Jia Jia Run

Full Inverter

Full Inverter Air Source
Chiller (Heat Pump)

Form No. A11817G01

Originality and Craftsmanship
A professional manufacturer of central air conditioner with over two decades of experience

TICA, originally founded in 1991 and with the brand created in 1995, is an expert in the R&D, manufacturing, sales, and services of central air conditioning systems and heat utilization.
As a national high-tech enterprise, TICA has many product lines covering centrifugal chillers, screw chillers, VRF units, air handling units, and ORC low-temperature waste-heat power generation systems. TICA has multiple production bases in Nanjing, Tianjin, Guangzhou, and Chengdu, and over 70 sales and service outlets all over the world.

In 2011, TICA launched the "Ten-Year Quality Enhancement Plan", and introduced a professional Japanese R&D and production management team to take charge of the whole process of R&D, process, manufacturing, and quality. Through implementing standard development, Japanese style test process control, optimized key parts control, and the five S methodology, the quality of TICA products is up to Japanese manufacturing level.

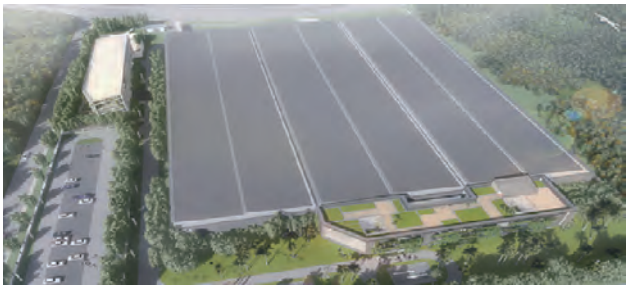
On October 9, 2015, TICA formally started global strategic joint venture cooperation with United Technologies Corporation (UTC). With the world-leading core technologies such as the low-temperature power generation system (ORC), high-efficiency centrifugal unit, and screw unit imported from UTC, TICA's centrifugal unit technology is 20 years ahead of domestic peers and that of low-temperature power generation technology is 30 years. In addition, both parties planned to integrate the global network to chart a new horizon in the international market.

TICA air handling unit has been the best seller for five consecutive years, and TICA also performs exceptionally in professional domains of microelectronic industry, hospital operating room, and pharmaceuticals, with a market share in excess of 40%.

Four TICA Production Bases

Nanjing factory Covering an area of 170,000 square meters, with a construction area of 90,000 square meters

Tianjin factory Construction area of 30,000 square meters



Guangzhou factory Construction area of 60,000 square meters

Chengdu factory Construction area of 20,000 square meters

World-leading ISO Grade-1 Super-clean Environment Integration System

CNAS certification for the largest enthalpy difference laboratory area in the air conditioning industry

- National-Recognized Enterprise Technology Center
- Two Academician Workstations
- National Green Industry Building No.001 in China (first one in China)
- First enterprise to achieve the HCFC Phase-out Project in China
- Vice Chairman Member of China Refrigeration and Air-conditioning Industry Association
- Scientific and Technological Innovation Demonstration Unit of Energy Saving and Emission Reduction In Jiangsu

Jia Jia Run

A Five-star Home for You

TICA, with clean environment as the mission,
is dedicated to providing customers with a quality indoor residential environment.

Separated control of temperature and humidity, dehumidifying on demand when cooling, cool and comfortable indoors;
Radiation heating, warm from feet, healthy and comfortable;
Fresh air purifier, effectively remove PM2.5 and formaldehyde, increase the oxygen level in room;
Provide you with a constant-temperature, constant-humidity, constant-oxygen, and clean indoor environment.
Clean and joyful life for now and future!

Better Household Central Air Conditioning System

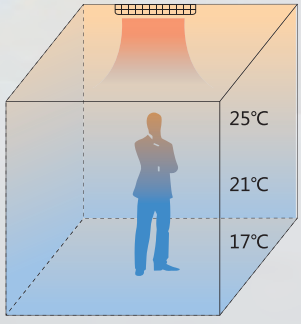
Comfortable

Radiation Heating for Healthier Life

Comfortable Temperature Field

Heating with Traditional Air Conditioner

The temperature gradually decreases from top down. When the ceiling temperature reaches 30°C, the floor temperature is only about 10°C.



