

Global quality standard, Worldwide partnership



# 75°C High Temperature Heat Pump water heater



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## Guangdong Tongyi Heat Pump Science and Technoloy Co., Ltd

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The contents are for reference only, may contain errors, and subject to change without prior notice. Please refer to the name plates and the manuals of the products for updated information. TY202305



WE KNOW MORE ABOUT  
OUR CUSTOMERS' NEEDS

**20+**

LEADING THE INDUSTRY FOR  
MORE THAN 20 YEARS

**100+**

MORE THAN 100 LEADING  
TECHNOLOGIES

**1000000+**

USERS EXCEED ONE MILLION

ROOTED IN THE INDUSTRY FOR MORE THAN 20 YEARS,  
SERVING MORE THAN 1 MILLION FAMILIES

FOR MORE THAN 20 YEARS, WE HAVE BEEN SPECIALIZED  
IN DEVELOPING HEAT PUMP TECHNOLOGY TO PROVIDE  
MORE SUITABLE SOLUTIONS TO USERS' NEEDS



Established in 1999, Guangdong Tongyi Heat Pump Science and Technology Corp. is one of the first and most professional heat pump manufacturers in China. Tongyi is committed to being a reliable partner, establishing the highest quality standards to ensure product and safety. Tongyi products are always at the forefront of energy efficiency.

For over 20 years of development, Tongyi has gained a high reputation in quality and reliability. Tongyi has one of the most stringent control mechanisms in place for its manufacturing processes and product quality. It has successfully obtained most of the world well known certificates, including CE, EMC, RoHS, LVD, EMD, RED, ERP, IEC, ETL, SASO, CCC, ETC for its products and ISO9001, ISO14001, ISO45001 approvals for the production management.

We value your feedback. We continuously strive to meet the highest standards to satisfy our client's demands. Through rigorous monitoring and relentless after-sales service, customer feedback is collected and swiftly incorporated into our products. Tongyi is always looking to simplify processes putting customers in the center to improve our units and after-sales service.

Guangdong Tongyi Heat Pump Science and Technoloy Co., Ltd

**1999**  
Established and launched products in this year.

**2000**  
Successfully developed high efficiency heat pump air conditioner.

**2001**  
ISO 9001 certified for the first time.

**2002**  
Products are CE CB certified and exported to Europe.

**2003**  
Honored the title of Trusted Quality Products Enterprise.

**2004**  
Promote air source heat pump water heater in domestic market.

**2005**  
Denominated the name of "Air Source Heat Pump Water Heater" in Chinese "Kong Qi Neng" Water Heater in China, and recognized by the industry.

**2006**  
Start to provide heat pump training course twice per year for the industry.

**2007**  
Joined in the National Standard of Heat Pump Water Heater Drafting Committee.

**2008**  
Recognized as high-tech enterprises by the government.

**2009**  
Inverter Heat Pump for Radiant heating and cooling supplied in Japan market.

**2010**  
Obtained deflector-type heat dissipation device patent and triple-function heat pump patent.

**2011**  
Successfully developed wrap-around aluminum microchannel heat exchanger and introduced the technology to production.

**2012**  
Qualified for the rebate program of Energy-saving Products launched by the government.

**2013**  
Launched clean production plan.

**2014**  
Awarded Excellent quality brand enterprise.

**2015**  
New series of DC inverter heat pump made great success in both domestic and overseas market.

**2016**  
Participated in Beijing coal-to-electricity project, replace coal boiler with TONGYI heat pump for suburb house heating.

