



YORK® YKF Air Source Heat Pump



Sustainable solutions for heating, cooling and domestic hot water

The power behind **your mission**







Contents

Introduction	4
DC Inverter Technology	6
Overview	8
Features	12
Typical Applications.....	21
Specifications.....	33
YORK Fan Coil units.....	39
Valves.....	40
Actuators.....	42

Introduction

Why choose an air source heat pump?



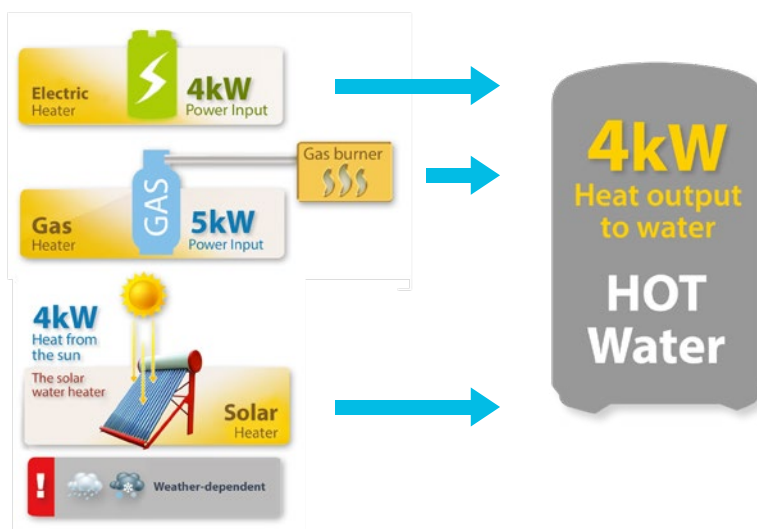
Typically around 3kWh of energy can be captured for every 1kWh of electrical energy expended, giving almost 4kWh of heat energy for only 1kWh of electrical input and giving efficiency of almost 400%.

Comparison of energy sources

	YORK air source heat pump	Gas boiler	Electric water Heater	Diesel boiler	Solar water heater
Energy source	Air and electricity	LPG	Electric	Diesel	Sun and electricity
Calorific value	860kcal/kWh	24000kcal/m ³	860kcal/kWh	10200kcal/kg	860kcal/kWh
Average efficiency	4.0	0.8	0.95	0.7	2.7
Consumption*	11.63kWh	2.09m ³	48.96kWh	5.6kg	17.22kWh
Running cost (USD)	0.9	5.9	4.3	6.5	1.5

LPG: Liquefied Petroleum Gas

1. Products tested under controlled conditions at YORK laboratories.
2. * 40,000 kcal are required to heat 1 ton of water from 15°C to 55°C.



Total heat solution – Heating, cooling and domestic hot water in one system

YKF is an integrated system that provides space heating and cooling as well as domestic hot water, offering a complete, all-year-round solution which can remove the need for traditional gas or oil boilers, or work together with.

YKF solutions fit perfectly with our various ranges of YORK fan coils, smart controllers and/or field devices such as valves and accessories.



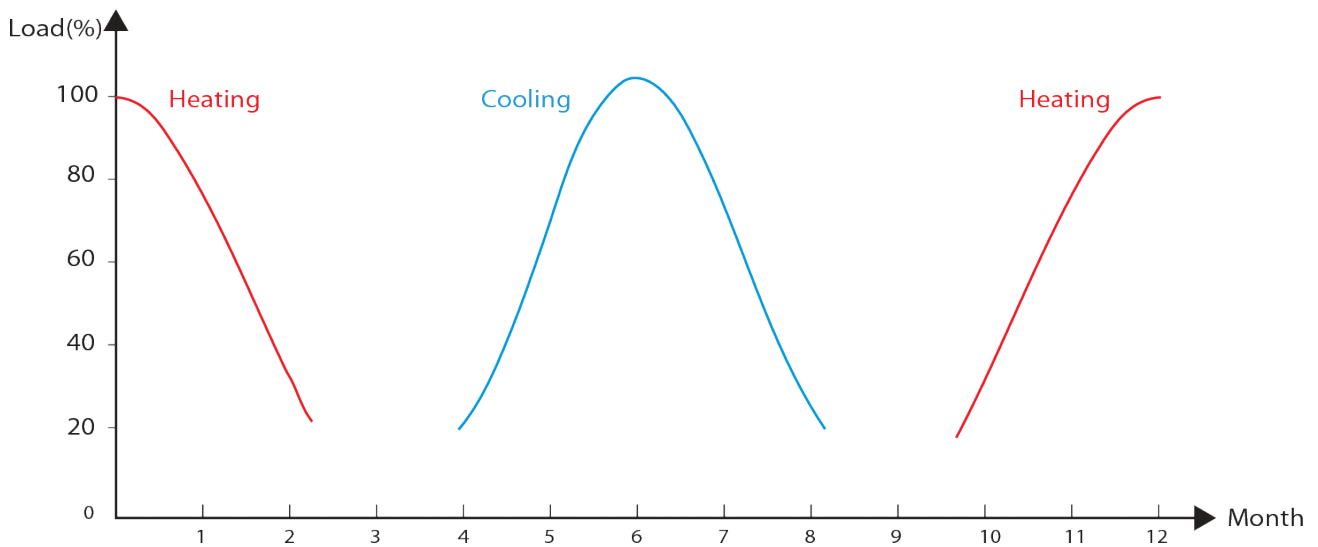
- The outside air is a renewable source of energy
- DC inverter technology enables high energy efficiency
- Sufficient heating capacity at low ambient temperatures (even at -25°C)
- Provide space heating, cooling and domestic hot water, total heat solution
- Compatible with other heat sources such as solar panels and boilers



Direct Current (DC) Inverter Technology

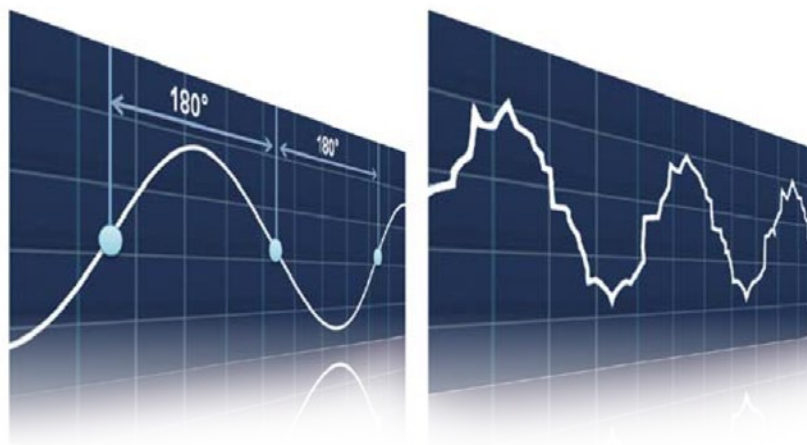
Efficient comfort

The amount of heating and cooling required changes through the year. The motors traditionally used in heat pumps run at full power even during part-load operation, wasting energy. YORK's YKF products use DC inverter technology, which allows precise control of motor speed, ensuring that only the power necessary to perfectly match the real load is used.



High energy efficiency

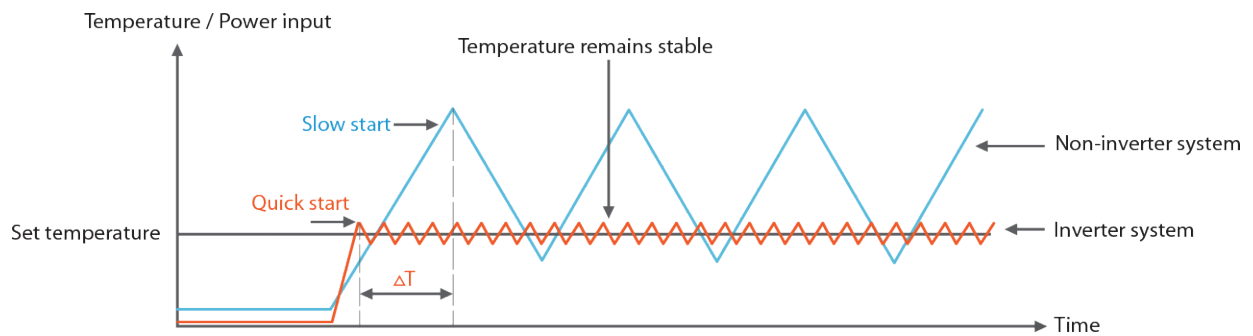
Thanks to improved motor and drive efficiency of the DC inverter technology, the YKF twin rotary DC inverter compressor uses 30% less power than traditional scroll compressors while also giving a wider operating frequency range, enabling precise control and reducing running noise levels.



Smooth sine wave improves efficiency by around 30% compared to conventional saw tooth wave

Stable water temperature improves comfort

Precise control of the compressor speed ensures that the water temperature is maintained within a much smaller range around the set temperature than is possible with non-inverter systems.



Quick start-up

The inverter system output power closely matches the energy demand by adjusting motor frequency, so it is possible to achieve comfort conditions in less time than a system without an inverter.

Less frequent start/stop

The ability to vary compressor speed (as opposed to simple on/off control) means that the compressors experience fewer start/stop cycles, which expands compressor lifespan and reduces noise.

Quiet operation

Most of the time, the capacity required for heating/cooling is lower than the peak load condition, meaning that heat pumps work under part-load conditions most of the time. With DC inverter compressors adjusting rotation speed according to the actual load requirement, noise levels are lower than with traditional compressor technology.



Overview – A Flexible System

The YKF range offers flexibility to install the hydronic components indoors or outdoors.



With YKF Mono, the hydronic components are integrated into the outdoor unit, offering ease of installation.



With YKF Split the hydronic components are contained in a separate hydronic box or hydronic box with DHW tank for indoor installation.

Both the Mono and Split products are rated A+++ on the energy efficiency and make a significant contribution to limiting the impact on the environment.



Product lineup



YKF Mono

Capacity (kW)	4	5	7	9	12	14	16	18	22	26	30
Appearance											
220~240V-1Ph	● ▲	● ▲ ▲	● ▲ ▲	● ▲ ▲	● ▲ ▲	● ▲ ▲	● ▲ ▲				
380~415V-3Ph					● ▲ ▲ ▲	● ▲ ▲ ▲	● ▲ ▲ ▲	●	●	●	●

● Outdoor unit ▲ Optional Electric heater (3 kW) ▲ Optional Electric heater (4.5kW) ▲ Optional Electric heater (6 kW) ▲ Optional Electric heater (9 kW)

YKF Split (Outdoor unit + Hydronic box)

Capacity (kW)	4	6	8	10	12	14	16
Appearance							
220~240V-1Ph	● ● ▲		● ● ▲			● ●	
380~415V-3Ph			▲			● ● ▲	


● Outdoor unit ● YKF60ANB Hydronic box (4-6 kW) ● YKF100ANB Hydronic box (8-10 kW) ● YKF160ANB Hydronic box (12-16 kW)
 ▲ Optional Electric heater (3 kW) ▲ Optional Electric heater (6/9 kW)

YKF Split (Outdoor unit + Hydronic box with DHW tank)

Capacity (kW)	4	6	8	10	12	14	16
Appearance							
220~240V-1Ph		● ● ● ▲				● ● ▲	
380~415V-3Ph		● ● ● ▲				● ● ▲	

● Outdoor unit ● YKF100/190ANB Split DHW Tank 190 liters ● YKF100/240ANB Split DHW Tank 240 liters ● YKF160/240ANB Split DHW Tank 240 liters
 ▲ Standard Electric heater (3 kW) ▲ Optional Electric heater (6/9 kW)

YKF Mono

<p>YKF Mono System</p>	 <p>User interface</p> <p>Mono outdoor unit</p> <p>Domestic hot water tank (field supplied)</p> <p>Solar panel (field supplied)</p> <p>Low temperature radiator or FCU (field supplied)</p> <p>Under-floor heating (field supplied)</p>
<p>Application</p>	<p>Heating + Cooling + Domestic hot water</p>
<p>Structure type</p>	<p>Integrated (Heat pump and Hydronic box are in the same casing)</p>
<p>Refrigerant piping</p>	<p>Inside outdoor unit</p>
<p>Water piping</p>	<p>Between outdoor unit and indoor heating appliances</p>
<p>Installation</p>	<p>Only need to install water piping</p>
<p>Combinational parts (field supplied)</p>	<p>Under-floor heating Fan coil units Low temperature radiators Domestic hot water tank Auxiliary heat sources (such as water heaters and boilers)</p>

Mono outdoor unit

Mono outdoor unit absorbs heat from the outside air and transfers it to the water in the hydronic module to supply heat.

Domestic hot water tank

Hot water from the Mono unit is circulated around the domestic hot water tank's heating water coil, heating the domestic hot water inside the tank. Immersion heaters are often installed in domestic hot water tanks as a backup.

User interface

User interface is connected to the Mono unit, turning the unit on or off, setting the operating mode, adjusting temperature and timers.

YKF Split

<p>YKF Split System</p>	
<p>Application</p>	<p>Heating + Cooling + Domestic hot water</p>
<p>Structure type</p>	<p>Split (Heat pump and hydronic box or Hydronic box with DHW Tank are independent)</p>
<p>Refrigerant piping</p>	<p>Between heat pump unit (outdoor) and Hydronic box or Hydronic box with DHW Tank (indoors)</p>
<p>Water piping</p>	<p>Between Hydronic box or Hydronic box with DHW Tank and indoor heating appliances</p>
<p>Installation</p>	<p>Refrigerant piping and water piping</p>
<p>Combinational parts (field supplied)</p>	<p>Under-floor heating Fan coil units Low temperature radiators Domestic hot water tank Auxiliary heat sources (such as water heaters and boilers)</p>

Split type outdoor unit

The outdoor unit absorbs heat from the outside air and transfers it inside through the refrigerant piping.

Hydronic box

The hydronic box heats the water by refrigerant from outdoor unit. The heated water circulates through heating apparatus such as floor heating, radiators, fan coil units as well as inner coil of domestic hot water tank.

Domestic hot water tank

Hot water from the Split unit is circulated around the domestic hot water tank's heating water coil, heating the domestic hot water inside the tank. Immersion heaters are often installed in domestic hot water tanks as a backup.

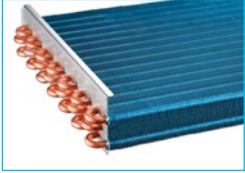
User interface

User interface is connected to the Split unit, turning the unit on or off, setting the operating mode, adjusting temperature and timers.

Features

YKF Mono

High efficiency and wide operating range



Finned tube heat exchanger

Air side heat exchanger with copper tubing optimizes heating efficiency. Hydrophilic coating improves condensate drainage, reducing frost accumulation and improving corrosion resistance.

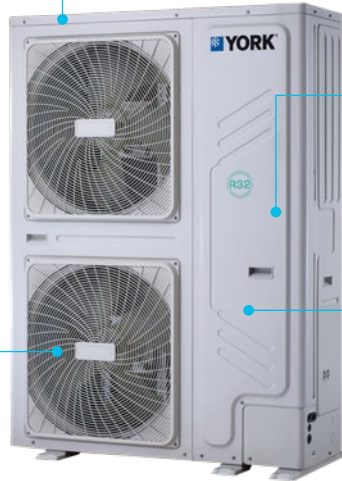


Brushless DC fan motor

Stepless fan motor control enables super-quiet fan operation and minimizes power consumption.

Twin rotary compressor

Twin rotary DC inverter compressor uses 30% less power than traditional scroll compressors while giving a wider operating frequency range, enabling precise control and reducing running noise levels.



Hydronic module

Integrated hydronic module with DC water pump and backup electric heater.

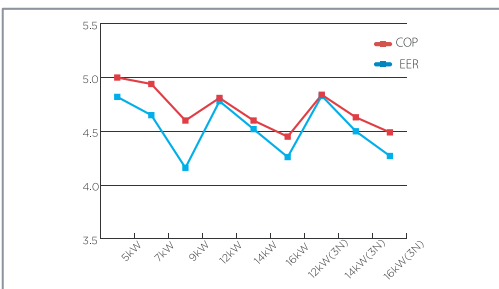
Single rotor Twin rotor

Twin rotary compressor

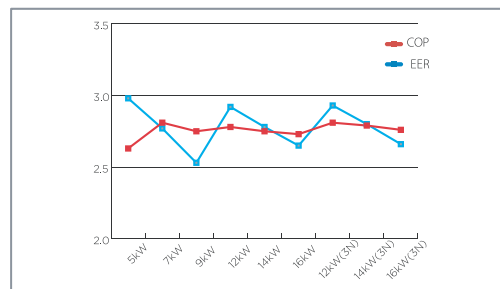
- High efficiency DC motor:
 - Innovative motor core design
 - High density neodymium magnet
 - Concentrated stator
 - Wide operating frequency range
- Better balance and extremely low vibration:
 - Twin eccentric cams
 - 2 balance weights
- Highly stable moving parts:
 - Optimize compressor drive technology
 - Highly robust bearings
 - Compact structure

Spray liquid cooling control of compressor is benefit for enhancing heating capacity in low temperature condition.

Energy Efficiency Mono System



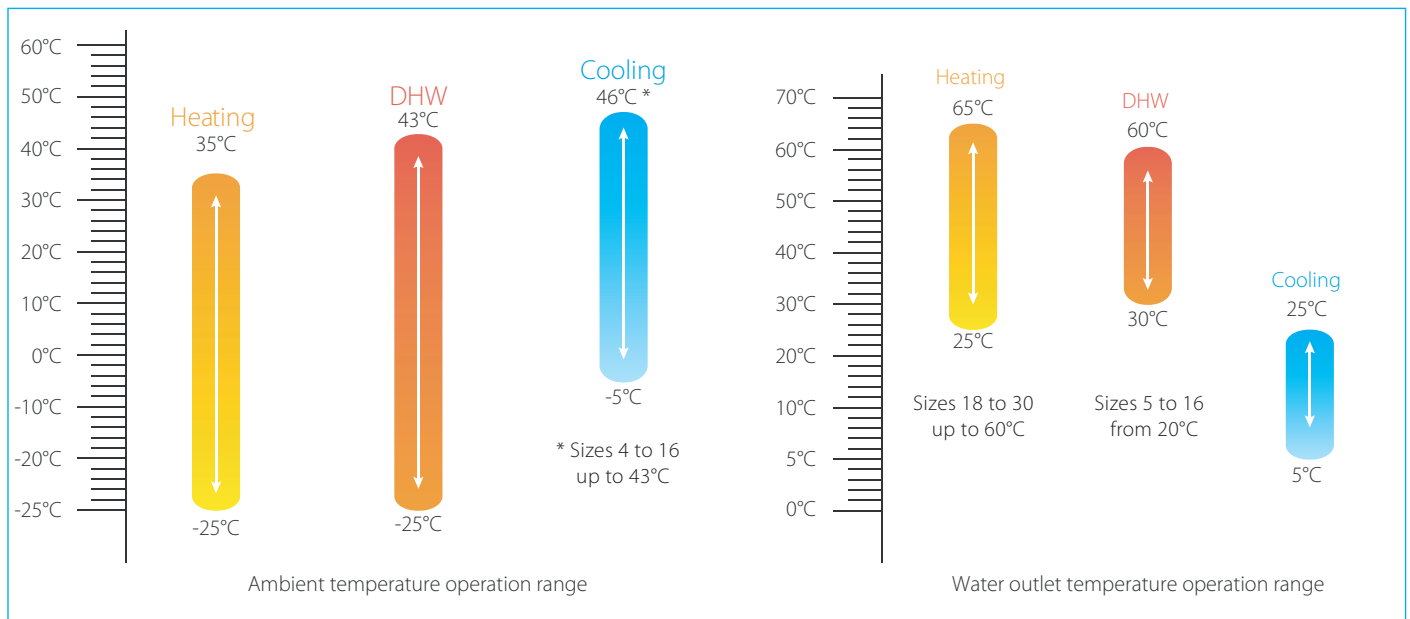
COP test conditions: ambient temp. 7°C; leaving water temp. 35°C
 EER test conditions: ambient temp. 35°C; leaving water temp. 18°C



COP test conditions: ambient temp. 7°C; leaving water temp. 55°C
 EER test conditions: ambient temp. 35°C; leaving water temp. 7°C

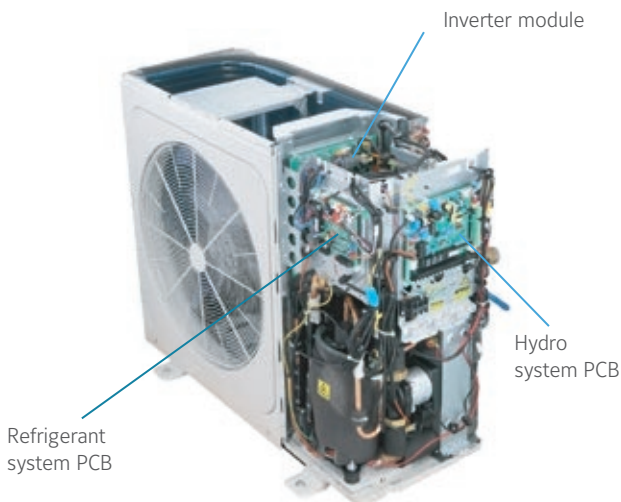
Additional benefits of Mono system

- Heating, cooling and domestic hot water: a total heat solution.
- Delivers 100% heating capacity at -7°C due to the large heat exchanger and compressor.
- Supplemental electric heater is customizable for additional heating during extremely cold weather. The electric heater is an optional external kit on models 5 up to size 16.
- Compatible with additional heat sources including solar water heaters and boilers. Additional heat sources can work together with YKF heat pump or be designated separately for space heating or domestic hot water dependent on the system control.
- Wide ambient and water outlet temperature operation ranges.



