The intelligent centralized control mechanism manages all components of the water-heating system. Through intelligent analysis and calculation, it achieves real-time and precise control over each water heater unit and adjusts the working status of the system accessories correspondingly. In this case, unit efficiency is improved and energy consumption for the operation of the system accessories is reduced, saving users considerable operating costs.

**Control over heat pump unit**
One-key startup, automatic judgment on operating mode of heat pump unit, and power-off memory function.

**Control over water pump**
Controls the startup and shutdown of water pumps to adapt to the current operating condition and to reduce power consumption of water pumps.

**Control over water tank**
Directly sets and controls the temperature of the water tank and monitors the water level and temperature of the water tank in real time.

**Working Principle of Air Source Heat Pump Water Heater**

**Integrated Intelligent Control, More Energy Efficient**

The unit adopts an axial flow fan with low noise, low power consumption, and high efficiency. Designed to be waterproof, the unit meets all requirements of outdoor use, durable and reliable.

**Fan**
The unit adopts an axial flow fan with low noise, low power consumption, and high efficiency. Designed to be waterproof, the unit meets all requirements of outdoor use, durable and reliable.

**Evaporator**
The fin tube evaporator uses hydrophilic aluminum foil and inner grooved copper tubes to ensure full heat exchange between the refrigerant and ambient air and efficient heat exchange on the air side.

**Compressor**
A flexible scroll compressor of world-renowned brand helps to create a perfect heating system based on high-temperature and high-pressure working conditions of the heat pump unit, ensuring stability and reliability.

**Solenoid valve**
A solenoid valve of internationally renowned brand is used to maintain smooth hot water flow in the pipes, guaranteeing the stable operation of the unit.

**Motor**
The multi-gear motor, perfectly matched, can operate under a wide range of application environments.

**Electronic expansion valve**
An electronic expansion valve of well-known brand is used to serve as the throttle apparatus, ensuring that the unit operates normally when faced with load changes, defrosting, startup, shutdown and so on.

**Thermostatic water valve**
Imported with original packaging, the thermostatic water valve can adjust both the water temperature and water flow, ensuring that constant-temperature hot water is available upon startup.

**Tube condenser**
Tube condenser can reduce water resistance, increase the heat exchange area, and provide excellent anti-scaling and anti-corrosion performance.
Custom-made, Perfect Integration

ACT has distinguished experience in commercial water heating, from system design and equipment matching, to pipeline installation and operation debugging, and is capable of providing stable, energy-saving and efficient water heating systems.

1. Designs the optimal system solutions based on customers’ water heating demand and environmental conditions
2. Helps customers with accurate selection of water heating device
3. Determines the specifications and models of pipeline, water pump, water tank and other components and reasonably lay out the pipelines according to the field situation
4. Debugs system components carefully to ensure stable and efficient operation of the system

Dual inflow water adjustment, rapid heating, and constant-temperature outflow water

Innovative technology of dual water flow adjustment can achieve accurate adjustment according to water inlet temperature and flow rate, to provide high-temperature water rapidly, thus effectively solving the problem of slow-speed water heating that usually occurs to common heat pumps in winters; rapid charge of constant-temperature hot water during peak usage periods can be guaranteed. Furthermore, the water output and temperature are displayed in real time for convenient operation.

Poor design of heat pump units tends to cause repeated defrosting in winter, seriously affecting normal operation and leading to intermittent hot water supply. The improved evaporator can automatically adjust the refrigerant flow to slow frosting. Moreover, the 4-way valve reversing defrosting technology is employed to achieve more rapid and thorough defrosting, thereby increasing the efficient heating time of heat pump units in winter and ensuring continuous hot water supply.

Free from the impact of water pressure fluctuation

During winter, the water flow in heat pump units is relatively low and the water pressure fluctuation will cause sharp fluctuation in water temperature, or even trigger high pressure protection and stop the unit. Therefore, we use a thermostatic water valve to monitor and timely and accurately adjust the water flow and temperature, considerably improving the operating stability of the unit.

Continuous hot water supply keeps you worry-free during winter time

We provide optimal custom-made solutions of water heating system and full-pack services covering installation and commissioning, ensuring project quality to provide customers with stable water systems.

Professional integration capacity, stable system

Custom-made, Perfect Integration

ACT has distinguished experience in commercial water heating, from system design and equipment matching, to pipeline installation and operation debugging, and is capable of providing stable, energy-saving and efficient water heating systems.
Excellent Performance, Energy Efficient, Environmentally Friendly

Stable Operation
- Lower operating temperature - uses R410A refrigerant and can operate at temperatures as low as –10°C.
- Efficient defrosting - 4-way valve reversing defrosting, quick and without residue.
- Quick response - innovative thermostatic water valve performs multilevel adjustments according to water temperature and flow, enabling quick raise in water temperature.
- Stable water supply - very adaptable water supply pressure allows water supplement without shutdown of unit.

High Energy Efficiency
- Internationally renowned and highly efficient compressor to ensure efficient, stable and reliable operation of the heat pump unit.
- Heat in the air is fully utilized to heat water based on the reversed Carnot cycle; direct-heating circulating technology facilitates efficient heat exchange between refrigerant and water, and complies with national energy-saving standards.

User-friendly
- Centralized control - intelligent control over the modular operation of multiple units concurrently, and includes the water pump, water tank and other system components in the monitoring coverage, so that the entire water heating system runs accurately and coordinately.
- Intelligent adjustment - automatically adjusts water temperature in winter and summer, and operates energy-efficiently.
- Automatic operation - can provide E-heater control signals, operates automatically and energy-efficiently.

Safe and Reliable
- Water and electricity isolated from each other, safer for use.
- Branded and quality components
- Extreme operating conditions, reliable operation
- Multiple protection, stable and durable

Performance Parameter

<table>
<thead>
<tr>
<th>Model</th>
<th>Unit Dimensions</th>
<th>Packaging Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC-AH100F</td>
<td>1020 x 866 x 1840mm</td>
<td>1150 x 920 x 2045mm</td>
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<tr>
<td>TC-AH150F / TC-AH180F</td>
<td>763 x 761 x 1160mm</td>
<td>869 x 926 x 1360mm</td>
</tr>
</tbody>
</table>

Note:
- Nominal heating capacity test conditions for one-time heating: outdoor dry/wet bulb temperature is 20/15°C; water inlet temperature is 15°C; water outlet temperature is 55°C.
- Models, parameters and performance due to product improvement may change without notice. Please refer to the nameplate parameters and real product.
- Nominal heating capacity test conditions of circulating heating: outdoor dry/wet bulb temperature is 20/15°C; water inlet temperature is 47°C; water outlet temperature is 52°C.
- The parameters are for reference only when selecting models.
### Table of Variable Working Condition Parameters

<table>
<thead>
<tr>
<th>Ambient Temperature (°C)</th>
<th>Water Inlet Temperature (°C)</th>
<th>Water Outlet Temperature (°C)</th>
<th>TCAH30F Heating Capacity (kW)</th>
<th>TCAH50F Heating Capacity (kW)</th>
<th>TCAH100F Heating Capacity (kW)</th>
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### Model Water Inlet/Outlet Temperature Difference (°C)

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<th>Ambient Temperature (°C)</th>
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</table>

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