**2017**  
Established Tongyi Air Source Heat Pump Research Institute.

**2018**  
Launched new DC EVI heat pump for domestic house heating and cooling in MCE Milan.

**2019**  
Served the hot water project of Daxing international airport (Asian top airport)

**2020**  
Launched new DC EVI heat pump for commercial heating and cooling.

**2021**  
Moved to new headquarters in Guangzhou.



China Certificate for Energy Conservation Product



ISO45001:2007 Occupational Health and Safety Management



ISO14000:2004 Environmental Management System Certification Certificate



ISO9001:2008 Certificate of Quality Management System



Drafting enterprise for National Standard of Heat Pump Water Heater



ETL



CE



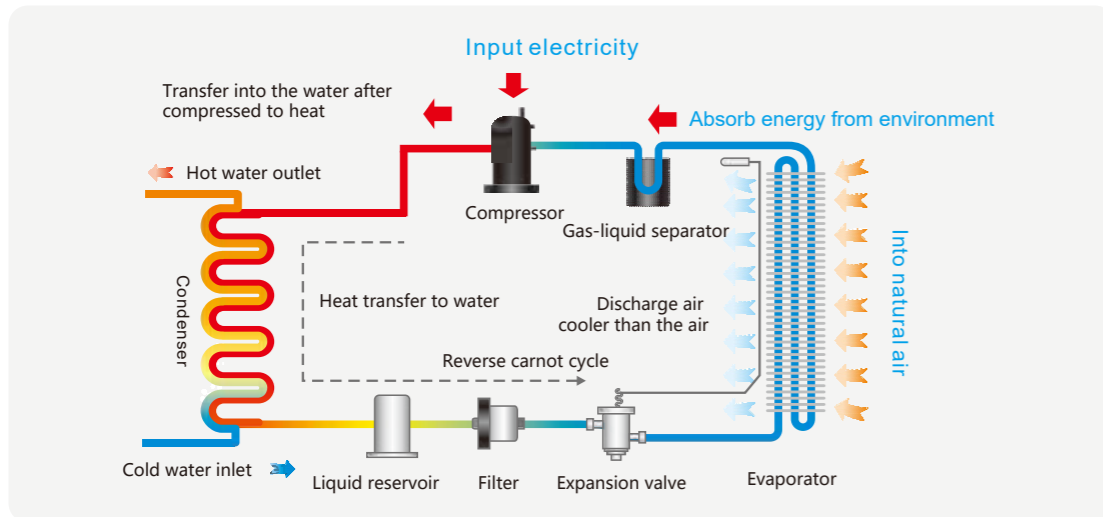
CE

- ISO45001:2007 Occupational Health and Safety Management System Certification Certificate

- ISO14000:2004 Environmental Management System Certification Certificate

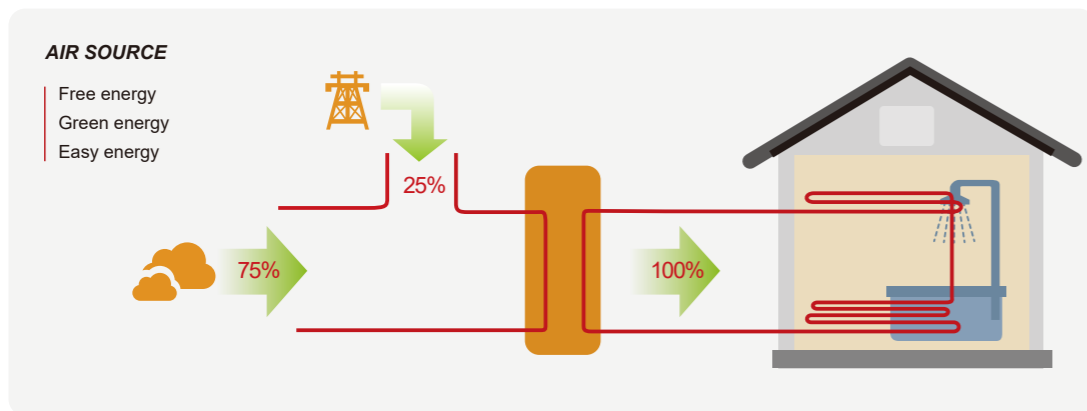
- ISO9001:2008 Certificate of Quality Management System