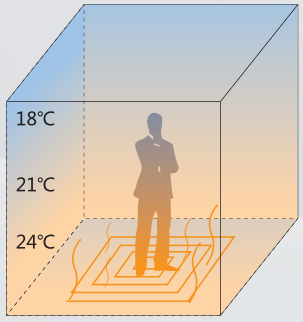
Temperature pattern of air conditioning system

Warm for head and cool for feet

Uncomfortable
Increasing the risks of rheumatism and arthritis

Jia Jia Run Heating

The temperature gradually decreases from bottom up. The temperature field is distributed evenly because of even heat dissipation and large heat dissipation area of the whole floor.



Temperature pattern of floor heating

Cool for head and warm for feet

Complying with human thermal engineering rules
Improving blood circulation and metabolism of the body

Wind Free and Few Dust

Floor heating supplies heat to rooms in a radiation manner to implement wind-free heating. While providing comfort and quietness, floor heating effectively decreases spread of dust and bacteria indoors, and eliminates the impact of dust of heat dissipation devices and pipelines on the indoor environment. Floor heating helps reduce the secondary pollution of indoor air, keep indoor air fresh and clean, and build a green home.

Perfect Humidity Range to Make Your Home More Comfortable

Traditional Fluoride-System Air Conditioner

When cooling, the refrigerant directly evaporates indoors at a low temperature, sometimes approximate to 0°C. Condensate water is generated when the low-temperature surface of coil unit is exposed to the hot air. As a result, the indoor air is excessively dehumidified (indoor humidity of about 35%). In addition, the air outlet temperature is very low and uncomfortable.

“Jia Jia Run" Air Conditioning System

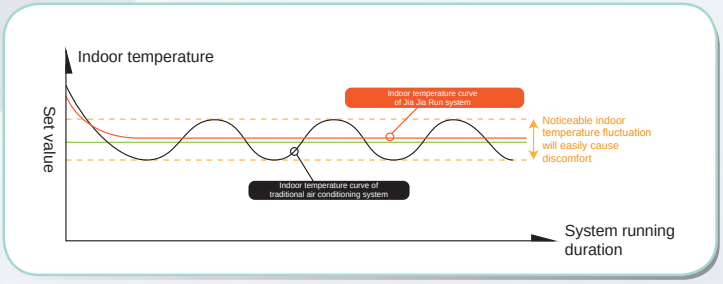
When cooling, the water temperature can be set and is generally over 7°C, which not only guarantees the cooling effect, but also dehumidifies the air properly, keeping the indoor humidity within the most comfortable range (about 50%). In addition, the air outlet temperature is more approximate to the human body temperature, letting you feel cool but not cold.

TIPS

Comfortable temperature/humidify range in summer
Temperature: 22-26°C Humidify: 40%-60%

Fast Cooling/Heating and Constant Room Temperature to Make You More Pleasant

After the air conditioner is powered on, the compressor rapidly starts and the unit operates at a high frequency to reach the set indoor temperature promptly. In addition, the system regulates the output of ODU and indoor water supply flow/temperature in real time based on the change of indoor load, to control the room temperature accurately. With "Jia Jia Run" full inverter air source chiller (heat pump), the room temperature fluctuates ±1°C, resolving the "unstable temperature" issue of traditional air conditioners and making you feel more comfortable.



Wide Adaptability for Cooling and Heating

"Jia Jia Run" full inverter air source chiller (heat pump) provides a super-wide running range from -25°C to 48°C, fully adapting to the air conditioner running environment in most of regions nationwide. No matter in hot summer at 48°C or cold winter at -25°C, the unit runs stably to provide users with comfortable air conditioning experience.

Quiet Enjoyment and Better Household Experience

The unit uses 9-tier noise reduction technologies to effectively reduce the noise when the unit is started, runs in full load, and runs in partial load. Three silent modes provide more all-day noise reduction solutions for household life.

Smart day
silent mode

Automatic night
silent mode

Powerful night
silent mode

Peaceful suburb

37 dB

IDU running

Library

Quiet office

56 dB

ODU running

Chatting in
living room

TIPS When floor heating is used in a radiation manner, because no moving parts such as fans and motors are installed indoors, nearly no noise is generated and family members can enjoy a peaceful space.

Energy Saving

Upgrade 1

(Copeland of USA)

All DC inverter compliant enhanced vapor injection scroll compressor

Match the running frequency smartly based on the load change in the air side.

Jia Jia Run

Ons-stop configuration upgrade

Upgrade 2

(Grundfos of Denmark)

High-efficiency inverter screening water pump

Regulate the system water flow smartly based on the load change in the air side.

Upgrade 3

(Shibaura of Japan)

High-efficiency anti-interference inverter motor

Match the air flow smartly based on the load change in the air side.

