



## ***WATERSTAGE***<sup>TM</sup>

Innovative Solution of Domestic Heating



Split type

Split DHW Integrated type

Monobloc type

# WATERSTAGE™

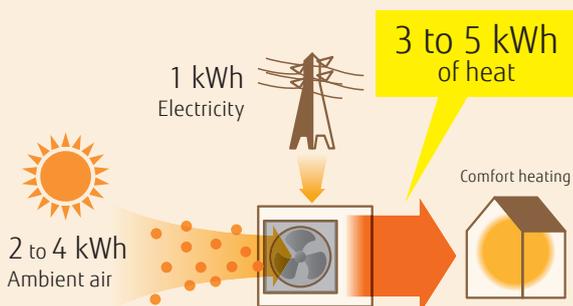
Fujitsu General "Waterstage" heat pumps are very efficient, regenerative and varied central heating systems, which absorb the energy mainly from the air.

## 21 Models

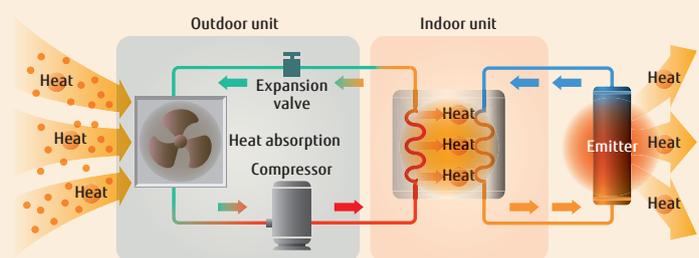


### What's a Heat Pump ?

Absorbing the free energy from atmosphere.  
Heat pump system requires only 1 kW of electricity to generate 3 to 5 kW thermal energy.



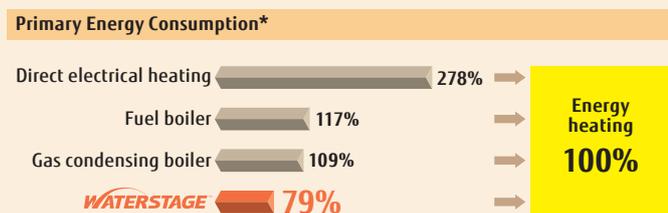
### Heat Pump system framework





## Primary Energy Usage Reduced Drastically!

Proportion of primary energy into heating energy of 100%



\*Electricity loss is different due to power plant. Example efficiency of power plant: 36%

# INDEX

04 OVERVIEW

08 USAGE INTRODUCTION

16 PRODUCT TECHNOLOGY & FEATURES

22 PRODUCT LINEUP

SPLIT TYPE

SPLIT DHW INTEGRATED TYPE

MONOBLOC TYPE

34 SYSTEM CONFIGURATION & OPTIONAL PARTS

46 OTHERS

SIMPLE INSTALLATION & MAINTENANCE

INSTALLATION INFORMATION

SPECIFICATIONS & DIMENSIONS

MODEL SELECTION SOFTWARE

# OVERVIEW

Advantage

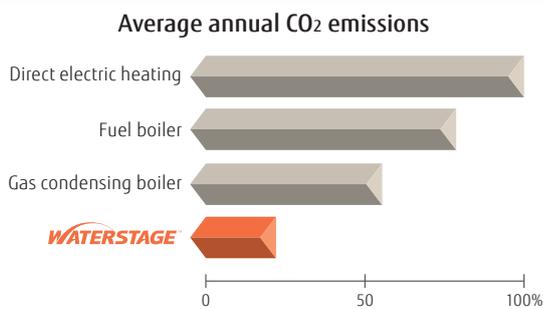
Wide Comfort

Energy Efficiency standard

# Advantage

## Less CO<sub>2</sub> Emissions

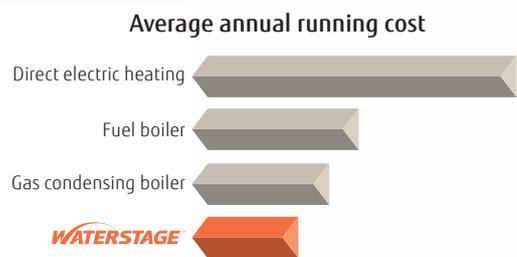
This environmentally-friendly system substantially reduces CO<sub>2</sub> emissions compared to conventional gas and hydrocarbons combustion.



\*Calculations based on data provided by European Program-2001\* for EU 27  
Fuel boiler efficiency: 89%, Gas boiler efficiency: 93%

## Low Running Cost

Running cost is low and economical by high efficiency heat pump technology.



\*The values may vary depending on installation, location, and operating conditions.

## Clean and Healthy

Since burners are unnecessary, NO<sub>x</sub> and other harmful substances are not generated.



## Easy Installation and Maintenance

All components are built into compact outdoor unit or hydraulic indoor unit.



### Well structured Hydraulic indoor unit.

Sophisticated arrangement of hydraulic units, allows easy piping and maintenance

# OVERVIEW



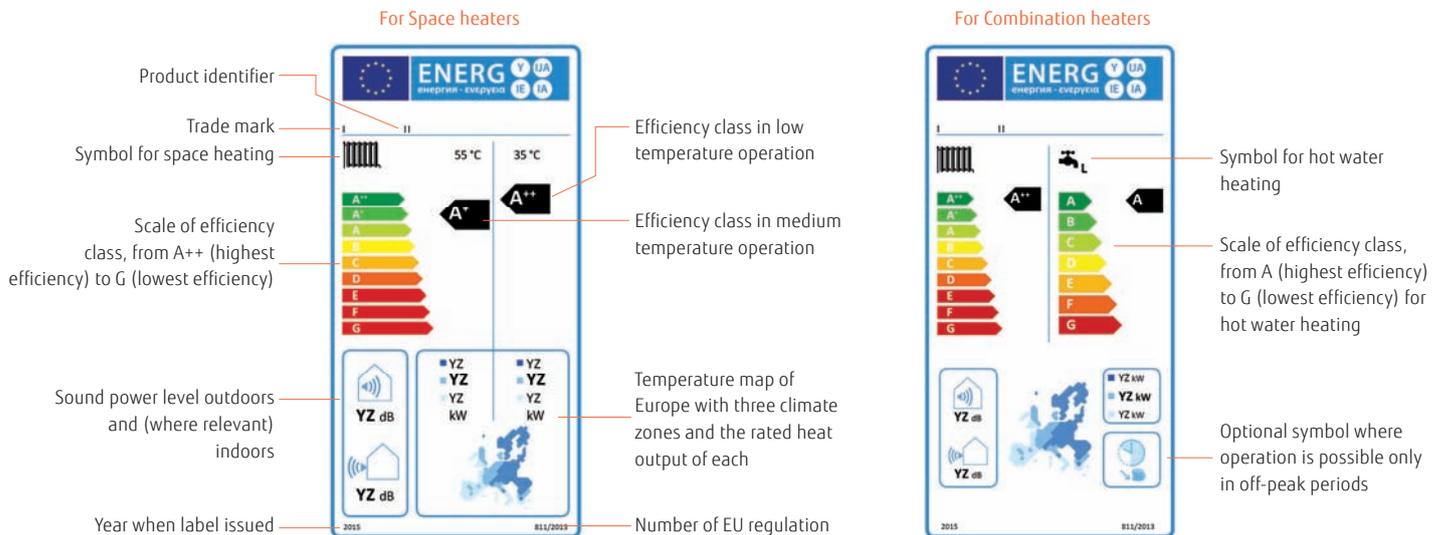
## Wide Comfort

The clean energy delivers "comfort" to all spaces in the home up to the living room, bedrooms, bath and swimming pool.



# Energy Efficiency standard

## Product labels



### The Ecodesign Directive Lot1 Regulation 813/2013

New Ecodesign directive defines a regulatory framework for improving the environmental performance of energy-related products (ErP) through design. From 26 September 2015, the Ecodesign Directive will apply to space heaters (including heat pumps and fossil fuel boilers), combination heaters (for both space and water heating), water heaters and water storage tanks. All these products will have to meet minimum requirements for energy efficiency\* and maximum sound power levels. The minimum energy efficiency level will be raised from 26 September 2017 and maximum sound power level will be lowered on 26 September 2018.

\*Energy efficiency is represented by seasonal space heating efficiency ( $\eta_s$ ). This value is based upon the seasonal coefficient of performance (SCOP).

### The Energy Labelling Directive (EU) No 811/2013

The energy label aims to help consumers make direct comparisons of energy use, as well as product specific features. On all labels, product identifier, efficiency class, sound power levels and heat output must be displayed. For heat generators, the scale runs from A++ to G (A+++ to D from 2019). There are two different product labels for space heaters and combination heaters.

### Seasonal space heating Energy efficiency class

	Except low temp HP 55°C	low temp HP 35°C
A+++	$\eta_s \geq 150$	$\eta_s \geq 175$
A++	$125 \leq \eta_s < 150$	$150 \leq \eta_s < 175$
A+	$98 \leq \eta_s < 125$	$123 \leq \eta_s < 150$
A	$90 \leq \eta_s < 98$	$115 \leq \eta_s < 123$
B	$82 \leq \eta_s < 90$	$107 \leq \eta_s < 115$
C	$75 \leq \eta_s < 82$	$100 \leq \eta_s < 107$
D	$36 \leq \eta_s < 75$	$61 \leq \eta_s < 100$
E	$34 \leq \eta_s < 36$	$59 \leq \eta_s < 61$
F	$30 \leq \eta_s < 34$	$55 \leq \eta_s < 59$
G	$\eta_s < 30$	$\eta_s < 55$

## EHPA Quality label



FUJITSU GENERAL's WATERSTAGE\* have obtained the EHPA Quality Label\*\* by tests according to the international Standards EN14511 and EN17025. The EHPA Quality Label\*\* is a label that shows the end-consumer a quality heat pump unit on the market.

\*: High Power split model

\*\* : Check the validity of label at [www.ehpa.org/QL](http://www.ehpa.org/QL)



## SG-Ready Label

SG-Ready is a defined standard by BWP\*\*\*, which makes it possible that the device can be integrated into a smart grid. Heat pumps, which are equipped with the SG-Ready Label, can receive signals from the power grid (and e.g. also from PV systems) about the available (unused renewable) energy (from wind, sun & water). Fujitsu General provides the SG-Ready compatibility to all new Heat Pumps series.

\*\*\*BWP: the Federal German Heat Pump Association

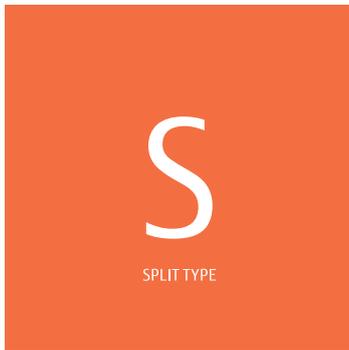
# USAGE INTRODUCTION

Wide range lineup suited for regional characteristics, family structure, and application  
We provide various products to meet your needs from High Power via heating-centered series to reasonably-priced compact series

Outdoor temperature  
-25°C

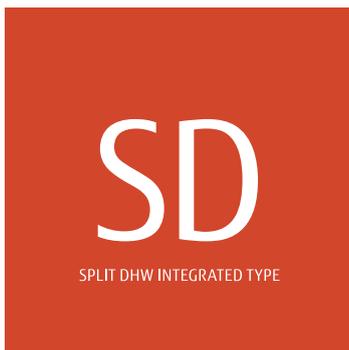
Outdoor temperature  
-20°C

Cold district



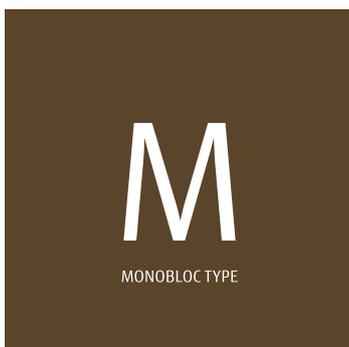
### Split type with separate outdoor unit and hydraulic indoor unit

For details, see page 10-11, 24-27



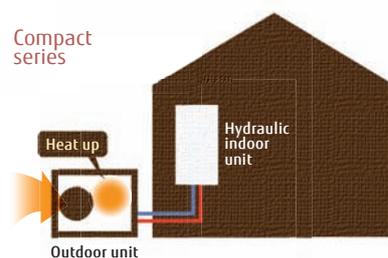
### Split type with DHW tank built-in hydraulic indoor unit

For details, see page 12-13, 28-31



### All-in-one type without refrigerant piping work

For details, see page 14-15, 32-33

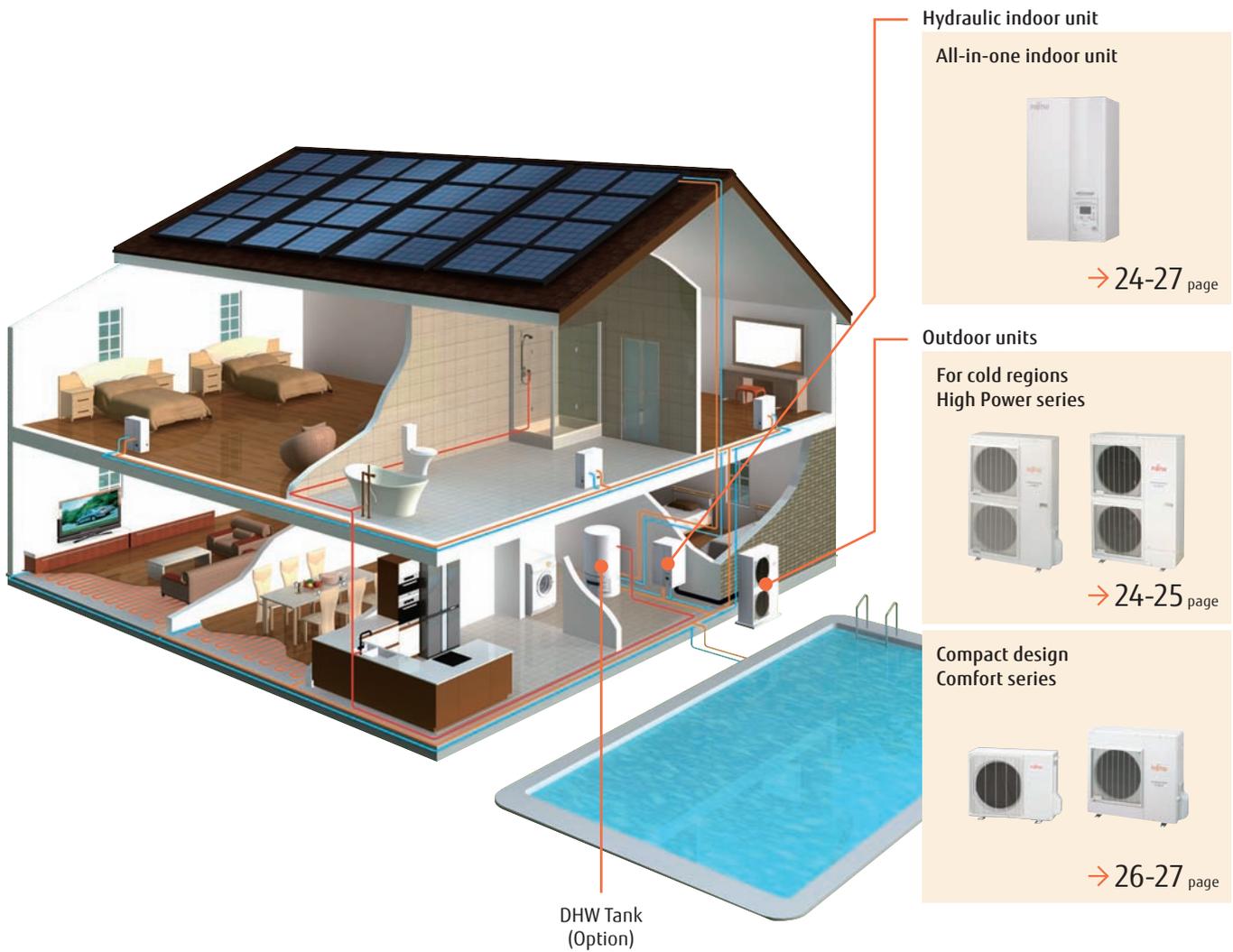


S

SPLIT TYPE

# Room heating & Domestic hot water





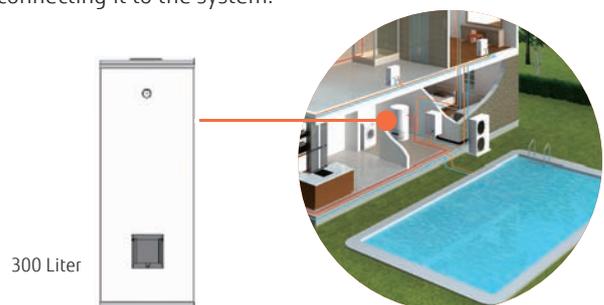
- Outdoor unit and hydraulic indoor unit can be installed freely, so installation is easy.
- Since hydraulic indoor unit is installed inside a house, freezing of circulated water can be prevented.
- A larger heating capacity can be performed flexibly by using more units in cascade connection.