- Enterprise supported by The National Innovation Fund

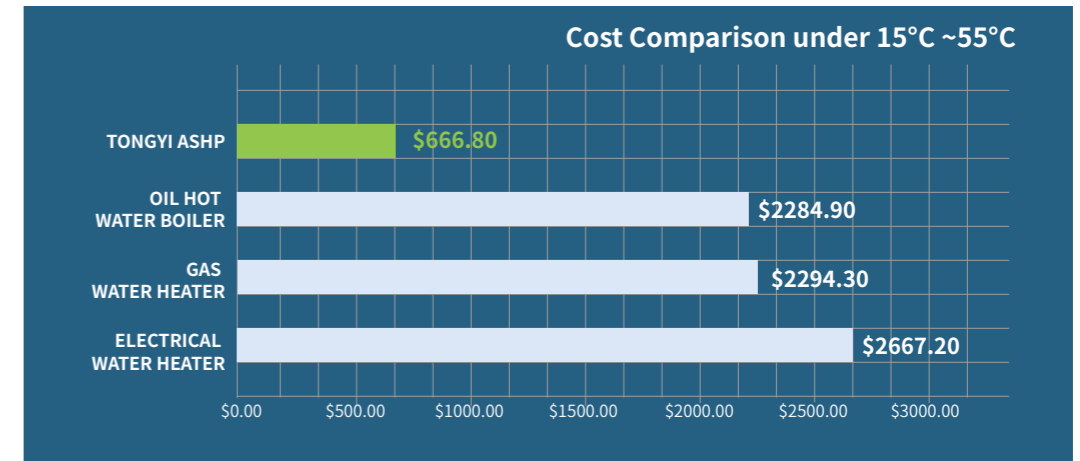
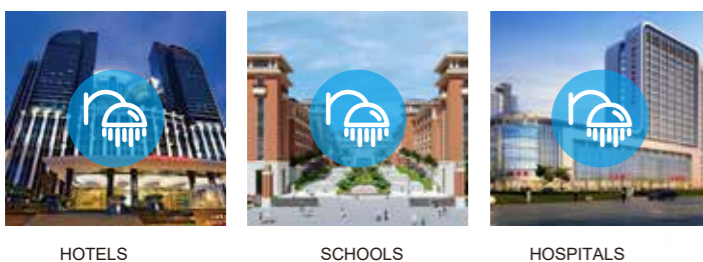


## ENERGY EFFICIENT APPLICATION

TONGYI Heat Pump offers the best solution for home heating and hot water supply with TY's inverter technology. It is 4 times more energy efficient than boiler system by absorbing energy from the outdoor environment.



## VARIOUS APPLICATION



## ASHP VS other heating methods

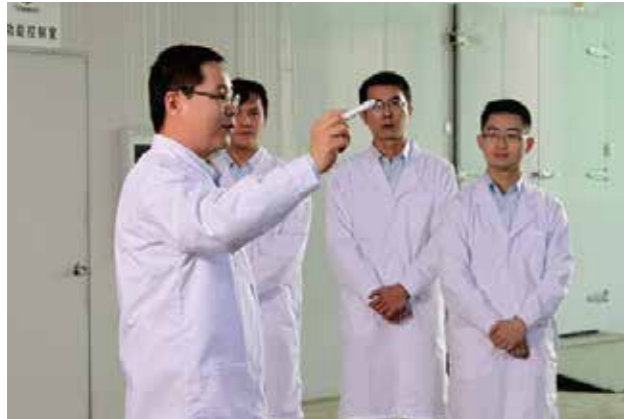
Heating Methods	Tongyi ASHP	Oil/Gas hot water boiler	Electrical water heater
Type of energy consumption	Electricity	Oil/Gas	Electricity
Safety Risk	Low	High	Middle
Environmental impact	Non-pollution	Heavily polluted	Non-pollution
Estimated product lifetime	10-12 Years	5-8 Years	5-8 years
Installation site	NO limits	Special room	Special room
floor space	Small	Large	Middle
Safety performance	Safe and reliable	Flammable, explosive goods	Heating pipe aging, leakage
Noise Level	Low	High	Low
Failure Detection Way	Automatic	2-3 technician	1 electrician
Labor costs	Without specific person	2-3 people labor	1 people labor
Other cost	No	Annual examine and approve cost	Annual examine cost

Under same condition, Daily hot water demand 1000L, Heating water from 15°C to 55°C, comparison for running cost