Multi-inverter for Performance Assurance

"Jia Jia Run" full inverter air source chiller (heat pump) upgrades product configuration to the top-level industry standard at one stop. With the all DC inverter compliant enhanced vapor injection scroll compressor as its core of energy saving, it also adopts the high-efficiency anti-interference inverter motor and inverter screening water pump, to regulate running status in real time, improve energy efficiency effectively, and save running costs.

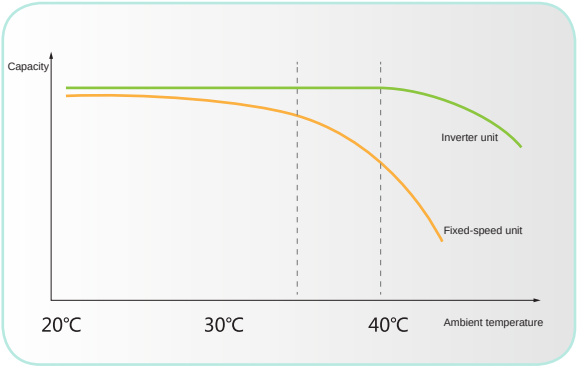
Three-in-one for Powerful Force

All DC inverter + compliant scroll + enhanced vapor injection

The cooling capability is not attenuated at 40°C, and the heating capability is not attenuated at -20°C.

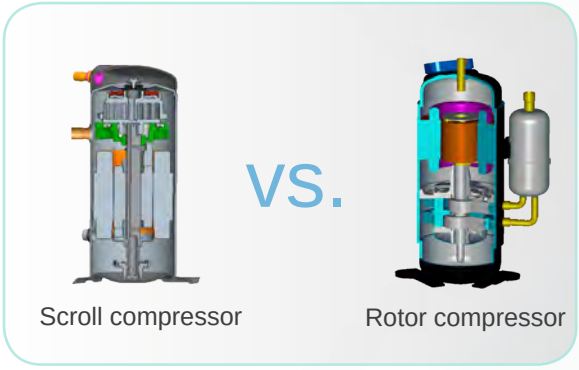
All DC inverter vs. fixed-speed compressor

Automatically regulate the unit frequency to meet the indoor capability requirements to the maximum extent while guaranteeing energy saving.



Compliant scroll vs. rotor compressor

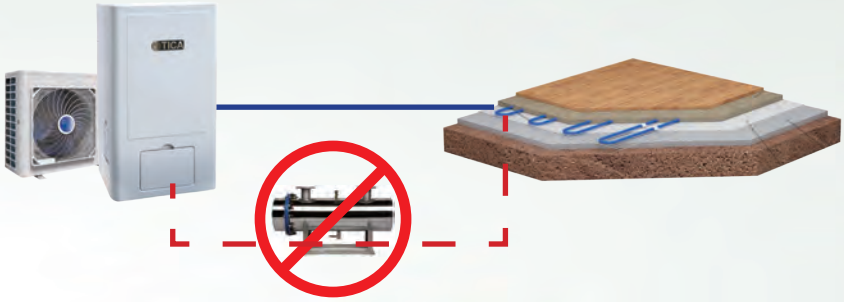
Feature higher compression efficiency, higher security, longer life, and less low-temperature capability attenuation.



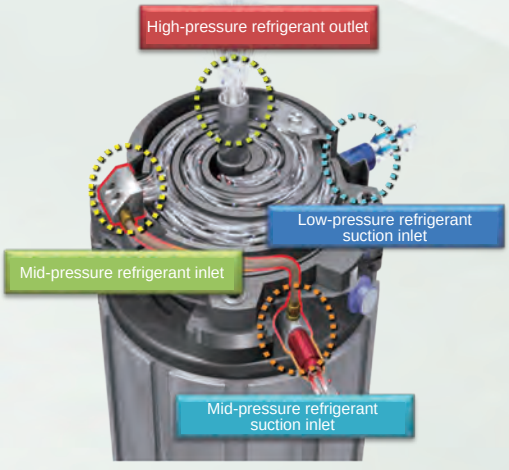
Enhanced vapor injection vs. common system