Easy installation and easy maintenance

- All hydronic components are located within the outdoor unit.
- Refrigerant system entirely contained within outdoor unit - no additional refrigerant piping required.
- Compact structure, easy for transportation and installation.
- Two-door design for easy access to internal components for easy maintenance.



Anti-explosion PCB is used to enhance the reliability because of R32 mild flammability classification.



Door 1: Access to hydronic components and electrical parts.
 Door 2: Access to refrigerant components and electrical parts.

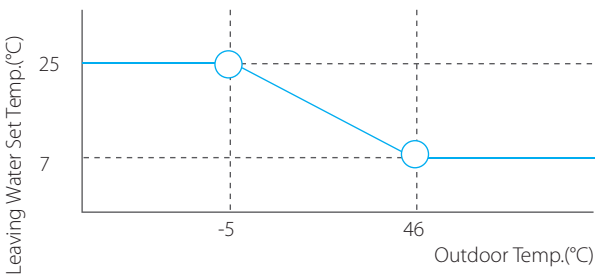
Flexible operation and more comfort

Weather dependent operation with climate correlation to ensure absolute comfort.

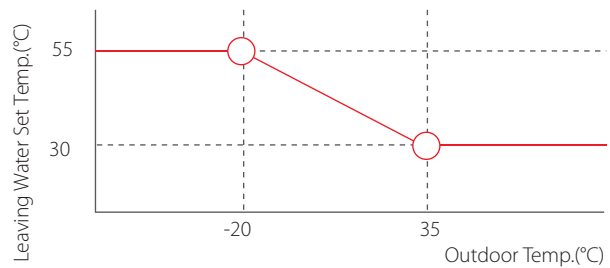
The system controller has 32 climate correlation curves to enable the system to react optimally for your local climate conditions. Once the curve is selected, the unit controls the outlet water temperature automatically according to the outdoor ambient temperature.

Totally there are 32 climate correlation curves for choice. Once the curve is selected, the unit set the outlet water temperature automatically according to the outdoor ambient temperature.

Cooling operation



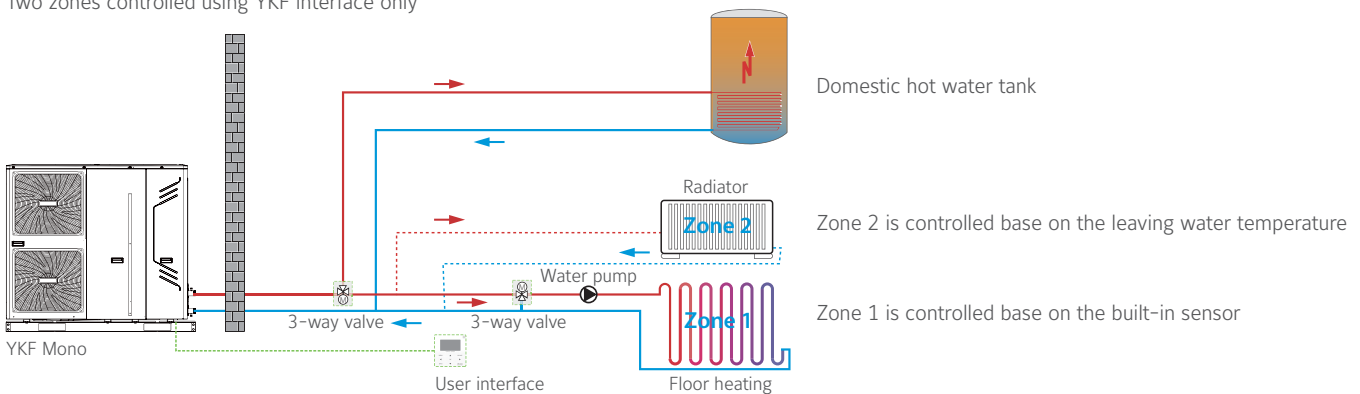
Heating operation



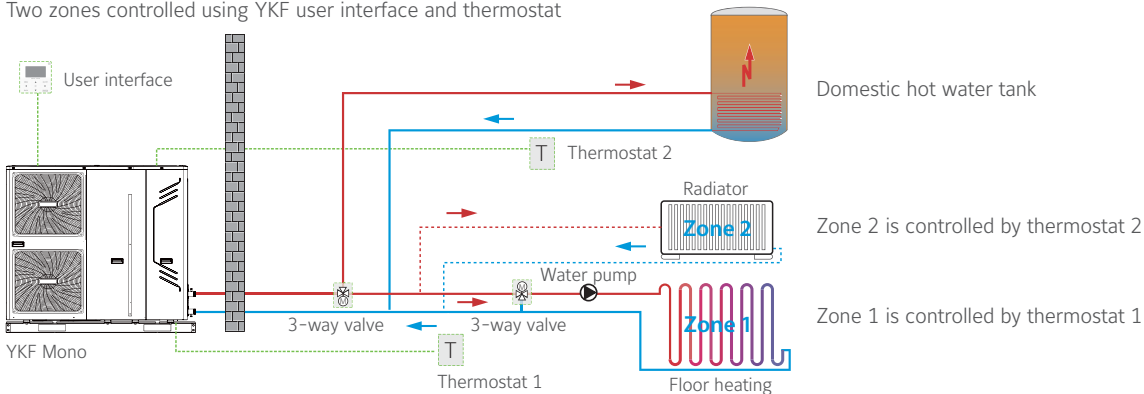
Two zones control more flexibility

Each zone temperature is separately controlled. Dual control reduces water pump operating time and saves energy.

Two zones controlled using YKF interface only



Two zones controlled using YKF user interface and thermostat



Priority setting function and multi modes choice

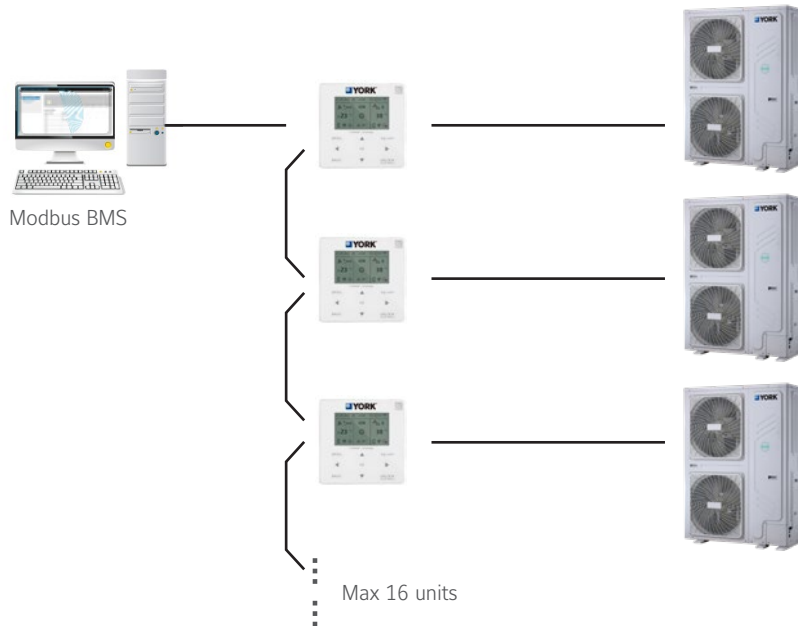


1. Only when the immersion heater of tank is available can the disinfection mode be used.

In addition, there are programs for special functions such as air purge, preheating for floor and floor dehumidification

User interface

- Attractive touch-key wired controller.
- Check running parameters in real time.
- Communication wire length customizable up to 150m.
- Built-in temperature sensor.
- Modbus protocol and network flexibility.



Compact design models 5 to 16

Smaller floor space

- Flexible installation
- Ideal for hotels or replacement project
- Container-carrying capacity optimization

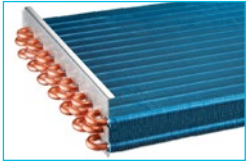
Lighter: 87 kg

- Easier for human transport



**Compact
0.4 m²**

YKF Split High efficiency and wide operating range



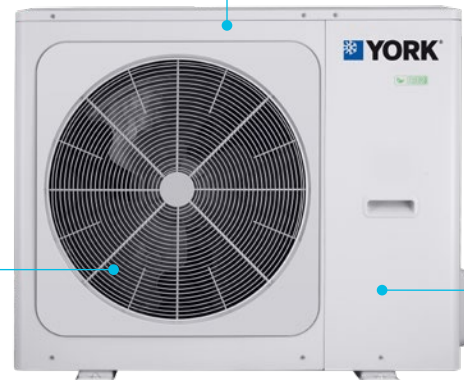
Fin-coil heat exchanger

Air side heat exchanger with copper tubing optimizes heating efficiency. Hydrophilic coating improves condensate drainage, reducing frost accumulation and improving corrosion resistance.



Brushless DC fan motor

BLDC fan motor with stepless control helps to meet heating and cooling demands with low noise fan, super quiet operation, as well low power consumption.



DC inverter compressor

The newly designed twin rotary DC inverter compressor with permanent magnet brings low working sound, wide working frequency and precision control. The upgraded DC motor power system of inverter model forms a full DC frequency conversion system and dramatically reduces power consumption by more than 30%.

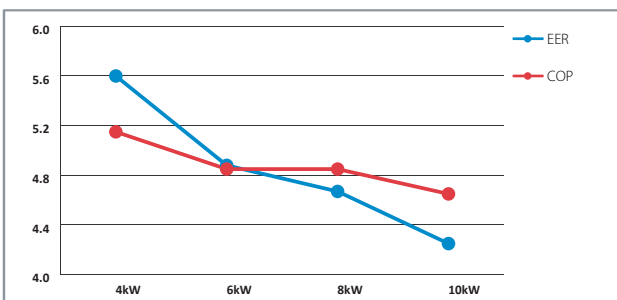
Single rotor Twin rotor

Compressor (Twin Rotary) structure

- High efficiency DC motor:
 - Creative motor core design
 - High density neodymium magnet
 - Concentrated type stator
 - Wider operating frequency range
- Better balance and extremely low vibration:
 - Twin eccentric cams
 - 2 balance weights
- Highly stable moving parts:
 - Optimal material matching rollers and vanes
 - Optimize compressor drive technolog
 - Highly robust bearings
 - Compact structure

Spray liquid cooling control of compressor is benefit for enhancing heating capacity in low temperature condition.

Energy Efficiency Split System



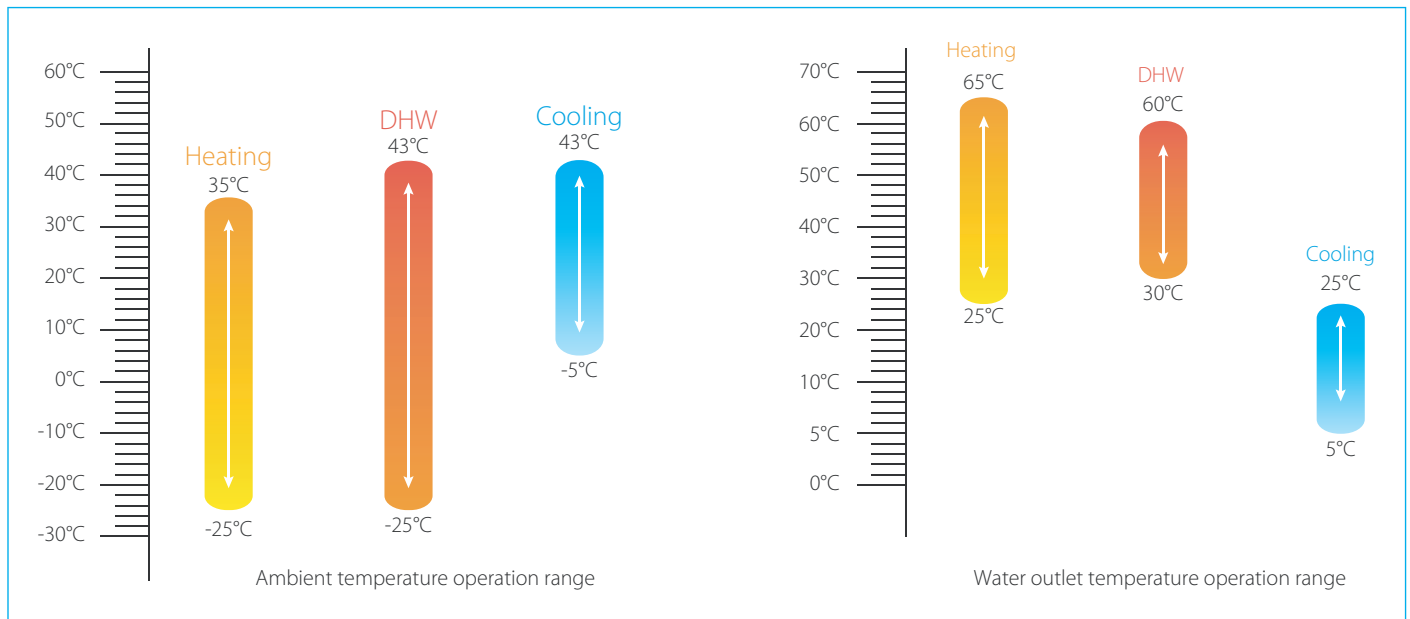
COP tested under: Ambient temp. 7°C/Outlet water temp. 35°C
EER tested under: Ambient temp. 35°C/Outlet water temp. 18°C



COP tested under: Ambient temp. 7°C/Outlet water temp. 55°C
EER tested under: Ambient temp. 35°C/Outlet water temp. 7°C

Additional benefits of Split system

- Heating, cooling and domestic hot water: a total heat solution.
- Delivers 100% heating capacity at -7°C due to the large heat exchanger and compressor.
- Backup electric heater is customizable for additional heating during extremely cold weather. The capacity of the backup electric heater is customizable and the output capacity is adjustable. The backup electric heater is installed in the hydronic box.
- Compatible with additional heat sources including solar water heaters and boilers. Additional heat sources can work together with YKF heat pump or be designated separately for space heating or domestic hot water dependent on the system control.
- Wide ambient and water outlet temperature operation ranges.



Flexible installation and easy maintenance

- Compact structure, independent hydronic box, flexible installation.
- Refrigerant pipes run indoors from the outdoor unit, no need extra insulation of water piping to protect from freezing up.
- Additional refrigerant charge only required if refrigerant piping length exceeds 15m.



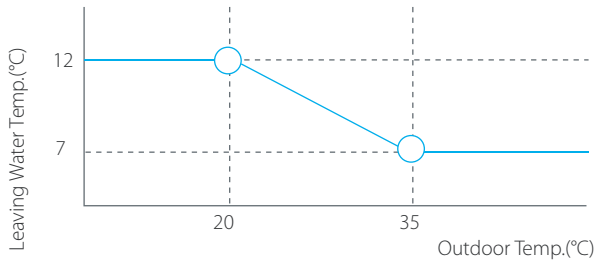
Flexible operation and more comfort

Weather dependent operation with climate correlation to ensure absolute comfort.

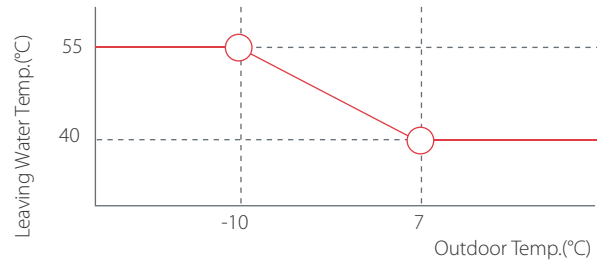
The system controller has 32 climate correlation curves to enable the system to react optimally for your local climate conditions. Once the curve is selected, the unit controls the outlet water temperature automatically according to the outdoor ambient temperature.

Totally there are 32 climate correlation curves for choice and custom curve is optional. Once the curve is selected, the unit set the outlet water temperature automatically according to the outdoor ambient temperature.

Cooling operation



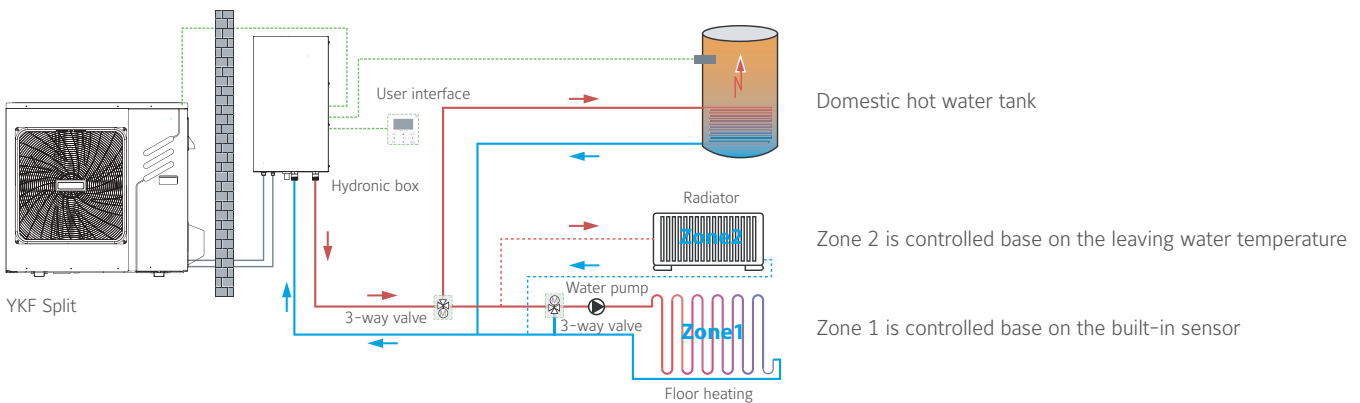
Heating operation



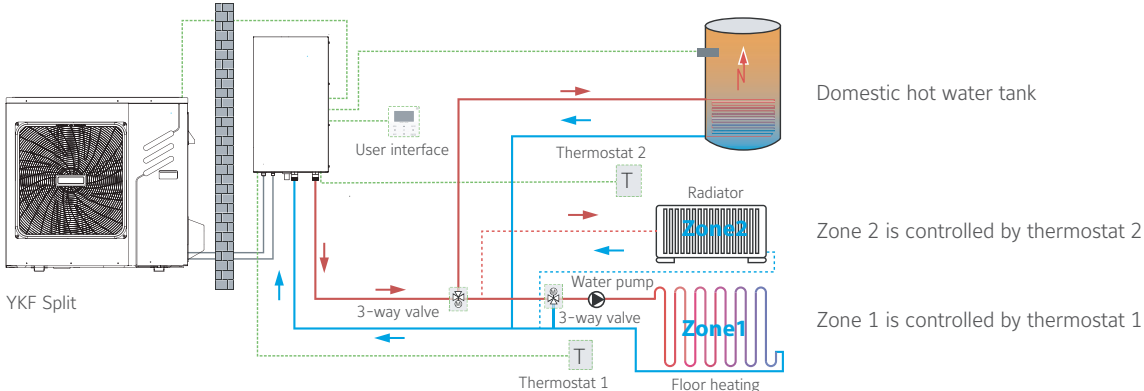
Two zones control more flexibility

Temperature of each zone is separately controlled. Two zones control reduces water pump cycle time and save energy.