The specific heat of water (Kcal/Kg.°C)				1
heat value(Kcal)=specific heat of water (kcal/(kg.°C)) × daily water requirement(kg) × water temp difference(°C)				40000
Heating Methods	Tongyi heat pump	Electrical water heater	liquid gas water heater	Oil water heater
Fuel	Electricity	Electricity	Liquid gas	Gas
Combustion value	860	860	8667	8700
Unit	Kcal/h	Kcal/h	Kcal/(m3.h)	Kcal/(Kg.h)
Efficiency(%)	380	95	80	75
Demand for energy	12.2	49	5.8	5.2
Unit	Degree	Degree	m³	Kg
Fuel price (\$)	0.15	0.15	1.09	1.20
Amount fuel cost (\$)	1.82	7.32	6.28	6.25
Running cost (\$/Year)	666.8	2667.2	2294.3	2284.9

Notes: The price on the form as per market price at the time, the energy consumption of other types of heat source as per national standard of energy efficiency, specific data might be a gap. Please refer to the local condition.

## Professional R&D Team



### Master of Core Technology

TONGYI is one of the first and most professional heat pump manufacturers in China. We are in cooperation with 3 top universities in China on various HVAC research topics.

### Parts & Components Inspection

We monitor our entire supply chain for all the main parts and accessories strictly. 100% of the parts and components undergo rigorous incoming inspection at our factory.



### Professional Design Procedure

From the beginning of product development, a wide range of details are taken into account: easy installation, user friendliness, cutting-edge design, high functionality, full-scale tests, and the use of more than 56 different technologies. Always aiming to provide our customers with highest standard products.

### Process Control

In our production line we strictly control all processes. From the first step until the units are packed and ready to ship. Through relentless monitoring, we record all processes and developments to ensure the products are reliable and in conformity with product-specifications.



### Professional R&D Team

Cooperating with several top universities in China, Tongyi attracts young talents every year and has established a government-recognized R&D Center with a team of highly-qualified engineers.

### Finished-Product Inspection

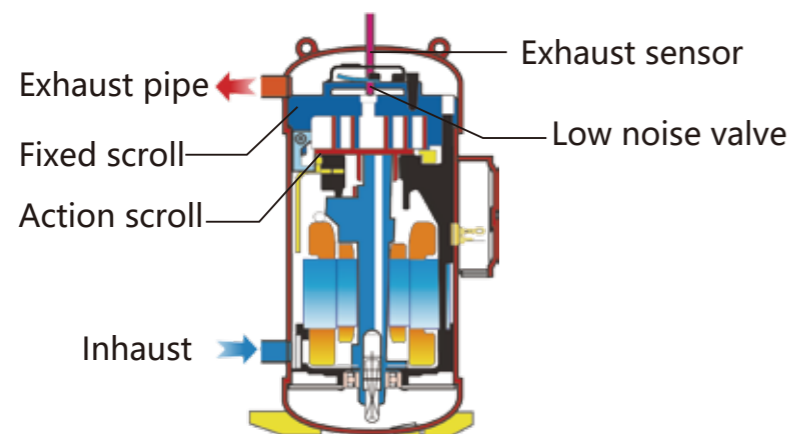
We implement 100% inspection on the finished products before shipping. We implement an additional double sample inspection for all units shipped to the overseas market.



## Product Features

### Scroll compressor

World famous scroll compressor with low energy consumption and high energy efficiency output, which effectively shortens the heating water time and double extend the useful life of the unit. TONGYI heat pump can increase over 20% heating capacity even though works under severe weather.



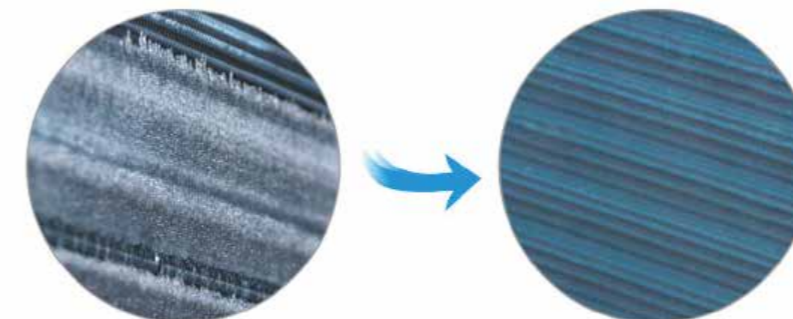
### EEV, precise flow control

Wide working temperature range, faster and more accurate refrigerant flow control than capillary and mechanical expansion valve. Best choice to achieve higher efficiency and energy-saving.