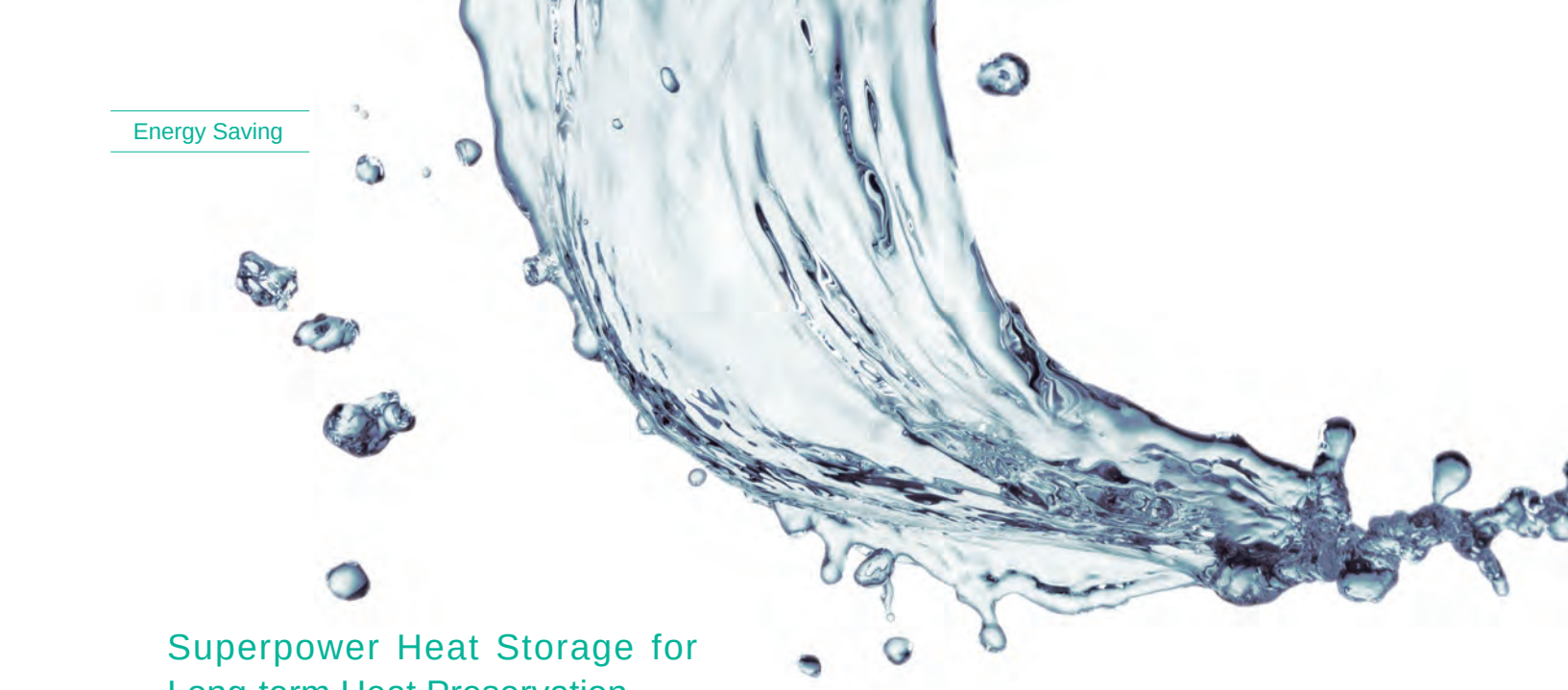
TICA's original all-condition enhanced vapor injection technology is used in"Jia Jia Run" full inverter air source chiller (heat pump), fully improving the unit running capability of cooling and heating. It easily implements cooling and heating in extreme conditions, with energy efficiency 20% higher than common units.

No electric auxiliary heat is needed in low-temperature environments in winter, saving more energy.