Two zones controlled using YKF interface only



Two zones controlled using YKF user interface and thermostat



Priority setting function and multi modes choice

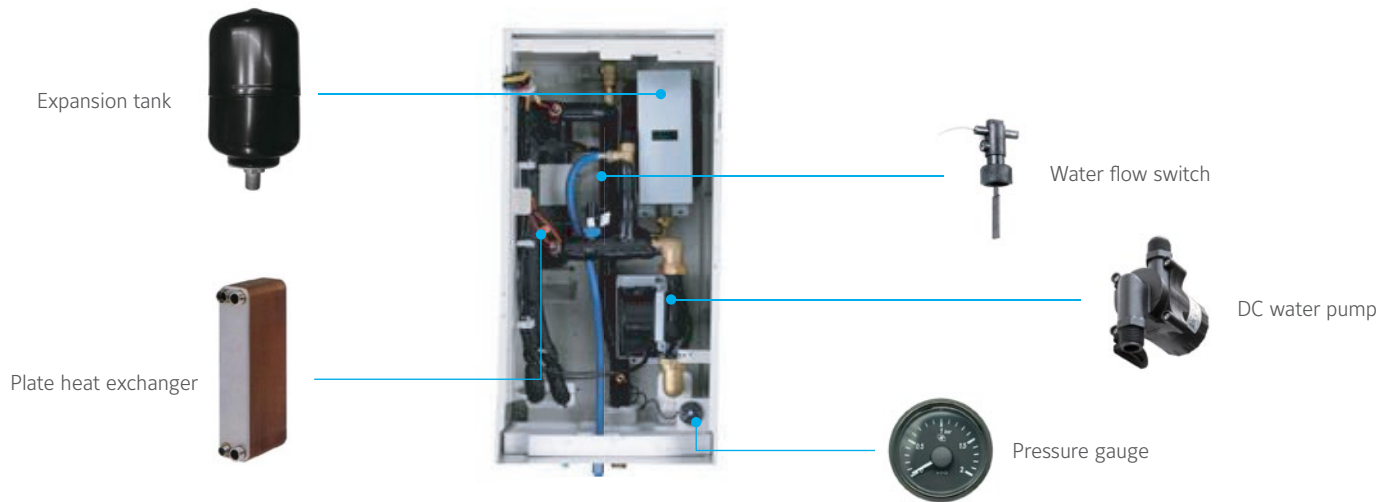
								
Cooling Operation Priority	Space Heating Operation Priority	DHW Operation Priority	AUTO mode	Disinfect mode ¹	Holiday mode	Forced DHW mode	Eco mode	Silent mode

1. Only when the immersion heater of tank is available can the disinfection mode be used.

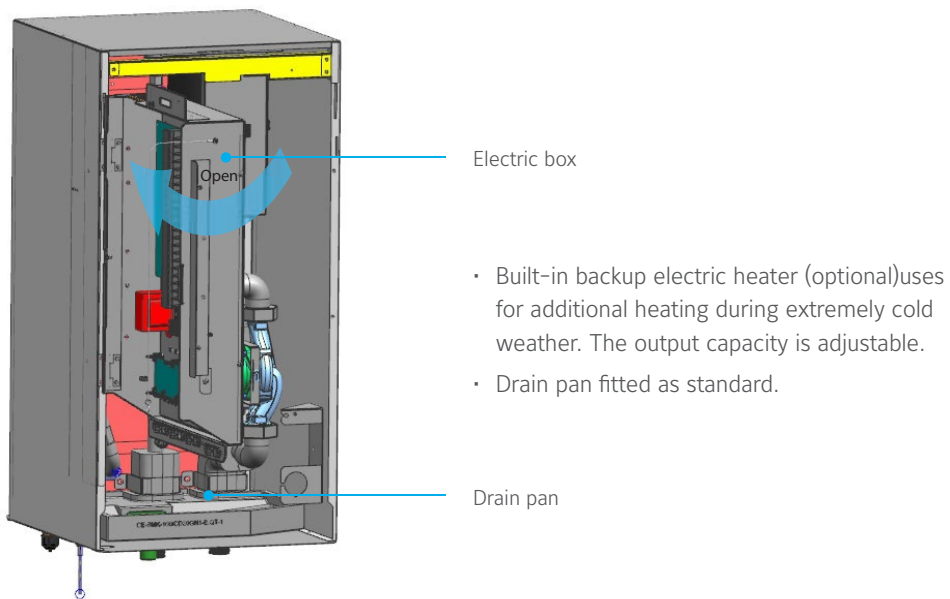
In addition, there are programs for special functions such as air purge, preheating for floor and floor dehumidification

Hydronic box

Integrated water-side heat exchange solution for easy installation.

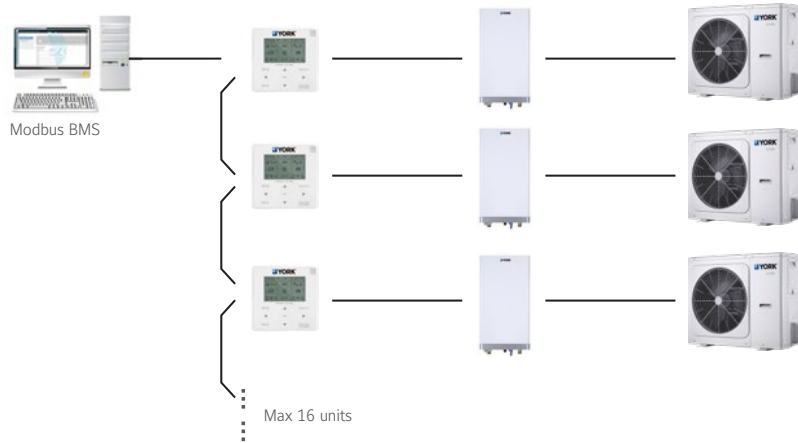


Rotating electric control box enables easy maintenance access to all hydronic components.



User interface

- Attractive touch-key wired controller.
- Check running parameters in real time.
- Communication wire length customizable up to 150m.
- Built-in temperature sensor.
- Modbus protocol and network flexibility.



Smart Grid function

Unit adjusts the operation according to different electrical signals to deliver energy savings

- Free or Low Cost Electric energy signal: Domestic Hot Water (DHW) mode on, the setting temperature elevates to 70°C automatically, and the Tank Booster Heater (TBH) operates as follows: Tank temperature sensor (T5)<69. the TBH is on, T5≥70, the TBH is off. The unit operate in cooling/heating mode as the normal logic.
- Common electric energy signal: unit operates according to users' need.
- Expensive electric energy signal: only available for cooling or heating mode and user can set the maximum operating temperature.

Smartphone app control

- Remote control function
- Check the running state, change zones, operation mode and temperature
- Set operation mode and temperature of each zone
- Display fault information

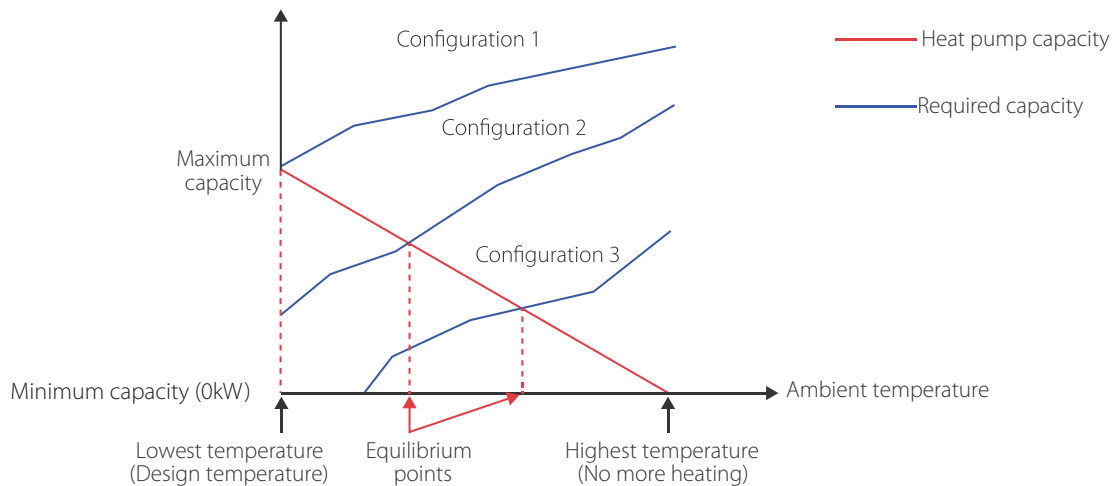


Typical Applications

System configurations

YKF system can be configured to run with the electric heater either (if available - optional) enabled or disabled and can also be used in conjunction with an auxiliary heat source such as a boiler.

The chosen configuration affects the size of heat pump that is required. Three typical configurations are described:



Configuration 1: Heat pump only

- The heat pump covers the total heating demand and no extra heaters are necessary
- Requires selection of a larger capacity heat pump and a higher initial investment
- Ideal for new construction in projects where energy efficiency is the top priority

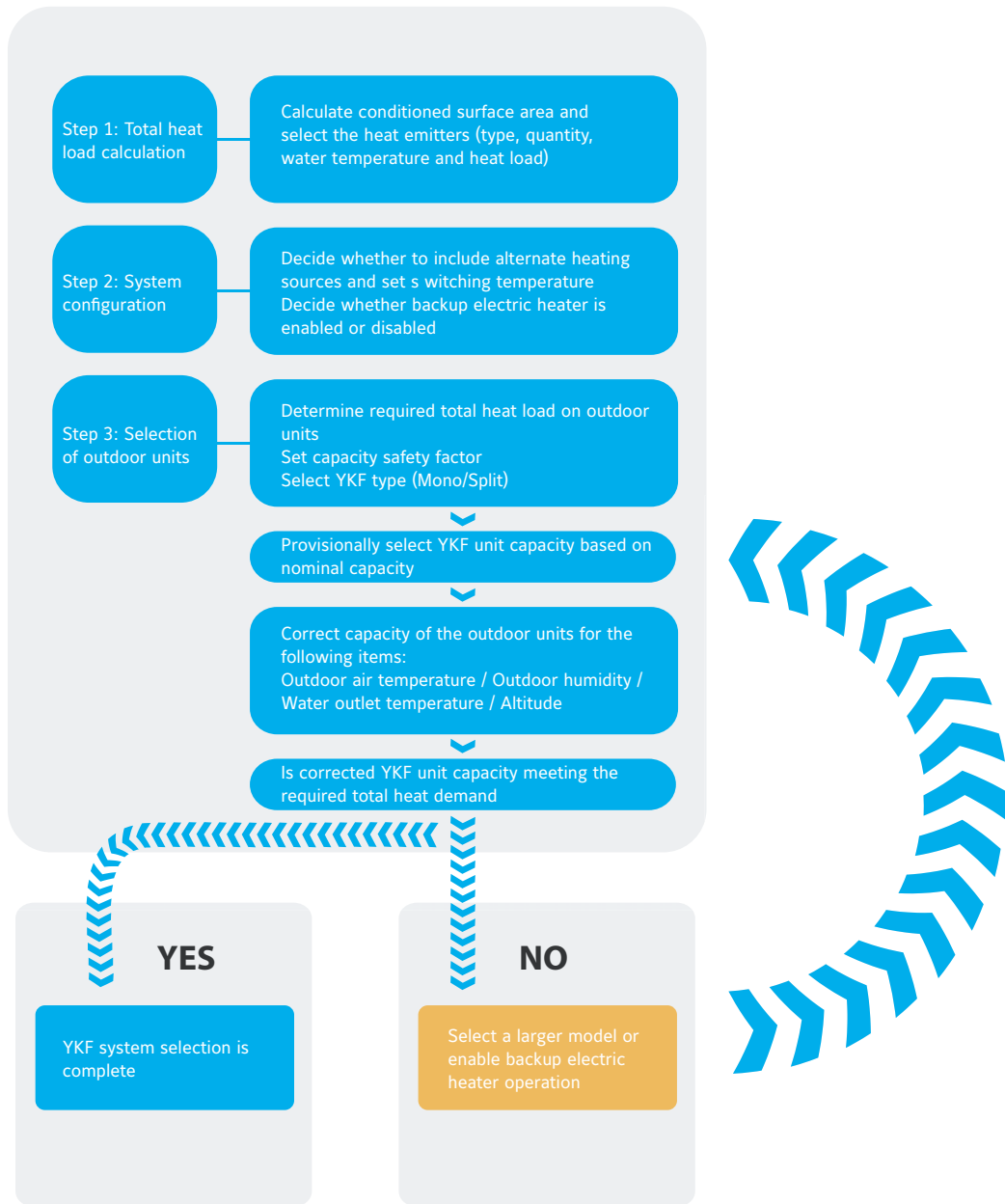
Configuration 2: Heat pump with backup electric heater (optional)

- Heat pump covers the heating demand above a certain ambient temperature
- When the ambient temperature is below this equilibrium point, the backup electric heater supplies the required additional heating
- Best balance between initial investment and running costs, results in lowest lifecycle cost
- Ideal for new construction

Configuration 3: Heat pump with auxiliary heat source

- Heat pump covers the heating demand above a certain ambient temperature
- When the ambient temperature is below this equilibrium point, either the auxiliary heat source supplies the required additional heating or the heat pump does not run and the auxiliary heat source covers the entire capacity.
- Enables selection of lower capacity heat pump
- Ideal for refurbishments and upgrades

Selection Procedure



Leaving Water Temperature (LWT)

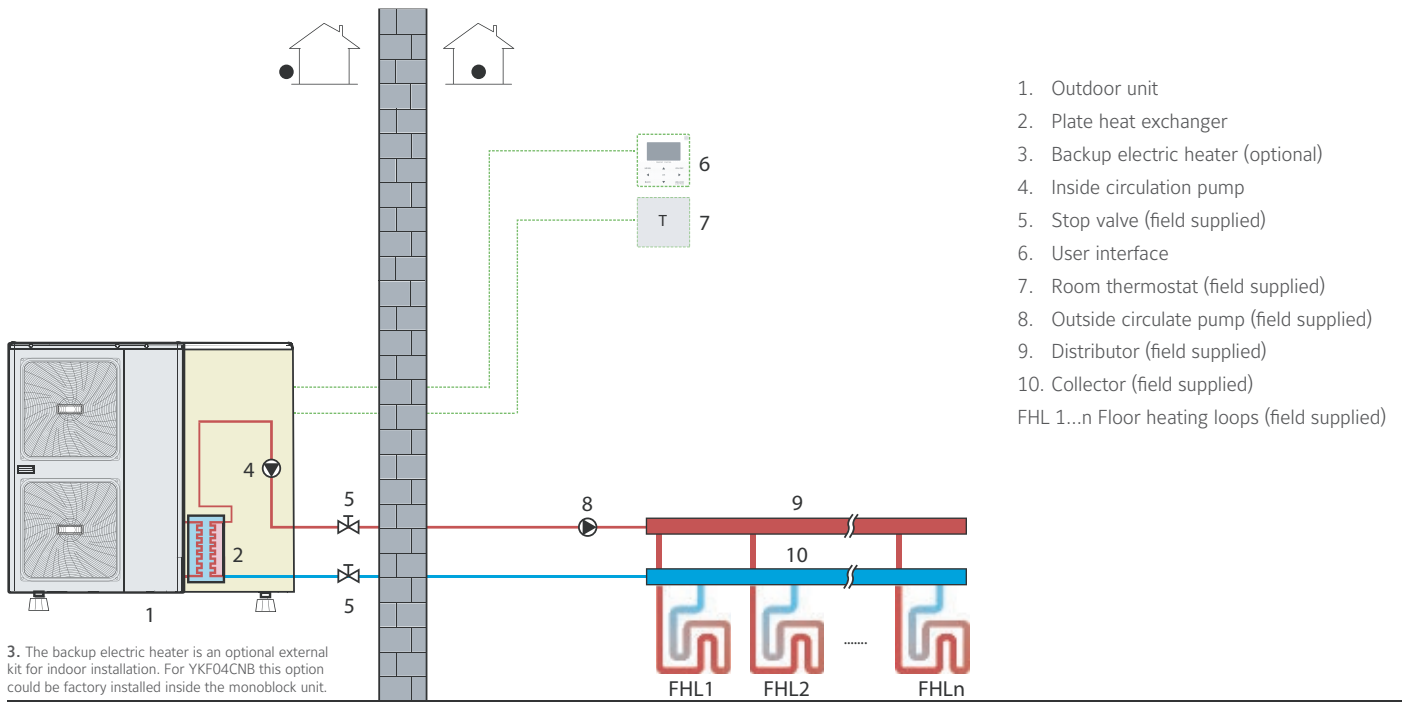
The recommended design LWT ranges for different types of heating terminal are:

- For floor heating: 30°C to 35°C
- For fan coil units: 30°C to 45°C
- For low temperature radiators: 40°C to 50°C

YKF Mono

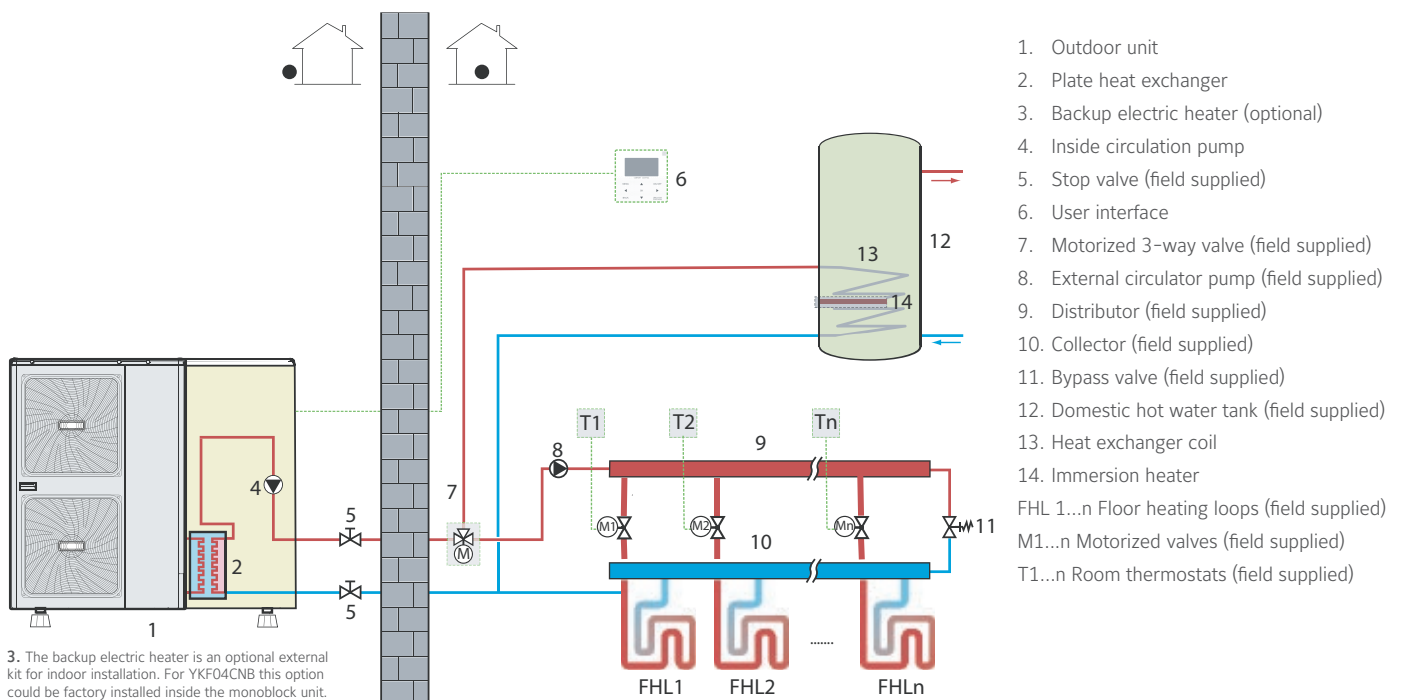
Application 1: Space Heating Only

The room thermostat is used as a switch. When there is a heating request from the room thermostat, the Mono unit operates to achieve the target water temperature set on the user interface. When the room temperature reaches the thermostat's set temperature, the unit stops.