### Auto-defrosting program and anti-freeze

Intelligent defrosting technology, which can determine the time of defrosting according to the operating conditions of the unit (running time, exhaust temperature), ambient temperature and thickness of frost, so as to achieve intelligent defrosting when it is necessary, which greatly shortens the defrosting time by more than 20% and ensures the high heating capacity.



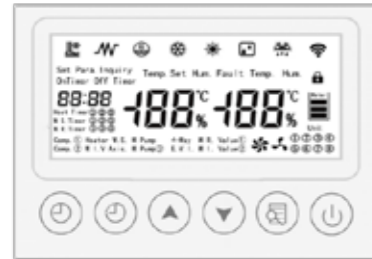
### High temperature heat exchanger

Internal thread tube in tube heat exchanger, dual cycle and multipath wavy Coaxial and spiral design; special designed for high temperature usage.



# Product Features

## Intelligent Controller Display



- Human intelligent control
- Long distant control
- Multiple timing functions
- Internet control support
- Automatic power-off memory function
- Automatic diagnose, error code for trouble
- Available to inquiry any parameter
- Convenient maintenance

## Remote control

BMS contact point / modbus support(with RS485) to Amazon cloud, realize remote control function optional.

## Multi-protections

The system runs safely, steadily and reliably thanks to our full protection: high temperature protection, compressor overload & overheat protection, power phase sequence & over/under voltage protection,etc.



## High-performance FM

It use outer rotor axial flow silent fan with five-leaf balanced aluminum alloy wind wheel. It has the advantages of corrosion resistance, large air volume and low noise.



## Patent louvered casing(optional)

TONGYI' s patent louvered casing can better for waterproof,wind-proof and dust-proof. Patent no.:CN201030670236.9.



## Unique hydrophilic fin coil heat exchanger

Large amount for air inlet,Air exchangers(fin-coil)with hydrophilic coating are strongly anti-corrosive and perform at high efficiency.



# Product Specification



Model (TAH)		HG9	HG18	HG46
<b>Technical Data</b>				
<b>A20°C/15°C, W15°C to 65°C</b>				
Hot Water Volume	L/h	172	353	894
Rated Capacity	kW	10	20.5	52
Rated Input Power	kW	3.1	6.3	16.5
Rated COP	/	3.2	3.25	3.15
<b>A20°C/15°C, W15°C to 75°C</b>				
Hot Water Volume	L/h	129	254	662
Rated Capacity	kW	9	17.7	46.2
Rated Input Power	kW	3.3	6.3	17.2
Rated COP	/	2.7	2.8	2.68
<b>A35/-°C, W15°C to 65°C</b>				
Hot Water Volume	L/h	261	547	1278
Rated Capacity	kW	15.2	31.8	74.3
Rated Input Power	kW	3.3	7.2	16.5
Rated COP	/	4.5	4.4	4.5
<b>A35/-°C, W15°C to 75°C</b>				
Hot Water Volume	L/h	201	408	974
Rated Capacity	kW	14	28.5	68
Rated Input Power	kW	3.7	7.3	18.3
Rated COP	/	3.8	3.9	3.7
<b>Power Supply</b>				
Power Supply, Volts/Ph/Hz	50 Hz	380/3/50	380/3/50	380/3/50
	60 Hz	380/3/60	380/3/60	380/3/60
Max. Input Power	kW	6.9	14.5	30.3
Max. Input Current	A	13.5	26	53.5
<b>NOISE LEVEL</b>				
Sound Pressure(1m)	dB(A)	58	62	72
<b>OPERATION RANGE</b>				
Ambient temperature	°C	5~43	5~43	5~43
Water outlet temperature range	°C	25~90	25~90	25~90
Max. Outlet Water Temperature	°C	90	90	90
<b>CONFIGURATIONS</b>				
<b>THROTTLE</b>				
Throttle Type	/	EEV	EEV	EEV