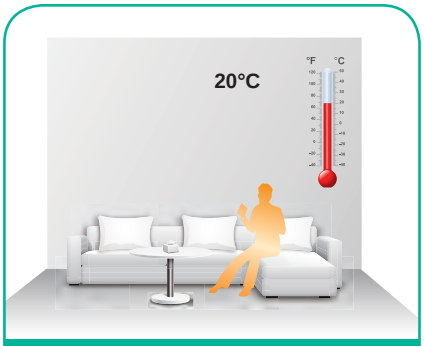
Electric heater is not required



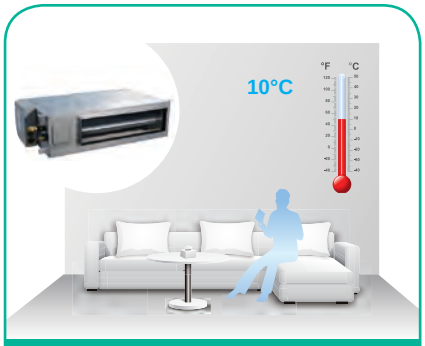


Superpower Heat Storage for Long-term Heat Preservation

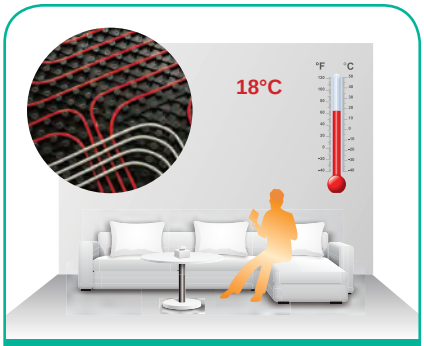
"Jia Jia Run" full inverter air source chiller (heat pump), taking water as the cool/ heat carrier, provides a large heat capacity and powerful heat storage capabilities, beneficial for long-term heat preservation indoors. One hour later after the unit is powered off, the indoor environment temperature decreases by 2°C only.



Room with normal heating



One hour later after the unit is powered off Room heated by traditional air conditioner

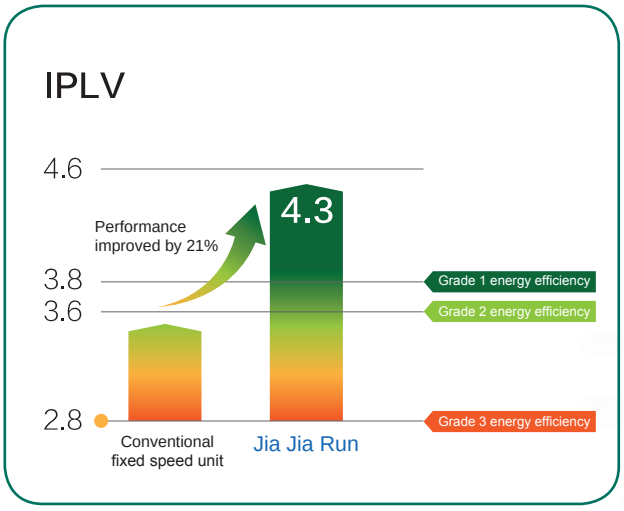


One hour later after the unit is powered off Room heated by "Jia Jia Run"

Energy Saving Product for Excellent Energy Efficiency

"Jia Jia Run" full inverter air source chiller (heat pump) provides an excellent energy efficiency level, with the integrated part load value (IPLV) reaching 4.3, far exceeding the national level-1 energy efficiency and 21% higher than regular fixed-frequency units. It passes the national energy saving product certification and saves more running costs for customers.

TIPS The IPLV considers the energy efficiency index when the unit runs in different loads, reflecting energy saving of air conditioners more objectively.



Heat Pump Heating for Lower Costs

The floor heating system, thanks to its higher comfort level, has become a common selection of high-end users. However, many users are deterred by higher running costs of electric boilers and wall-mounted gas boilers. "Jia Jia Run" full inverter air source chiller (heat pump) can be directly connected to the floor for heating, with higher energy efficiency and 30% running costs of wall-mounted gas boilers. In addition, it features water-power separation, security, and no pollution. Therefore, "Jia Jia Run" has got the favor of more and more household customers.

Electric boiler

Large power consumption, easy to form water scale, electric heating tube prone to aging, potential leak of power supply

Wall-mounted gas boiler

Low combustion efficiency, failed to associate with the cooling part of air conditioner, potential leak of toxic gas, explosion risk

Cost	Jia Jia Run	Wall-mounted Gas Boiler
Heating area	100 m^3	
Unit load	80 W/m^2	
Heating duration	90 days * 24 h/day	
Total heating load	17,280 kW	
Energy form	Power	Gas
Average energy efficiency	4.3	0.93
Energy consumption	4018 kWh	1950 m^3
Unit price of energy	0.5 yuan/kWh	3 yuan/m^3
Annual cost	**2009 yuan**	5850 yuan

Note: The unit price of energy listed in the table is the average price of peak power and valley power in a day. The actual unit price of energy prevails locally.

