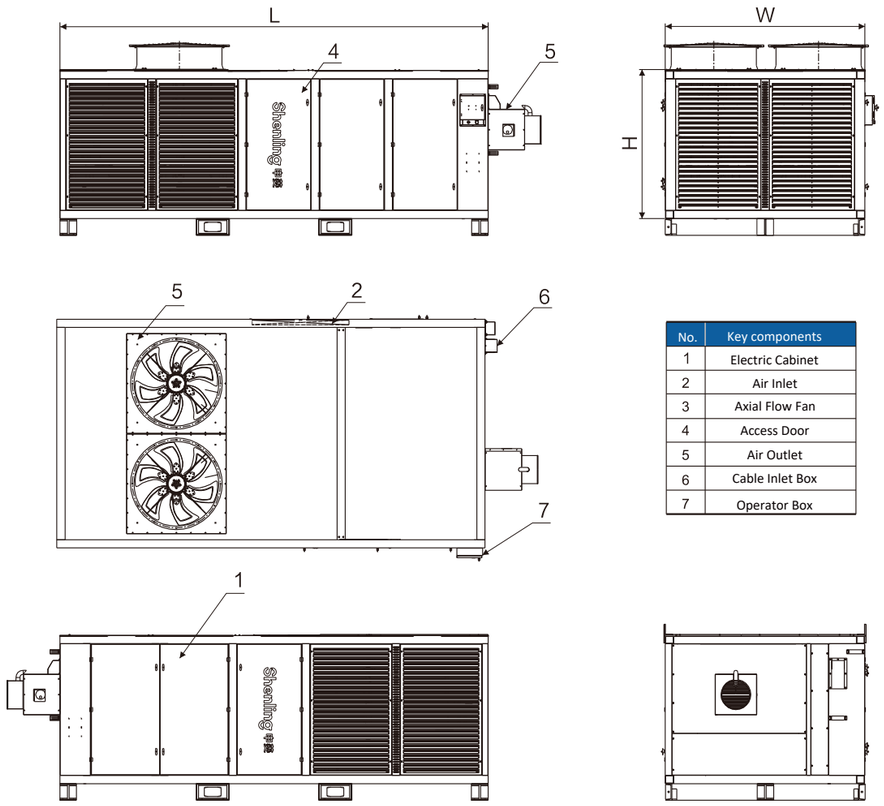




Model \ Dimension(mm)	L	W	H	Corresponding Type
AC215	4050	2400	1340	C
AC315	4500	2380	1680	D/C
AC385	5350	2450	1680	E2/D/C
AC385A	4500×2	2380×2	1680×2	E1/E2/D/C