## + Boiler

By combining existing boiler, powerful heating can be performed even at low outdoor temperature.

## + DHW Tank

DHW tank (option) can be used to supply hot water by connecting it to the system.

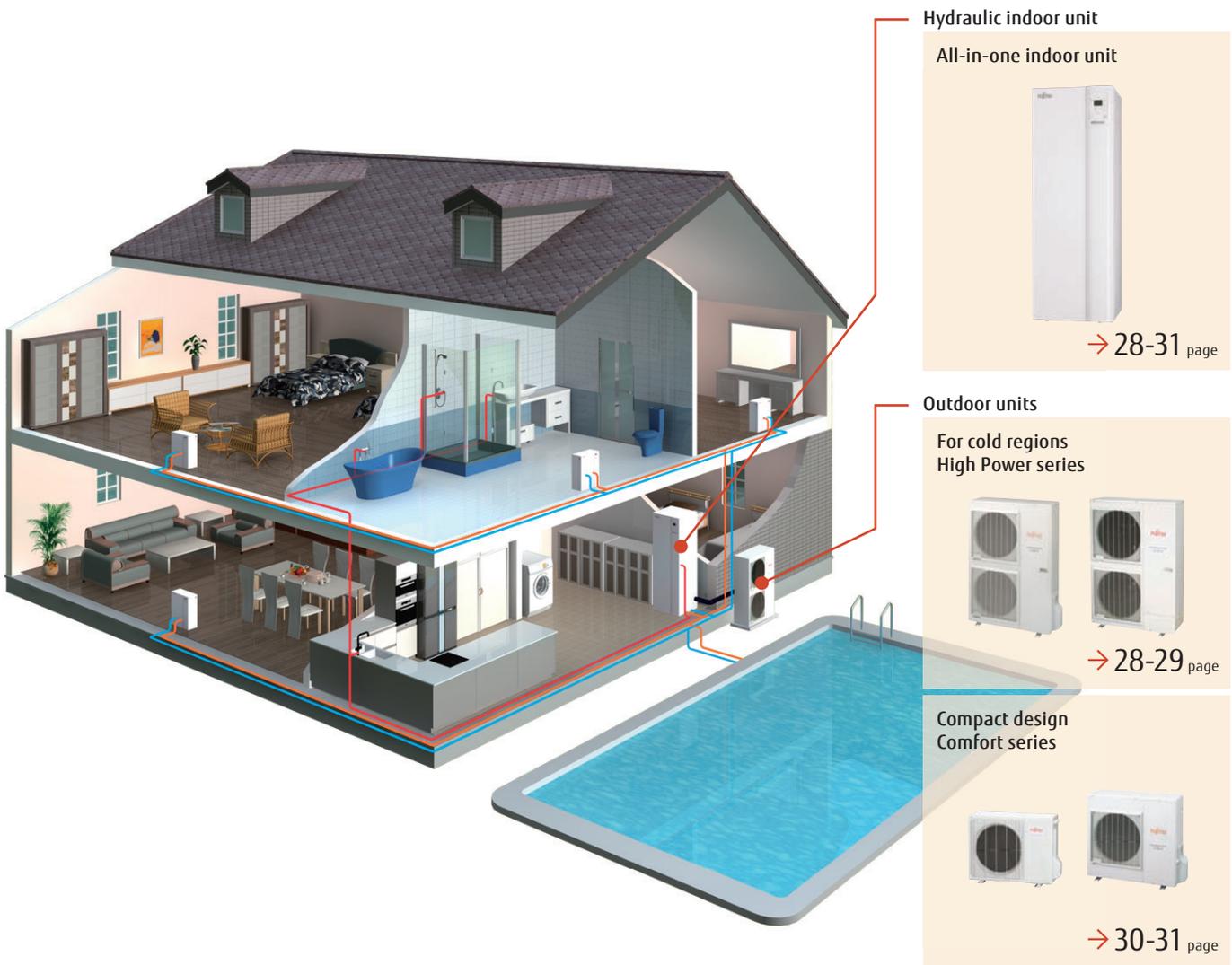


USAGE INTRODUCTION

SD

SPLIT DHW INTEGRATED TYPE

Room heating  
& Domestic  
hot water



- Space is saved drastically due to built-in DHW tank.
- Existing boiler can be replaced easily.
- A larger heating capacity can be performed flexibly by using more units in cascade connection.

Stylish space saving solution with built-in DHW tank

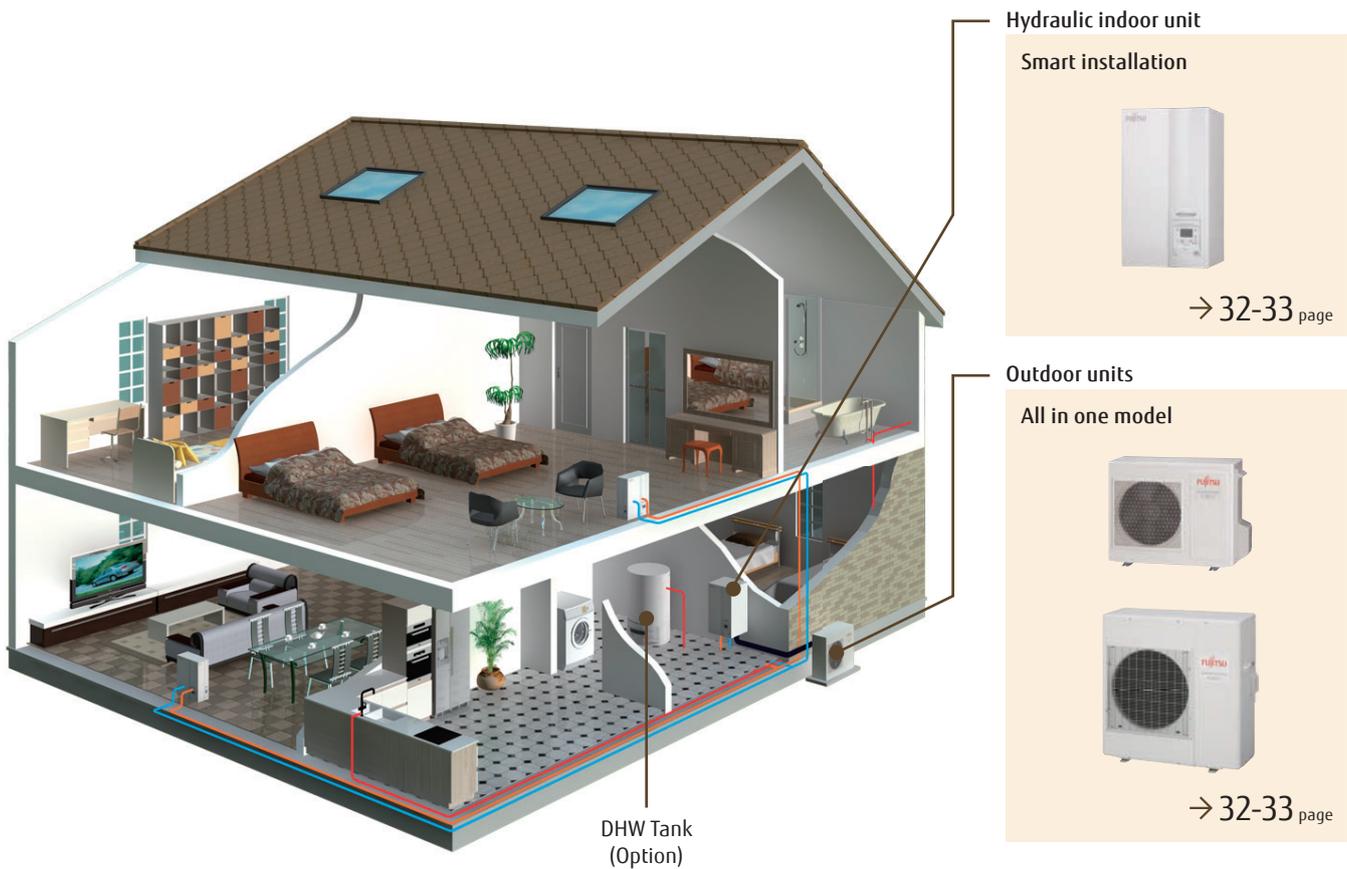


M

MONOBLOC TYPE

# Simple setting

Room heating  
& Domestic hot water



- Outdoor unit and hydraulic indoor unit can be installed anywhere due to compact size.
- Installation work can be performed easily only by connecting hydraulic pipes.
- DHW tank can be connected to indoor side.

## Compact Design

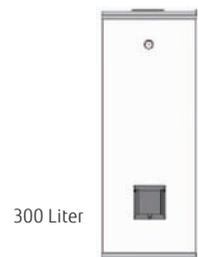


## + Boiler

By combining existing boiler, powerful heating can be performed even at low outdoor temperature.

## + DHW Tank

DHW tank (option) can be used to supply hot water by connecting it to the system.



# PRODUCT TECHNOLOGY & FEATURES



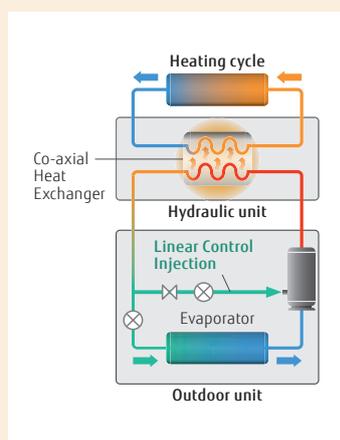
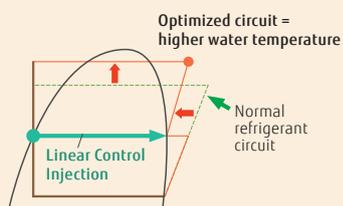
## Twin Rotary Compressor



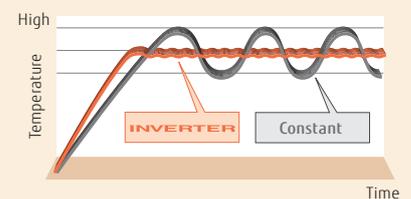
## Product technology for Outdoor Unit

### Twin Rotary Compressor with Linear Control Injection Port

It realizes the high condensing temperature without overheating discharge gas temperature by Linear Control Injection process during compression. Therefore, the condensing temperature rises up higher than normal circuit. A higher hot water temperature is realized by controlling the injection amount according to the usage state.

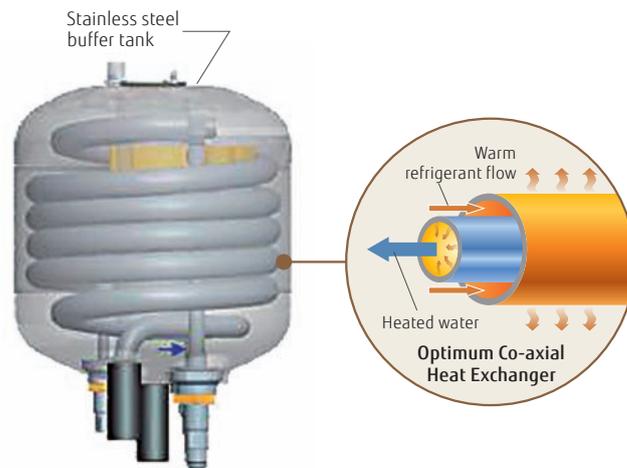


### Accurate temperature control by DC inverter technology



## High Durability Co-axial Heat Exchanger

- Corrosion protected
- No flow switch necessary
- Anti-freeze-protection is unnecessary



## Product technology for Hydraulic Indoor Unit

### High Efficiency Class A Pump

Energy saving pump with constant volume or pressure adjustment function.

Class  
A



### Easy Control Hydraulic Indoor Unit Controller

4 Heating mode

#### Automatic mode

Comfort/Reduce mode switching automatically according to time program

#### Reduce mode

Constant reduce temperature

#### Comfort mode

Constant comfort temperature

#### Protection mode

Stand-by mode with anti-frost protection



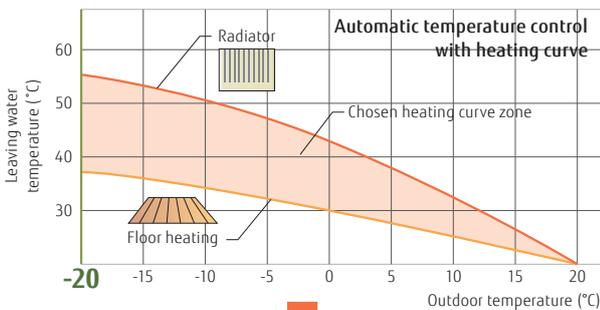
# Comfort Control

A program adjusts the hot water temperature automatically in advance based on the outdoor temperature, so hot water temperature can be controlled so that setting temperature is maintained constantly.



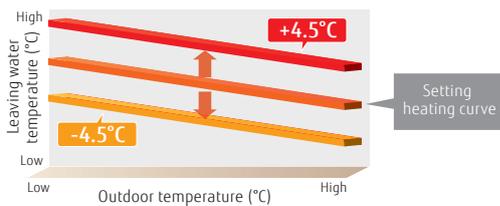
## Automatic heating curve operation

Automatic heating curve control based on outdoor temp and setting room temperature.



**Heating curve off-set: Adjust setting room temp.**

This can be fine adjusted when too warm or too cold.



## Quick recovery from defrost operation

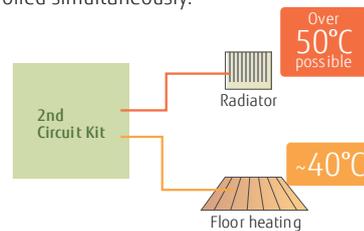
Maintaining the room temperature during defrost operation by boost start operation

## Auto-changeover

If the cooling operation function is set, the system can automatically switch to cooling or heating, depending on the outdoor temperature to provide all-season comfortable air conditioning.

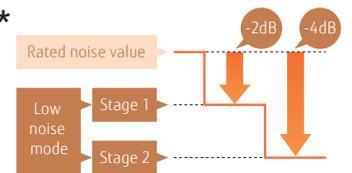
## 2 Zone Individual Control\*

Even if hot water temperature is different in 2 heating systems, they can be controlled simultaneously.



## 2 Stage Low Noise Mode\*

Outdoor unit can be switched to silent mode, depending on the installation environment. (Valid only for High Power)



## Backup heater operation

Backup heater can operate at low outdoor temperature so that comfortable status can be maintained. The backup heater is controlled intelligently just as a security backup for very cold days/nights and only activated when really necessary.