Clean

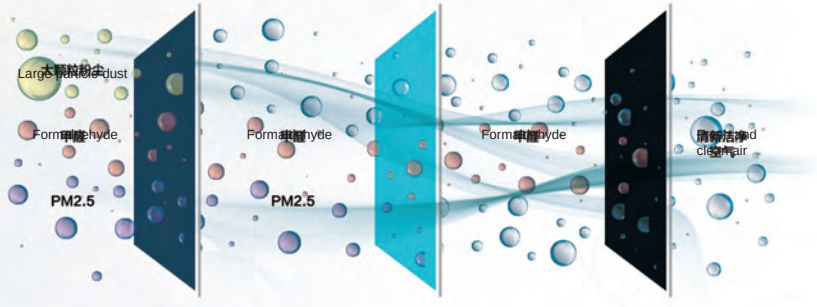
Full-effect Purification for Clean Air

TICA adopts the air conditioning + purification + fresh air system to remove hazardous substances such as PM2.5, formaldehyde, and allergens and deodorize air, providing you with a clean indoor environment.

Purifying Fan Coil Unit, with Air Conditioner as Air Purifier

The air conditioner is equipped with the residential-specific purifying fan coil unit, not only providing perfect silent effect but also configuring an air return purifier to effectively remove hazardous substances such as PM2.5 and formaldehyde.

Multi-tier purification



Physically Absorbing PM2.5 for Zero Ozone

96% efficiency for filtering PM2.5 (circulated for 120 minutes)

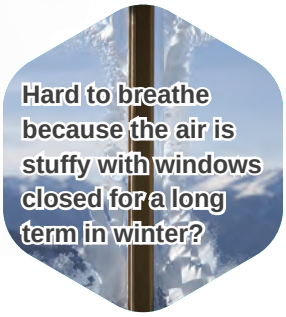
The exclusive electrostatic technology keeps electrostatic discharge on the filter material for a long term, 10 years at most.
The 100% fiber material is green and moisture-resistant.

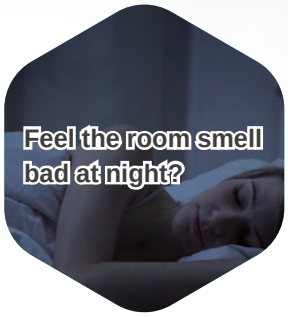
Chemically Removing Formaldehyde

90% efficiency for filtering formaldehyde (circulated for 60 minutes)

The exclusive technology of chemically removing formaldehyde distributes capturing medicaments on the surface of filter layer evenly, implementing fast reaction with the aldehyde group.
The technology is secure and highly-efficient, without the secondary release problem caused by excessive absorption of aldehyde group.

Fresh Air System, Supplying Forest Oxygen at Home





TICA professional household fresh air system increases the oxygen in your home!

- It integrates fresh air, air discharge, haze removal, and heat recovery. Fresh air filters PM2.5 at 95% efficiency for the first time. Dirty air is discharged while fresh air is supplied, which keeps air fresh indoors all the time.
- An intelligent control system is configured to display the concentration of PM2.5, formaldehyde, carbon dioxide, etc. in real time, making good air visible.

High-Quality Refrigerant for Low-Carbon Living

R410A is an internationally-recognized environment-friendly refrigerant. It is stable, nontoxic, high-performance, chlorine-free, and non-destructive for ozone layer. In addition, the unit is driven by clean power energy, without the need of coal, oil, or gas consumption, releasing no hazardous gas or waste material. The clean and low-carbon refrigerant leads a healthy life.

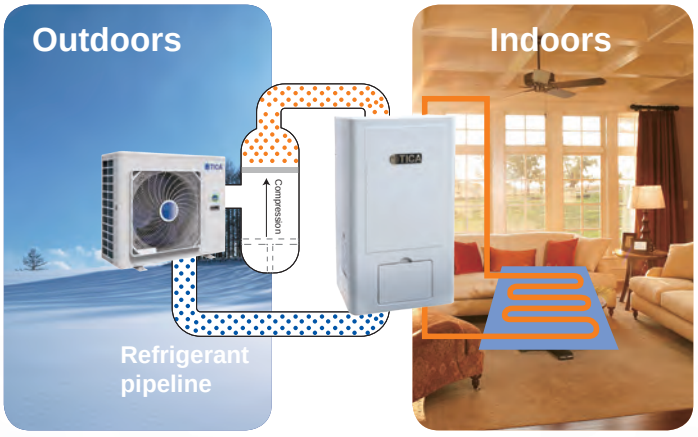
Peace of Mind

Multi-tier Anti-freezing for More Secure Water System

The unit implements anti-freezing detection based on the water flow, water temperature, and refrigerant temperature and provides three-tire anti-freezing procedures to prevent local freezing of water pipelines in winter. In addition, the unit adopts a separated structure to install the water system indoors, offering higher anti-freezing protection and more peace of mind.