Unit Outline Drawing

02. Floor-standing Unit Outline Diagram

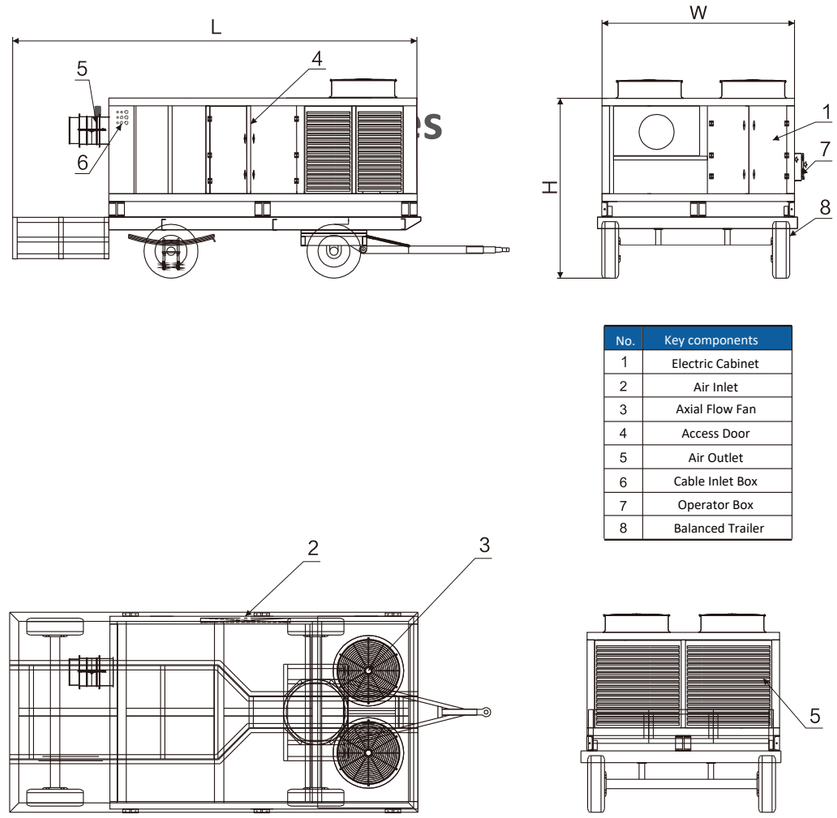


No.	Key components
1	Electric Cabinet
2	Air Inlet
3	Axial Flow Fan
4	Access Door
5	Air Outlet
6	Cable Inlet Box
7	Operator Box

Dimension(mm) / Model	L	W	H	Corresponding Type
AC215	4050	2400	1340	C
AC315	4500	2380	1680	D/C
AC385	5350	2450	1680	E2/D/C
AC385A	4500× 2	2380× 2	1680 × 2	E1/E2/D/C

Unit Outline Drawing

03. Mobile Unit Outline Diagram



No.	Key components
1	Electric Cabinet
2	Air Inlet
3	Axial Flow Fan
4	Access Door
5	Air Outlet
6	Cable Inlet Box
7	Operator Box
8	Balanced Trailer

Dimension(mm) / Model	L	W	H	Corresponding Type
AC215	5250	2400	1840	C
AC315	5700	2380	2180	D/C
AC385	6550	2450	2180	E2/D/C
AC385A	5700 × 2	2380× 2	2180× 2	E1/E2/D/C

Reference Projects

Beijing Daxing International Airport

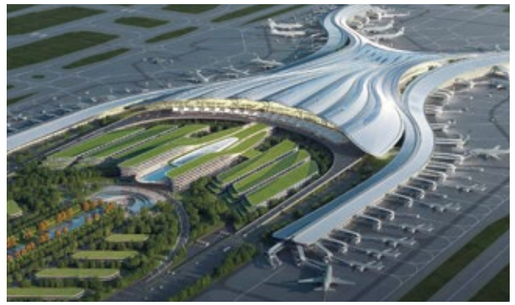
Products or services provided by Shenling:

Pre-conditioned Air Unit

Air-Cooled Chiller (Heat Pump) Unit

Evaporative Cooling Chiller Unit

High Pressure Fresh Air Handling Unit



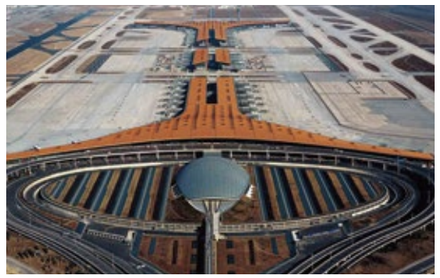
Guangzhou Baiyun International Airport

Shanghai Pudong International Airport

Shenzhen Baoan international airport

Hongkong International Airport

Thailand Phuket International Airport



Beijing Capital International Airport

Urumqi Diwopu International Airport

Dunhuang Mogao International Airport

Harbin Taiping International Airport

Shanghai Hongqiao International Airport

Cambodia Angkor International Airport

Yantai Penglai International Airport

Kunming Changshui International Airport

Florianopolis Airport

Vitoria Airport in Brazil

Brazil Natal Airport

Xishuangbanna Gasa International Airport

Tianjin Binhai International Airport

Zhengzhou Xinzheng International Airport

Chongqing Jiangbei International Airport

Changsha Huanghua International Airport

Hangzhou Xiaoshan International Airport

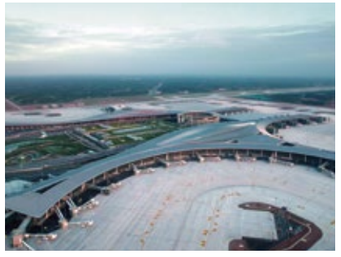
Fuzhou Changle International Airport

Qingdao Jiaodong International Airport

Zhuhai Jinwan Airport

Xi'an Xianyang International Airport

Wuhan Tianhe International Airport



Chengdu Tianfu International Airport

Ganzhou Golden Airport

Guyana Cheddi Jagan International Airport

Nanjing Lukou International Airport

Ezhou Huahu Airport

Chengdu Shuangliu International Airport

Nanchang Changbei International Airport

Haikou Meilan Airport

Hefei Xinqiao International Airport

Sunan Shuofang International Airport

Sanya Phoenix International Airport