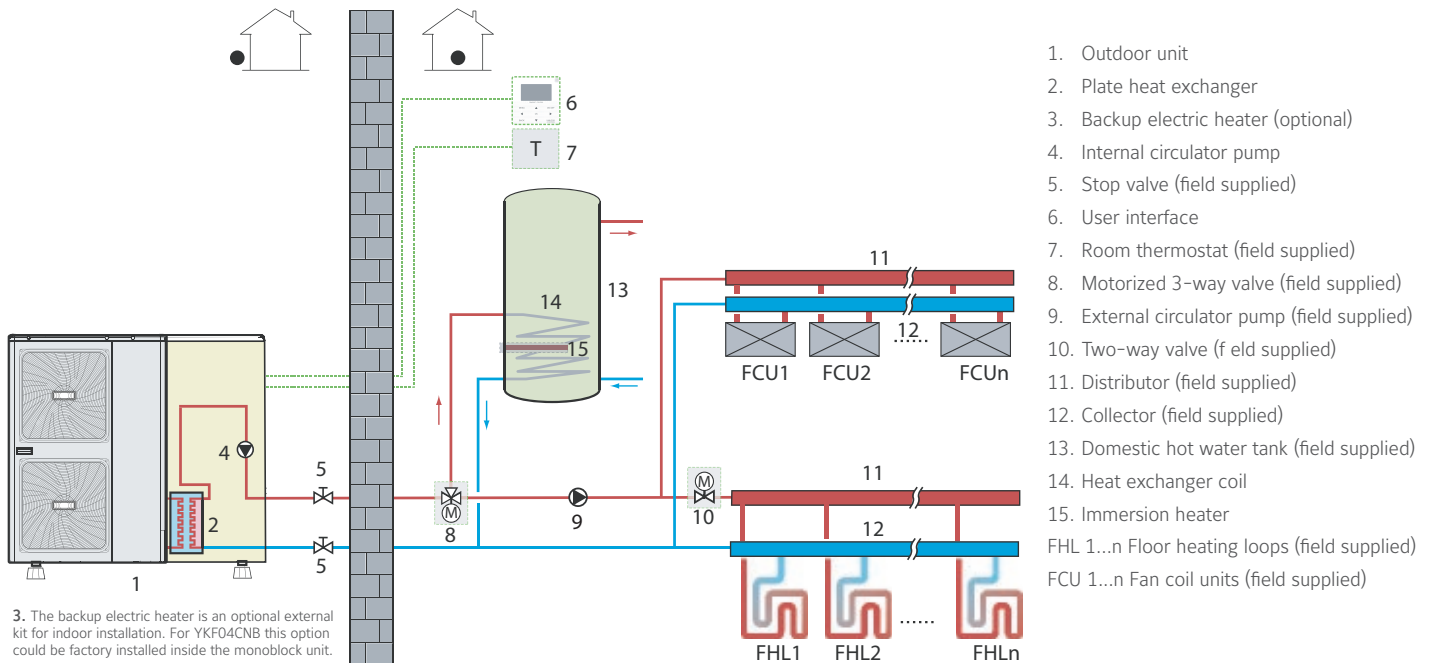
Application 2: Space Heating and Domestic Hot Water

The room thermostats are not connected to the Mono unit but to a motorized valve. Each room's temperature is regulated by the motorized valve on its water circuit. Domestic hot water is supplied from the domestic hot water tank connected to the Mono unit. A bypass valve is required.



Application 3: Space Heating, Space Cooling and Domestic Hot Water

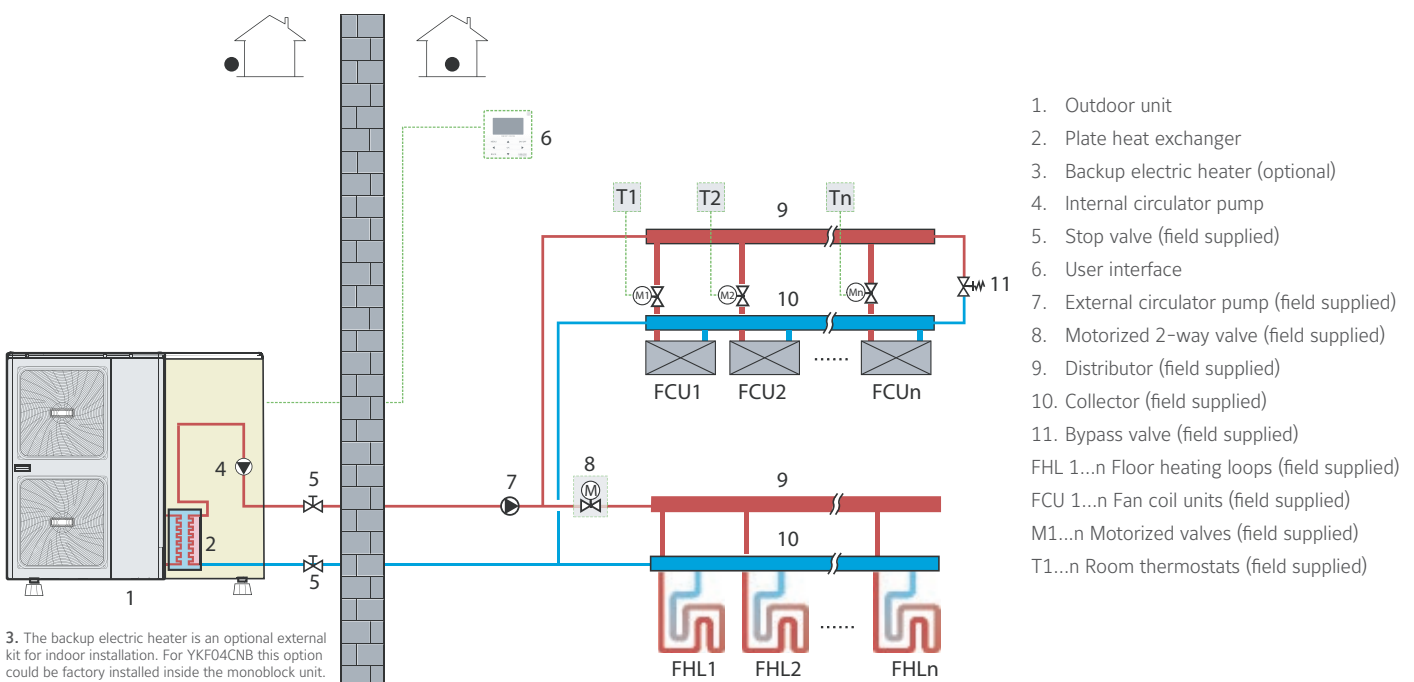
Floor heating loops and fan coil units are used for space heating and fan coil units are used for space cooling. Domestic hot water is supplied from the domestic hot water tank connected to the Mono unit. The unit switches to heating or cooling mode according to the temperature detected by the room thermostat. In space cooling mode, the 2-way valve is closed to prevent cold water entering the floor heating loops.



- 1. Outdoor unit
- 2. Plate heat exchanger
- 3. Backup electric heater (optional)
- 4. Internal circulator pump
- 5. Stop valve (field supplied)
- 6. User interface
- 7. Room thermostat (field supplied)
- 8. Motorized 3-way valve (field supplied)
- 9. External circulator pump (field supplied)
- 10. Two-way valve (field supplied)
- 11. Distributor (field supplied)
- 12. Collector (field supplied)
- 13. Domestic hot water tank (field supplied)
- 14. Heat exchanger coil
- 15. Immersion heater
- FHL 1...n Floor heating loops (field supplied)
- FCU 1...n Fan coil units (field supplied)

Application 4: Space Heating and Space Cooling

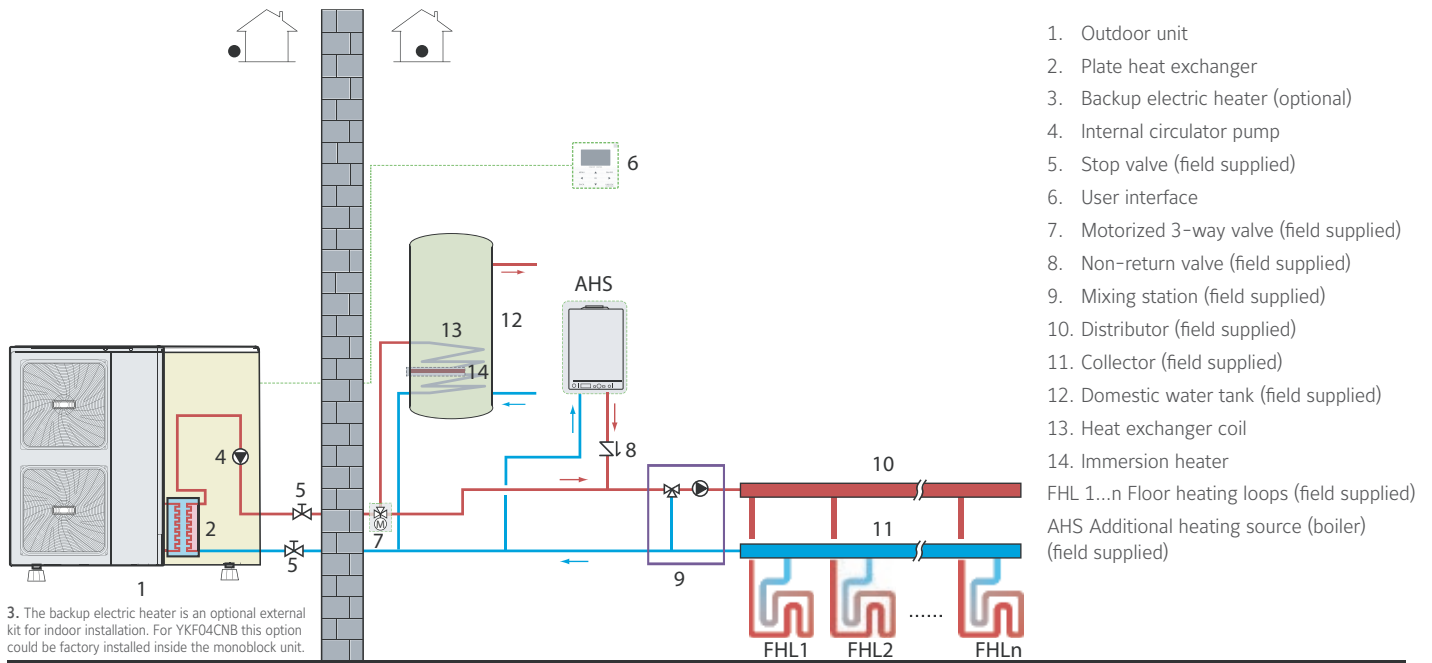
Floor heating loops and fan coil units are used for space heating and fan coil units are used for space cooling. The room thermostats are not connected to the Mono unit but are connected to the fan coil units.



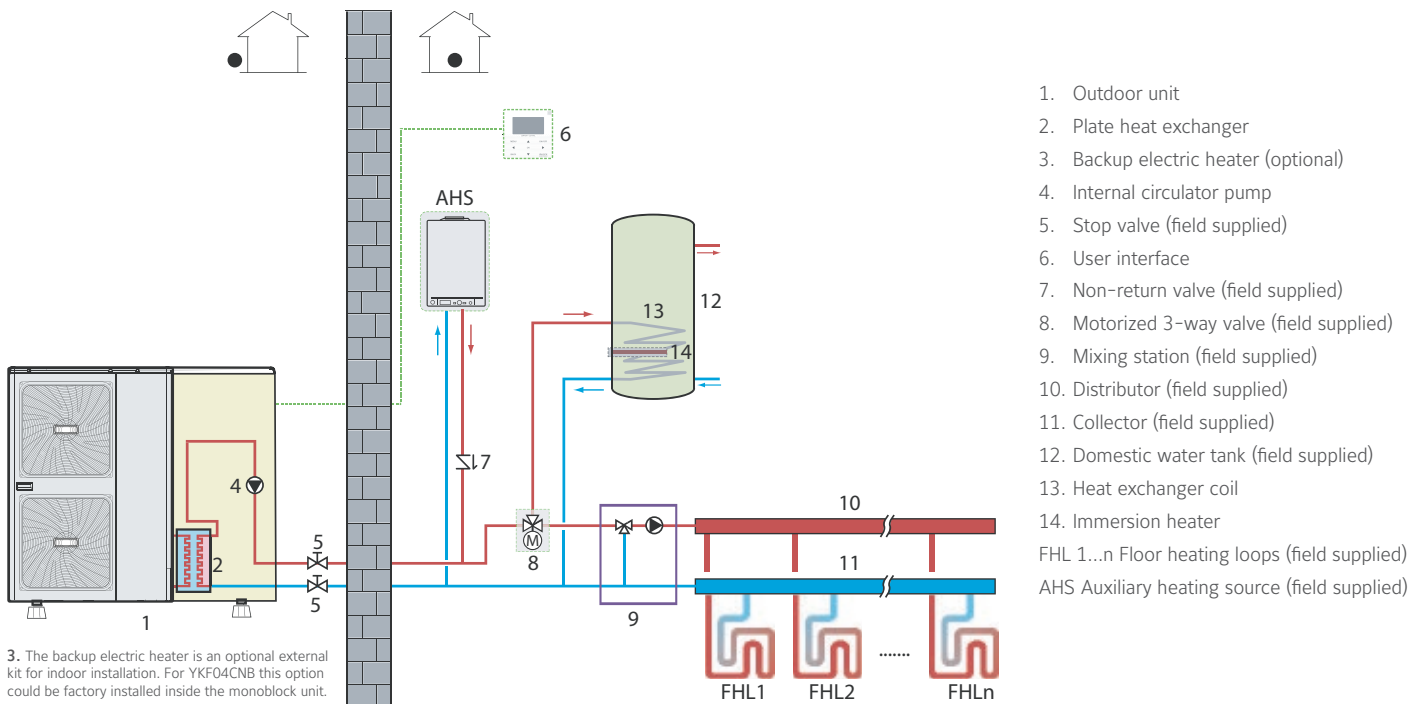
- 1. Outdoor unit
- 2. Plate heat exchanger
- 3. Backup electric heater (optional)
- 4. Internal circulator pump
- 5. Stop valve (field supplied)
- 6. User interface
- 7. External circulator pump (field supplied)
- 8. Motorized 2-way valve (field supplied)
- 9. Distributor (field supplied)
- 10. Collector (field supplied)
- 11. Bypass valve (field supplied)
- FHL 1...n Floor heating loops (field supplied)
- FCU 1...n Fan coil units (field supplied)
- M1...n Motorized valves (field supplied)
- T1...n Room thermostats (field supplied)

Application 5: Space Heating and Domestic Hot Water (Bivalent)

5-1 Auxiliary heat source provides space heating only

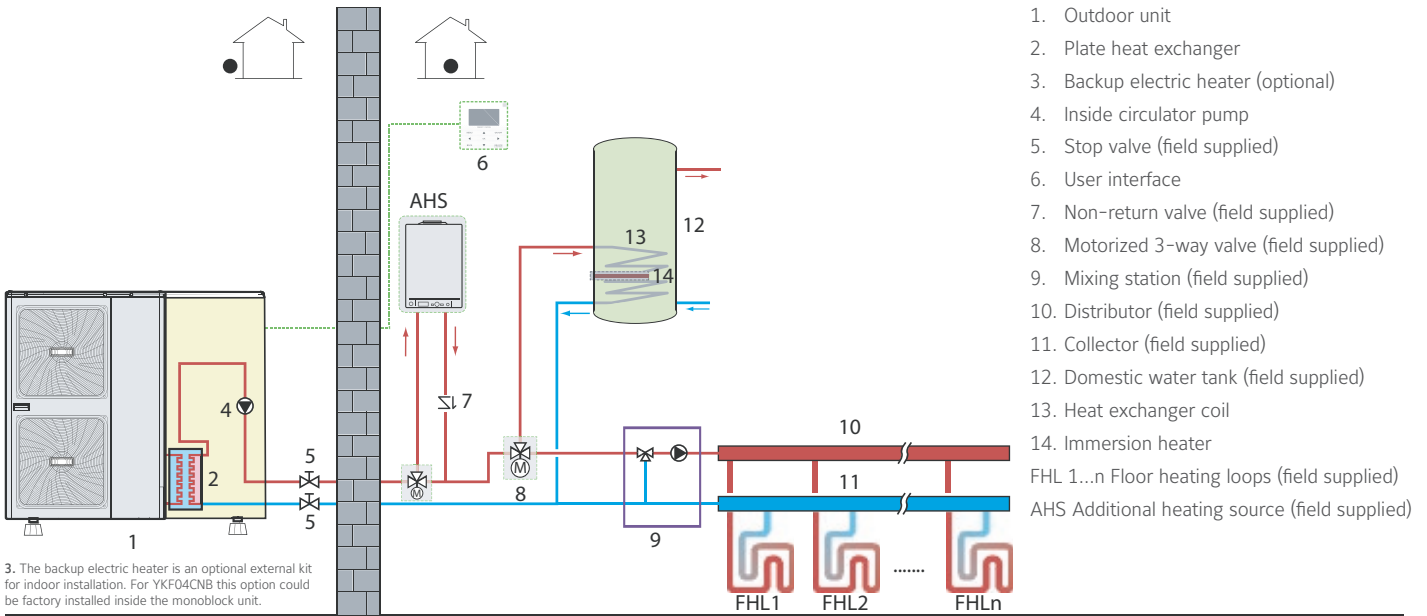


5-2 Auxiliary heat source provides space heating and domestic hot water



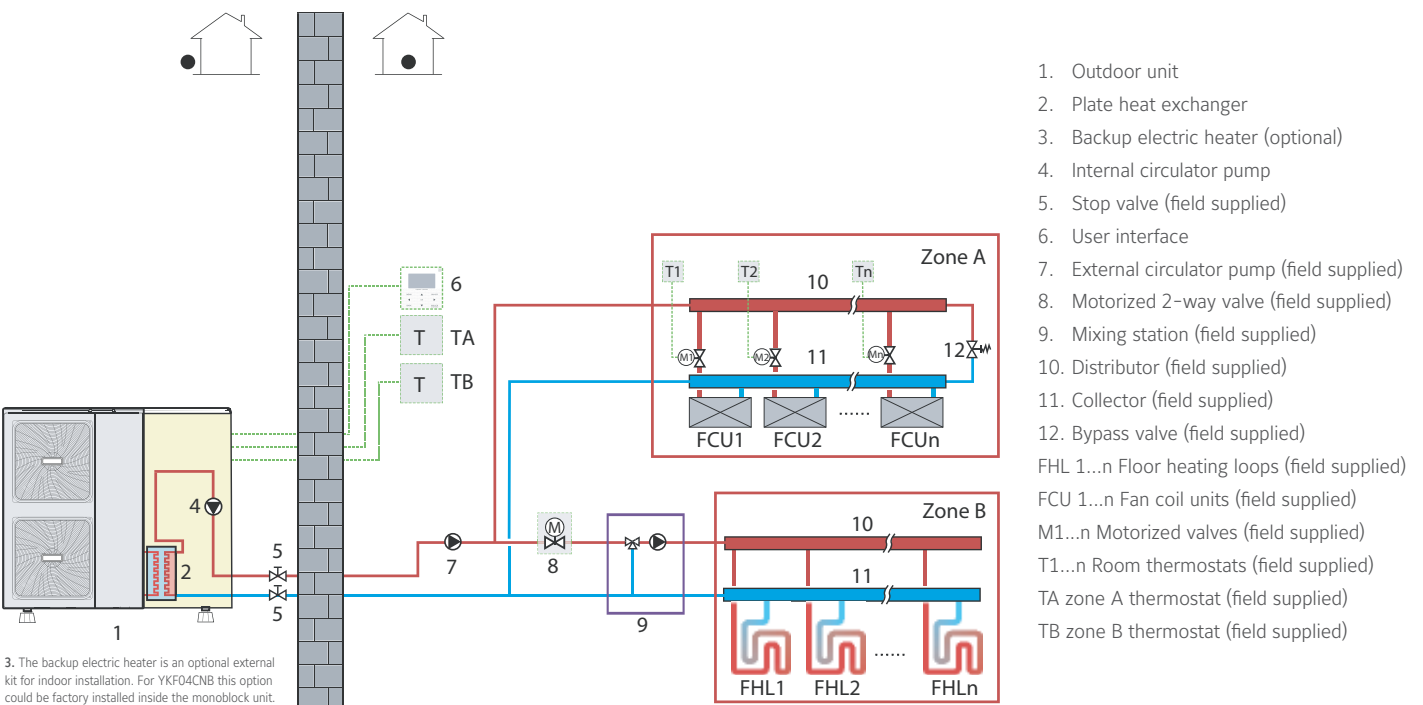
5-3 Auxiliary heat source provides additional heating

If the Mono unit's outlet temperature is too low, the auxiliary heat source provides additional heating to raise the water temperature to the set temperature. An additional 3-way valve is required. When the Mono unit's outlet temperature is too low, the 3-way valve is open and the water flows through the auxiliary heat source. When the Mono unit's outlet temperature is high enough, the 3-way valve is closed.