Water pumping Heating Electric heating

Separated structure brings you peace of mind



Fast Defrosting for Efficient Heating

Intelligent Defrosting

The unit intelligently determines whether to defrost based on the outdoor environment temperature and running status, to implement defrosting when frost exists and heating when frost does not exist, prevent mistaken defrosting, and improve heating efficiency to the maximum extent.

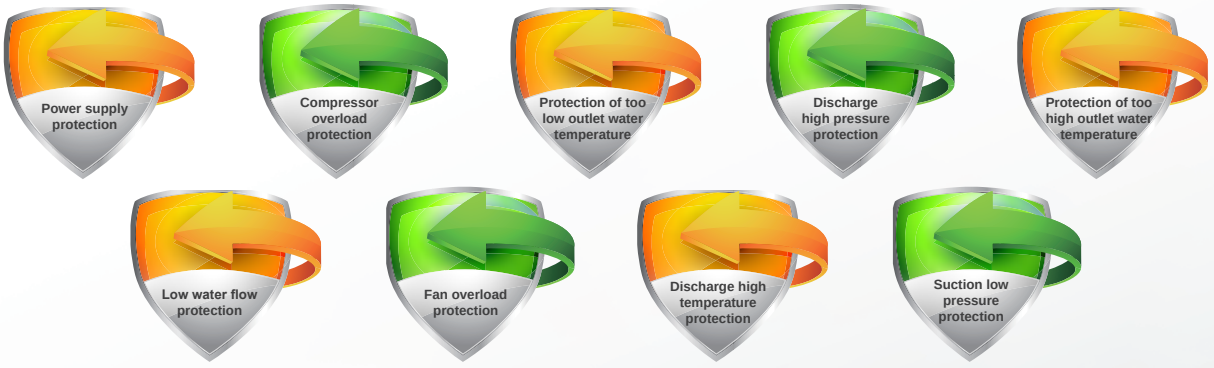
Powerful Defrosting

In severe conditions such as high humidity and low environment temperature, the unit automatically regulates to optimize defrosting effect, enhance heat exchange efficiency, and actively improve efficiency through powerful defrosting.

Comprehensive Security Protection for More Reliable Unit Running

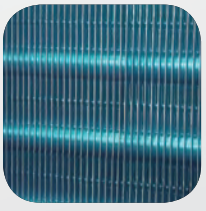
The unit provides various hardware protection and software protection for control functions, to forecast faults timely and regulate running status for unit reliability.

Problem forecast | Running regulation | Security protection



Mini Body for More Flexible Installation

Single-fan design



Compact high-quality efficient heat exchanger design

The small body carries large capabilities, breaking the complex space pattern. The unit body is only 850 mm high, convenient for installing in narrow space such as bay window, more flexible, and more fashionable.

Intelligence

Varieties of Control

"Jia Jia Run" full inverter air source chiller (heat pump) is equipped with a full-touch LCD controller to easily implement integrated control of air conditioning and floor heating.

Work mode

- Fan coil cooling
- Fan coil heating
- Floor heating
- Floor heat preservation

Regular function

- Outdoor environment Temperature display
- Time, date, and week display
- Room temperature setting and display
- Scheduled power-on/off
- Automatic startup upon power recovery
- Ultra quiet operation
- Powerful defrosting
- Error check
- Password setting

Integrated Design for Worry-Free Operation

Adopting integrated design, the unit integrates water system accessories into the IDU and incorporates moving parts of the water system into the unified control of unit program. Such design not only reduces the working hours and expenses of field installation, but also improves reliability of the whole system.

ODU

Integrated control

IDU

- Expansion tank
- Safety valve
- Flow switch
- Water pump
- Automatic discharge valve
- Pressure gauge

Smart Home

The unit provides standard RS485 communication interfaces and Modbus communication protocol to easily access the third-party building automation system and smart home central control system.