Model (TAH)		HG9	HG18	HG46
<b>COMPRESSOR</b>				
Type	/	Scroll	Scroll	Scroll
Quantity	/	1	2	2
<b>FAN</b>				
Type	/	Axial	Axial	Axial
Quantity	/	1	2	2
Speed	rpm	910	910	820
Air Volume	m3/hr	7,500	7,500	15,000
<b>EVAPORATOR COILS</b>				
Fin Type	/	Hydrophilic Aluminum Fins		
Fin Tube Type	/	Internal Threaded	Internal Threaded	Internal Threaded
<b>CONDENSER</b>				
Type		Tube in Tube	Tube in Tube	Tube in Tube
Water Flow Rate	m3/hr	3.1	6.3	13.7
Pressure Drop thru Heat Exchanger	kPa	50	50	50
Max. Working Pressure – Water Side	kPa	700	700	700
<b>REFRIGERANT</b>				
Type	/	R134A	R134A	R134A
GWP	/	1600	1600	1600
Charge	kg	3	6	10
CO2 Equivalent	TON	4.8	9.6	16
Refrigerant System Pressure Max.	kPa	3000	3000	3000
Refrigerant System Pressure Min.	kPa	50	50	50
<b>Control</b>				
Controller		LCD	LCD	LCD
<b>HYDRONIC</b>				
Rated Water Flow Rate	m3/hr	3.1	6.3	13.7
Water Pressure Drop	kPa	50	50	50
<b>Piping Connections</b>				
Water Connection	/	External thread	External thread	External thread
Piping Connections Inlet	/	DN25	DN40	DN50
Piping Connections Outlet	/	DN25	DN40	DN50
<b>PACKING</b>				
Dimensions (Lx Wx H)	mm	840×840×938	1503 x 723 x 1208	2200 x 1005 x 1890
Packing Dimensions (Lx Wx H)	mm	930 x960x 1140	1615 x 840 x 1355	2330 x 1150 x 2065
Net Wt.	kg	158	325	650
Approx. Shipping Wt.	kg	179	350	700
<b>PROTECTION</b>				
Cabinet	/	Powder Painted Galvanized Steel		
IP Rating (Enclosure Class)	/	IPX4	IPX4	IPX4
Defrosting	/	4-Way Vave	4-Way Valve	4-Way Valve



## DAXING INTERNATIONAL AIRPORT



- Category: Hot water-Transportation
- Model: TONGYI EVI Commercial Air source HP
- Description: supply of hot water for aircraft maintenance. Also supply hot water for China southern airline VIP bathroom. Providing hot water in low ambient temperature.

BEIJING OLIMPYC STADIUM



- Category: Hot water-stadium
- Selected model:TONGYI EVI Commercial air source heat pump
- Description:TONGYI Commercial heat pump water heater, supply hot water for restroom in bird nest stadium.

SAIC MOTOR FACTORY



- Category: Hot water- Factory
- Selected model:TONGYI EVI Commercial air source heat pump water heater
- Description:TONGYI Commercial EVI heat pump water heater, supply hot water for staffs



Shangri-La



Hilton



Le Meridien



Marriott



Four Season



Double Tree



Mercure



NARADA



Holiday Inn



Langham



Novotel



Conrad



Guizhou Astronomical Telescope Project



ZOOMLION



SOFITEL



Taj Mahal hotel



Unilever



Alibaba



Bulgari



Westin



Shenzhen Universiade



Hangzhou Asia Games



St Regis



Pullman



## To help achieve the carbon neutrality with the heat pump technology

From 1999 up to now, the contribution of Tongyi HeatPump to the energy conservation and CO2 emissionreduction, is equal to growing **100 million** trees for the society!

**750,000tons**

Saved coal consumption more than 750,000tons

**3.2 million kilograms**

Reduced nitrideemissions more than3.2 million kilograms!

**3 billion kilograms**

Reduced carbon dioxide emissions more than 3 billion kilograms!

**12.5 million kilograms**

Reduced sulfur dioxide emissions more than 12.5 million kilograms!