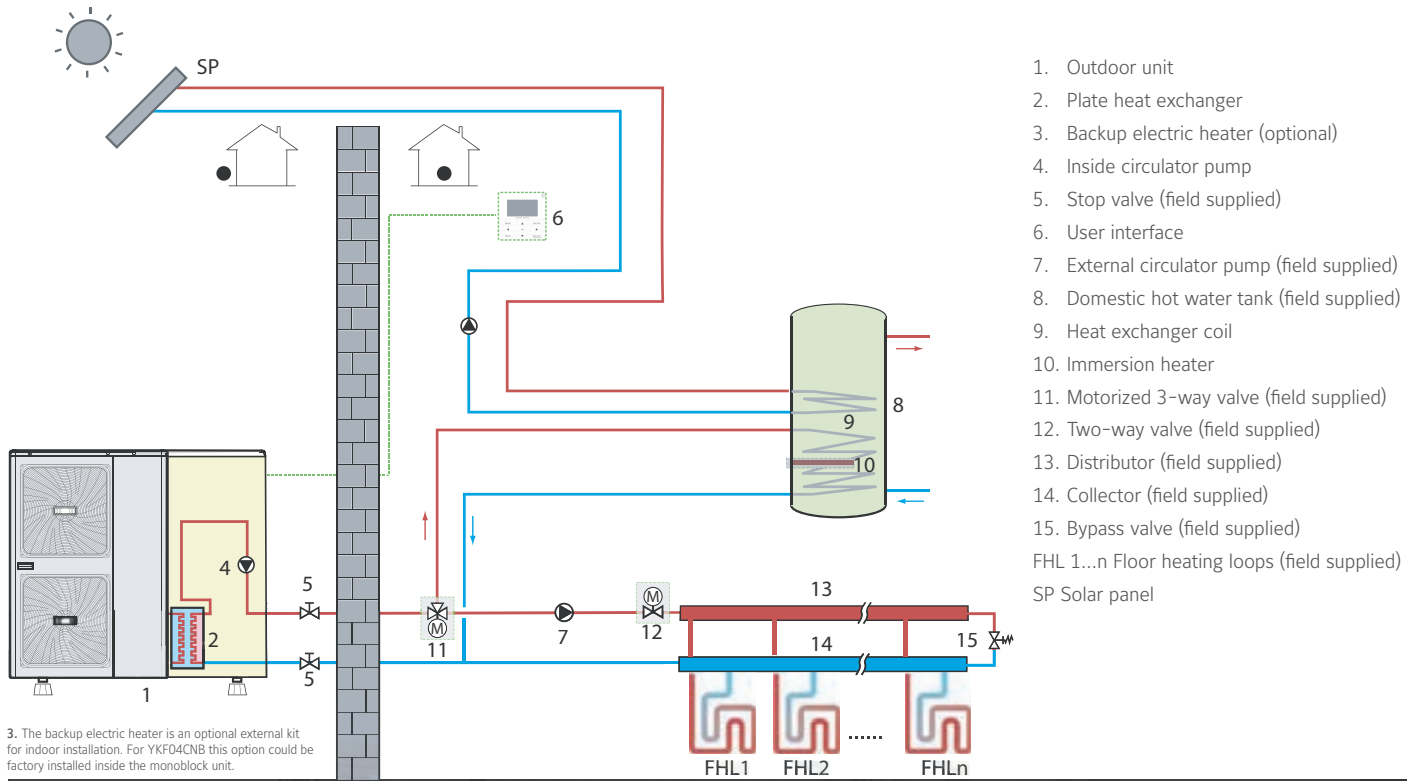
Application 6: Space Heating Through Floor Heating Loops and Fan Coil Units

Dual setpoint function application with or without two room thermostat connect to the outdoor unit. The floor heating loops and fan coil units require different operating water temperatures. To achieve these two set points, a mixing station is required. Room thermostats for each zone are optional.



Application 7: Space Heating and Domestic Hot Water Heating with a solar energy kit

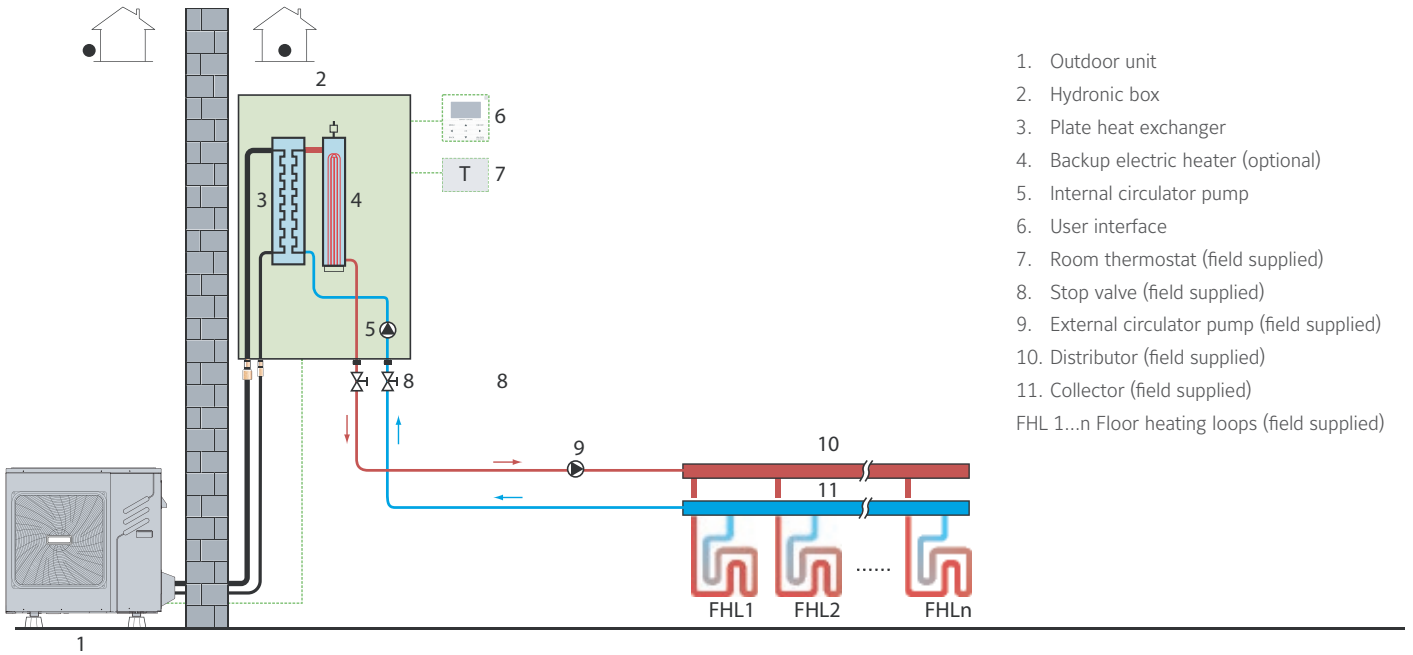
Space heating application and domestic hot water heating with a solar energy kit connected to the system; space heating is provided by heat pump, domestic hot water heating is provided by heat pump and solar energy kit.



YKF Split

Application 1: Space Heating Only

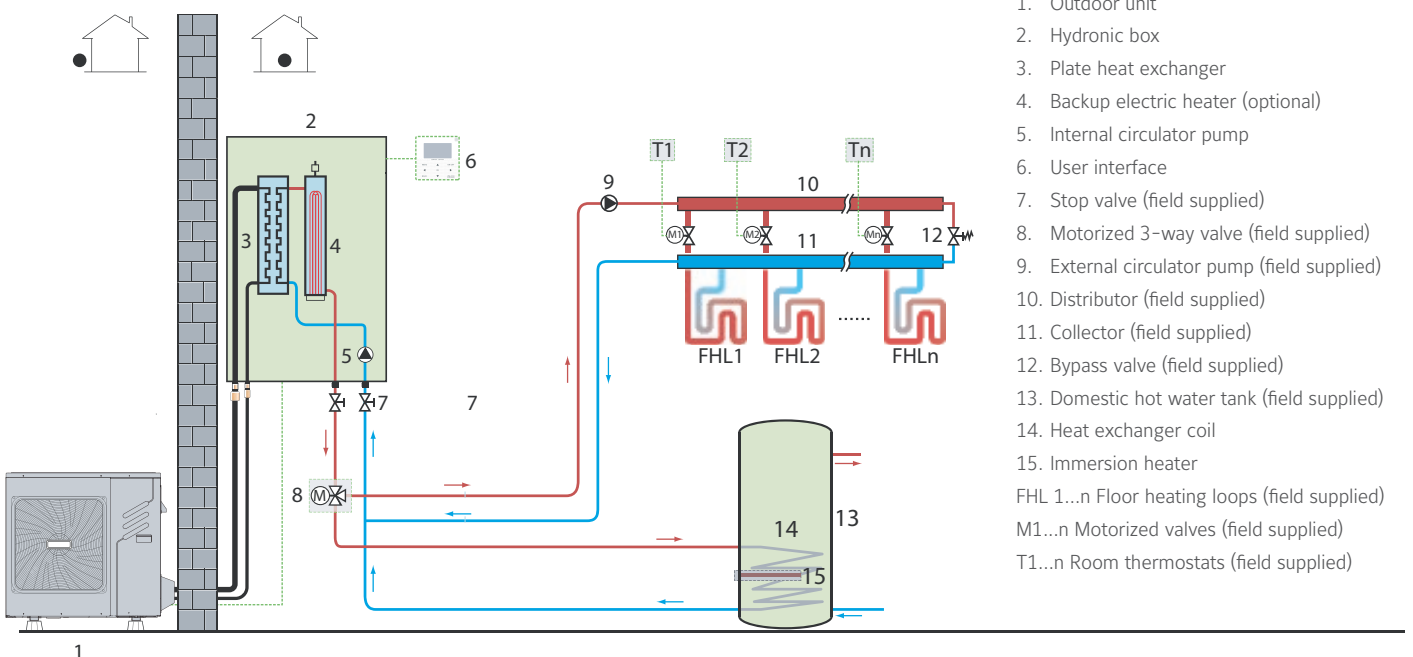
The room thermostat is used as a switch. When there is a heating request from the room thermostat, the unit operates to achieve the target water temperature set on the user interface. When the room temperature reaches the thermostat's set temperature, the unit stops.



- 1. Outdoor unit
- 2. Hydronic box
- 3. Plate heat exchanger
- 4. Backup electric heater (optional)
- 5. Internal circulator pump
- 6. User interface
- 7. Room thermostat (field supplied)
- 8. Stop valve (field supplied)
- 9. External circulator pump (field supplied)
- 10. Distributor (field supplied)
- 11. Collector (field supplied)
- FHL 1...n Floor heating loops (field supplied)

Application 2: Space Heating and Domestic Hot Water

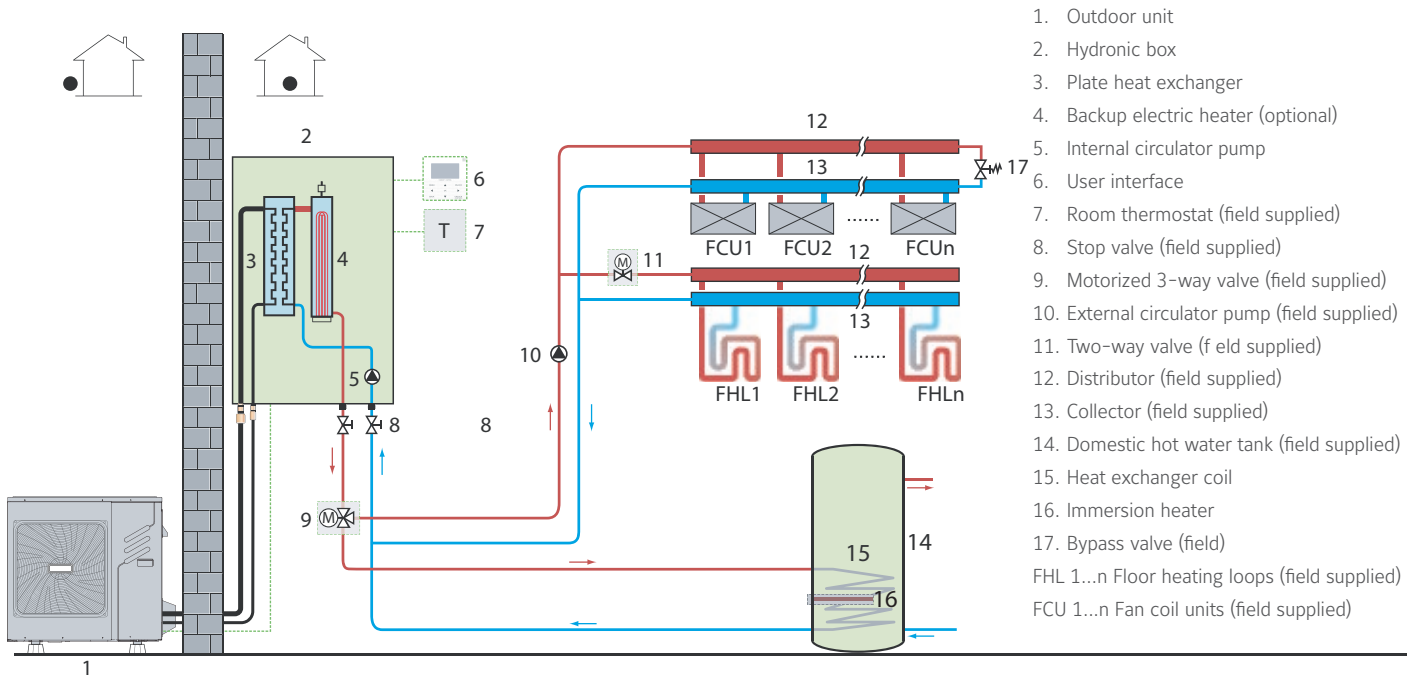
The room thermostats are not connected to the hydronic box but to a motorized valve. Each room's temperature is regulated by the motorized valve on its water circuit. Domestic hot water is supplied from the domestic hot water tank connected to the hydronic box. A bypass valve is required.



- 1. Outdoor unit
- 2. Hydronic box
- 3. Plate heat exchanger
- 4. Backup electric heater (optional)
- 5. Internal circulator pump
- 6. User interface
- 7. Stop valve (field supplied)
- 8. Motorized 3-way valve (field supplied)
- 9. External circulator pump (field supplied)
- 10. Distributor (field supplied)
- 11. Collector (field supplied)
- 12. Bypass valve (field supplied)
- 13. Domestic hot water tank (field supplied)
- 14. Heat exchanger coil
- 15. Immersion heater
- FHL 1...n Floor heating loops (field supplied)
- M1...n Motorized valves (field supplied)
- T1...n Room thermostats (field supplied)

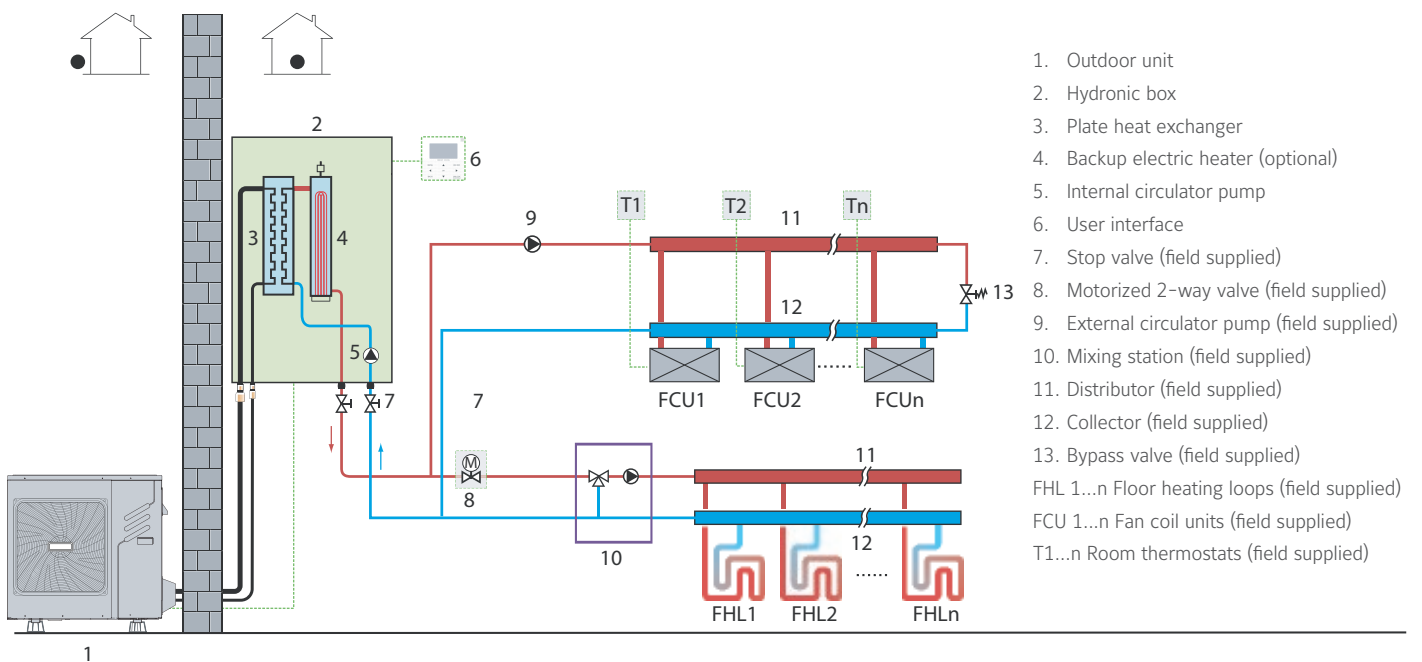
Application 3: Space Heating, Space Cooling and Domestic Hot Water

Floor heating loops and fan coil units are used for space heating and fan coil units are used for space cooling. Domestic hot water is supplied from the domestic hot water tank connected to the hydronic box. The unit switches to heating or cooling mode according to the temperature detected by the room thermostat. In space cooling mode, the 2-way valve is closed to prevent cold water entering the floor heating loops.