# Energy Saving

## Programmable timer

- The setting of timer operation can easily be adjusted.
- Changing the heating mode linked with time is possible.

## Day-Weekly timer setting

- The day-weekly timer can be set up for up to 3 times per day.
- Allows separate settings for each day of the week.

## Holiday timer setting

- The holiday timer can be set up for up to 8 periods
- If you are absent for a long time in the winter, freezing of room can be prevented.

## Peak Cut Function\*

This function performs operation by setting a peak current value and reducing the power consumption.

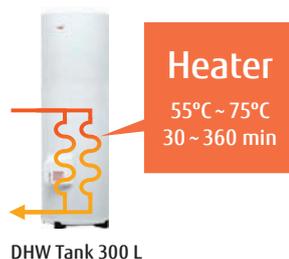
Mode	The ratio of suppressing the power consumption
1	100%
2	75%
3	50%
4	Almost 0%



# Safety Function

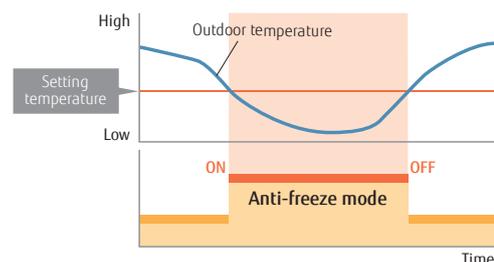
## Anti-legionella function

The growth of Legionella in DHW tank is suppressed and safe and clean hot water is supplied at all times.



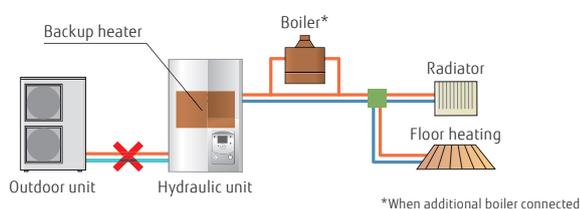
## Anti-freeze function

Water circulation and compressor can be automatically performed at low outdoor temperature. Freezing of circulated water can be prevented.



## Emergency operation

System can continuously supply hot water by built in back up heater or boiler, as emergency, even if an error is occurred.



## Error/Maintenance alarm

Quick error handling service and maintenance are possible by this function.

- Error
- Maintenance

- Error history saves 10 errors in memory
- Display telephone NO. of service company



\*: Optional parts are required.

# PRODUCT LINEUP for various needs

Type	S SPLIT TYPE			
	High Power series		Comfort series	
Hydraulic indoor unit				
Outdoor unit				
Capacity range:	11/14 kW      11/14/16 kW		5/6/8 kW      10 kW	
System	<ul style="list-style-type: none"> <li>• 60°C hot water supply even at -20°C outdoor temperature</li> <li>• Different heating system can be used. Like floor heating, radiators and others.*</li> <li>• Heating and DHW in one system.*</li> <li>• Additional electric heater for backup provided.</li> <li>• Up to two independent control circuits.*</li> <li>• Solar connection for hot water production.*</li> <li>• Cascade connection up to three systems.*</li> <li>• Cooling operation is possible.*</li> </ul>		<ul style="list-style-type: none"> <li>• 55°C hot water supply even at -10°C outdoor temperature</li> <li>• Different heating system can be used. Like floor heating, radiators and others.*</li> <li>• Heating and DHW in one system.*</li> <li>• Additional electric heater for backup provided.</li> <li>• Up to two independent control circuits.*</li> <li>• Solar connection for hot water production.*</li> <li>• Cascade connection up to three systems.*</li> <li>• Cooling operation is possible.*</li> </ul>	
	 			
Power source	1Ø 230 V/50 Hz	3Ø 400 V/50 Hz	1Ø 230 V/50 Hz	
Capacity range	5 kW		■	
	6 kW		■	
	8 kW		■	
	10 kW		■	
	11 kW	■	■	
	14 kW	■	■	
	16 kW		■	

# SD

SPLIT DHW INTEGRATED TYPE

# M

MONOBLOC TYPE

## High Power series

## Comfort series

## Compact series



11/14 kW



11/14/16 kW



5/6/8 kW



10 kW



5 kW



8/10 kW

- 60°C hot water supply even at -20°C outdoor temperature
- Different heating system can be used .Like floor heating, radiators and others.\*
- Heating and DHW space saving in one hydraulic indoor unit.
- Additional electric heater for backup provided.
- Up to two independent control circuits.\*
- Solar connection for hot water production.\*
- Cascade connection up to three systems.\*
- Cooling operation is possible.\*



- 55°C hot water supply even at -10°C outdoor temperature
- Different heating system can be used.Like floor heating, radiators and others.\*
- Heating and DHW space saving in one hydraulic indoor unit.
- Additional electric heater for backup provided.
- Up to two independent control circuits.\*
- Solar connection for hot water production.\*
- Cascade connection up to three systems.\*
- Cooling operation is possible.\*



- 55°C hot water supply even at -20°C outdoor temperature
- Heating and DHW in one system.
- Additional base heater can be connected to prevent from freezing.\*
- Cooling operation is possible.



1Ø 230 V/50 Hz

3Ø 400 V/50 Hz

1Ø 230 V/50 Hz

1Ø 230 V/50 Hz

		■	■
		■	
		■	■
		■	■
■	■		
■	■		
	■		

\*Optional parts are required.

## PRODUCT LINEUP

# S

SPLIT TYPE



## High Power series

High Power models realizes high heating capacity and high efficiency by newly developed "Linear Control Injection Technology" and "Co-axial Heat Exchanger". These properties are the key for a reliable heating operation throughout the whole year- even in a strong winter.

### FEATURES

#### Comfort Control

- Automatic heating curve operation
- Auto-changeover
- Cooling operation
- Quick recovery from defrost operation
- Backup heater operation

#### Energy Saving

- Programmable timer

#### Safety Function

- Anti-legionella function
- Anti-freeze function
- Emergency operation
- Error/Maintenance alarm

### Single Phase power supply

11 kW

14 kW



#### Outdoor unit

WOYG112LCTA  
WOYG140LCTA



Hydraulic indoor unit  
WSYG140DG6

### 3 Phase power supply

11 kW

14 kW

16 kW



#### Outdoor unit

WOYK112LCTA  
WOYK140LCTA  
WOYK160LCTA

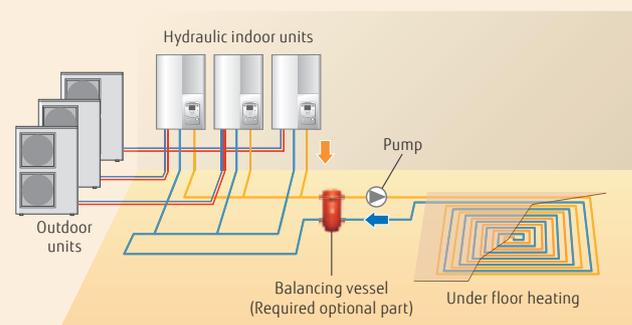


Hydraulic indoor unit  
WSYK160DG9



\*:Check the validity of label at [www.ehpa.org/QL](http://www.ehpa.org/QL)

### Cascade connection





# Powerful Heating

High Power models realize high leaving water temperature and high heating capacity even at low ambient temperature by newly developed "Linear Control Injection Technology". It is possible to provide high water temperature and warm rooms in cold regions.

## High Leaving Water Temperature

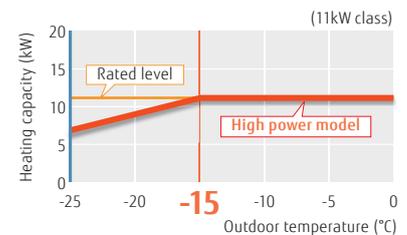
No backup heater\*

High leaving water temperature 60°C kept down to -20°C outdoor temperature without using backup heater.

\* If you want to raise the hot water supply temperature, backup heater can be used for the auxiliary operation.

## Strong & Powerful Heating Capacity

Keeping the rated heating capacity at -15°C outdoor temperature

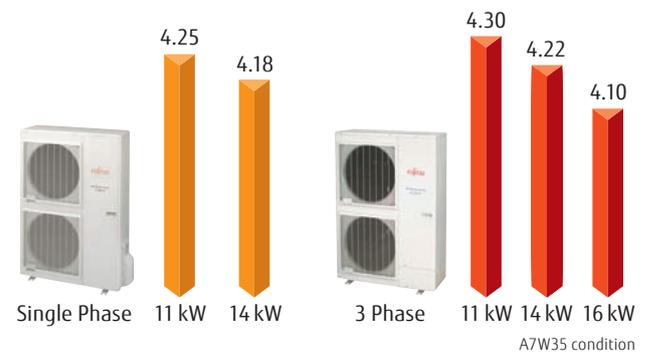


## Extended Operation Range Down to -25°C

Improved operation range down to -25°C outdoor temperature

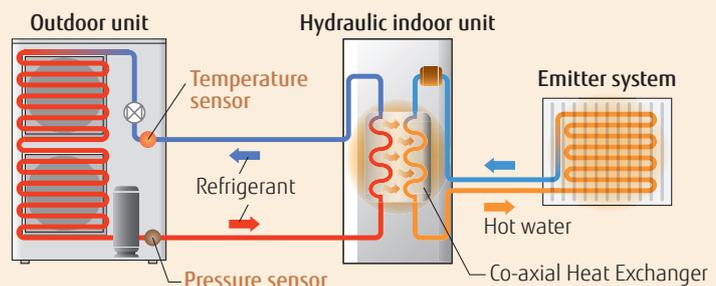
## High COP

Energy efficiency is improved by the linear Control Injection Technology and the optimization of refrigerant cycle control. High Power model realizes high performance and high efficiency by adopting twin sensors and control technology corresponding to hot water heating.



## Optimization of refrigerant cycle operation

High Power model realizes high performance and high efficiency by adopting twin sensors and control technology corresponding to hot water heating.



## PRODUCT LINEUP

# S

SPLIT TYPE



## Comfort series

For Comfort series, optimized flow temperature control is realized by DC inverter technology.

### FEATURES

#### Comfort Control

- Automatic heating curve operation
- Auto-changeover
- Cooling operation
- Quick recovery from defrost operation
- Backup heater operation

#### Energy Saving

- Programmable timer

#### Safety Function

- Anti-legionella function
- Anti-freeze function
- Emergency operation
- Error/Maintenance alarm

5 kW

6 kW

8 kW



**Hydraulic indoor unit**  
WSYA050DG6  
WSYA100DG6



**Outdoor unit**  
WOYA060LFCA  
WOYA080LFCA

10 kW

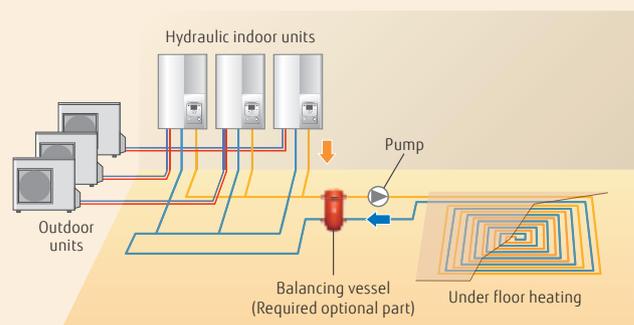


**Hydraulic indoor unit**  
WSYA100DG6



**Outdoor unit**  
WOYA100LFTA

### Cascade connection (10 kW model)



# Heated up Comfortably

Comfort models realize high efficient operation by compact design suited for European environment. Hot water temperature can be controlled finely by All DC control and comfortable space heating and domestic hot water are provided.

## High Leaving Water Temperature

No backup heater\*

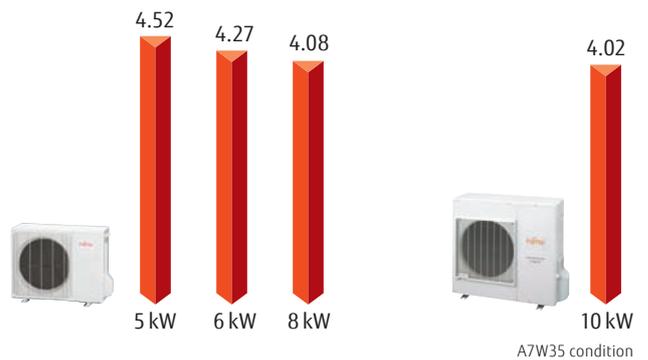
Maximum leaving water temperature is 55°C without backup heater. Hot water supply temperature can be maintained even at -10°C outdoor temperature.

\* If you want to raise the hot water supply temperature, backup heater can be used for the auxiliary operation.

## Wide Operation Range

Improved operation range down to -20°C outdoor temperature

## High COP



## Outdoor unit technology



### DC Fan Motor

High performance, high efficiency small DC fan motor mounted.



### DC Twin Rotary Compressor

High efficient DC twin rotary compressor



### DC Inverter

Smooth water temperature control realized by DC inverter control.

## PRODUCT LINEUP

# SD

SPLIT DHW INTEGRATED TYPE



## High Power series

Split DHW integrated type realizes significant space saving because of the integrated DHW tank. Quick hot water supply is possible due to built-in high performance DHW tank. Heating and domestic hot water supply can be selected inside the intelligent controller. High Power models realize very efficient large heating capacities by newly developed "Linear Control Injection Technology" and "Co-axial heat Exchanger".

### FEATURES

#### Comfort Control

- Automatic heating curve operation
- Auto-changeover
- Cooling operation
- Quick recovery from defrost operation
- Backup heater operation

#### Energy Saving

- Programmable timer

#### Safety Function

- Anti-legionella function
- Anti-freeze function
- Emergency operation
- Error/Maintenance alarm

### Single Phase power supply

11 kW

14 kW



Hydraulic indoor unit  
WGYG14ODG6

#### Outdoor unit

WOYG112LCTA  
WOYG140LCTA

### 3 Phase power supply

11 kW

14 kW

16 kW

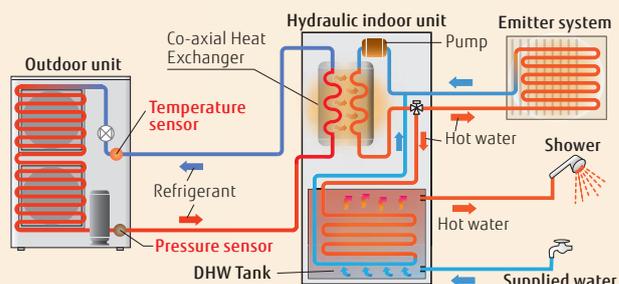


Hydraulic indoor unit  
WGYK160DG9

#### Outdoor unit

WOYK112LCTA  
WOYK140LCTA  
WOYK160LCTA

### Optimization of refrigerant cycle operation



High Power model realizes high performance and high efficiency by adopting twin sensors and control technology corresponding to hot water heating.

# High Performance

High Power models realize high leaving water temperature and high heating capacity even at low ambient temperature by newly developed "Linear Control Injection Technology". It is possible to provide high water temperature and warm rooms in cold regions.

## High Leaving Water Temperature

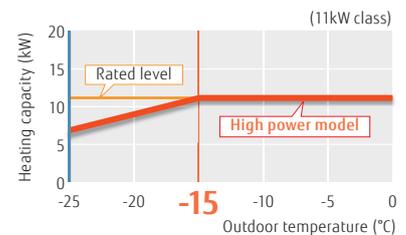
No backup heater\*

High leaving water temperature 60°C kept down to -20°C outdoor temperature without using backup heater.

\* If you want to raise the hot water supply temperature, backup heater can be used for the auxiliary operation.