Hot water

Safety guard

Audio/video

Smart home system

Curtain

Lamp

Jia Jia Run

Fan coil cooling

Floor heating

Specifications

Type		Wall mounted			Ceiling				
Model		TSCA/ I120DHL	TSCA/ I140DHL	TSCA/ I160DHL	TSCA/ I120DHLD	TSCA/ I140DHLD	TSCA/ I160DHLD	TSCA/ I180DHLD	TSCA/ I200DHLD
ODU Model		TSCA120DHL	TSCA140DHL	TSCA160DHL	TSCA120DHL	TSCA140DHL	TSCA160DHL	TSCA180DHL	TSCA200DHL
IDU Model		TSCI120DHL	TSCI140DHL	TSCI160DHL	TSCI120DHLD	TSCI140DHLD	TSCI160DHLD	TSCI180DHLD	TSCI200DHLD
Cooling capacity(kW)		12.0	14.0	16.0	12.0	14.0	16.0	18.0	20.0
Power Input(kW)		3.8	4.7	5.4	3.8	4.7	5.4	6.1	7.0
COPC（kW/kW）		3.16	2.98	2.96	3.16	2.98	2.96	2.95	2.86
Heating capacity(kW)		14.0	16.0	18.0	14.0	16.0	18.0	20.0	22.0
Power Input(kW)		4.0	4.6	5.4	4.0	4.6	5.4	5.5	6.1
COP（kW/kW）		3.50	3.48	3.33	3.50	3.48	3.33	3.64	3.61
IPLV（C）		4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30
Water Flow（m^3/h）		2.06	2.41	2.75	2.06	2.41	2.75	3.10	3.44
Pump Type		Variable frequency shielded water pump			Variable frequency shielded water pump			/	
Power supply	ODU	220V ~ /50Hz			220V ~ /50Hz			380V 3N 50Hz	
	IDU							220V ~ /50Hz	
Ambient temperature (℃)	Cooling	16 ~ 48			16 ~ 48				
	Heating	−25 ~ 25			−25 ~ 25				
Refrigerant/charge(kg)		R410A/2.70			R410A/2.70			R410A/3.20	
Sound pressure level(ODU/ IDU）（dB（A））		56/37			56/37			59/33	
Water resistance（mH_2O）		/			/			5.0	6.5
Off engine lift（mH_2O）		7.0			7.0			/	
Refrigerant gas/liquid pipe diameter (external thread)	Gas/Liquid Pipe（mm）	ϕ19.05/ϕ9.52							
	Connction method	Flared							
Circulating water pipe connection	Circulating water inlet/outlet pipe diameter	DN32							
	(external thread)	External thread c（R 1−1/4’）							
Net weight（kg）	ODU	96	96	96	96	96	96	102	102
	IDU	53	53	53	53	53	53	53	53
Dimensions L*W*H	ODU	980*390*840			980*390*840			980*390*1260	
	IDU	520*245*892			1000*500*220			1000*500*220	

Notes:
1. Nominal heating test conditions: The water outlet temperature is 45°C, the outdoor dry bulb temperature is 7°C, and the wet bulb temperature is 6°C.
2. Nominal cooling test conditions: The water outlet temperature is 7°C and the outdoor dry bulb temperature is 35°C.
3. If specifications are changed due to product improvement, the parameters indicated on the nameplate should prevail.

Intimate After-sales Service

24-hour Hotline

4008601601

Service Tenet

Touch customer's heart with actions.

Service Concept

Take customer satisfaction as the goal.

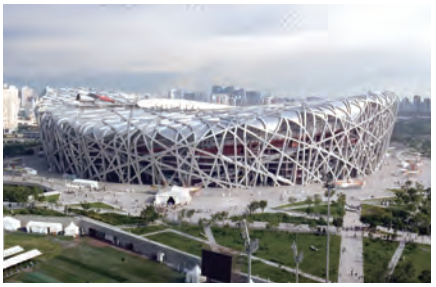
More than 300 technical service centers are distributed across the country.
More than 70 sales branches follow the full process.

The advanced after-sales service digital center brings customers to the cloud era, implementing a series of professional system services such as data monitoring, fault forecast and resolving, customized maintenance, and remote trusteeship management.

TICA Reference Projects

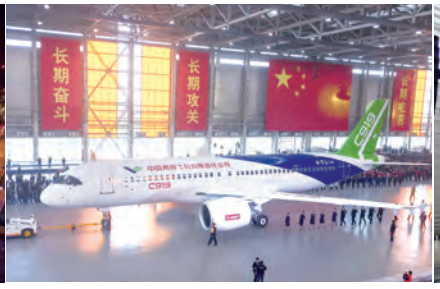
Zhongnanhai

Great Hall of the People



The Olympics Bird Nest

The Olympics Cube



China C919 Aircraft Production Base

China Rocket Base

Jia Jia Run Reference Projects


Integrity
Commitment
Teamwork
Collaboration
TICA
Sense of worth
Customer
Customer
Focus
Quality
Continuous
Improvement
Innovation
New Thinking

Quality relies on a clean environment