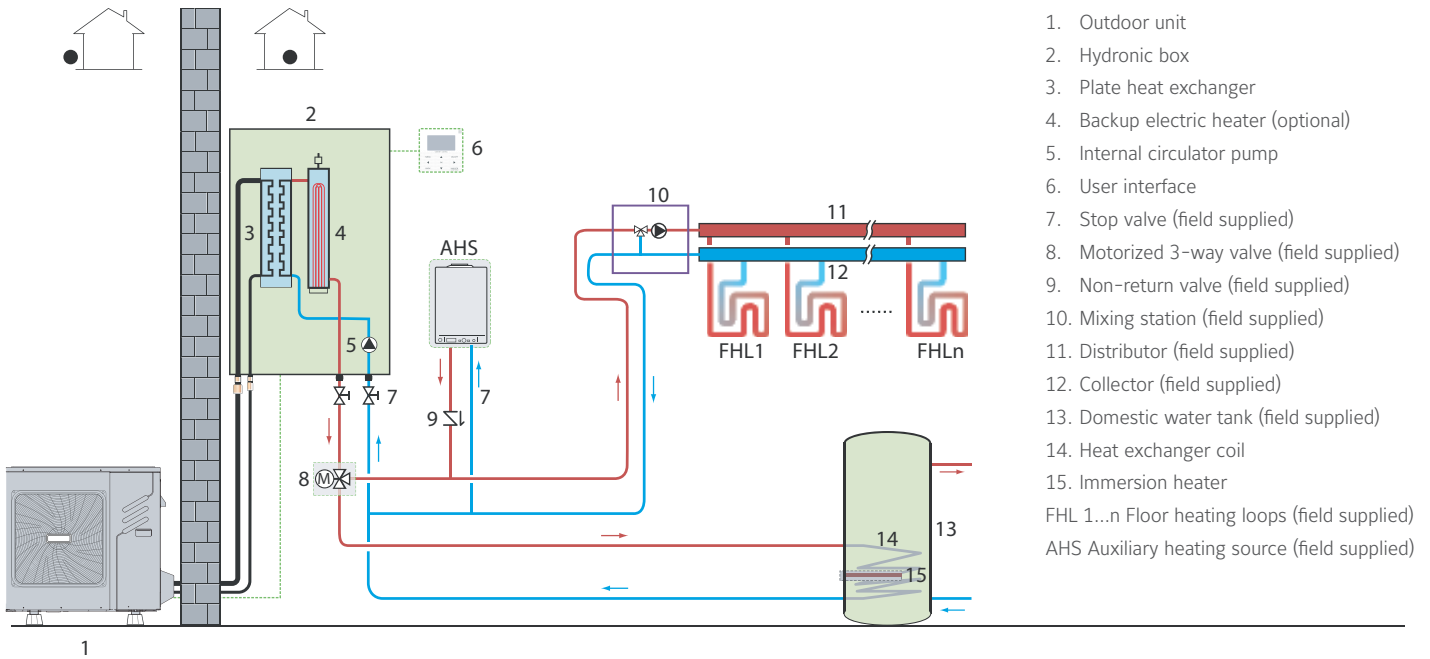
Application 4: Space Heating and Space Cooling

Floor heating loops and fan coil units are used for space heating and fan coil units are used for space cooling. The room thermostats are not connected to the hydronic box but are connected to the fan coil units.



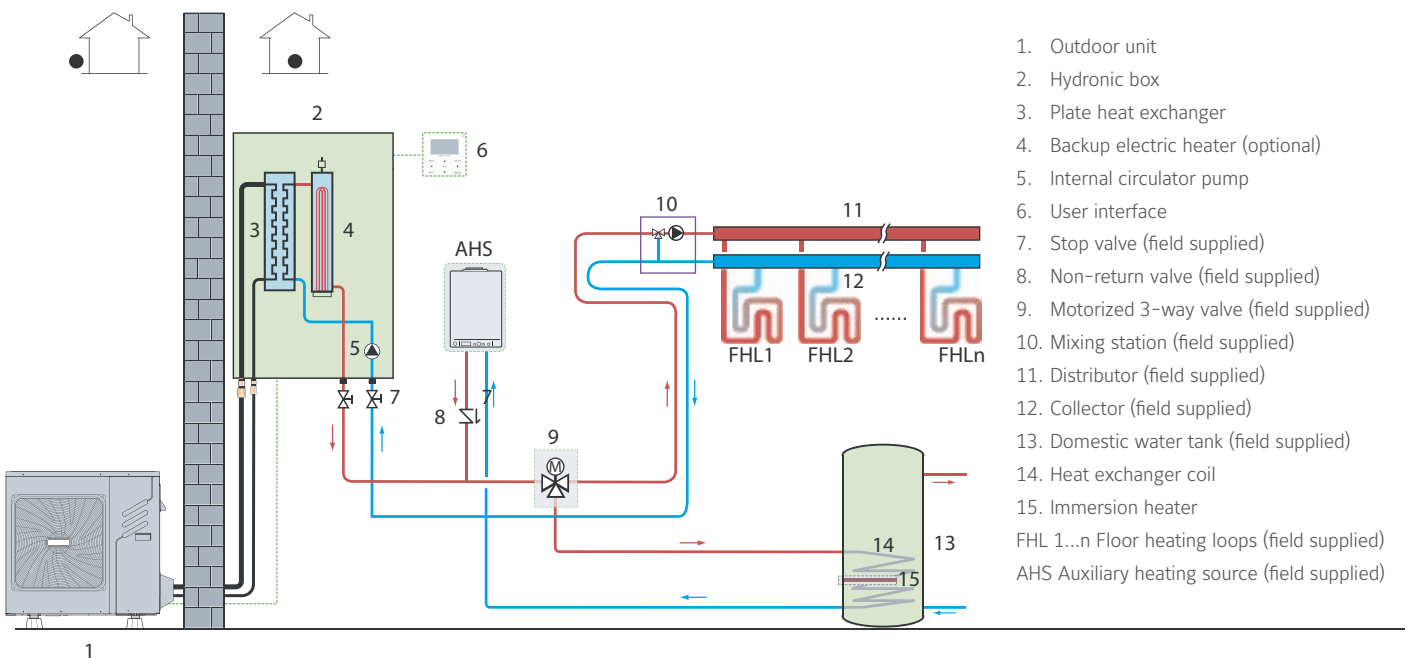
Application 5: Space Heating and Domestic Hot Water (Bivalent)

5-1 Auxiliary heat source provides space heating only



- 1. Outdoor unit
- 2. Hydronic box
- 3. Plate heat exchanger
- 4. Backup electric heater (optional)
- 5. Internal circulator pump
- 6. User interface
- 7. Stop valve (field supplied)
- 8. Motorized 3-way valve (field supplied)
- 9. Non-return valve (field supplied)
- 10. Mixing station (field supplied)
- 11. Distributor (field supplied)
- 12. Collector (field supplied)
- 13. Domestic water tank (field supplied)
- 14. Heat exchanger coil
- 15. Immersion heater
- FHL 1...n Floor heating loops (field supplied)
- AHS Auxiliary heating source (field supplied)

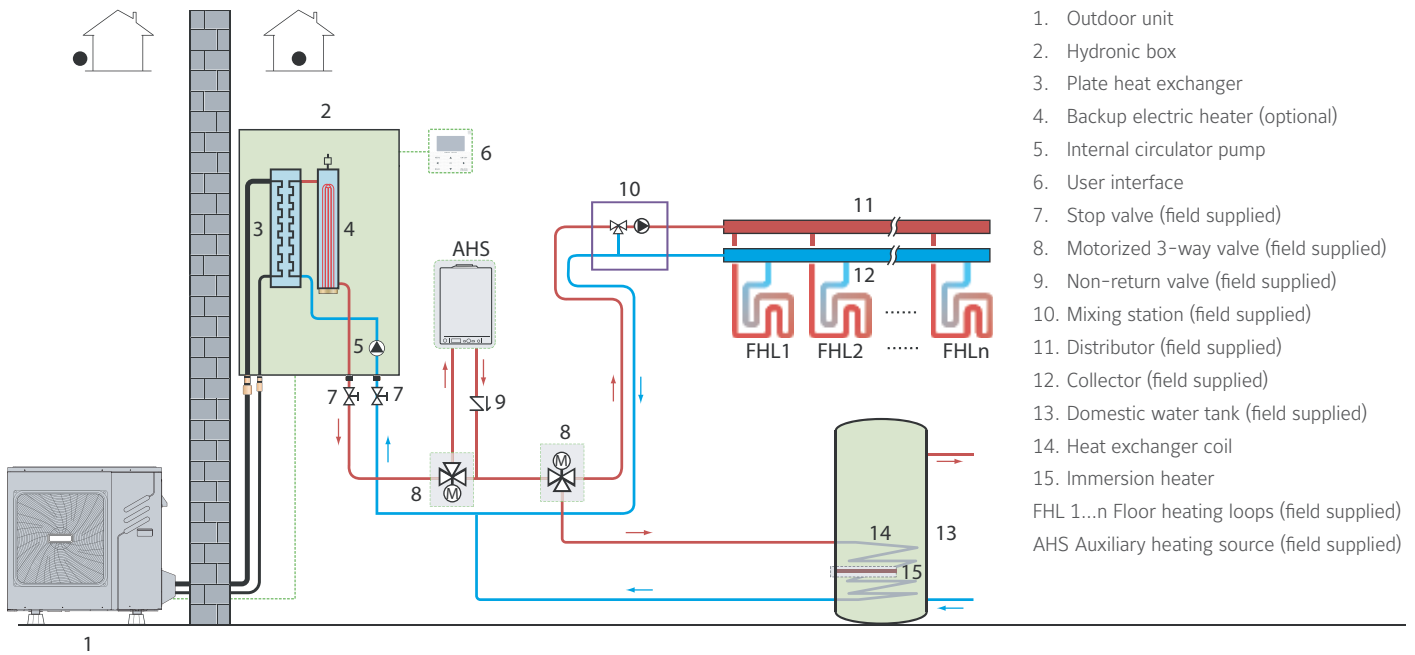
5-2 Auxiliary heat source provides space heating and domestic hot water



- 1. Outdoor unit
- 2. Hydronic box
- 3. Plate heat exchanger
- 4. Backup electric heater (optional)
- 5. Internal circulator pump
- 6. User interface
- 7. Stop valve (field supplied)
- 8. Non-return valve (field supplied)
- 9. Motorized 3-way valve (field supplied)
- 10. Mixing station (field supplied)
- 11. Distributor (field supplied)
- 12. Collector (field supplied)
- 13. Domestic water tank (field supplied)
- 14. Heat exchanger coil
- 15. Immersion heater
- FHL 1...n Floor heating loops (field supplied)
- AHS Auxiliary heating source (field supplied)

5-3 Auxiliary heat source provides additional heating

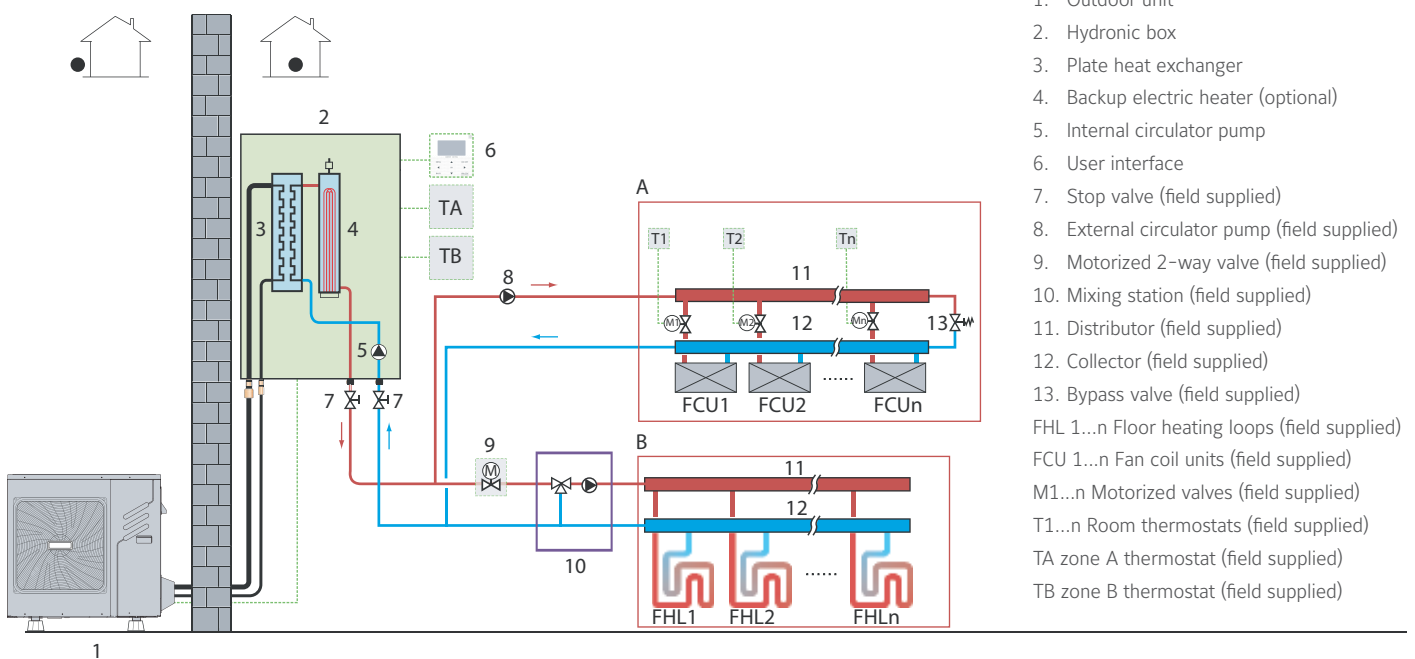
If the unit's outlet temperature is too low, the auxiliary heat source provides additional heating to raise the water temperature to the set temperature. An additional 3-way valve is required. When the unit's outlet temperature is too low, the 3-way valve is open and the water flows through the auxiliary heat source. When the unit's outlet temperature is high enough, the 3-way valve is closed.



- 1. Outdoor unit
- 2. Hydronic box
- 3. Plate heat exchanger
- 4. Backup electric heater (optional)
- 5. Internal circulator pump
- 6. User interface
- 7. Stop valve (field supplied)
- 8. Motorized 3-way valve (field supplied)
- 9. Non-return valve (field supplied)
- 10. Mixing station (field supplied)
- 11. Distributor (field supplied)
- 12. Collector (field supplied)
- 13. Domestic water tank (field supplied)
- 14. Heat exchanger coil
- 15. Immersion heater
- FHL 1...n Floor heating loops (field supplied)
- AHS Auxiliary heating source (field supplied)

Application 6: Space Heating Through Floor Heating Loops and Fan Coil Units

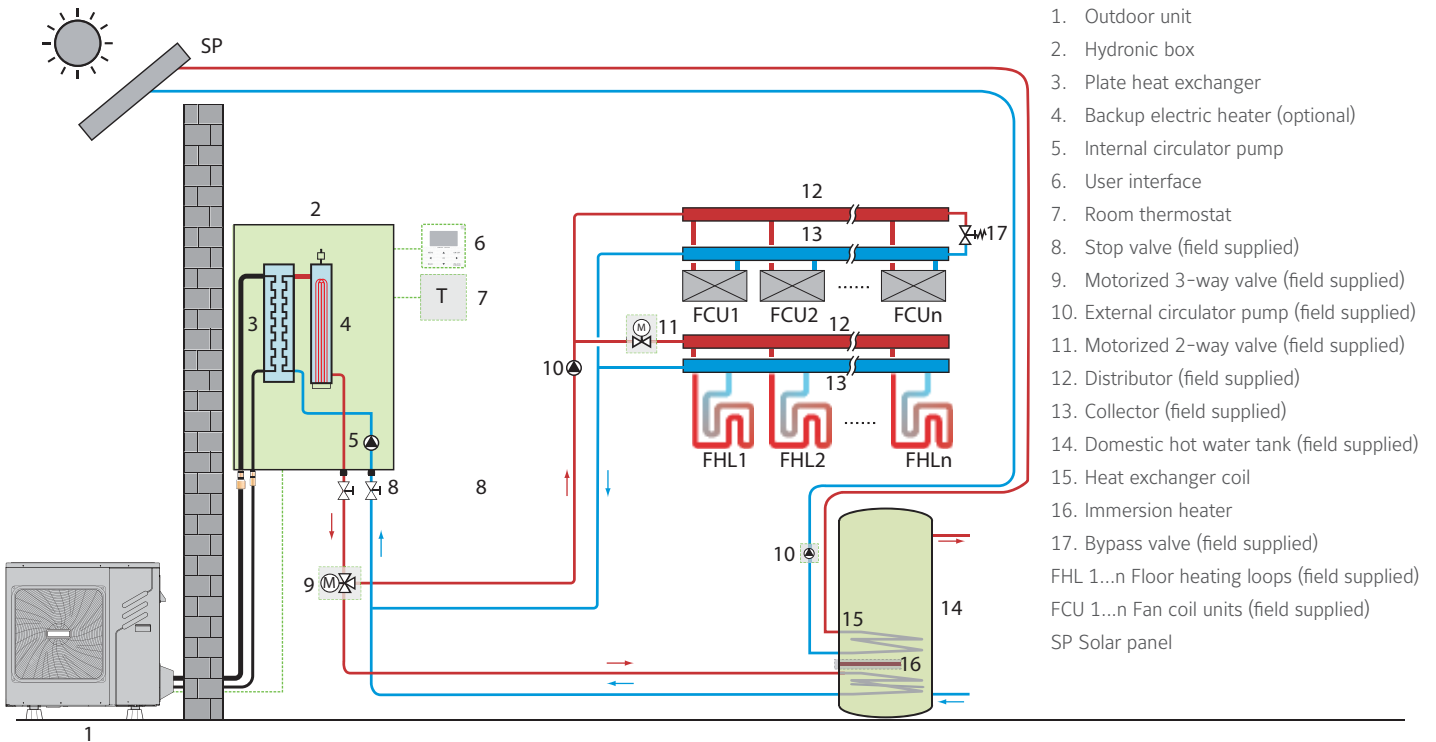
The floor heating loops and fan coil units require different operating water temperatures. To achieve these two set points, a mixing station is required. Room thermostats for each zone are optional.



- 1. Outdoor unit
- 2. Hydronic box
- 3. Plate heat exchanger
- 4. Backup electric heater (optional)
- 5. Internal circulator pump
- 6. User interface
- 7. Stop valve (field supplied)
- 8. External circulator pump (field supplied)
- 9. Motorized 2-way valve (field supplied)
- 10. Mixing station (field supplied)
- 11. Distributor (field supplied)
- 12. Collector (field supplied)
- 13. Bypass valve (field supplied)
- FHL 1...n Floor heating loops (field supplied)
- FCU 1...n Fan coil units (field supplied)
- M1...n Motorized valves (field supplied)
- T1...n Room thermostats (field supplied)
- TA zone A thermostat (field supplied)
- TB zone B thermostat (field supplied)

Application 7: Space Heating, Space Cooling and Domestic Hot Water Compatible with Solar Water Heater

Floor heating loops and fan coil units are used for space heating and fan coil units are used for space cooling. Domestic hot water is supplied from the domestic hot water tank connected to both the hydronic box and solar water heater. The unit switches to heating or cooling mode according to the temperature detected by the room thermostat. In space cooling mode, the 2-way valve is closed to prevent cold water entering the floor heating loops.