## Strong & Powerful Heating Capacity

Keeping the rated heating capacity at -15°C outdoor temperature

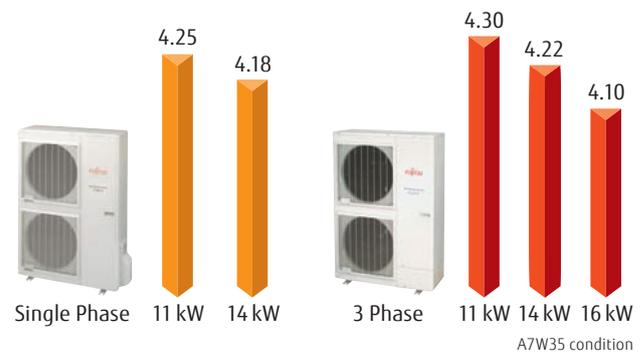


## Extended Operation Range Down to -25°C

Improved operation range down to -25°C outdoor temperature

## High COP

Energy efficiency is improved by the linear Control Injection Technology and the optimization of refrigerant cycle control. High Power model realizes high performance and high efficiency by adopting twin sensors and control technology corresponding to hot water heating.



For Split DHW Integrated type  
Hydraulic indoor unit



Stylish space saving solution with  
**Built in High Performance**  
DHW Tank 190 L



- DHW Production with coil heat exchanger to optimise the DHW performance
- Quick temperature rise due to a big exchanger surface

## PRODUCT LINEUP

# SD

SPLIT DHW INTEGRATED TYPE



## Comfort series

For Comfort series, optimized flow temperature control is realized by DC inverter technology.

### FEATURES

#### Comfort Control

- Automatic heating curve operation
- Auto-changeover
- Cooling operation
- Quick recovery from defrost operation
- Backup heater operation

#### Energy Saving

- Programmable timer

#### Safety Function

- Anti-legionella function
- Anti-freeze function
- Emergency operation
- Error/Maintenance alarm

5 kW 6 kW 8 kW



Hydraulic indoor unit  
WGYA050DG6  
WGYA100DG6



Outdoor unit  
WOYA060LFCA  
WOYA080LFCA

10 kW



Hydraulic indoor unit  
WGYA100DG6



Outdoor unit  
WOYA100LFTA



# Heated up Comfortably

Comfort models realize high efficient operation by compact design suited for European environment. Hot water supply temperature can be controlled finely by All DC control and comfortable space heating and domestic hot water are provided.

## High Leaving Water Temperature

No backup heater\*

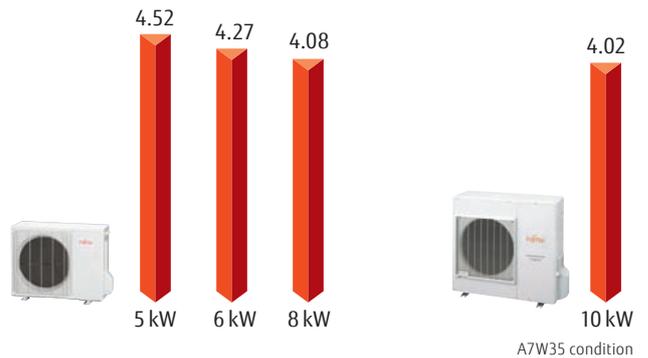
Maximum leaving water temperature is 55°C without backup heater. Hot water supply temperature can be maintained even at -10°C outdoor temperature.

\* If you want to raise the hot water supply temperature, backup heater can be used for the auxiliary operation.

## Wide Operation Range

Improved operation range down to -20°C outdoor temperature

## High COP



## Outdoor unit technology



### DC Fan Motor

High performance, high efficiency small DC fan motor mounted.



### DC Twin Rotary Compressor

High efficient DC twin rotary compressor



### DC Inverter

Smooth water temperature control realized by DC inverter control.

## PRODUCT LINEUP

# M

MONOBLOC TYPE



## Compact series

Compact designed heat pump. Refrigerant pipe work is unnecessary. Only hydraulic connecting work is to be done. Circulation pump, safety valve and automatic vent valve are included. Easy installation and maintenance is feasible.

### FEATURES

#### Comfort Control

- Automatic heating curve operation
- Auto-changeover
- Cooling operation
- Quick recovery from defrost operation
- Backup heater operation

#### Energy Saving

- Programmable timer

#### Safety Function

- Anti-legionella function
- Anti-freeze function
- Emergency operation
- Error/Maintenance alarm

5 kW



Hydraulic indoor unit  
WSYP100DG6



Outdoor unit  
WPYA050LG

8 kW

10 kW



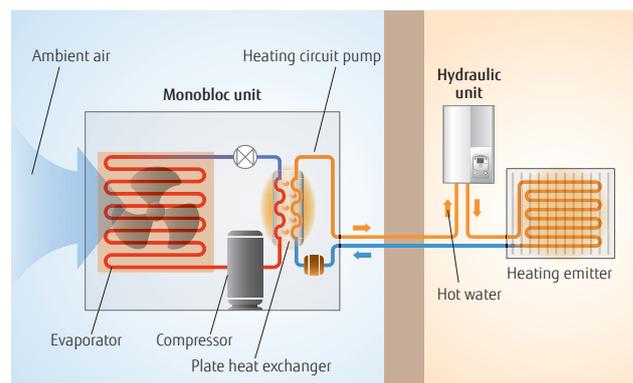
Hydraulic indoor unit  
WSYP100DG6



Outdoor unit  
WPYA080LG  
WPYA100LG

## Easy installation & maintenance!

### All-in-One Model



# High Performance

## High Leaving Water Temperature



High leaving water temperature of 55°C keeps to -20°C outdoor temperature without additional heater.

\* If you want to raise the hot water supply temperature, backup heater can be used for the auxiliary operation.

## Wide Operation Range

Improved operation range down to -20°C outdoor temperature

## High COP 4.50 (8 kW model)

High COP is realized by using a DC twin rotary compressor, inverter technology, and high efficient water heat exchanger.

## Smart installation Hydraulic Indoor Unit



- The compact Indoor unit provides two electrical back up heater, each with 3kW capacity
- 12 L expansion vessel included
- No waste of space. DHW Kit installation inside the hydraulic indoor unit possible.
- New generation controller. Connection by Modbus protocol possible.
- Heat metering included

## Outdoor unit technology

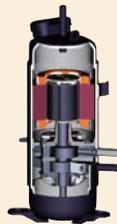
### DC Fan Motor

High performance, high efficiency small DC fan motor mounted.



### DC Twin Rotary Compressor

High efficient DC twin rotary compressor



### DC Inverter

Smooth water temperature control realized by DC inverter control.



Weight  
49 kg  
5 kW model

Compact Design

Weight  
72 kg  
8 kW model



### High Efficient Plate Heat Exchanger

Very compact size achieved by a thin high-efficiency heat exchanger



# SYSTEM CONFIGURATION & OPTIONAL PARTS

Control  
System Configuration  
Optional Parts



# Control

User's needs are supported by offering a variety of controls, such as individual control and remote control options.

## Individual Controller

### Wired Remote Control (option)



Room Thermostat  
UTW-C55XA



Remote Control  
UTW-C74TXF\*1  
UTW-C74HXF\*1

### Wireless Remote Control (option)



Room Thermostat  
UTW-C58XD



Remote Control  
UTW-C78XD



RF Module  
UTW-MRCXD



## Hydraulic Indoor Unit Controller

### Simple operation mode setting

- Selecting the heating mode and Domestic hot water operation

### Large LCD display

- Operation status display
- Error display
- plain text

### Navigation and setting

- Selecting the heating menu
- Setting program timer

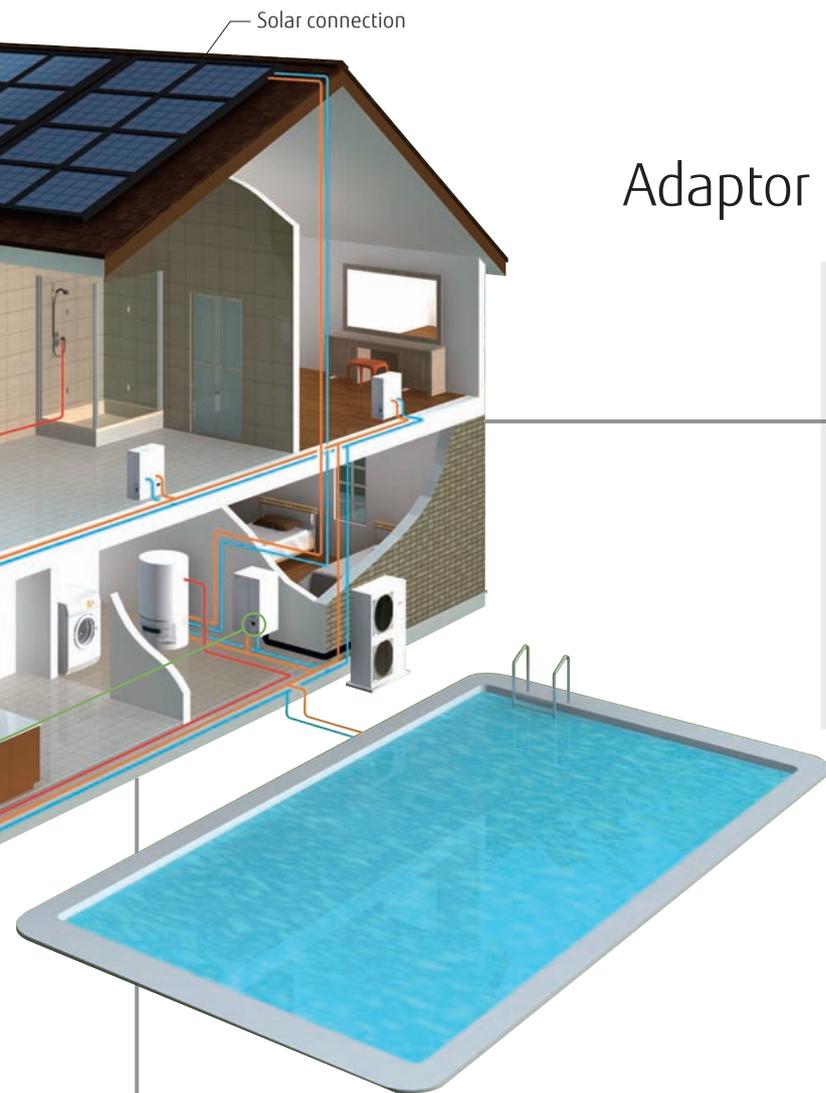


HMI Kit (option)  
UTW-KHMXE

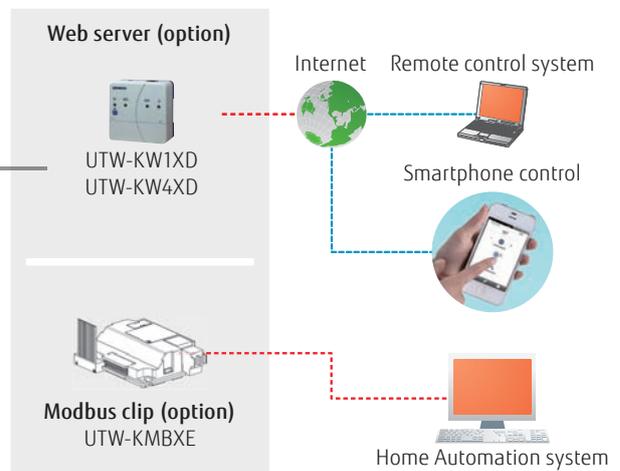
Corresponding to multi languages

\*1: 19 Languages included, no separate Eastern European RC necessary

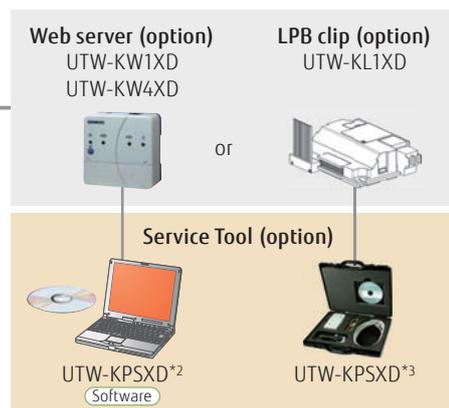




## Adaptor for external device

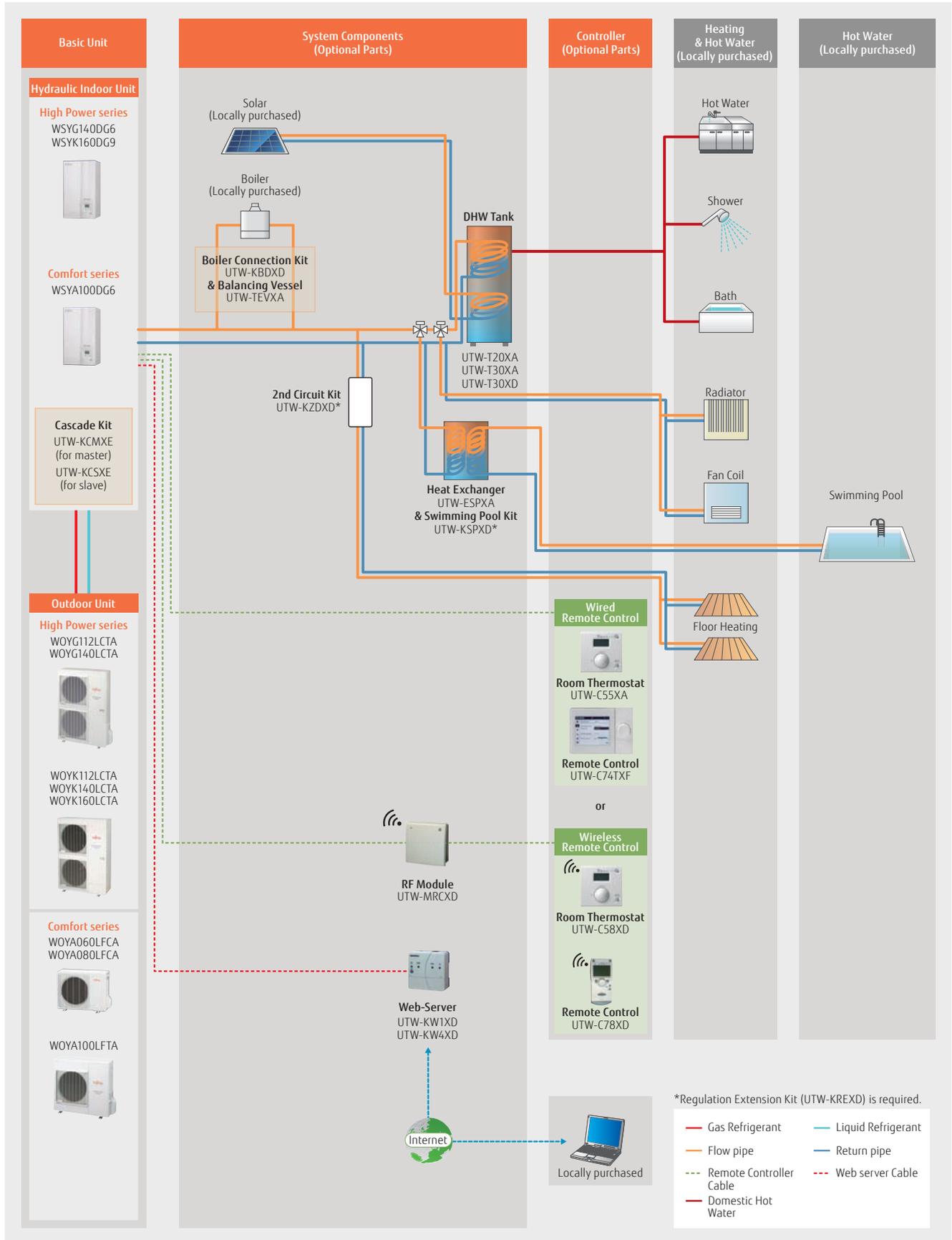


## Service & Maintenance Tool



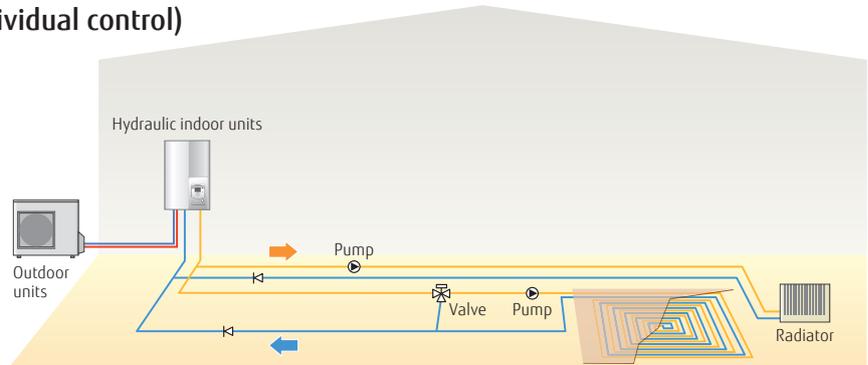
\*2: UTW-KW1XD or UTW-KW4XD is required for the connection.  
\*3: UTW-KL1XD is required for the connection.

# System Configuration

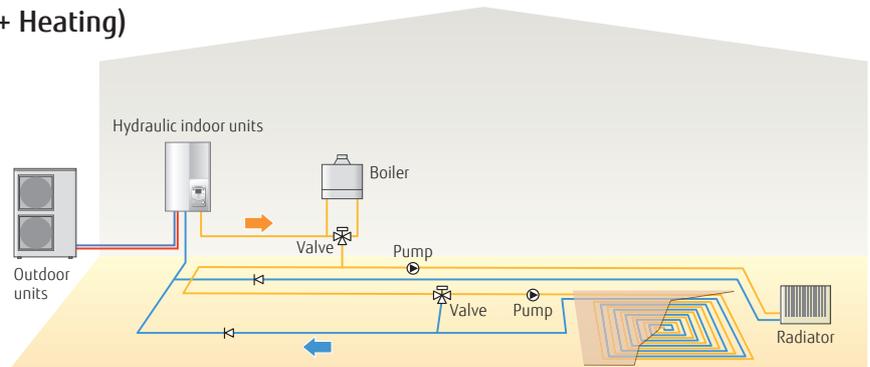


# System Case Studies

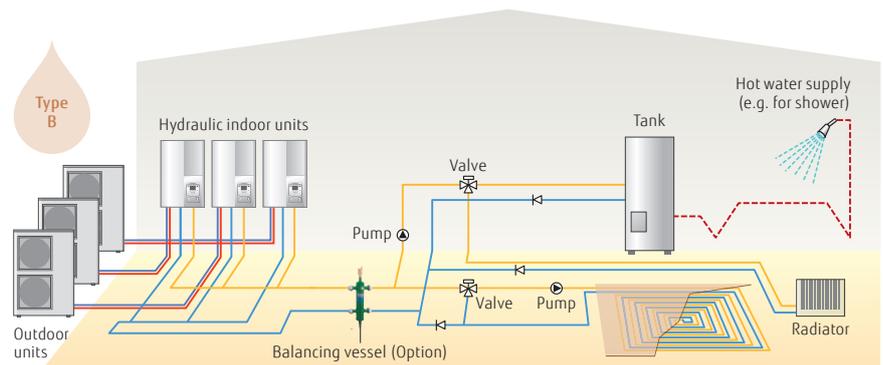
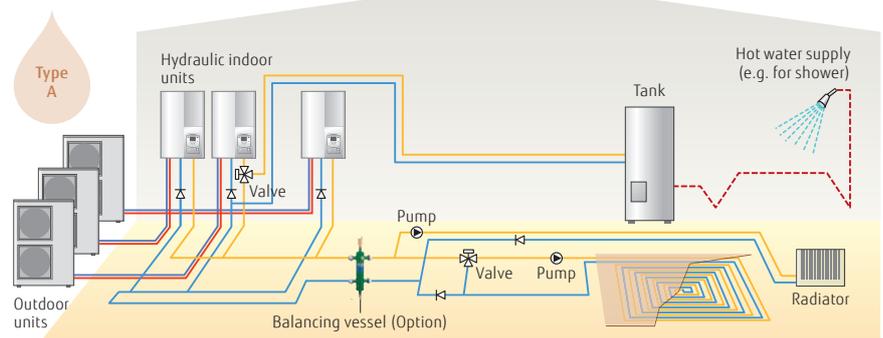
## 2 emitter simultaneous heating (Individual control)



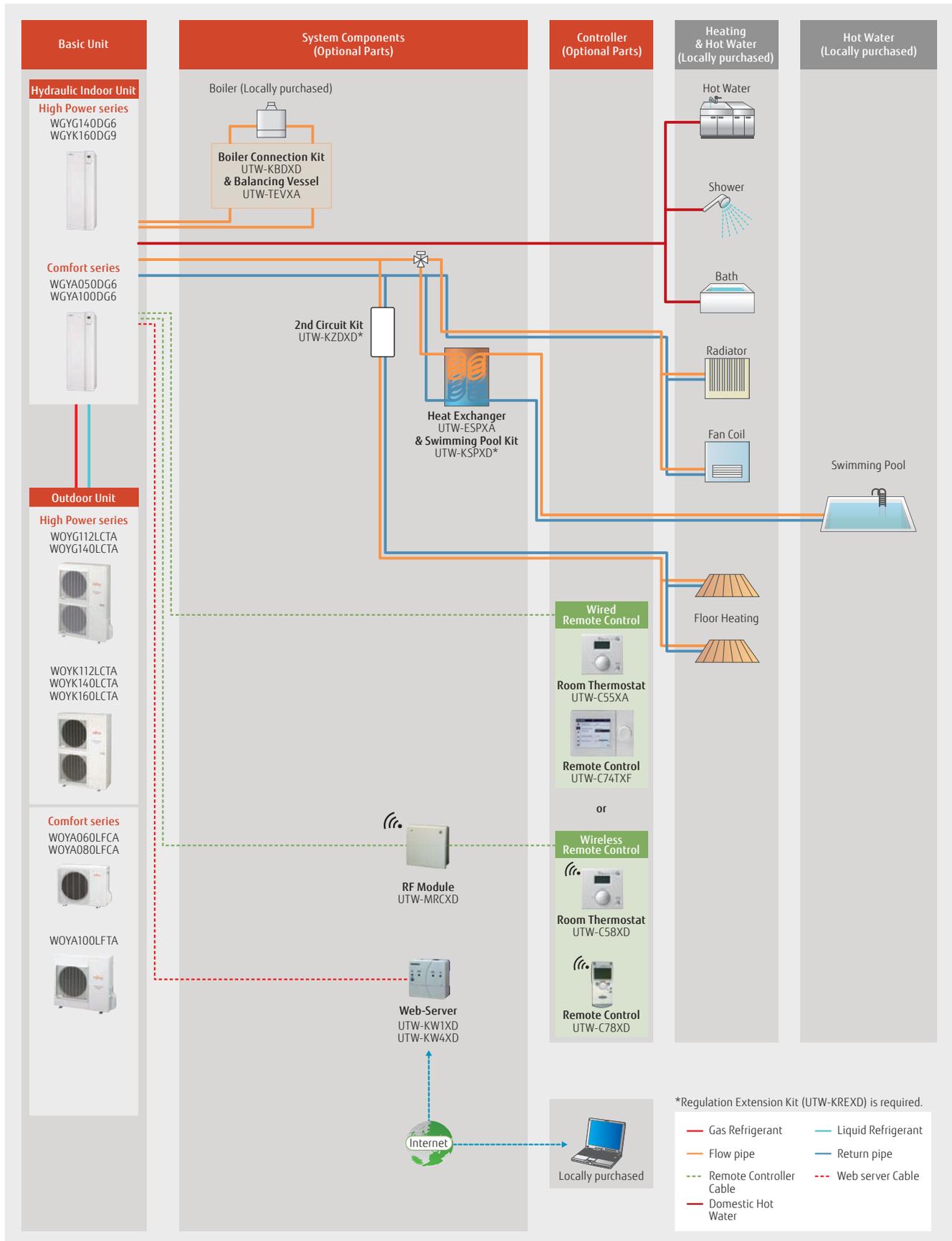
## Boiler connected to heating (Boiler + Heating)



## 2 emitter simultaneous heating & Domestic Hot Water (Cascade)

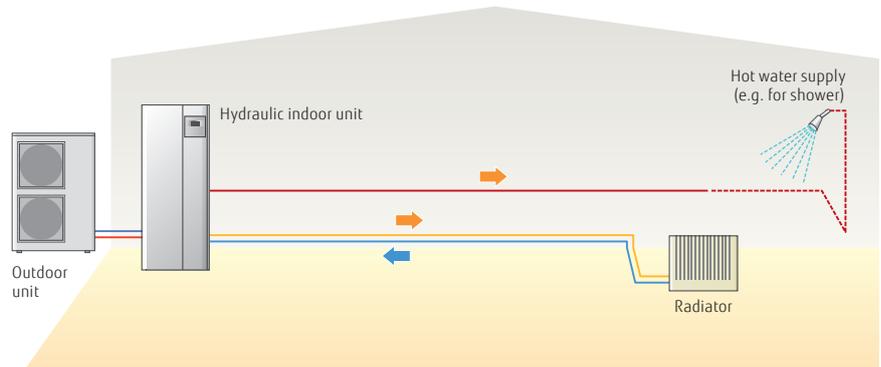


# System Configuration

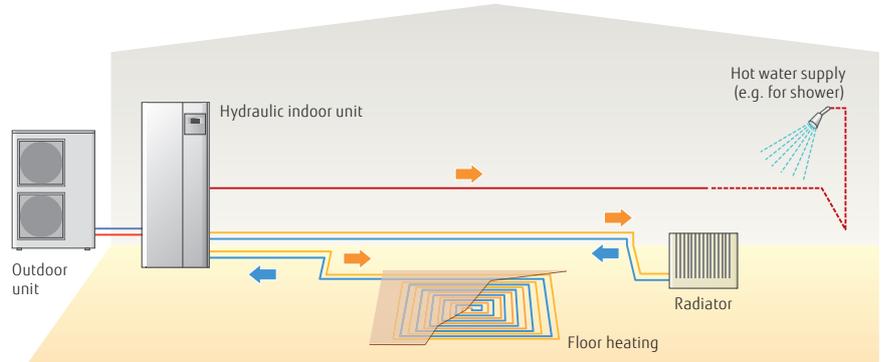


# System Case Studies

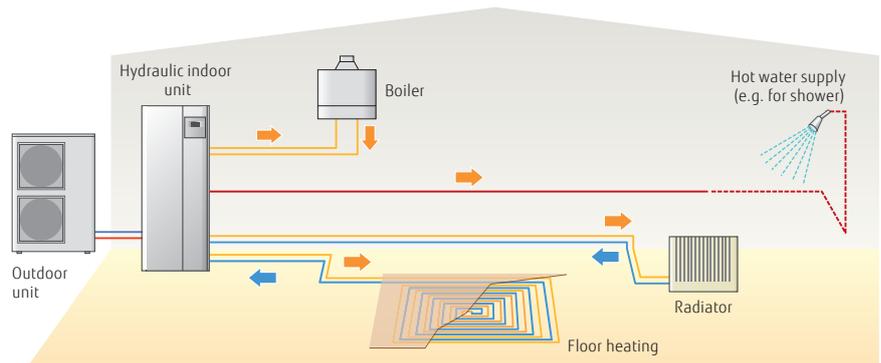
## Single heating & Domestic Hot Water



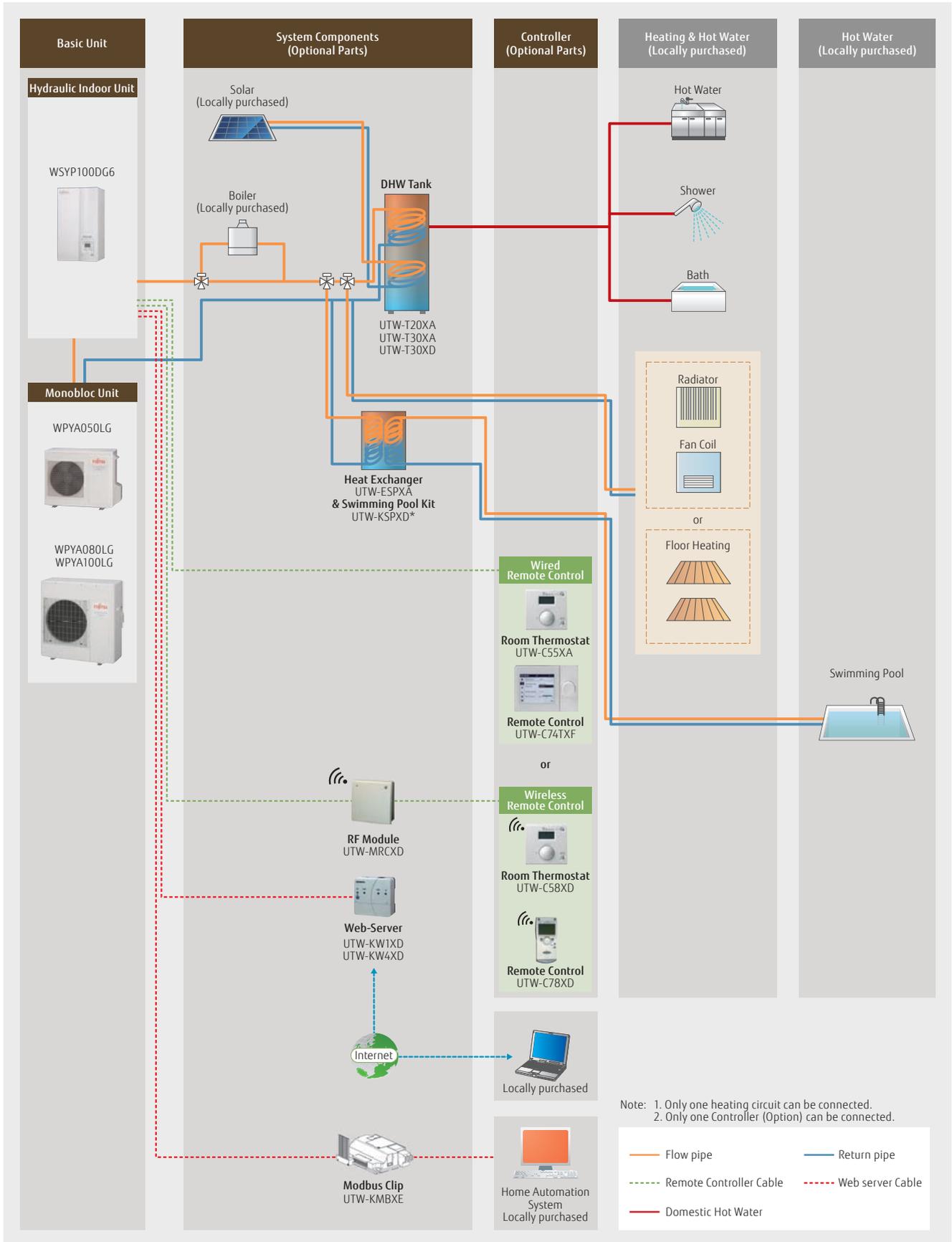
## 2 emitter simultaneous heating (Individual control) & Domestic Hot Water