Specifications



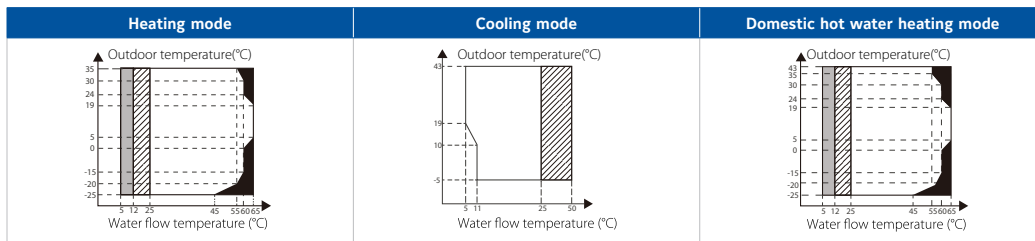
YKF Mono

Outdoor unit model			YKF04CNB	YKF05CNC	YKF07CNC	YKF09CNC	YKF12CNC	YKF14CNC	YK016CNC	YKF12CRC	YKF14CRC	YKF16CRC	
Power supply		V/Ph/Hz	220-240/1/50						380-415/3/50				
Heating ¹	Capacity	kW	4.20	6.50	8.40	10.00	12.12	14.10	16.00	12.12	14.10	16.00	
	Rated input	kW	0.82	1.23	1.66	2.13	2.49	3.00	3.56	2.49	3.00	3.56	
	COP		5.10	5.30	5.05	4.70	4.90	4.70	4.50	4.90	4.70	4.50	
Heating ²	Capacity	kW	4.30	6.60	8.50	10.20	12.50	14.50	16.20	12.50	14.50	16.20	
	Rated input	kW	1.13	1.65	2.24	2.80	3.38	4.09	4.70	3.38	4.09	4.70	
	COP		3.80	4.00	3.80	3.65	3.70	3.55	3.45	3.70	3.55	3.45	
Heating ³	Capacity	kW	4.40	6.30	8.20	9.40	12.00	14.00	16.00	12.00	14.00	16.00	
	Rated input	kW	1.49	1.97	2.60	3.03	4.00	4.75	5.61	4.00	4.75	5.61	
	COP		2.95	3.20	3.15	3.10	3.00	2.95	2.85	3.00	2.95	2.85	
Cooling ⁴	Capacity	kW	4.50	6.50	8.30	10.00	12.20	13.90	15.40	12.20	13.90	15.40	
	Rated input	kW	0.82	1.28	1.71	2.33	2.65	3.16	3.67	2.65	3.16	3.67	
	EER		5.50	5.10	4.85	4.30	4.60	4.40	4.20	4.60	4.40	4.20	
Cooling ⁵	Capacity	kW	4.70	5.50	7.40	9.00	11.60	13.40	14.00	11.60	13.40	14.00	
	Rated input	kW	1.36	1.69	2.35	3.10	3.74	4.58	4.83	3.74	4.57	4.83	
	EER		3.45	3.25	3.15	2.90	3.10	2.93	2.90	3.10	2.93	2.90	
Seasonal space heating energy efficiency class ⁶	Water outlet at 35°C	class							A+++				
	Water outlet at 55°C	class							A++				
Refrigerant	Type (GWP)								R32 (675)				
	Charged volume	kg	1.40		1.25				1.80				
Sound power Level ⁷		dB(A)	55	56*	58*	60*	63*	64*	64*	64*	64*	64*	
Unit dimension (W×H×D)		mm	1295x792x429			1040 x 865 x 410							
Packing dimension (W×H×D)		mm	1375x945x475			1190 x 970 x 560							
Net/Gross weight		kg	98 / 121		87 / 103				106 / 122		120 / 136		
	Outdoor air temperature range		Cooling °C						-5-43				
			Heating °C						-25-35				
			DHW °C						-25-43				
Water side heat exchanger									Plate type				
Water pump	Max. pump head	m							9				
Water side connection		inch	R1"						R5/4"				
Backup E-heater ⁸	Standard mounted	kW	-						Optional (Kit)				
	Optional	kW	3		3 or 4.5				4.5, 6 or 9				
	Power supply	3 kW			220-240/1/50				N/A				
		4.5 kW			220-240/1/50				380-415/3/50				
	9 kW			N/A				380-415/3/50					
Water temperature setting range*	Cooling	°C							5-25				
	Heating	°C							25-65				
	DHW (tank)	°C	30-60						20-60				

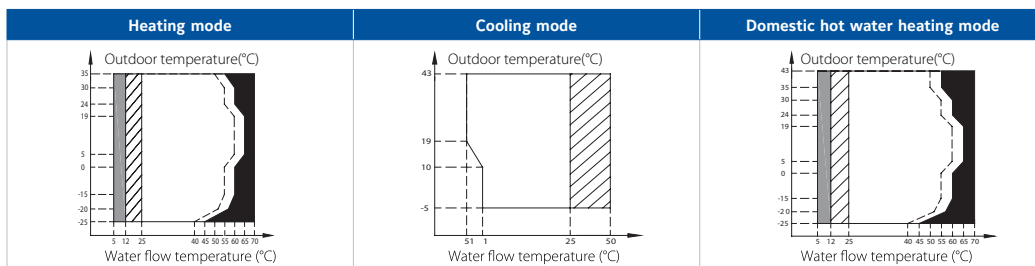
1. Evaporator air in 7°C, 85% R.H., Condenser water in/out 30/35°C
 2. Evaporator air in 7°C, 85% R.H., Condenser water in/out 40/45°C
 3. Evaporator air in 7°C, 85% R.H., Condenser water in/out 47/55°C
 4. Condenser air in 35°C. Evaporator water in/out 23/18°C
 5. Condenser air in 35°C. Evaporator water in/out 12/7°C
 6. Seasonal space heating energy efficiency class testes in average climate general conditions.
 7. Testing standard: EN12102-1. * Cooling silent mode
 8. The backup electric heater is an optional external kit for indoor installation. For YKF04CNB this option could be factory installed inside the monoblock unit. For three phase type backup electric heater, 3/6kW can be achieved by changing DIP switch when heat pump is equipped with 9kW.
 9. Relevant EU standards and legislation: EN14511; EN14825; EN50564; EN12102; (EU) No 811/2013; (EU) No 813/2013; OJ 2014/C 207/02:2014.
- * For more details refer to Operating Limits.

Operating Limits

YKF04CNB



YKF05CNC, YKF07CNC, YKF09CNC, YKF12CNC, YKF12CRC, YKF14CNC, YKF14CRC, YKF16CNC, and YKF16CRC



Specifications



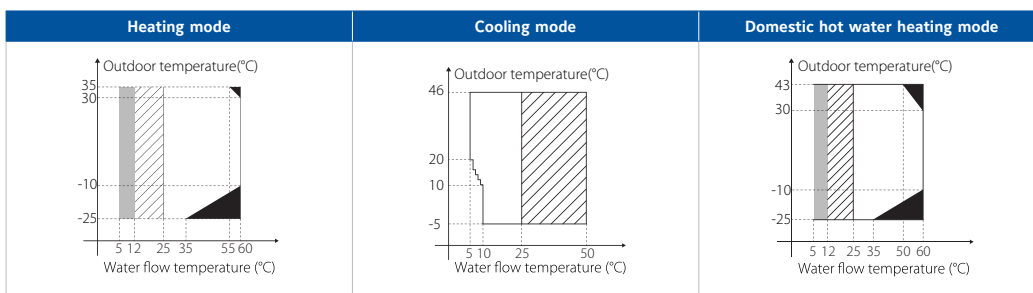
YKF Mono

Outdoor unit model			YKF18CRB	YKF22CRB	YKF26CRB	YKF30CRB	
Power supply	V/Ph/Hz	380-415/3/50					
Heating ¹	Capacity	kW	18.00	22.00	26.00	30.10	
	Rated input	kW	3.83	5.00	6.37	7.70	
	COP		4.70	4.40	4.08	3.91	
Heating ²	Capacity	kW	18.00	22.00	26.00	30.00	
	Rated input	kW	5.14	6.47	8.39	10.35	
	COP		3.50	3.40	3.10	2.90	
Heating ³	Capacity	kW	18.00	22.00	26.00	30.00	
	Rated input	kW	6.55	8.30	10.61	13.04	
	COP		2.75	2.65	2.45	2.30	
Cooling ⁴	Capacity	kW	18.50	23.00	27.00	31.00	
	Rated input	kW	3.90	5.00	6.28	7.75	
	EER		4.75	4.60	4.30	4.00	
Cooling ⁵	Capacity	kW	17.00	21.00	26.00	29.50	
	Rated input	kW	5.57	7.12	9.63	11.57	
	EER		3.05	2.95	2.70	2.55	
Seasonal space heating energy efficiency class ⁶	Water outlet at 35°C	class	A+++	A+++	A+++	A++	
	Water outlet at 55°C	class	A++	A++	A+	A+	
Refrigerant	Type (GWP)		R32 (675)				
	Charged volume	kg	5.0				
Sound power Level ⁷	dB(A)		71	73	75	77	
Unit dimension (W×H×D)	mm	1129 x 1558 x 440					
Packing dimension (W×H×D)	mm	1220 x 1735 x 565					
Net/Gross weight	kg	177 / 206					
Outdoor air temperature range	Cooling	°C	-5-46				
	Heating	°C	-25-35				
	DHW	°C	-25-43				
Water side heat exchanger		Plate type					
Water pump	Max. pump head	m	12				
Water side connection	inch	R5/4"					
Water temperature setting range*	Cooling	°C	5-25				
	Heating	°C	25-60				
	DHW (tank)	°C	30-60				

1. Evaporator air in 7°C, 85% R.H., Condenser water in/out 30/35°C
 2. Evaporator air in 7°C, 85% R.H., Condenser water in/out 40/45°C
 3. Evaporator air in 7°C, 85% R.H., Condenser water in/out 47/55°C
 4. Condenser air in 35°C. Evaporator water in/out 23/18°C
 5. Condenser air in 35°C. Evaporator water in/out 12/7°C
 6. Seasonal space heating energy efficiency class testes in average climate general conditions.
 7. Testing standard: EN12102-1.
 8. The above data test reference standard EN14511; EN14825; EN50564; EN12102; (EU) No 811/2013; (EU) No 813/2013; OJ 2014/C 207/02:2014.
- * For more details refer to Operating Limits.

Operating Limits

YKF18CRB, YKF22CRB, YKF26CRB, and YKF30CRB



- IBH: Backup electric heater
- AHS: Additional heat source
- Shaded areas indicate no heat pump operation (backup electric heater or auxiliary heat source only)
- Hatched areas indicate water flow temperature drop or rise interval
- Solid grey areas indicate if IBH/AHS setting is invalid, only IBH/AHS turns on. If IBH/AHS setting is invalid, only heat pump turns on

Specifications



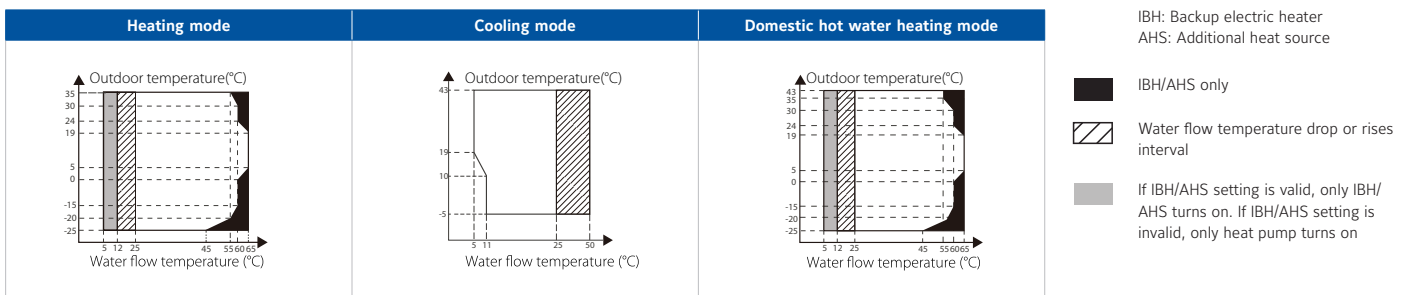
YKF Split + Hydronic box

Outdoor unit model			YKF04ANB	YKF06ANB	YKF08ANB	YKF10ANB	YKF12ANB	YKF14ANB	YK016ANB	YKF12ARB	YKF14ARB	YKF16ARB	
Power supply		V/Ph/Hz	220-240/1/50								380-415/3/50		
Heating ¹	Capacity	kW	4.25	6.20	8.30	10.00	12.10	14.50	16.00	12.10	14.50	16.00	
	Rated input	kW	0.82	1.24	1.60	2.00	2.44	3.09	3.56	2.44	3.09	3.56	
	COP		5.20	5.00	5.20	5.00	4.95	4.70	4.50	4.95	4.70	4.50	
Heating ²	Capacity	kW	4.35	6.35	8.20	10.00	12.30	14.20	16.00	12.30	14.20	16.00	
	Rated input	kW	1.14	1.69	2.08	2.63	3.24	3.89	4.44	3.24	3.89	4.44	
	COP		3.80	3.75	3.95	3.80	3.80	3.65	3.60	3.80	3.65	3.60	
Heating ³	Capacity	kW	4.40	6.00	7.50	9.50	12.00	13.80	16.00	12.00	13.80	16.00	
	Rated input	kW	1.49	2.00	2.36	3.06	3.87	4.60	5.52	3.87	4.60	5.52	
	COP		2.95	3.00	3.18	3.10	3.10	3.00	2.90	3.10	3.00	2.90	
Cooling ⁴	Capacity	kW	4.50	6.55	8.40	10.00	12.00	13.50	14.90	12.00	13.50	14.90	
	Rated input	kW	0.81	1.34	1.66	2.08	3.00	3.75	4.38	3.00	3.75	4.38	
	EER		5.55	4.90	5.05	4.80	4.00	3.60	3.40	4.00	3.60	3.40	
Cooling ⁵	Capacity	kW	4.70	7.00	7.40	8.20	11.60	12.70	14.00	11.60	12.70	14.00	
	Rated input	kW	1.36	2.33	2.19	2.48	4.22	4.98	5.71	4.22	4.98	5.71	
	EER		3.45	3.00	3.38	3.30	2.75	2.55	2.45	2.75	2.55	2.45	
Seasonal space heating energy efficiency class ⁶	Water outlet at 35°C	class	A+++										
	Water outlet at 55°C	class	A++										
Refrigerant	Type (GWP)		R32 (675)										
	Charged volume	kg	1.50			1.65			1.84				
Sound power Level ⁸	dB(A)		56	58	59	60	64	65	68	64	65	68	
Unit dimension (W×H×D)	mm		1008 x 712 x 426			1118 x 865 x 523							
Packing dimension (W×H×D)	mm		1065 x 800 x 485			1180 x 890 x 560							
Net/Gross weight	kg		58 / 64		77 / 88		96 / 110			112 / 125			
Outdoor air temperature range	Cooling	°C	-5-43										
	Heating	°C	-25-35										
	DHW	°C	-25-43										
Indoor unit model			YKF60ANB		YKF100ANB		YKF160ANB						
Power supply		V/Ph/Hz	220-240/1/50										
Unit dimension (W×H×D)		mm	420 x 790 x 270										
Packing dimension (W×H×D)		mm	525 x 1050 x 360										
Net/Gross weight		kg	37 / 43				39 / 45						
Water side connection		inch	R1"										
Water pump		m	9										
Backup E-heater ⁹	Max. pump head	kW	NO										
	Standard mounted	kW	NO										
	Optional	kW	3			6/9							
Cooling	Power supply	3 kW	220-240/1/50			380-415/3/50			N/A				
		6 kW	N/A			380-415/3/50 (separate power supply)			380-415/3/50				
	9 kW	N/A			380-415/3/50 (separate power supply)			380-415/3/50					
Water temperature setting range*	Cooling	°C	5-25										
	Heating	°C	25-65										
	DHW (tank)	°C	30-60										
Sound power Level ⁸	dB(A)		38		42		43						

1. Evaporator air in 7°C, 85% R.H., Condenser water in/out 30/35°C
 2. Evaporator air in 7°C, 85% R.H., Condenser water in/out 40/45°C
 3. Evaporator air in 7°C, 85% R.H., Condenser water in/out 47/55°C
 4. Condenser air in 35°C. Evaporator water in/out 23/18°C
 5. Condenser air in 35°C. Evaporator water in/out 12/7°C
 6. Seasonal space heating energy efficiency class testes in average climate general conditions.
 7. Relevant EU standards and legislation: EN14511; EN14825; EN50564; EN12102; (EU) No 811/2013; (EU) No 813/2013; OJ 2014/C 207/02:2014
 8. Testing standard: EN12102-1.
 9. For three phase type backup electric heater, 3/6kW can be achieved by changing DIP switch when hydronic box is equipped with 9kW.
- * For more details refer to Operating Limits.

Operating Limits

YKF04ANB, YKF06ANB, YKF08ANB, YKF10ANB, YKF12ANB, YKF14ANB, YK016ANB, YKF12ARB, YKF14ARB and YKF16ARB



Specifications

YKF Split + Hydronic box with water tank



Outdoor unit model				YKF04ANB	YKF06ANB	YKF08ANB	YKF10ANB
Tapping profile according EN16147				L			
Domestic hot water	Water heating energy efficiency class ⁽¹⁾	Average climate	class	A+	A+	A+	A+
			COP	3.10	3.10	3.02	3.02
		Warm climate	class	A+	A+	A+	A+
			COP	3.80	3.80	3.66	3.66
		Cold climate	class	A	A	A	A
			COP	2.50	2.50	2.61	2.61
Heating	A7W35 ⁽²⁾	Capacity	kW	4.25	6.20	8.30	10.00
		Rated input	kW	0.82	1.24	1.60	2.00
		COP		5.20	5.00	5.20	5.00
	A7W45 ⁽³⁾	Capacity	kW	4.35	6.35	8.20	10.00
		Rated input	kW	1.14	1.69	2.08	2.63
		COP		3.80	3.75	3.95	3.80
Cooling	A35W18 ⁽⁴⁾	Capacity	kW	4.50	6.55	8.40	10.00
		Rated input	kW	0.81	1.34	1.66	2.08
		EER		5.55	4.90	5.05	4.80
	A35W7 ⁽⁵⁾	Capacity	kW	4.70	7.00	7.40	8.20
		Rated input	kW	1.36	2.33	2.19	2.48
		EER		3.45	3.00	3.38	3.30
Space heating	Seasonal space heating energy efficiency class ⁽⁶⁾	Water outlet at 35°C	class	A+++	A+++	A+++	A+++
		Water outlet at 55°C	class	A++	A++	A++	A++
Power supply			V/Ph/Hz	220-240/1/50			
Unit dimension (W×H×D)			mm	1008 x 712 x 426		1118 x 865 x 523	
Packing dimension (W×H×D)			mm	1065 x 810 x 485		1190 x 970 x 560	
Net/Gross weight			kg	60 / 65.5		78.5 / 92	
Outdoor unit sound power Level ⁽⁷⁾			dB(A)	56	58	59	60
Refrigerant	Type (GWP)			R32 (675)			
	Charged volume		kg	1.50		1.65	
	Refrigerant to be added		g/m	20		38	
Refrigerant piping connections	Liquid side		mm	Ø 6.35		Ø 9.52	
	Gas side		mm	Ø 15.9		Ø 15.9	
	Max. piping length		m	30			
	Max. difference in height		m	20			
Drain connection				DN32			
Ambient temperature range	Heating		°C	-25-35			
	Cooling		°C	-5-43			
	Domestic hot water		°C	-25-43			
Indoor unit model				YKF100/190ANB			
Power supply			V/Ph/Hz	220-240/1/50			
Rated input			W	3095			
DHW Tank	Type			Stainless steel			
	Material			SUS 316L			
	Water volume		L	190			
	Maximum water temperature (Disinfection mode)		°C	70			
	Insulation		Material	Polyurethane (Cyclopentane)			
Heat exchanger				Plate heat exchanger			
Backup heater	Standard mounted		kW	3 (6/9 kW in option)			
	Capacity steps			1			
	Power supply	3 kW	V/Ph/Hz	220-240/1/50			
		6 kW		380-415/3/50 (separate power supply)			
		9 kW	380-415/3/50 (separate power supply)				
Water Pump	Type			DC Inverter			
	Max. head		m	9			
Water piping connections	Water circuit	Inlet		R1"			
		Outlet		R1"			
	DHW tank water circuit	Cold water inlet		R3/4"			
		Hot water outlet		R3/4"			
		Recirculation		R3/4"			
Unit dimension (W×H×D)			mm	600 x 1683 x 600			
Packing dimension (W×H×D)			mm	730 x 1920 x 730			
Net/Gross weight			kg	140 / 161			
Indoor unit sound power Level ⁽⁷⁾			dB(A)	38		40	
Ambient temperature range			°C	5-35			
Water outlet temperature	Heating (heating pump)		°C	25-65			
	Cooling		°C	5-25			
	Domestic hot water		°C	30-60			

(1) According to EN16147/2017; EU No:812/2013

(2) DB/WB 7/6°C, LWT 35°C (ΔT=5°C)

(3) DB/WB 7/6°C, LWT 45°C (ΔT=5°C)

(4) DB 35°C, LWT 18°C (ΔT=5°C)

(5) DB 35°C, LWT 7°C (ΔT=5°C)

(6) According to EN14511/2018; EN14825/2018; EU No:811/2013

(7) Sound power in heating mode, measured according to the EN 12102 under conditions of the EN 14825