## Boiler connected to heating (Boiler + Heating) & Domestic Hot Water

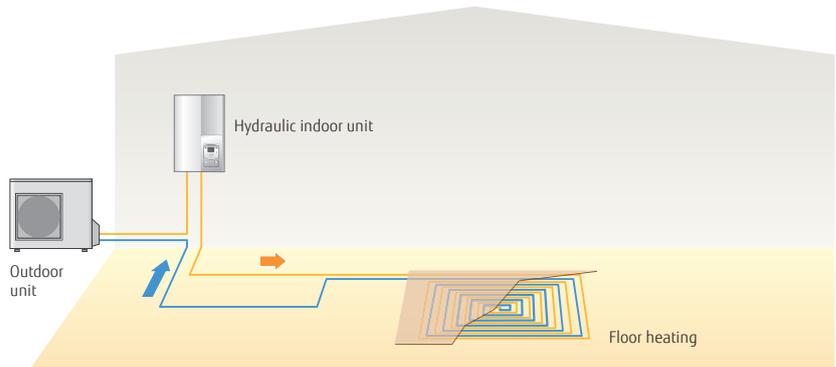


# System Configuration

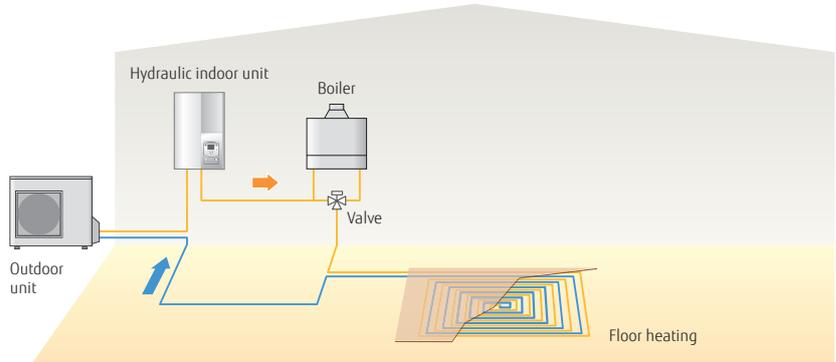


# System Case Studies

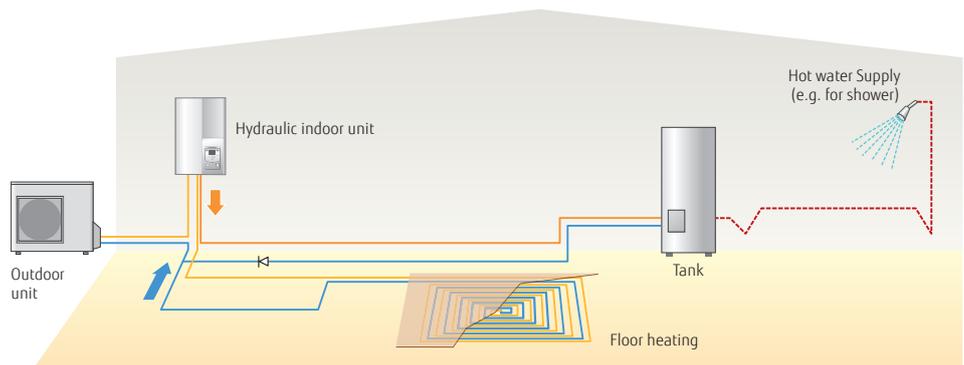
## Single heating system



## Boiler connected to heating (Boiler + Heating)



## 2 types of heat distribution







# OTHERS

Simple Installation & Maintenance

Installation Information

Specifications & Dimensions

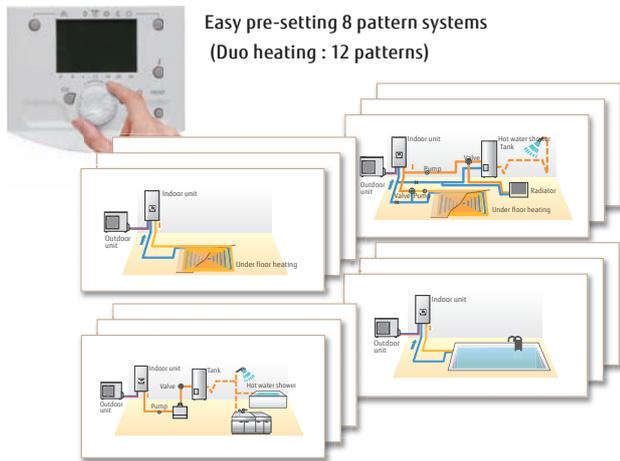
Model Selection Software



## Simplified installation

### Pre-setting configurations

When installed, the controller makes it simple to set system settings without having to individually set the system's components and units.

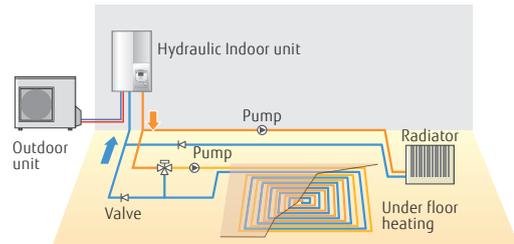


Configuration (Parameter 5700)	Type of installation
Pre setting 1	1 heating circuit
Pre setting 2	2 heating circuit
Pre setting 3	1 heating circuit & boiler backup
Pre setting 4	2 heating circuit & boiler backup
Pre setting 5	1/2 heating circuit & buffer control
Pre setting 6	1/2 heating circuit & buffer control & boiler backup
Pre setting 7	cascade connection Master
Pre setting 8	cascade connection A
Pre setting 9	cascade connection B/C

- DHW & solar control auto detection
- pool heating & cooling optional

### Outdoor temperature simulation

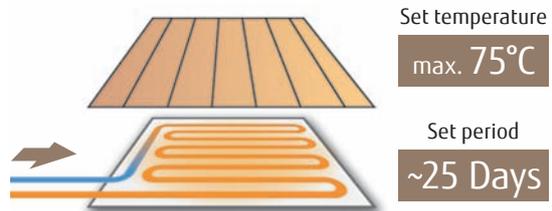
It can be checked whether each unit operates correctly under the set conditions and expected outdoor temperatures when the system is actually assembled.



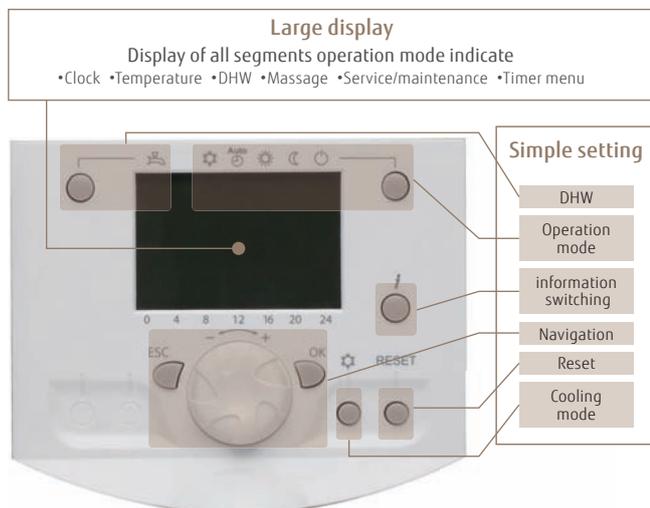
Outdoor temperatures in the range from  $-50^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$  can be simulated.

### Floor drying

When floor heating is installed, it can be used to dry the concrete surrounding the hot water piping more quickly to shorten the construction period.



### Controller features a large LCD display and buttons to make setting functions easy



### Main operation flow and setting contents for installers and end users

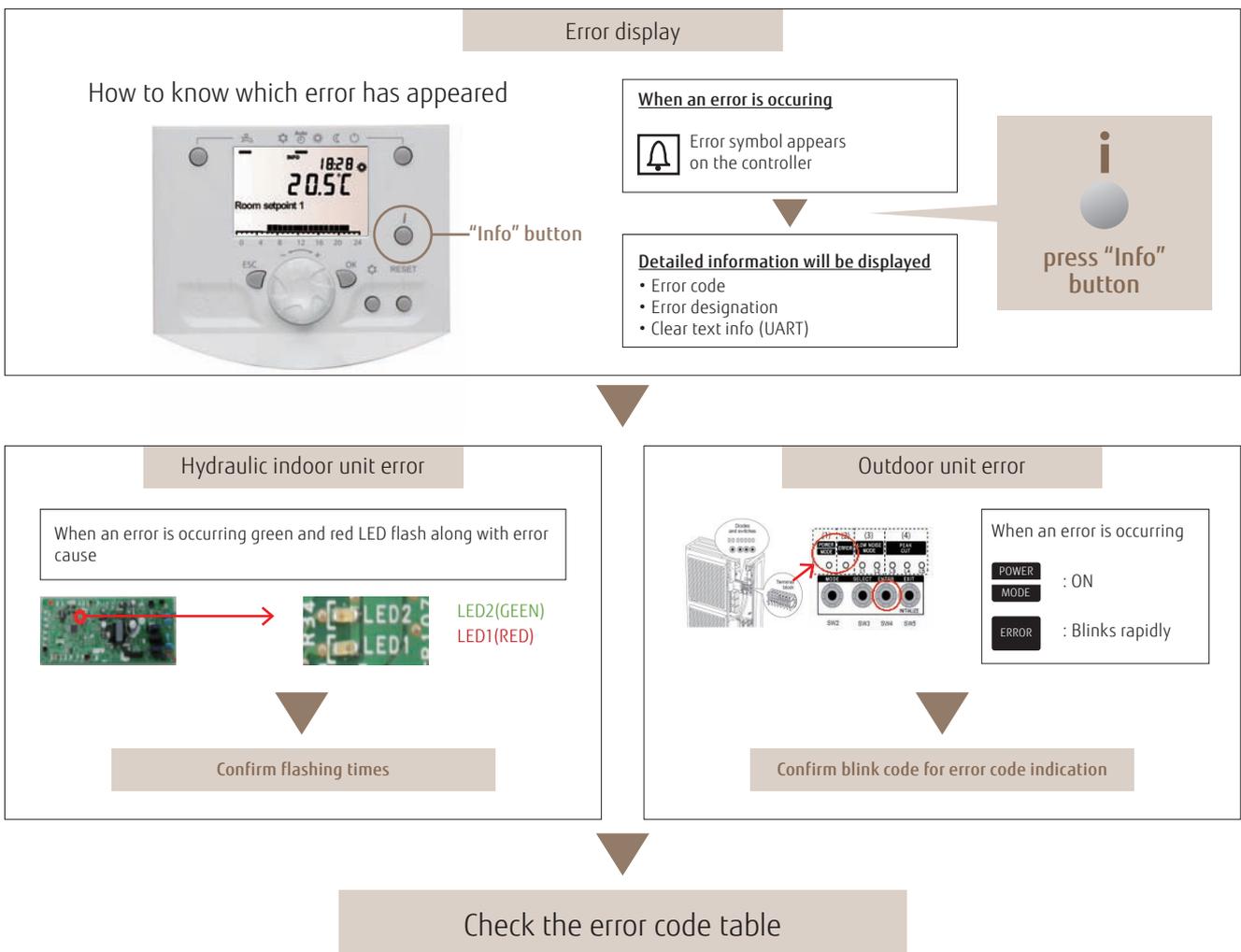
	Flow Chart	Example Item
Installers	1 Install Setting	Pump speed setting, Configuration, Heating curve setting, Heat pump shut off
	2 Option Setting	Cooling kit, DHW kit, Boiler kit, Swimming pool kit
	3 Convenient Function	Automatic Heating curve setting, Floor controlled driving, Outdoor temperature adjustment, Maintenance period setting
	4 workout Setting	Outdoor temperature simulator
End users	5 Confirmation	Operation conform (Heating cooling, DHW, option,)
	6 User Setting	Date and time, time program, Operation temperature setting

# Easy Installation & Maintenance

- All hydraulic safety & controlling components built in, no additional selection required
- Lifting bars for an installation without any difficulty or risk
- Easy access for maintenance operations
- No installation of refrigerant circuit connections (Only Monobloc)
- Refrigerant pump down operation

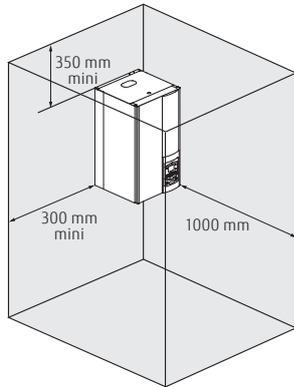
## Maintenance Support

### Diagnotics function for trouble shooting



# INSTALLATION INFORMATION

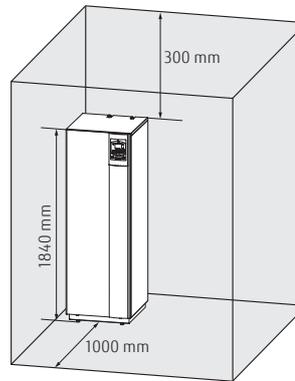
S



## Hydraulic indoor unit

- Hydraulic unit is to be hang on the wall
- Weight < 60kg (including water)
- Distances for maintenance should be respected

SD

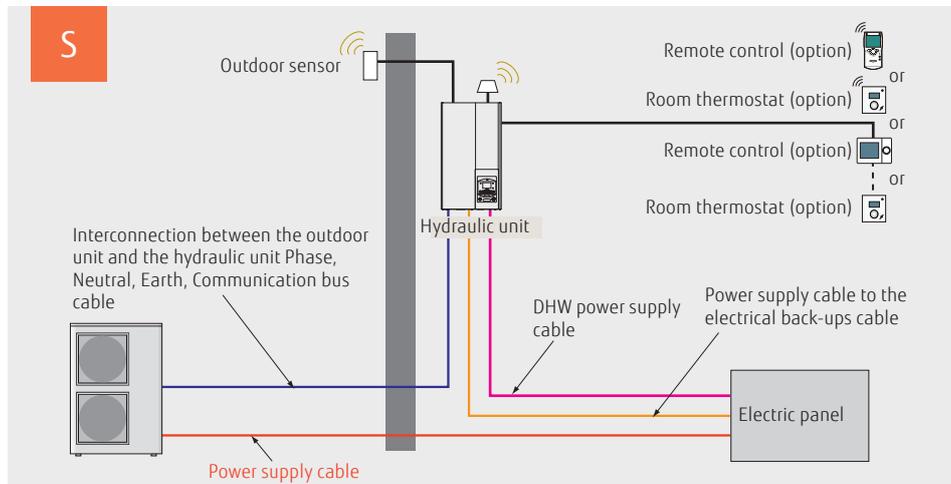


## Hydraulic indoor unit

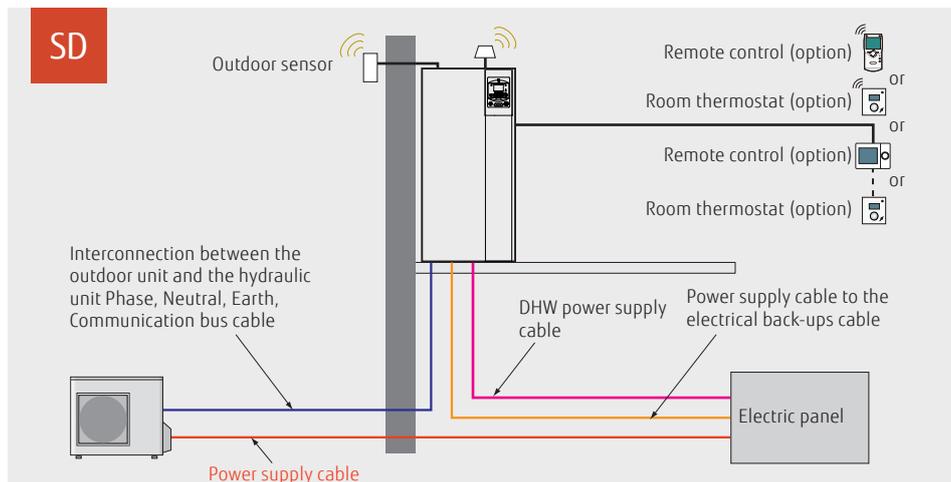
- Floor stand
- Weight: 152 kg (without water)
- Distances for maintenance should be respected.