Specifications

YKF Split + Hydronic box with water tank



Outdoor unit model				YKF04ANB	YKF06ANB	YKF08ANB	YKF10ANB	
Domestic hot water	Tapping profile according EN16147			XL				
	Water heating energy efficiency class ⁽¹⁾	Average climate	class	A+	A+	A+	A+	
			COP	3.34	3.34	3.36	3.36	
		Warm climate	class	A+	A+	A+	A+	
COP			4.24	4.24	4.18	4.18		
Cold climate	class	A	A	A	A			
Heating	A7W35 ⁽²⁾	Capacity	kW	4.25	6.20	8.30	10.00	
		Rated input	kW	0.82	1.24	1.60	2.00	
		COP		5.20	5.00	5.20	5.00	
		A7W45 ⁽³⁾	Capacity	kW	4.35	6.35	8.20	10.00
	Rated input		kW	1.14	1.69	2.08	2.63	
	COP			3.80	3.75	3.95	3.80	
	Cooling		A35W18 ⁽⁴⁾	Capacity	kW	4.50	6.55	8.40
		Rated input		kW	0.81	1.34	1.66	2.08
EER				5.55	4.90	5.05	4.80	
A35W7 ⁽⁵⁾		Capacity	kW	4.70	7.00	7.40	8.20	
		Rated input	kW	1.36	2.33	2.19	2.48	
		EER		3.45	3.00	3.38	3.30	
Space heating	Seasonal space heating energy efficiency class ⁽⁶⁾	Water outlet at 35°C	class	A+++	A+++	A+++	A+++	
		Water outlet at 55°C	class	A++	A++	A++	A++	
Power supply				V/Ph/Hz 220-240/1/50				
Unit dimension (W×H×D)				1008 x 712 x 426		1118 x 865 x 523		
Packing dimension (W×H×D)				1065 x 810 x 485		1190 x 970 x 560		
Net/Gross weight				60 / 65.5		78.5 / 92		
Outdoor unit sound power Level ⁽⁷⁾				56	58	59	60	
Refrigerant	Type (GWP)				R32 (675)			
	Charged volume	kg	1.50		1.65			
	Refrigerant to be added	g/m	20		38			
Refrigerant piping connections	Liquid side	mm	Ø 6.35		Ø 9.52			
	Gas side	mm	Ø 15.9		Ø 15.9			
	Max. piping length	m	30					
	Max. difference in height	m	20					
Drain connection				DN32				
Ambient temperature range	Heating	°C	-25-35					
	Cooling	°C	-5-43					
	Domestic hot water	°C	-25-43					
Indoor unit model				YKF100/240ANB				
Power supply				V/Ph/Hz 220-240/1/50				
Rated input				W 3095				
DHW Tank	Type				Stainless steel			
	Material				SUS 316L			
	Water volume	L	240					
	Maximum water temperature (Disinfection mode)	°C	70					
	Insulation	Material	Polyurethane (Cyclopentane)					
Heat exchanger				Plate heat exchanger				
Backup heater	Standard mounted	kW	3 (6/9 kW in option)					
	Capacity steps	1						
	Power supply	3 kW	V/Ph/Hz	220-240/1/50				
		6 kW		380-415/3/50 (separate power supply)				
9 kW	380-415/3/50 (separate power supply)							
Water Pump	Type				DC Inverter			
	Max. head	m	9					
Water piping connections	Water circuit	Inlet	R1"					
		Outlet	R1"					
	DHW tank water circuit	Cold water inlet	R3/4"					
		Hot water outlet	R3/4"					
		Recirculation	R3/4"					
Unit dimension (W×H×D)				mm 600 x 1943 x 600				
Packing dimension (W×H×D)				mm 730 x 2180 x 730				
Net/Gross weight				kg 157 / 178				
Indoor unit sound power Level ⁽⁷⁾				38			40	
Ambient temperature range				°C 5-35				
Water outlet temperature	Heating (heating pump)	°C	25-65					
	Cooling	°C	5-25					
	Domestic hot water	°C	30-60					

(1) According to EN16147/2017; EU No:812/2013

(2) DB/WB 7/6°C, LWT 35°C (ΔT=5°C)

(3) DB/WB 7/6°C, LWT 45°C (ΔT=5°C)

(4) DB 35°C, LWT 18°C (ΔT=5°C)

(5) DB 35°C, LWT 7°C (ΔT=5°C)

(6) According to EN14511/2018; EN14825/2018; EU No:811/2013

(7) Sound power in heating mode, measured according to the EN 12102 under conditions of the EN 14825

Specifications



YKF Split + Hydronic box with water tank

Outdoor unit model			YKF12ANB	YKF14ANB	YKF16ANB	YKF12ARB	YKF14ARB	YKF16ARB	
Tapping profile according EN16147			XL						
Domestic hot water	Water heating energy efficiency class ⁽¹⁾	Average climate	class	A+	A+	A+	A+	A+	
		Warm climate	class	A+	A+	A+	A+	A+	
			COP	3.00	3.00	3.00	3.00	3.00	
		Cold climate	class	A	A	A	A	A	
			COP	2.24	2.24	2.24	2.24	2.24	
		Heating	A7W35 ⁽²⁾	Capacity	kW	12.10	14.50	16.00	12.10
Rated input	kW			2.44	3.09	3.56	2.44	3.09	
COP				4.95	4.70	4.50	4.95	4.70	
A7W45 ⁽³⁾	Capacity		kW	12.30	14.20	16.00	12.30	14.20	
	Rated input		kW	3.24	3.89	4.44	3.24	3.89	
	COP			3.80	3.65	3.60	3.80	3.65	
Cooling	A35W18 ⁽⁴⁾	Capacity	kW	12.00	13.50	14.90	12.00	13.50	
		Rated input	kW	3.00	3.75	4.38	3.00	3.75	
		EER		4.00	3.60	3.40	4.00	3.60	
	A35W7 ⁽⁵⁾	Capacity	kW	11.60	12.70	14.00	11.60	12.70	
		Rated input	kW	4.22	4.98	5.71	4.22	4.98	
		EER		2.75	2.55	2.45	2.75	2.55	
Space heating	Seasonal space heating energy efficiency class ⁽⁶⁾	Water outlet at 35°C	class	A+++	A+++	A+++	A+++	A+++	
		Water outlet at 55°C	class	A++	A++	A++	A++	A++	
Power supply			V/Ph/Hz	220-240/1/50			380-415/3/50		
Unit dimension (W×H×D)			mm	1118 x 865 x 523					
Packing dimension (W×H×D)			mm	1190 x 970 x 560					
Net/Gross weight			kg	100 / 113.5			116 / 129.5		
Outdoor unit sound power Level ⁽⁷⁾			dB(A)	64	65	68	64	65	
Refrigerant	Type (GWP)			R32 (675)					
	Charged volume	kg	1.84						
	Refrigerant to be added	g/m	38						
Refrigerant piping connections	Liquid side	mm	Ø 9.52						
	Gas side	mm	Ø 15.9						
	Max. piping length	m	30						
	Max. difference in height	m	20						
Drain connection				DN32					
Ambient temperature range	Heating	°C	-25-35						
	Cooling	°C	-5-43						
	Domestic hot water	°C	-25-43						
Indoor unit model			YKF160/240ANB						
Power supply			V/Ph/Hz	220-240/1/50					
Rated input			W	3095					
DHW Tank	Type			Stainless steel					
	Material			SUS 316L					
	Water volume	L	240						
	Maximum water temperature (Disinfection mode)	°C	70						
	Insulation	Material			Polyurethane (Cyclopentane)				
Heat exchanger				Plate heat exchanger					
Backup heater	Standard mounted	kW	3 (6/9 kW in option)						
	Capacity steps			1					
	Power supply	3 kW	V/Ph/Hz	220-240/1/50					
		6 kW		380-415/3/50 (separate power supply)					
9 kW		380-415/3/50 (separate power supply)							
Water Pump	Type			DC Inverter					
	Max. head	m	9						
Water piping connections	Water circuit	Inlet	R1"						
		Outlet	R1"						
	DHW tank water circuit	Cold water inlet	R3/4"						
		Hot water outlet	R3/4"						
		Recirculation	R3/4"						
Unit dimension (W×H×D)			mm	600 x 1943 x 600					
Packing dimension (W×H×D)			mm	730 x 2180 x 730					
Net/Gross weight			kg	159 / 180					
Indoor unit sound power Level ⁽⁷⁾			dB(A)	42	44	42	44	44	
Ambient temperature range			°C	5-35					
Water outlet temperature	Heating (heating pump)	°C	25-65						
	Cooling	°C	5-25						
	Domestic hot water	°C	30-60						

(1) According to EN16147/2017; EU No:812/2013

(2) DB/WB 7/6°C, LWT 35°C (ΔT=5°C)

(3) DB/WB 7/6°C, LWT 45°C (ΔT=5°C)

(4) DB 35°C, LWT 18°C (ΔT=5°C)

(5) DB 35°C, LWT 7°C (ΔT=5°C)

(6) According to EN14511/2018; EN14825/2018; EU No:811/2013

(7) Sound power in heating mode, measured according to the EN 12102 under conditions of the EN 14825

YORK Fan Coil units

Driven by innovative trends and modern technology, the YORK Fan Coil Units have been designed around a platform of models, versions and accessories, which have been independently tested and certified by Eurovent. The YORK Fan Coil range meets today's demanding requirements of performance, size, acoustics, low energy, ease of installation and maintenance.

An extensive offering

- One of the **most versatile** ranges of fan coils on the market today. Wall and ceiling mounted units, exposed or concealed with centrifugal fan, are included, and with cooling capacities ranging from 0.6 kW to 9.7 kW.
- Dramatic **electrical consumption reduction** of up to 40% comparative to previous models. This is achieved thanks to the supply of all YORK Fan Coil Units equipped with centrifugal fans and electric motors, and with 6 speed motors as standard to offer greater flexibility in the selection of products.
- **Energy saving brushless motor** technology option available. Its combination with a dedicated frequency inverter and unit controller to regulate the fan speed enables higher efficiencies, even at low rotational speeds, lower unit noise, constant speed characteristics and an increase in motor lifetime expectancy. In comparison to the traditional units equipped with asynchronous three-speed-motors, units with brushless motors can obtain a considerable energy saving, by reducing the power consumption by up to 70%.
- A full range of **factory fitted Johnson Controls valve and pre-configured control options** is offered. This in addition to a patented 'wireless' control option - offering greater flexibility in the installation of units, with the highest precision in monitoring and maintaining the desired comfort conditions.
- Many of our ranges our available configured for use with 60Hz voltage, and specially designed cooling coils for **District Cooling applications**.
- **High pressure 'Blower' units** are also available. They can offer up to 29.4 kW of cooling at External Static Pressures of up to 250Pa, and are complemented with a full range of options and accessories covering items such as electrical heating battery, air inlet/outlet diffusers and condensate pumps.



Wired controls



T9000 Series

- **Red Dot Product Design Award Winner 2020**
- Touch Screen Display
- 2 or 4 pipes FCU
- 3-speed motors or ECM motors
- 2-wiring/3-wiring on/off valves or proportional valves
- Relay designed for 100,000 switching cycles
- Modbus or BACnet protocols



T7600 Series

- LCD Screen Display
- 2 or 4 pipes FCU
- On/off or proportional
- 3-speed motors or ECM motors
- Modbus RTU

VG3000 globe valves series for terminal units

DN10...25, PN16



The VG3000 brass valve series is primarily designed to regulate the flow of water in response to the demand of a controller in zone and terminal unit applications such as fan coils, cassettes, chilled ceilings and small heating/cooling systems. The valves are available in 2-way, 3-way mixing and 3-way mixing with built-in bypass configuration with different type of valve threads.

The globe valve series has been designed to shift the boundaries to the next level.

Superior flow rate, inherent linear flow characteristic and close-off pressure up to 6 bar make the VG3000 enable to cover a wide range of applications and customer needs.

Designed without compromises

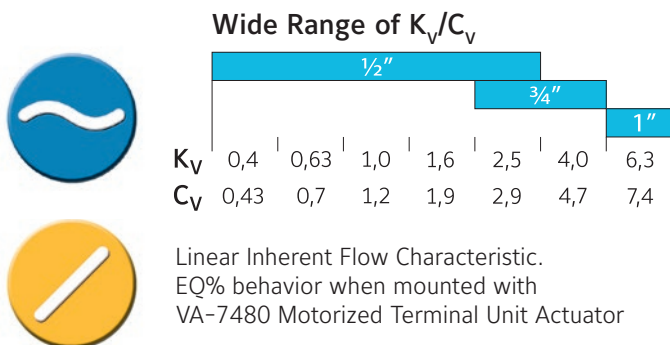
The VG3000 are suitable for Johnson Controls terminal unit actuators (VA-7480 / VA-7080 / VA-7090).

The compact design of the valve makes the VG3000 the best option for replacement without the need to change piping.

Trim 100% made in brass and stainless steel ensure superior product quality by reducing customer warranty and maintenance cost.

Features

- 2-way PDTTC (NO) with 6 bar close off pressure
- Extend range of KVS (0.4...6.3)
- Forged brass body, stainless steel stem and spring
- Actuator can be field installed after piping
- Commissioning cap available as accessory (VG3000-CAP)



High Close-off pressure model up to 6 bar to cover wider range of applications



Leakage rate Class IV for ANSI FCI 70-2 and EN 60534-4:2006, minimize energy waste

VP1000 Pressure independent control valves for HVAC systems

DN15...32, PN25

DN40...50, PN16

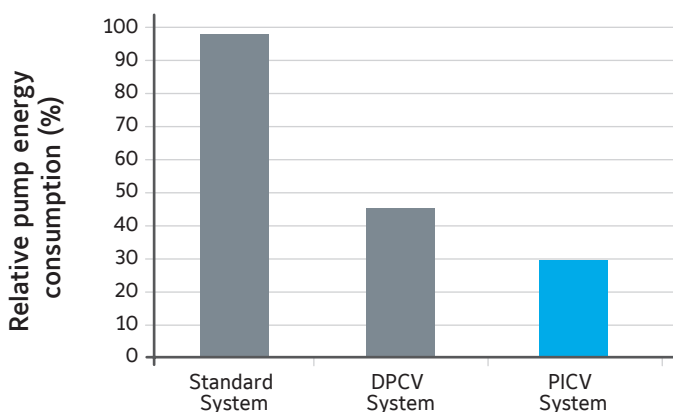


System efficiency starts with the control valve. Getting the correct flow under varying load conditions means a more comfortable environment and a more efficient system.

The VP1000 Series of Pressure Independent Control Valves (PICVs) from Johnson Controls delivers stable flow regardless of pressure fluctuations. Because traditional systems are balanced at full-flow positions in actual conditions, you get either too much or not enough flow through the coils, affecting comfort and overall efficiency.

Dynamic balancing properties deliver the correct flow. It's just one more way we continue to provide innovative technology to improve efficiency in building systems.

Compatible actuators:
VA-748x, VA-707x, VA-709x, VA9310.



More value, end-to-end.

Specifying a PICV simplifies your selection process. No need for Kv or pressure drop calculations. Simply select the valve based on the design flow rate of the coil. PICVs deliver the appropriate flow given the load requirement of the coil, determined by the actuator position and not the pressure differential seen by the valve. This means a coil is not over or under supplied, better managing comfort and energy efficiency. The Johnson Controls PICV also reduces installation and upfront equipment costs by enabling the right-sizing of equipment within the HVAC system. The PICV combines the function of a control, an automatic balancing and a differential pressure control valve. No need to spec a balancing valve, eliminating the need for intensive system balancing, saving time and money. As additional zones are added, the system can be commissioned zone-by-zone, reducing lifecycle costs by minimizing re-commissioning expense.

Features

- K_{vs} calculation is not necessary
- Valve authority calculation is not required
- Specific devices or knowledge are not necessary
- Compact design that allows installing the valve also in small spaces such as fan-coils or narrow supply spaces
- Flow rate adjustment without disassembling the actuators

With the VP1000 Series, you can take advantage of:

- Fewer components to spec and install
- Reduced adjustment and commissioning
- Greater installation flexibility in confined spaces
- Lower pump energy usage, up to 30%
- No manual balancing

VA-7080

Terminal Unit Valve Actuators

Thermal ON/OFF Control



The VA-708x series terminal unit valve actuators provide ON/OFF and DAT control in HAVC application.

The compact design of these actuators make them suitable for installations in confined spaces, such as fan-coil applications.

The actuators are available with 24V and 230V power supply and with direct or reverse action to cover any customer needs.

The VA-708x actuators are designed for field mounting onto all Johnson Controls terminal unit valves: VG3000, VP1000.

Thanks to the valve adapter system, Johnson Controls actuators fit on 99% of all valves on the market.

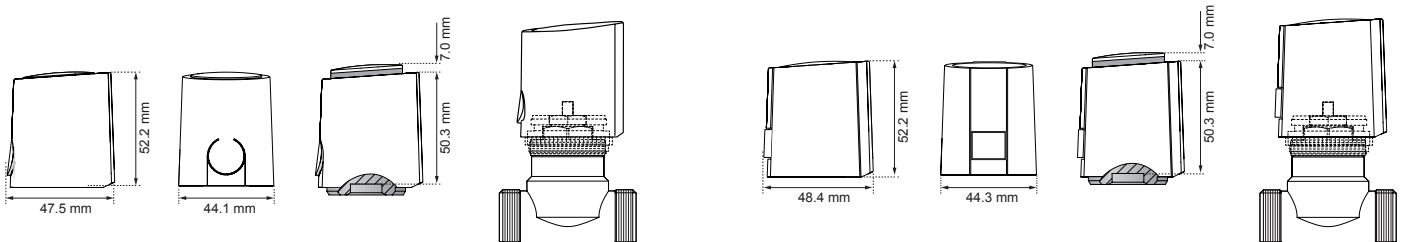
They're ideal for retrofits or replacements. IP54 allows the actuator to be mounted in any direction.

Very low energy consumption

With energy consumption of just 1 watt, the VA-708x Thermal Actuator requires 50 % less energy than the previous version. The VA-708x terminal unit actuators stand out for their exceptional quality, sophisticated capabilities, durability, easy assembly and attractive designs.

Features

- 24 VAC/DC and 230 VAC power supply
- ON/OFF or DAT Controls
- NC version (stem retracts when energized)
- NO version (stem extends when energized)
- Easy mounting solution
- Factory mounted cable 1.5 m
- Models with auxiliary switch



Dimensions in mm

VA-7480

Terminal Unit Valve Actuators

Motorized floating and proportional control

The VA-748x Series provides Floating, Proportional or Proportional control with 0-10 V position feedback signal in HVAC applications.

With the feedback capability on the actuator, the real time operational control for modulating HVAC applications happens. The result is a more energy efficient system as a consequence of a more stable control.

The compact design of this actuator makes it suitable for installation in confined spaces, such as fan coil, chilled ceiling, manifolds, etc.

The VA-748x Series actuator is designed for field mounting onto Johnson Controls and competitor's Terminal Unit Valves. Due to the innovative concept of auto stroke detection, the VA-748x can be installed over most of the conventional terminal unit valve in the market and PICV with variable strokes.

Autostroke detection, configurable analog inputs, configurable direct & reverse action, configurable linear & Eq% controls characteristic and IP54 protection class make the VA-748x the best choice for terminal unit applications.

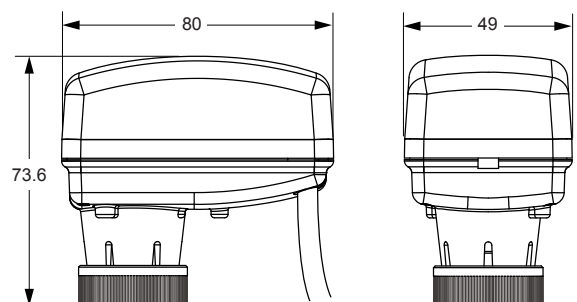


Plu and Play

- Easy and intuitive mounting system requires no expert to install the VA-748x.
- No tools required for commissioning allow the operator to drastically reduce the operational cost.
- Bi-color LED provides real time information about status and diagnostic.

Features

- 24 VAC/VDC and 230 VAC power supply
- Floating and proportional control
- Threaded nut M28x1.5 and M30x1.5
- Auto stroke detection (NEW!)
- Configurable stroke
- Configurable to direct and reverse action
- Configurable analog inputs
- Max mechanical stroke 6.3 mm



Dimensions in mm



About Johnson Controls

At Johnson Controls, we transform the environments where people live, work, learn and play. From optimizing building performance to improving safety and enhancing comfort, we drive the outcomes that matter most. We deliver our promise in industries such as healthcare, education, data centers and manufacturing.

With a global team of 100,000 experts in more than 150 countries and over 130 years of innovation, we are the power behind our customers' mission. Our leading portfolio of building technology and solutions includes some of the most trusted names in the industry, such as Tyco®, YORK®, Metasys®, Sabroe®, Frick®, ZETTLER® and Sensormatic®.

For additional information, please visit www.johnsoncontrols.com or follow us [@johnsoncontrols](https://twitter.com/johnsoncontrols) on Twitter.

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