## Electrical Wiring

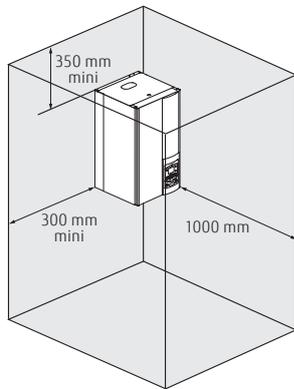
S



SD

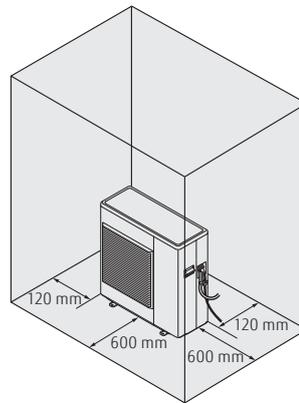


M



### Hydraulic indoor unit

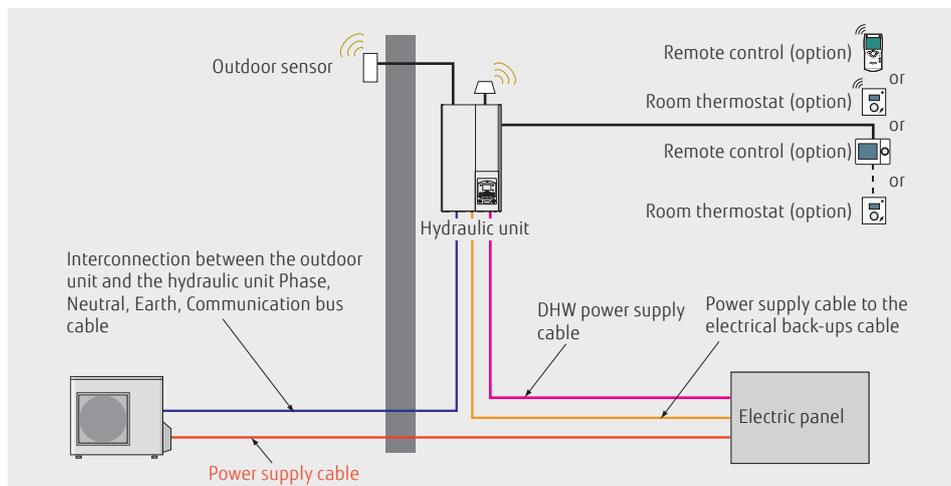
- Hydraulic unit is to be hang on the wall
- Weight < 60kg (including water)
- Distances for maintenance should be respected



### Outdoor unit

- Floor stand
- Weight < 71 kg (without water)
- Distances for maintenance should be kept

## Electrical Wiring



# SPECIFICATIONS & DIMENSIONS Split type

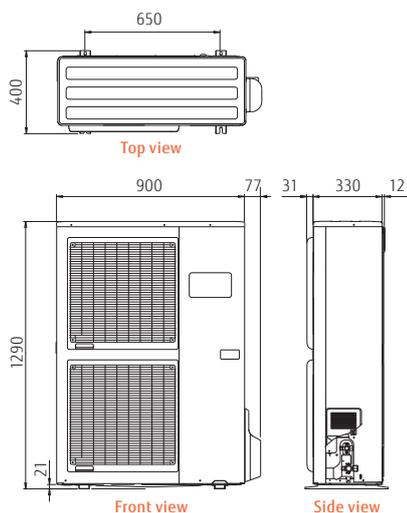
## Specifications (High Power series)

Model Name	Hydraulic indoor unit		WSYG140DG6		WSYG140DG6		WSYK160DG9		WSYK160DG9		WSYK160DG9	
	Outdoor unit		WOYG112LCTA		WOYG140LCTA		WOYK112LCTA		WOYK140LCTA		WOYK160LCTA	
<b>Capacity range</b>			11		14		11		14		16	
7°C/35°C floor heating *1	Heating capacity	kW	10.80		13.50		10.80		13.50		15.17	
	Input power		2.54		3.23		2.51		3.20		3.70	
	COP		4.25		4.18		4.30		4.22		4.10	
2°C/35°C floor heating *1	Heating capacity	kW	10.77		12.00		10.77		13.00		13.50	
	Input power		3.44		3.87		3.40		4.15		4.34	
	COP		3.13		3.10		3.17		3.13		3.11	
-7°C/35°C floor heating*1	Heating capacity	kW	10.80		12.00		10.80		13.00		13.50	
	Input power		4.32		5.08		4.28		5.18		5.40	
	COP		2.50		2.36		2.52		2.51		2.50	
<b>Space heating characteristics*2</b>												
Temperature application	°C		55	35	55	35	55	35	55	35	55	35
Energy efficiency class			A+	A++	A+	A+	A+	A++	A+	A++	A+	A+
Rated heat output (P <sub>rated</sub> )	kW		9	11	11	13	9	11	11	13	13	14
Seasonal space heating energy efficiency (η <sub>s</sub> )	%		109	151	113	148	112	154	117	150	117	149
Annual energy consumption	kWh		6842	6062	8041	6824	6669	5930	7803	6738	9062	7408
Sound power level	Hydraulic indoor unit		46		46		46		46		46	
	Outdoor unit		68		69		69		68		71	
<b>Hydraulic unit Specification</b>												
Power source	1 Ø 230 V 50 Hz						3 N 400 V 50 Hz					
Dimensions H×W×D	mm		800 × 450 × 457									
Weight (Net)	kg		42									
Water circulation	Min/Max	L/min	19.5/39.0		24.4/48.7		19.5/39.0		24.4/48.7		27.4/54.8	
Buffer tank capacity	L		16									
Expansion vessel capacity	L		8									
Leaving water temperature range	Max	°C	60									
Water pipe connection diameter	Flow/Return	mm	Ø 25,4/Ø 25.4									
Backup heater	Capacity	kW	6.0(3.0kW×2pcs.)			9.0(3.0kW×3pcs.)						
<b>Outdoor unit specification</b>												
Power source	1 Ø 230 V 50 Hz						3 N 400 V 50 Hz					
Current	Max	A	22.0		25.0		8.5		9.5		10.5	
Dimensions H × W × D	mm		1,290 × 900 × 330									
Weight (Net)	kg		92									
Refrigerant (Global warming potential)			R410A									
Refrigerant amount	kg		2.50									
Additional refrigerant charge amount	g/m		50									
Connection pipe	Diameter	Liquid	mm		Ø 9.52							
		Gas	mm		Ø 15.88							
	Length	Min/Max	m		5/20							
		Length (Pre-charge)	m		15							
Height difference	Max	m		15								
Operation range	Heating	°C	-25 to 35									

## Dimensions (High Power series)

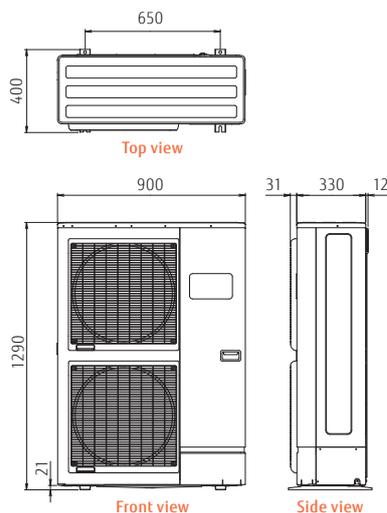
### Outdoor Unit

WOYG112LCTA/WOYG140LCTA



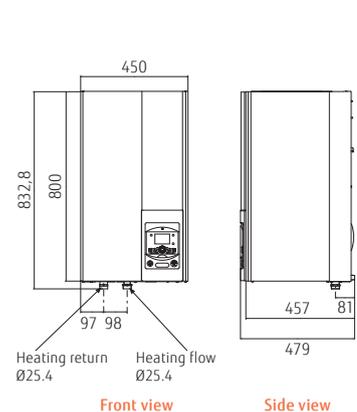
### Outdoor Unit

WOYK112LCTA/WOYK140LCTA/WOYK160LCTA



### Hydraulic Indoor Unit

WSYG140DG6/WSYK160DG9



## Specifications (Comfort series)

Model Name	Hydraulic indoor unit		WSYA050DG6		WSYA100DG6		WSYA100DG6		WSYA100DG6	
	Outdoor unit		WOYA060LFCA		WOYA060LFCA		WOYA080LFCA		WOYA100LFTA	
<b>Capacity range</b>			5		6		8		10	
7°C/35°C floor heating *1	Heating capacity	kW	4.50		6.00		7.50		10.00	
	Input power		0.996		1.41		1.84		2.49	
	COP		4.52		4.27		4.08		4.02	
2°C/35°C floor heating *1	Heating capacity	kW	4.50		4.95		5.65		7.70	
	Input power		1.39		1.53		1.78		2.47	
	COP		3.24		3.24		3.17		3.12	
-7°C/35°C floor heating*1	Heating capacity	kW	4.10		4.60		5.70		7.40	
	Input power		1.47		1.74		2.23		2.97	
	COP		2.79		2.64		2.56		2.49	
<b>Space heating characteristics*2</b>										
Temperature application	°C		55	35	55	35	55	35	55	35
Energy efficiency class			A+	A++	A+	A++	A+	A++	A+	A++
Rated heat output (P <sub>rated</sub> )	kW		4	4	5	5	6	7	8	8
Seasonal space heating energy efficiency (η <sub>s</sub> )	%		115	169	115	169	118	156	113	155
Annual energy consumption	kWh		3026	2160	3180	2505	3886	3375	5415	4415
Sound power level	Hydraulic indoor unit		dB(A)		46		46		46	
	Outdoor unit		65	60	65	63	65	69	68	69
<b>Hydraulic unit Specification</b>										
Power source	1 Ø 230 V 50 Hz									
Dimensions H×W×D	mm		800 × 450 × 457							
Weight (Net)	kg		42							
Water circulation	Min/Max	L/min	8.1/16.2		10.8/21.7		13.5/27.1		18.1/36.1	
Buffer tank capacity	L		16							
Expansion vessel capacity	L		8							
Leaving water temperature range	Max	°C	55							
Water pipe connection diameter	Flow/Return	mm	Ø 25, 4/Ø 25.4							
Backup heater	Capacity	kW	6.0(3.0kW×2pcs.)							
<b>Outdoor unit specification</b>										
Power source	1 Ø 230 V 50 Hz									
Current	Max	A	11.0		12.5		17.5		18.5	
Dimensions H × W × D	mm		620 × 790 × 290							
Weight (Net)	kg		41							
Refrigerant (Global warming potential)	R410A									
Refrigerant amount	kg		1.10		1.40		1.80		1.80	
Additional refrigerant charge amount	g/m		25		25		40		40	
Connection pipe	Diameter	Liquid	mm		Ø 6.35		Ø 9.52		Ø 9.52	
		Gas	mm		Ø 12.70		Ø 15.88		Ø 15.88	
	Length	Min/Max	m		5/30		15		15	
		Length (Pre-charge)	m		15		20		20	
Height difference	Max	m		20		20		20		
Operation range	Heating		°C		-25 to 35		-25 to 35		-25 to 35	

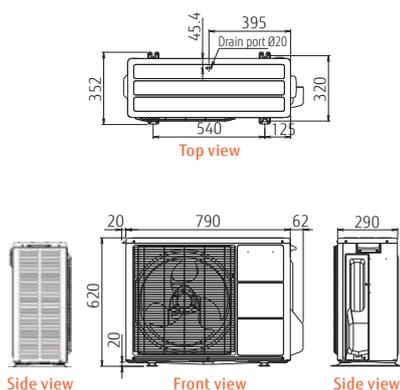
\*1: The values of heating capacity/input power/COP are based on measurement of EN14511 standard. Usage environment, such as operation of the heating equipment, room temperature, and controller adjustments, may cause disparities between practically determined values and these values.

\*2: All information of ErP can be available for downloaded from [www.fujitsu-general.com/global/products/erp-ecodesign/index.html](http://www.fujitsu-general.com/global/products/erp-ecodesign/index.html).

## Dimensions (Comfort series)

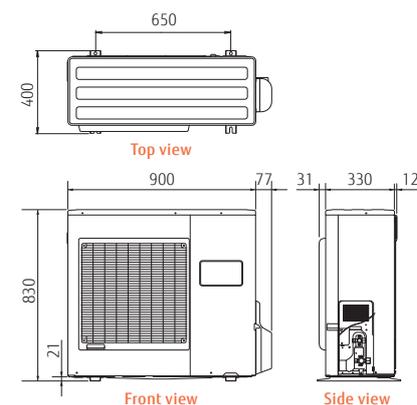
### Outdoor Unit

WOYA060LFCA/WOYA080LFCA



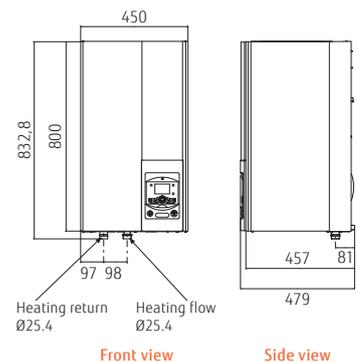
### Outdoor Unit

WOYA100LFTA



### Hydraulic Indoor Unit

WSYA050DG6/WSYA100DG6



# SPECIFICATIONS & DIMENSIONS Split DHW Integrated type

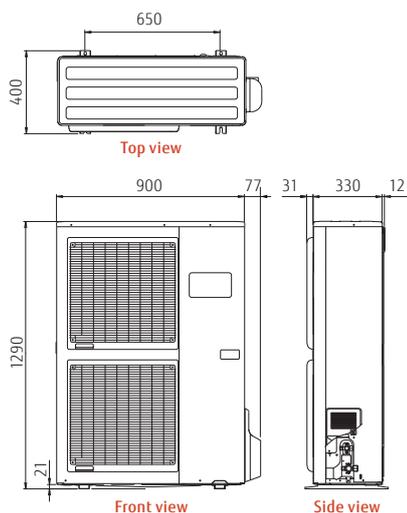
## Specifications (High Power series)

Model Name	Hydraulic indoor unit		WGYG140DG6		WGYG140DG6		WGYK160DG9		WGYK160DG9		WGYK160DG9	
	Outdoor unit		WOYG112LCTA		WOYG140LCTA		WOYK112LCTA		WOYK140LCTA		WOYK160LCTA	
<b>Capacity range</b>			11		14		11		14		16	
7°C/35°C floor heating *1	Heating capacity	kW	10.80		13.50		10.80		13.50		15.17	
	Input power		2.54		3.23		2.51		3.20		3.70	
	COP		4.25		4.18		4.30		4.22		4.10	
2°C/35°C floor heating *1	Heating capacity	kW	10.77		12.00		10.77		13.00		13.50	
	Input power		3.44		3.87		3.40		4.15		4.34	
	COP		3.13		3.10		3.17		3.13		3.11	
-7°C/35°C floor heating*1	Heating capacity	kW	10.80		12.00		10.80		13.00		13.50	
	Input power		4.32		5.08		4.28		5.18		5.40	
	COP		2.50		2.36		2.52		2.51		2.50	
<b>Space heating characteristics*2</b>												
Temperature application	°C		55 35		55 35		55 35		55 35		55 35	
Energy efficiency class			A+ A++		A+ A+		A+ A++		A+ A++		A+ A+	
Rated heat output (P <sub>rated</sub> )	kW		9 11		11 13		9 11		11 13		13 14	
Seasonal space heating energy efficiency (η <sub>s</sub> )	%		109 151		113 148		112 154		117 150		117 149	
Annual energy consumption	kWh		6842 6062		8041 6824		6669 5930		7803 6738		9062 7408	
Annual energy consumption	Hydraulic indoor unit		dB (A)		46		46		46		46	
	Outdoor unit				68		69		69 68		70 68 71	
<b>Domestic hot water characteristics*2</b>												
Load profile							L					
Energy efficiency class							A					
Energy efficiency (η <sub>wh</sub> )	%						88					
Annual electricity consumption	kWh						1166					
<b>Hydraulic indoor unit Specification</b>												
Power source			1 Ø 230 V 50 Hz				3 N 400 V 50 Hz					
Dimensions H×W×D	mm						1,840×648×698					
Weight (Net)	kg						152					
Water circulation	Min/Max	L/min	19.5/39.0		24.4/28.7		19.5/39.0		24.4/48.7		27.4/54.8	
DHW capacity	L						190					
Hot water heater capacity	kW						1.5					
Expansion vessel capacity	L						12					
Leaving water temperature range	Max	°C					60					
Water pipe connection diameter	Flow/Return	mm					Ø 25.4/Ø 25.4					
Hot water pipe connection diameter	mm						Ø 19.05					
Backup heater	Capacity	mm	6.0(3.0kW×2pcs.)				9.0(3.0kW×3pcs.)					
<b>Outdoor unit specification</b>												
Power source			1 Ø 230 V 50 Hz				3 N 400 V 50 Hz					
Current	Max	A	22.0		25.0		8.5		9.5		10.5	
Dimensions H × W × D	mm						1,290 × 900 × 330					
Weight (Net)	kg		92				99					
Refrigerant (Global warming potential)							R410A					
Refrigerant amount	kg						2.50					
Additional refrigerant charge amount	g/m						50					
Connection pipe	Diameter	Liquid					Ø 9.52					
		Gas					Ø 15.88					
	Length	Min/Max					5/20					
	Length(Pre-charge)						15					
Height difference	Max	m					15					
	Heating	°C					-25 to 35					

## Dimensions (High Power series)

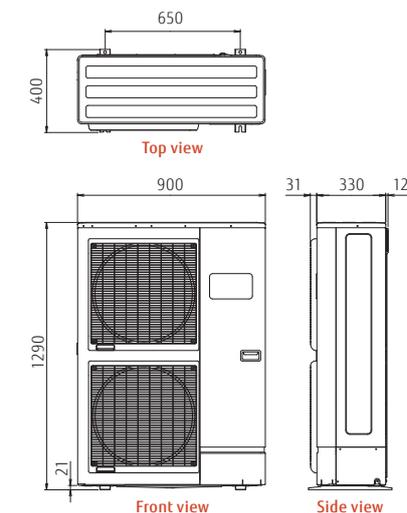
### Outdoor Unit

WOYG112LCTA/WOYG140LCTA



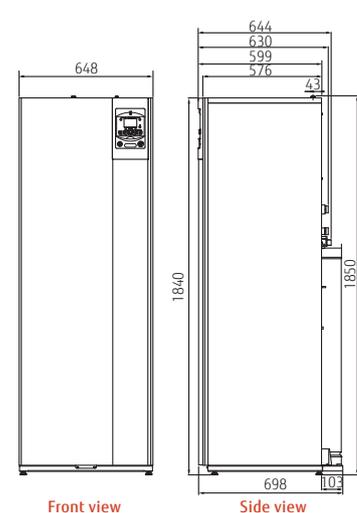
### Outdoor Unit

WOYK112LCTA/WOYK140LCTA/WOYK160LCTA



### Hydraulic Indoor Unit

WGYG140DG6/WGYK160DG9



## Specifications (Comfort series)

Model Name	Hydraulic indoor unit		WGYA050DG6		WGYA100DG6		WGYA100DG6		WGYA100DG6	
	Outdoor unit		WOYA060LFCA		WOYA060LFCA		WOYA080LFCA		WOYA100LFCA	
<b>Capacity range</b>			5		6		8		10	
7°C/35°C floor heating *1	Heating capacity	kW	4.50		6.00		7.50		10.00	
	Input power		0.996		1.41		1.84		2.49	
	COP		4.52		4.27		4.08		4.02	
2°C/35°C floor heating *1	Heating capacity	kW	4.50		4.95		5.65		7.70	
	Input power		1.39		1.53		1.78		2.47	
	COP		3.24		3.24		3.17		3.12	
-7°C/35°C floor heating*1	Heating capacity	kW	4.10		4.60		5.70		7.40	
	Input power		1.47		1.74		2.23		2.97	
	COP		2.79		2.64		2.56		2.49	
<b>Space heating characteristics*2</b>										
Temperature application			°C		55		35		55	
Energy efficiency class					A+		A++		A+	
Rated heat output (P <sub>rated</sub> )			kW		4		4		5	
Seasonal space heating energy efficiency (η <sub>s</sub> )			%		115		169		118	
Annual energy consumption			kWh		3026		2160		3180	
Annual energy consumption	Hydraulic indoor unit		dB (A)		46		46		46	
	Outdoor unit				65		60		65	
<b>Domestic hot water characteristics*2</b>										
Load profile									L	
Energy efficiency class									A+	
Energy efficiency (η <sub>wh</sub> )			%						120	
Annual electricity consumption			kWh						880	
<b>Hydraulic indoor unit Specification</b>										
Power source									1 Ø 230 V 50 Hz	
Dimensions H×W×D			mm						1,840×648×698	
Weight (Net)			kg						152	
Water circulation			Min/Max L/min		8.1/16.2		10.8/21.7		13.5/27.1	
DHW capacity			L		190				190	
Hot water heater capacity			kW		1.5				1.5	
Expansion vessel capacity			L		12				12	
Leaving water temperature range			Max °C						55	
Water pipe connection diameter			Flow/Return mm						Ø 25.4/Ø 25.4	
Hot water pipe connection diameter			mm						Ø 19.05	
Backup heater			Capacity mm						6.0(3.0kW×2pcs.)	
<b>Outdoor unit specification</b>										
Power source									1 Ø 230 V 50 Hz	
Current			Max A		11.0		12.5		17.5	
Dimensions H × W × D			mm		620 × 790 × 290		830 × 900 × 290		830 × 900 × 330	
Weight (Net)			kg		41		42		90	
Refrigerant (Global warming potential)									R410A	
Refrigerant amount			kg		1.10		1.40		1.80	
Additional refrigerant charge amount			g/m		25		Ø 6.35		Ø 9.52	
Connection pipe	Diameter	Liquid	mm		Ø 12.70		Ø 15.88			
	Length	Min/Max	m		5/30					
		Length(Pre-charge)	m		15					
	Height difference	Max	m		20					
Heating		°C		-25 to 35						

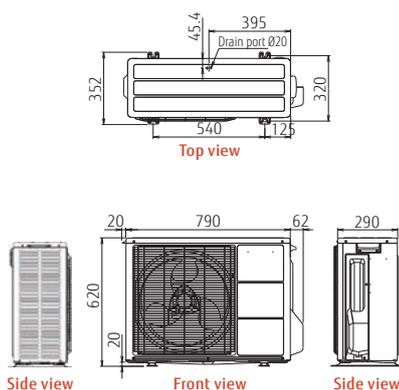
\*1:The values of heating capacity/input power/COP are based on measurement of EN14511 standard. Usage environment, such as operation of the heating equipment, room temperature, and controller adjustments, may cause disparities between practically determined values and these values.

\*2:All information of ErP can be available for downloaded from [www.fujitsu-general.com/global/products/erp-ecodesign/index.html](http://www.fujitsu-general.com/global/products/erp-ecodesign/index.html).

## Dimensions (Comfort series)

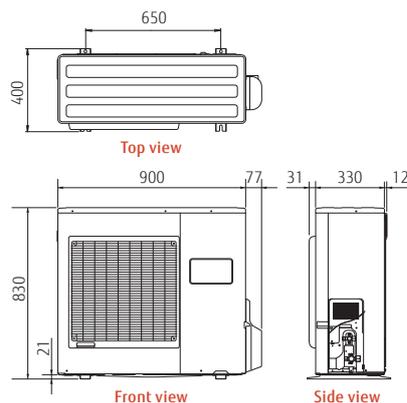
### Outdoor Unit

WOYA060LFCA/WOYA080LFCA



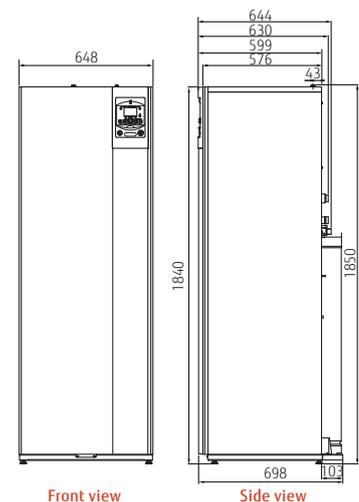
### Outdoor Unit

WOYA100LFCA



### Hydraulic Indoor Unit

WGYG140DG6/WGYK160DG9



# SPECIFICATIONS & DIMENSIONS Monobloc type

## Specifications

Model Name		Hydraulic indoor unit		WSYP100DG6				
		Outdoor unit		WPYA050LG		WPYA080LG		WPYA100LG
<b>Capacity range</b>				5		8		10
7°C/35°C floor heating *1	Heating capacity			5.00		8.00		10.00
	Input power			1.19		1.78		2.30
	COP			4.20		4.50		4.35
2°C/35°C floor heating *1	Heating capacity			3.65		4.35		4.90
	Input power			1.07		1.23		1.44
	COP			3.40		3.55		3.40
-7°C/35°C floor heating*1	Heating capacity			3.55		7.10		8.00
	Input power			1.38		2.93		3.32
	COP			2.57		2.42		2.41
<b>Space heating characteristics*2</b>								
Temperature application		°C		55		35		55
Energy efficiency class				A+		A++		A+
Rated heat output (P <sub>rated</sub> )		kW		4		4		6
Seasonal space heating energy efficiency (η <sub>s</sub> )		%		118		171		123
Annual energy consumption		kWh		3055		1952		3828
Sound power level		Outdoor unit		dB (A)		62		61
						65		68
<b>Hydraulic unit Specification</b>								
Power source								1 Ø 230 V 50 Hz
Dimensions H×W×D		mm						803 × 450 × 457
Weight (Net)		kg						40
Buffer tank capacity		L						22
Expansion vessel capacity		L						12
Water pipe connection diameter		Flow/Return		mm				Ø 25.4/Ø 25.4
Backup heater		Capacity		kW				6.0(3.0kW×2pcs.)
<b>Outdoor unit specification</b>								
Power source								1 Ø 230 V 50 Hz
Dimensions H × W × D		mm		675 × 825 × 300		882 × 850 × 330		
Weight (Net)		kg		49		72		
Current		Max		A		10.9		15.2
Water circulation		Min/Max		L/min		5.0/20.0		10.0/30.0
Water pipe connection diameter		Flow/Return		mm		Ø 19.05/Ø 19.05		Ø 25.4/Ø 25.4
Refrigerant								R410A
Refrigerant amount		kg		1.05		1.72		
Leaving water temperature range		Max		°C		55		
Operation range		Heating		°C		-20 to 35		

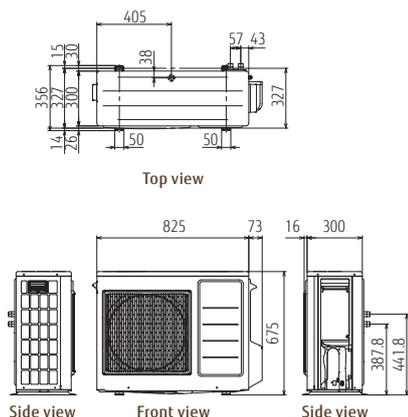
\*1: The values of heating capacity/input power/COP are based on measurement of EN14511 standard. Usage environment, such as operation of the heating equipment, room temperature, and controller adjustments, may cause disparities between practically determined values and these values.

\*2: All information of ErP can be available for downloaded from [www.fujitsu-general.com/global/products/erp-ecodesign/index.html](http://www.fujitsu-general.com/global/products/erp-ecodesign/index.html).

## Dimensions

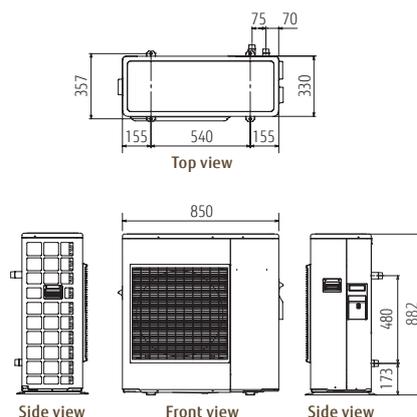
### Outdoor Unit

WPYA050LG



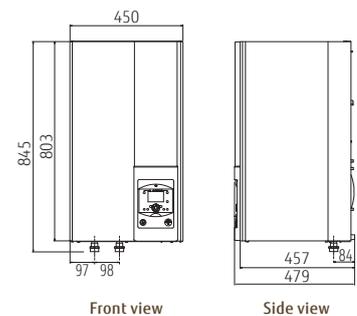
### Outdoor Unit

WPYA080LG/WPYA100LG



### Hydraulic indoor Unit

WSYP100DG6





# MODEL SELECTION SOFTWARE

Fujitsu General's new software for the WATERSTAGE automatically provides a combination of WATERSTAGE equipments just by giving few parameters. The software is featured with multiple languages, and automatic update function.

The entire system configuration can be reviewed and modified once the units are selected. And by seeing the images and the list of equipments at the same time, it avoids mistake in the selection of equipments.





## Model selection with detailed technical information

- The software automatically selects the equipments just by inputting some factors, like the region where the equipment is installed, required capacity to heat up the space, and a heating method.
- The transition in the equipment capacity at each outdoor temperature condition and/or when back up heater is under operation can be easily created by this software.



- The visible images of the optional items enables the correct configuration of the systems.
- All of the associated optional items are automatically chosen in a case the application requires several devices of the WATERSTAGE equipments.



The software automatically provides graphs of monthly running cost, CO2 emission volume, cost comparison against other heating sources, and other data to allow the users to see at a glance the financial benefit of choosing WATERSTAGE equipments.



## Estimate function

The software automatically provides the cost estimate of the entire WATERSTAGE system, not only the equipment itself but also the optional items.

## Creating project files for customers

Various kinds of documents such as an equipment list, a system diagram, a cost estimate table, and an equipment CAD data can be printed out to paper or output into the files. This function also comes with a feature which allows you to change the template design of the documents.

## Software updates

The database can be automatically updated through FTP by automatic update function.

Room Heating  
Domestic Hot Water  
Swimming Pool  
Cooling  
and much more ...

**WATERSTAGE™**

- Specifications and design are subject to change without notice for future improvement.
- For further details, please check with our authorized dealer.
- The products or equipment in this catalogue contain fluorinated greenhouse gases.
- "WATERSTAGE" is a worldwide trademark of FUJITSU GENERAL LIMITED and is a registered trademark in Japan and other countries or areas.
- Other company and product names mentioned herein may be registered trademarks, trademarks or trade names of their respective owners.



ISO 9001 Certified number : 01 100 89394  
Fujitsu General (Thailand) Co., Ltd.

ISO 14001 Certified number : 01 104 9245/01



ISO 9001 Certified number : 01 100 79269  
Fujitsu General (Shanghai) Co., Ltd.



ISO 14001 Certified number : CNB311153-UK  
Fujitsu General (Shanghai) Co., Ltd.

• Actual product's colors may be different from the colors shown in this printed material.  
Distributed by :

**FUJITSU GENERAL LIMITED**

3-3-17, Suenaga, Takatsu-ku, Kawasaki 213-8502, Japan  
<http://www.fujitsu-general.com/>

Copyright© 2009-2014 Fujitsu General Limited. All rights reserved.  
7EF015-1510E